AN EXPLORATORY STUDY ON NEW TECHNOLOGY AND ASSOCIATED PSYCHOSOCIAL RISKS IN ADOLESCENTS: CAN DIGITAL MEDIA LITERACY PROGRAMMES MAKE A DIFFERENCE?

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I declare that "An exploratory study on new technology and associated psychosocial risks in adolescents: Can digital media literacy programmes make a difference?" is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

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Petro van der Merwe   **Date**

DEDICATION

I dedicate this thesis to my late parents, Piet and Bettie du Toit. I hope this achievement will complete the dream they had for me all those years ago when they chose to give me the best education they could.

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AN EXPLORATORY STUDY ON NEW TECHNOLOGY AND ASSOCIATED PSYCHOSOCIAL RISKS IN ADOLESCENTS: CAN DIGITAL MEDIA LITERACY PROGRAMMES MAKE A DIFFERENCE?

This study centres on the psychological effects new digital media, like the internet and cellphones, have on adolescents. Although the internet has enormous benefits, it also poses a host of risks that can make adolescents vulnerable to victimisation and/or developing associated psychosocial problems. Characterisations of adolescents' social relationships in the internet medium, as well as the investigation of the continuity between digital media literacy and online social behaviours, carry high relevance for developmental psychology. It is during the adolescent period that peer interactions arguably hold the greatest importance for individuals' social and behavioural functioning.

Using a logic model for evaluation, the researcher conducted an exploratory research study on digital media use among adolescent learners aged 13 to 15 years to determine whether schools could guide them to think critically for themselves about the entire realm of these new media. The data were gathered from school principals, teachers, parents and learners from three secondary schools in Gauteng Province, which were purposely selected to represent different socio-economic circumstances. A total of 230 people (n=230) participated in the research. Mixed research methods were employed in this study. The quantitative research methods supported the qualitative research methods.

The literature review suggested that current media literacy education, which forms part of the Life Orientation curriculum, does not enable learners to think critically or make informed choices about their behaviour in the digital world – because it incorporates neither ethics nor responsibility. One of the main aims of the study therefore was to investigate the importance of expanding existing media literacy education, namely by incorporating two additional learning categories in the curriculum: Digital Safety and Security, and Digital Citizenship.

These additional learning categories were introduced in the form of lessons by the teachers participating in the study. A think aloud strategy was used whereby learners verbalise what they were doing and learning while engaging in the digital media literacy lesson activities. The learners' verbalisations were used to ascertain what learning was occurring in the classroom.

The experimental group demonstrated an increase in critical thinking from pre- to post-evaluation.

This research therefore proposes that the signature element of intervention strategies for inappropriate online behaviour be to create a "culture of critical thinking". This implies greatly reducing the risks cyberspace pose, and at the same time enhancing adolescents' abilities to use it in ways that create and deepen healthy relationships – in the digital as well as the real world.

Key terms: Digital media literacy programme; education model; adolescent learners; Life Orientation curriculum for secondary schools; internet; cyberspace; virtual world; cyberpsychology; cyberbullying; digital citizenship; psychosocial risks; critical thinking; ethical online behaviour.

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ABBREVIATIONS

DET: Department of Education and Training

MUD: Multi-user dungeon

PC: Personal computer

PDA: Personal digital assistant

PEAS: Psychological, educational and social

SMS: Short message service

TV: Television

GLOSSARY

Avatar: A two- or three-dimensional graphical representation in the virtual world of the computer user's self.

Bullying: Bullying in general is an act of repeated aggressive behaviour in order to intentionally hurt another person, physically or mentally.

Chat room: A site on a computer network where a number of users hold online conversations in real time.

Critical thinking: Critical thinking has been described as reasonable reflective thinking focused on deciding what to believe or do. It includes a complex combination of skills. The list of core critical-thinking skills includes observation, interpretation, analysis, inference, evaluation, explanation and metacognition.

Cyberbullying: This type of bullying involves the use of email, instant messaging, chat room exchanges, website posts, SMSs and/or digital images sent to a cellphone to support deliberate, repeated and hostile behaviour by an individual or group that is intended to harm others.

Cyber-ethics: The responsibility for electronic actions, whether ethical or unethical. It therefore constitutes what you are and are not allowed to do online. One example would be: Is it wrong to share your music?

Cyberpsychology: "Cyber" comes from the word "cybernetics" and refers to computers, and "psychology" refers to the mind and human behaviour. Cyberpsychology, therefore, is the study of online personalities and behaviours, as well as the effects of cyberspace on people's minds when they are outside this realm.

Cyberspace: The online world of computer networks, especially the internet.

Dating site: A place on the World Wide Web for online dating, or internet dating, which is a dating system that allows individuals, couples and groups to make contact and communicate with each other over the internet, usually with the objective of developing a personal romantic or sexual relationship.

Digital citizenship: The norms of appropriate, responsible behaviour with regard to technology use. It is a concept that helps teachers and parents understand what adolescents/children should know to use technology appropriately.

Digital communication: The electronic exchange of information. In the 21st century, communication options have exploded to offer a wide variety of choices, including emails, SMSs and instant messages.

Digital rights and responsibilities: Those freedoms extended to everyone in a digital world. Digital citizens have the right to privacy, free speech, etc., but with these rights also come responsibilities. In a digital society these two areas must work together for everyone to be productive.

Digital security: Electronic precautions to guarantee safety. There are individuals who steal, deface or disrupt other people in any society; the same is true for the digital community. As responsible citizens we must protect our information from outside forces that might cause disruption or harm. We need to have virus protection, backups of data, and surge control of our equipment.

Dissociation in cyberspace: By mediating dissociative experiences, the internet can challenge the boundaries of people's sense of identity. Dissociation entails the personality aspects of a person dividing and becoming separate entities, represented by, among other things, avatars.

Ex-Department of Education and Training (ex-DET) schools: In the apartheid years in South Africa, there were separate government departments for white and black children's schools. The ex-DET handled black children's schooling. Ex-DET schools still have very poor infrastructure and facilities.

Ex-Model C schools: In the apartheid years in South Africa, white children's schools were known as Model C schools. To this day, ex-Model C schools typically have the best facilities, best teachers, and more affluent parents.

Facebook: A social networking service and website. Facebook is an example of the social media model, in which most users are also participants.

Immersive parasocial: The concept of parasocial interaction has been related to video game avatars. Depending on the type of game, immersion in the world would also include parasocial relationships with the player avatar as well as non-player characters in the game. In parasocial interaction, the media user responds to characters in the media as if they were in a real social relationship.

Instant messaging (IM): A form of real-time, direct, text-based communication between two or more people using personal computers or other devices. IM has become popular among adolescents to exchange messages with friends and family online because of its speed, ease of use and privacy. Examples are BlackBerry messenger, WhatsApp, Nokio messenger, Skype etc.

Internet cafe: A place where one can use a computer with internet access for a fee, usually per minute or hour. Some cafes offer unmetered access with a pass for a day or a month, etc. It may also serve as a regular cafe, with food and drinks being served.

Internet regression: The transference reaction people have to the computer itself – unconscious fantasies about power, dominance, sex, narcissistic gratification and mirroring, oral engulfment, and parental acceptance and love. It is the individual's tendency to confuse the person and the machine. In cyberspace, the user sees the computer as human and other people as something less than human.

Internet: The internet spreads across the globe and consists of countless networks and computers, allowing millions of people to share information. The World Wide Web and the internet are not the same thing. The World Wide Web is what you are browsing, and one of the many features of the internet. Email and instant messaging are also features of the internet.

Learner: Someone (especially a child) who learns (from a teacher) or takes up knowledge or beliefs. In South Africa, a schoolchild under the age of 18 is called a learner.

Massively multiplayer online game (MMO or MMOG): A video game, played on the internet, that is capable of supporting hundreds or thousands of players simultaneously. Most of the newer game consoles (such as Xbox, PlayStation$_3$ and Wii) and smartphones can access the internet and therefore have MMO genre games.

MIG33: Is a mobile download application that brings a potent mix of social networking to cellphones. Once installed, users can perform all the basic social networking actions, including creating profiles, sending photos and messaging. Any cellphone that can run Java and connect to the internet can use Mig33.

MSN site: MSN (originally "The Microsoft Network") is a collection of internet sites and services providing news, sports, games, videos and entertainment, among other things.

Multi-user dungeon (MUD): MUDs combine elements of role-playing games, hack and slash, player versus player, interactive fiction, and online chat. Players can read or view descriptions of rooms, objects, other players, non-player characters, and actions performed in the virtual world. Players typically interact with each other and the world by typing commands that resemble a natural language.

MXit (pronounced "mix it"): A free instant messaging application developed by MXit Lifestyle (Pty.) Ltd. South Africa, which runs on multiple cellphone and computing platforms. Along with its own standard protocol, it can connect to Yahoo, ICQ, Google Talk, Facebook, AIM and Windows Live Messenger contacts.

Online disinhibition effect: In psychology, the online disinhibition effect refers to people behaving with less restraint on the internet than in real-world situations. The concept is related to that of online identity.

Online identity/Internet persona: A social identity that an internet user establishes in online communities and websites. Although some people prefer to use their real names online, some prefer to be anonymous, identifying themselves by means of pseudonyms, which reveal varying amounts of personally identifiable information. One way in which people express their online identities is via avatars.

Phishing: Refers to a person or a group of cyber-criminals who create an imitation or copy of an existing legitimate webpage to trick users into providing sensitive personal information.

Pseudonym: A false name; a name a person (or sometimes a group) assumes for a particular purpose.

Sexting: The act of sending sexually explicit messages or photographs, primarily by cellphone.

Sexual harassment: Requests for sexual favours or unwelcome sexual behaviour that makes one feel uncomfortable, scared or confused, and, in this study, that interferes with a learner's schoolwork or ability to attend classes or participate in extracurricular activities. Sexual harassment can be verbal (comments about your body; spreading sexual rumours; sexual remarks or accusations; dirty jokes or stories), physical (grabbing, flashing, touching, pinching in a sexual way; sexual assault) or visual (displaying nude pictures or sex-related objects; obscene gestures).

Sexual predator: A term used pejoratively to describe a person seen as obtaining or trying to obtain sexual contact with another person in a metaphorically "predatory" manner. An online predator is an adult internet user who exploits vulnerable children or adolescents, usually for sexual or other abusive purposes.

Smartphone: A high-end cellphone built on a mobile computing platform, with more advanced computing abilities and connectivity than a contemporary feature cellphone. Modern smartphones typically also include high-resolution touchscreens, web browsers that can access and properly display standard web pages rather than just mobile-optimised sites, and high-speed data access via Wi-Fi and mobile broadband.

Social network community: A group of people that primarily interact via communication media such as the internet rather than face-to-face, for social, professional, educational or other purposes. Virtual and online communities have become a supplemental form of communication between people who know each other primarily in real life.

Social networking profile: An informal description a registered user inputs about him- or herself on a social media website.

Social networking sites: Websites that provide a virtual community for people to share their daily activities with family and friends, share their interest in a particular topic, or increase their circle of acquaintances. These include dating sites, friendship sites, sites with a business purpose, and hybrids that offer a combination of these. Facebook is the leading personal site.

Socio-economic factors: The social and economic experiences and realities that help mould one's personality, attitudes, and lifestyle. Among socio-economic factors is education. One's level of education can shape how one views the world and contribute to social growth. One's income and occupation are also factors that can contribute to socio-economic status. The type of house, the neighbourhood and the region one lives in are other leading socio-economic factors. Neighbourhoods often group people with similar incomes and often similar backgrounds. Culture and/or ethnicity are also socio-economic factors that can contribute to our thoughts and attitudes. Often closely tied to culture is the socio-economic factor of religion.

Video hosting services: Websites or software via which users can distribute video clips. Examples are Myspace and YouTube. Social networking services may support video sharing as an enhancement to their primary mission.

Virtual reality: An artificial environment created by software and presented to the user in such a way that he/she suspends belief and accepts it as a real environment. On a computer, virtual reality is primarily experienced through two of the five senses: sight and sound.

Virtual world: An online community that often takes the form of a computer-based simulated environment through which users can interact with each other and use and create objects (avatars).

SOUTH AFRICA'S ADOLESCENTS IN A WIRED WORLD

The internet has revolutionised the global flow of information and communication, changing the way people interact with each other, gather and disseminate information, do business, express and entertain themselves. Adolescents in South Africa are no exception.

CHAPTER 1

INTRODUCTION, STATEMENT OF THE PROBLEM, AIM AND SCOPE OF THE STUDY

1.1 INTRODUCTION

The internet has been hailed as probably the most important invention of the 20th century (Langa, Conradie, & Roberts, 2005). New technology, such as the internet and cellphones, today plays a significant role in adolescents' lives and this role is rapidly growing and transforming adolescents' everyday lives in profound ways (Von Feilitzen & Carlsson, 2002). Adolescents all over the world use new technology, and the numbers are still rising. In the decade between 1995 and 2005 alone, the number of children accessing the internet catapulted from approximately 2 million to 77 million (Criminal Justice Services, 2006).

Some adolescents, particularly in South Africa, have, however, hardly been touched by new technology (Community Agency for Social Enquiry, 2000). This could be ascribed to a lack of interest, understanding or opportunity. In the 2003 South African Social Attitudes Survey, the respondents were asked whether they had access to a computer and whether they had access to the internet (Human Sciences Research Council, 2003). The research took a broad definition that allowed for access to both a computer and the internet either at work, home or at some other facility or institution. In late 2003, 15% (4,25 million) of South Africans aged 14 years and older reported that they had access to a computer, while 11% (3,03 million) had access to the internet. While these figures designated South Africa as one of the largest consumers of computers and the internet in Africa, they at the same time reflected that between 85% and 90% of the population remained excluded. At this rate of growth, only one in ten adolescents in South Africa would have had internet access by 2006. Between 2000 and 2010 there were signs of growth (14%) in internet use among South African adolescents aged 14 years and older (Miniwatts Marketing Group, 2010). It is likely that some of this growth is due to the fast-growing popularity of cellphones.

Although the internet has enormous benefits, such as providing educational resources and the opportunity for friends and family to have fun together (doing research and playing games), it also poses a host of risks, which include exposure to material considered to be obscene, pornographic, violent, hate-filled, racist or generally offensive; contact with individuals who could jeopardise the safety of adolescents or their family members, and online harassment (Louge, 2006a).

During school hours, teachers will guide adolescents towards appropriate material; outside school hours, parents bear the responsibility for this guidance – but very few actually provide it. Many schools in South Africa have indicated that they no longer want to take responsibility for the material adolescents access outside the school walls (Smit, 2010). Some schools seem more concerned with avoiding liability than with fostering or modelling responsible behaviour. Clearly, this is a matter of educational responsibility, not liability as classrooms are the microcosm of society at large where values and attitudes are passed on to learners.

The researcher's intention is to add knowledge to the ongoing debate among school managements, teachers, learners and parents on digital media literacy programme planning and improvement to create a culture of cyberethics that will prevail for as long as technology evolves.

1.2   ANALYSIS OF THE PROBLEM

1.2.1 Awareness of the problem

Much has changed for adolescents in the course of just one generation. They are often left alone to "help" themselves on the internet, and although the sense of competence and autonomy many of them find in this new role undeniably has benefits, it also creates new dangers, not the least of which is internet addiction.

Adolescents who use the internet for social networking, playing violent games, or who access adult content are far more likely to try out aggressive behaviour that could result in a positive outcome, such as identifying with a group, being a hero, or winning games

(Wallace, 2001). This could lay the foundation for their innate aggressive behaviour to develop if left unchecked by parents and teachers. Cyberbullying – a term that was not common in South Africa a few years ago – is now a pervasive and growing problem. This type of bullying includes children spreading rumours about a peer via SMS or instant messaging programmes (e.g. BlackBerry Messenger (BBM); WhatsApp Messenger), or circulating videos or pictures of a peer in an embarrassing situation through a multimedia messaging service (MMS) (Raskauskas & Stoltz, 2007). Cyberbullying shares three general characteristics with more traditional forms of bullying: aggression, repetition, and an imbalance of power (Kowalski, Limber, & Agatston, 2008). However, Trolley, Hanel, and Shields (2006, p. 55) said "power" and "repetition" may manifest differently online than in traditional bullying.

As volunteer school counsellor for the past three years, the researcher noted more and more cases of internet addiction among learners. The following problems were observed:

- poor performance
- less investment in relationships with family and peers
- general apathy, edginess, and/or irritability when offline
- denial of the seriousness of the problem
- rationalising that what they learn on the internet is superior to their schoolwork
- lying about how much time they spend online and what they do there.

The introduction of digital technologies in society is influencing teaching and learning in schools in two ways. The first is the re-examining of the concept of knowledge, the constructs of which underpin teaching and learning theories. A fundamental change in society during the digital age has been the way knowledge is developed:

> The amount of knowledge in the world has doubled in the past 10 years and is doubling every 18 months according to the American Society of Training and Documentation. (Gonzalez, 2004, p. 5)

The internet enables knowledge to be developed and ideas shared anywhere, at anytime. Web 2.0 is also known as the interactive web where participants not only access information (as with Web 1.0), but are able to comment, present their own ideas and information, and collaborate online through self-selected networks without needing to know computer-based languages (South Africa Advertising Research Foundation, 2009). This has led to debate in educational research about the way knowledge is conceptualised in the digital age, and as ideas about knowledge underpin learning theory and pedagogical practice this has had an effect on teaching and learning in secondary schools (Starkey, 2010).

Digital technologies have a ubiquitous presence in society today and consequently their widespread use is causing the second influence on teaching and learning in secondary schools through being available for adolescents and teachers to use both within school and in their lives beyond school.

While there is a growing body of research that examines how teachers are integrating digital technologies into their existing practice (for example by Levin & Wadmany, 2005; Slaouti & Barton, 2007; Webb & Cox, 2004), limited research has been undertaken into exploring how teachers use digital media literacy education in teaching and learning and whether they integrate their knowledge of digital media literacy into their teaching practice. The teachers from older generations may see themselves falling behind while young graduating teachers have grown up using digital technologies, able to teach the digital generation in relevant ways. Both the older generation and digital natives must learn, practise and continually strive to improve their digital literacy skills. Therefore the researcher felt that it was important to examine the experiences of secondary school Life Orientation teachers as they attempted to transfer their knowledge of digital media literacy to the teaching context.

1.2.2 Preliminary literature investigation

Parents and teachers cannot expect adolescents to exercise wisdom in their use of new media. Adolescents do not know where the boundaries are, nor the pitfalls (Greenfield & Yan, 2006). Rather, they rely on parents and teachers to provide such wisdom. The question is: Are parents and teachers meeting adolescents' needs?

Parents want the best for their children. They want them to enjoy childhood and grow and thrive. They also want them to succeed in an uncertain future. It is therefore understandable that many parents assume that immersing adolescents in new media will prepare them for a highly competitive job market. They are also under the impression that this is what digital media literacy education is all about. However, the truth of the matter is that far more is happening to their children than just becoming computer literate. Adolescents' activities on the internet and cellphones constitute an entire, distinct culture – cyberculture. According to Silver and Massanari (2006), cyberculture is the way in which adolescents use the internet and cellphones to work, play and socialise.

It is ultimately parents' responsibility to ensure that their adolescents stay safe online. And it goes without saying that for this to happen, parents must know their way in the virtual world (Lévy, 2001). Yet again, in reality, few parents have any knowledge whatsoever of cyberculture, let alone being able to navigate their way through it to determine how to protect their children. An 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).

Both formal and informal learning environments can support the development of adolescents' digital and media literacy competencies. These skills can be developed in the home and through programmes in schools, more specifically secondary schools. In order to successfully identify and respond to technology and associated psychosocial risks, learners, parents, counsellors and teachers must be educated in this regard. This is where the researcher believes the educational system comes in. This study therefore suggests that schools implement a psychological, educational and social programme designed to guide learners, parents and educators to learn healthy cybercommunication styles, as well as skills to positively deal with unseemly behaviour in the digital world.

1.2.2.1 Schools in the digital age

In South Africa, the Life Orientation curriculum forms an excellent basis for equipping learners with the skills to positively respond to social demands, assume responsibilities,

and optimise their chances in life (Prinsloo, 2007). However, the literature review reveals that current media literacy education, which forms part of Life Orientation, does not enable learners to think critically or make informed choices about their behaviour in the digital world (South African Department of Education, 2003). The reason for this is that it does not incorporate ethics and responsibility. This could even be a causative factor in school violence still being at a phenomenally high level (Republic of South Africa Country Paper, 2000). To send adolescents out into the world with great skills to use new digital media, but no ethical instruction to guide them is educationally and socially irresponsible (Cordes & Miller, 2000).

A scoping study that was carried out to test the initial research framework presented preliminary evidence of differences between the participating schools, particularly concerning the internet use of learners from different social backgrounds.

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 a report N*ew Media Usage and Behaviour of Adolescents in Selected Schools in Gauteng* in November 2009 (Tustin, Van Aardt, & Shai, 2009). The study was aimed at assessing the impact of new media on the behaviour and self-perceptions of the youth. The research was conducted among 1 038 high school learners in Gauteng and included learners from ex-model C and learners from ex-Department of Education and Training (DET) schools. According to these authors the study reflected a difference between learners coming from different social backgrounds (Tustin et al., 2009).

To better understand this, the history of the South African school and education system becomes relevant: In the apartheid years, the DET handled black children's schooling, and white children's schools were known as Model C schools (Hofmeyr, 2000). Currently there are two types of schools, namely private and public schools. Thus the different types of schools of the apartheid era have been collapsed into only these two categories. Private schools, also known as independent schools, are not administered by local, state or national government, thus they retain the right to select their learners and are funded in whole or in part by charging their learners tuition fees, rather than relying on public (government) funding (Hofmeyr, 2000).

Public schools receive government funding, but ex-Model C schools are permitted to top this up with fees payable by the learners' parents (Soudien, 2004). The impression is that ex-Model C schools still typically have the best facilities, teachers and educational opportunities, while ex-DET schools are still much worse off (Van Wyk & Lemmer, 2003), although some ex-Model C schools also battle to acquire and maintain the necessary facilities and teachers. Different ex-Model C schools can have different budgets, different teacher-learner ratios, and different quality facilities, all depending on what the parents can afford (Hofmeyr, 2000). The demographics of ex-Model C schools reflect the multicultural status of South Africa, but are primarily dictated by the financial status of parents (Soudien, 2004). Ex-Model C schools whose parents can afford higher school fees can access the superior resources, though not necessarily superior education, of these schools.

1.2.2.2 The notion of the digital divide

The above-mentioned differences have raised concerns about the emergence of a digital divide between adolescents who are benefitting from new technology and adolescents who are being left behind in the digital world. 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 et al., 2005, para. 2). Research suggests a multitude of explanations for the digital divide, including, but not limited to: education, income, age, skills, awareness, race, ethnic origin, location, gender (which is contested as being a confounding variable), political and cultural access, and psychological attitudes to internet access and usage (Carr, 2007). Van Zyl Slabbert, Malan, Marais, Olivier, and Riordan's study on democratic consolidation in South Africa showed that South Africa is still a country with a huge gap between the rich and the poor and that these structural inequalities are reflected in the lives of adolescent learners (as cited in Drotner & Livingston, 2008). There is a noticeable correlation between household income and internet use (Saner, 2003). 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).

One of the ways adolescents have access to the internet is through their schools, and an increasing number of schools in South Africa are setting up computer centres. In

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). As most South African adolescents attend school, the impact of the internet can become considerable if each and every school has access to it.

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. While this study focuses on what digital media literacy in secondary schools means, and what enables and blocks its development, it is important to consider the extent of internet use in South Africa.

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. As the technological digital divide between those with access to the internet and those without decreases, the meaning of the term digital divide evolves. Previously, digital divide research focused on accessibility to the internet and consumption (Buente & Robbin, 2008; Guillen & Suárez, 2005). The notion of the digital divide in the context of this study is therefore somewhat broader than the norm because it also includes the use of digital media in addition to the standard focus of access to it. The researcher believes that new digital media are essential tools in bridging this divide, and that they provide South African adolescents with a platform to compete academically with their global peers. 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 learners should have the basic skills to use new digital media.

Although socio-economic status influences access to the internet, the increasing number of access points significantly increases the likelihood of adolescents having access (South Africa Yearbook 2008/09: Communications, 2009). Adolescents who do not have any other option can still use an internet cafe. 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 City of Johannesburg's northern suburbs form a business district bordering on low-income housing areas. An investigation that entailed mapping visible internet cafes across this district revealed that people are offering internet access from their homes as well as running other businesses from the same location (Hobbs & Bristow, 2007). One particular home offers internet access to children attending the school across the road. 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 (2007) 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.

According to the study by Youth Dynamix's YouthTrax (2009), 45,7% of all urban adolescents worldwide use the internet regularly. In South Africa, 33% of adolescents use the internet. Cellphone penetration is higher than internet penetration within this age group (Basson, 2009). Adolescents in South Africa have adopted many innovative communicating practices, notably those adolescents who exploit low-cost cellphone applications. Since the development of Wireless Application Protocol (WAP) technology it has been possible to access the internet via some cellphones (Andrews, 2010). 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 instant messaging, picture messaging, video clips and games to internet access. Adolescents use the possibility of reaching most of the internet content they have access to on their home computer on their cellphone too.

Adolescents have adopted cellphones with great enthusiasm, often considering them an integral part of their lives (Tustin et al., 2009). According to Tustin et al. (2009), having the right brand of cellphone is more important than having the right brand of clothing or computer. About 61% of urban adolescents in South Africa own a cellphone, and 26% of them list Mxit, a free instant messaging application, as one of the primary uses of their cellphones (Youth Dynamix's YouthTrax, 2009). 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.

1.2.2.3 Old media versus new media

Access to new 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 (Information Society Statistical Profiles, 2009).

According to Kraushaar (2008), two-way communication differentiates new media from old media. The relationship between consumers and the media used to be a one-way street, with the medium being the active provider and the consumer the passive receiver of information. 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). An important quality of modern information technology, however, is the complex relationship between content, delivery system and platforms (Singer & Singer, 2001). Electronic games, for instance, can 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. Communication to the adolescent consumer must therefore engage them as much as it informs and entertains them.

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 since these are currently more accessible to more adolescents than new digital media (South African Government Communication and Information System, 2009).

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. Today, the internet, video games, and mobile devices are gaining popularity as daily entertainment sources for adolescents. And adolescents are not watching less TV to make time for these newer media; they are now streaming TV content on their computers and phones during the previously underutilised in-between times of their daily routines (Takeuchi, 2011).

The trick in communicating with adolescent consumers is reaching them through a combined approach involving 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).

1.3   SCOPE, DELIMITATION AND LIMITATIONS OF THE STUDY

The data were gathered from three public schools in Tshwane South, Gauteng Province. The schools were specifically selected to represent different socio-economic circumstances.

School A is an ex-DET school (previously for blacks only) situated in a black township. The learner population consists of speakers of African languages only. The medium of teaching is English.

School B is an ex-Model C school (previously for whites only). Current learners are drawn from different backgrounds. It is multicultural with a black majority and a minority of white and coloured learners. The medium of teaching is English.

School C is also an ex-Model C school. The majority of learners are white monolingual speakers (Afrikaans). Black and coloured learners are in the minority. The medium of teaching is both English and Afrikaans.

Private schools were considered to fall outside the scope of this study. Both public and private schools follow the same standards and learning required by the government, but private schools are not subject to as many government regulations as public schools. Private schools are more flexible in developing their curriculum and can create specialised programmes for learners.

An experimental group and a control group were selected from each school. One Grade 9 class in each school was the experimental group (who, as the name suggests, was the group that received the experimental digital media literacy programme), and another Grade 9 class in each school was the control group (who was used for comparison purposes).

Digital media literacy education lessons were implemented in the Life Orientation learning area to add critical-thinking skills to those crucial for digital media use. Only the experimental groups participated in the digital media literacy programme in order to provide a baseline performance with which to compare the effect of the programme on the experimental groups. A total of 230 people (n=230) participated in the research: 164 adolescents, 60 parents, 3 teachers and 3 school principals.

The researcher used parent and learner media surveys to kick off the digital media literacy programme in the three participating secondary schools. The surveys examined how the adolescents used digital media, as well as parent knowledge, attitudes, and concerns about their adolescents' digital media lives. Conducting the surveys before offering the digital media literacy programme to the learners helped the researcher to gain knowledge on which topics mattered most to the parents and learners, and also ensured that the digital media literacy education efforts were relevant and well-received.

The researcher took a holistic, school-community approach to digital media literacy and provided parents with educational resources to help them to support their children's learning. As the participating teachers engaged in the digital media literacy lessons in class, they sent home parent tip sheets, and an occasional homework activity for the parents to do with their children. These tip sheets and activities were linked to the lessons and offered the parents the opportunity to spend time with their children and learn together.

The scope of the digital media lessons were divided into seven outcomes (safety; security; digital life; privacy and digital footprints; connected culture; self-expression and identity; respecting creative work), based on the digital ethic research of Common Sense Media (http://www.commonsensemedia.org/). Because of the limited research on the topic in South Africa the researcher used information from Common Sense Media, which the researcher adapted for South African circumstances to compile the digital media literacy lesson plans and learner and parent handouts. The learners learned to think critically about how they treat others in the fast-paced digital world, and they also learned to use the internet in legal, ethical, and responsible ways. The underlying message was one of empowerment: With powerful digital tools of creation and communication comes great responsibility.

The link between a digital media literacy programme and performance is complex. Models that offer a way of measuring effective use of digital media literacy in a connectivist learning environment are currently lacking. The research findings on effectiveness are framed in the researcher's proposed model for teaching, learning and the nature of digital media literacy education in secondary schools. The use of critical thinking was identified as particularly important in the digital age.

As was mentioned, there is a lack of clarity in research on how effectiveness is measured and how developing critical thinking could be included in evaluating the effectiveness of a digital media literacy programme. In qualitative research certain limitations might mean that the findings cannot be generalised to the larger population. As such, the proposed model does not represent a definitive answer to the question on how effectiveness is measured; it offers a conceptual framework for embedding digital media literacy as an aim in the curriculum of Life Orientation in secondary schools.

A report on all the limitations that might have affected the effectiveness of the research and the evidence being presented, including aspects of study design and implementation, forms part of chapter 7 to enable readers to form their own opinion of the impact of the limitations.

1.4   STATEMENT OF THE PROBLEM

The reasons for adolescent violence are complex, but it is undeniable that new technology plays a powerful role in instigating violence, substance abuse and prejudice (Bennett-Johnson, 2004). Sufficient digital media literacy education is often the missing ingredient in approaches to violence prevention that only emphasise interpersonal skills or individual/group counselling. The researcher in this study believes that new forms of digital media are well positioned to play a constructive role in advancing powerful solutions to national educational challenges. The researcher remains cautiously optimistic that some of the unique advantages of digital media, the strong engagement factor, personalised assessments, the advantage to bridging learning across settings, and the 21st century skills they promote, may be transformed for social progress through digital media literacy. There is therefore a need to conduct research that focuses in particular on teaching adolescents critical-thinking skills with regard to the digital world.

Current media literacy education in secondary schools in South Africa is characterised by short-term thinking. What is needed are long-term ideas and visions for digital media literacy education in a complex world with continually changing competency requirements. The development of digital media literacy skills in adolescents can be enabled by 1.) a broader incorporation of critical thinking in general, but specifically pertaining to internet use, and 2.) the practising of these skills in different contexts, such as real-life relationships and digital relationships.

In the light of the above discussion, it therefore appears that the digital media literacy programme proposed in this study should aim to foster not merely critical thinking, but critical autonomy. Digital media literacy skills relate to ideas (critical thinking), not keystrokes (using a computer).

1.5   AIMS

1.5.1 The main aim

The main aim of this study was as follows: To examine how teachers use the digital media literacy lesson plans in the classroom and the effect this has on learners' critical thinking and cyberethics.

A "think aloud" strategy was used, whereby the learners verbalised what they were doing and learning while engaging in the digital media literacy activities (verbalisations). The learners' verbalisations were used to ascertain what learning was occurring in the classroom. To explore to what extent this was occurring, a main research question and three sub-questions were used to guide the research.

1.5.1.1 Research questions

The fundamental research question was:

> **How do Life Orientation teachers in secondary schools make use of the proposed digital media literacy programme for teaching and learning?**

➢   **Sub-questions**

Three sub-questions also helped to guide the research. Several strategies across all school levels should be implemented to support teachers in implementing digital media literacy programmes effectively.

Thus the first sub-question was:

> **What factors impede or encourage the implementation of a digital media literacy programme by Life Orientation teachers?**

Whether teachers choose and are able to transfer their knowledge of digital media literacy to their teaching or professional learning depends on a range of factors. Teachers need to see the added value of digital media literacy before they will engage in more extensive and comprehensive approaches to integrate it with the existing curriculum. Digital media literacy training and methods of teaching should therefore be incorporated into digital media literacy programmes. The connections and interactions within a complex system or organisation, such as a school, are important in developing an individual and organisation's knowledge (Morrison, 2002).

The second sub-question that focused the research on the connectivity and functionality of the digital media literacy training was:

> **How do Life Orientation teachers in secondary schools connect and collaborate in their teaching of digital media literacy?**

Another focus in this research was whether and how teachers use digital media lesson plans and the learning associated with this usage. This builds on the current debate about the effect of digital media literacy on learning and knowledge. Different levels and types of learning occur depending on the application and type of digital media literacy lesson outcomes. Learning can be measured according to connections, creativity, conceptual understanding, critical thinking and reflection.

The third sub-question was:

> **What is the potential learning and the actual learning that occurs in a Life Orientation teacher's classroom as learners engage in digital media literacy activities?**

These research questions require general theoretical justifications of the researcher's arguments to analyse and possibly structure a comprehensive evaluation process regarding the teaching of digital media literacy in secondary schools: Rather than simply adding digital media literacy to the curriculum, school managements and the Department of Education need a much broader reconceptualisation of what digital media literacy means in a world where digital media have become increasingly dominant. These research-based questions can be used to make secondary schools and the Department of Education aware of the potential to create a digital media literacy programme.

1.5.2 Specific aims

The specific aims of this study, which were achieved by means of literature study and/or empirical investigation, were as follows:

- to investigate the nature of teachers' ability to present digital media literacy in compelling ways
- to explore and to understand what digital media literacy in secondary schools means, and what enables and blocks its development
- to assist teachers in evaluating and revising their digital media literacy skills through training
- to enhance learners' critical-thinking skills
- to increase parents' knowledge of digital technologies and digital media literacy
- to develop an education model for digital media literacy with the aim to find a framework that could be used in secondary schools.

1.5.3   Variables of interest

The researcher followed an interpretive causal study methodology, which entailed following the participation of the three Life Orientation teachers from the participating schools in the media literacy programme. In causal studies the researcher is interested in the effects of some cause on one or more outcomes (Trochim, 2008). The outcomes are directly related to the research problem. In a causal study researchers usually compare the effects of the cause of interest (e.g. the programme) relative to other conditions (e.g. digital media literacy skills). Hypotheses (which are found to be true or false, with conditions or cause/effect attached) through an interpretive causal study appeared incongruous as they had the potential to limit flexibility, ignore complexities and restrict emerging findings (Trochim, 2008). The use of hypotheses was therefore limited to the initial design phase, where key findings and assumptions arising from an initial review of literature were made explicit to direct the research. The research methodology used aimed to construct meaning from data and observations while taking into account the complex relationships within the context in a holistic way. In this research method "hypotheses" were broadened at the design phase to become "variables of interest". Variables of interest were designed to take account of the existing literature and to focus on aspects that might be useful to explore, without limiting the findings. One of the central issues in research design is to determine how people become part of the programme or intervention that the researcher is comparing (Gravetter & Forzano, 2008).

According to Trochim (2008), the major components in of a causal study are the following:
- the research problem
- the research question
- the programme (cause of interest – e.g. digital media literacy lessons)
- the units (e.g. secondary schools; Life Orientation teachers; Grade 9 classes; parents; digital citizenship; critical-thinking skills)
- the outcomes (effect of the cause of interest)
- the design.

1.6 CLARIFICATION OF CONCEPTS

Although the researcher provides an extensive glossary in the preface of this thesis a number of concepts that are used in this study need to be clarified by means of an explanation (clarifying the concepts in your own way to suit your purposes). In research, explanation is one of the purposes of research, e.g. exploration and description. An explanation is therefore subject to interpretation and discussion.

Psychosocial risks: For the purposes of this study, psychosocial risks are defined as the potential destructive effects of new digital media on the psychological well-being and social skills of adolescents.

Adolescence: In this study, adolescence is described as the "second individuation" phase, where the thrust of hormonal changes and the intensification of libidinal and aggressive drives build on the formative self and social and cognitive functions. The "whirlwind" during this stressful period reflects the struggle between "regressive" and "progressive" aims, which culminates in the transformation of internal structure (ego and superego) and a mature and cohesive identity (Blos, 2009, p. 132).

Education model: In this study, ideas rather than people are implicit in the education model. The model proposes methods of learning or teaching as a basis for or supplementary to changes to adolescents' critical thinking, attitude and behaviour regarding the use of new digital media.

Programme evaluation in this study is a systematic method of collecting, analysing and using information to answer questions about digital media literacy programmes in secondary schools, and in particular about their effectiveness. Mark (1996, p. 230) defines programme evaluation as "a type of research that uses established social science research methods to evaluate the success or effect of a social service programme". This type of research is therefore relevant to this study, which seeks to evaluate a digital media literacy programme in secondary schools within the context of the Life Orientation curriculum from a psychological perspective.

Media literacy education is the ability to access, analyse, evaluate and communicate information in all its forms (Tallim, 2010).

Media literacy education is also responsible for literacy relating to cellphone and internet use, which the general public may currently not associate with the term "media". "Media literacy" may therefore limit public understanding of the scope of this study. For this reason, the researcher has moved away from using merely "media literacy" and opted for "digital media literacy" instead.

Digital media literacy in this study implies changing the way adolescents think about accessing, analysing and evaluating media, as the internet and cellphones provide them with an increasing amount of information, news and entertainment choices.

New media is a fairly recent concept and can be regarded as a broad term for different forms of information and communication technology, of which the internet and cellphones are considered as the major innovations (Encyclopedia Online Dictionary, 2010).

Old media are the forms of communication prior to the digital era and include analogue radio, TV and printed materials such as books and magazines (Encyclopedia Online Dictionary, 2010).

Computer: In the context of this study, the researcher uses "computer" as a collective noun, which means it also includes tablet computers and smartphones. Researchers did not really need a collective noun for PCs until recently, with the launching of smartphones and tablet computers. Everything the "outside world" does on a PC, is done on a smartphone or tablet – and more. The list of attributes, functions and services on these devices is impressive and includes internet, blogging, social networking, e-books, games and music downloads. The use of a collective noun was therefore necessary.

1.7   RESEARCH DESIGN

Chapter 5 offers a detailed discussion of the methodological constructs of this study. Following is a brief overview.

The methodological approach followed in this research involves an interpretive causal study underpinned by a complexity theory conceptual framework. Three Life Orientation teachers from different secondary schools volunteered to be examined through interviews and observation during their digital media literacy teaching to identify how they used proposed lesson plans in their teaching practice, the learning that occurred, and the barriers and enablers experienced while attempting to integrate digital media literacy into teaching praxis.

This study addresses the practical process of providing a quality digital media literacy programme that is integrated with the school curriculum to equip learners with the necessary critical-thinking skills to increase the benefits and reduce the psychosocial risks associated with these new media. This research assumes an ecological view of development and learning, which considers the many different spheres of influence, from parents to peers to the social and economic context that an adolescent now has to navigate while growing up in the digital age.

1.7.1   Research strategy

The thesis starts by examining a selection of literature up to 2011 which focuses on digital technologies (including the internet and cellphones) and their use in and beyond secondary schools. The literature review informed the study by giving a historical perspective of the time frame (1995-2011) that digital technologies have been researched in the schooling context.

The introduction of digital technologies into society has had an effect on communication networks, youth culture and the nature of knowledge. The literature reflected the changing emphasis and conceptions of how technologies can and are being used in schools and by adolescents. The literature findings also informed the methodological approach and variables of interest within the study. A theoretical framework to identify

important influences was developed from the synthesis of the literature. A logic model (or graphic organiser) (figure 1.1, adapted from Starkey, 2010) guided the data gathering and analysis of the study. Embedded in the logic model were four research questions – one main and three sub-questions (see 1.5.1.1). Each research question included variables of interest to ensure that aspects which could be relevant to the study were not overlooked.
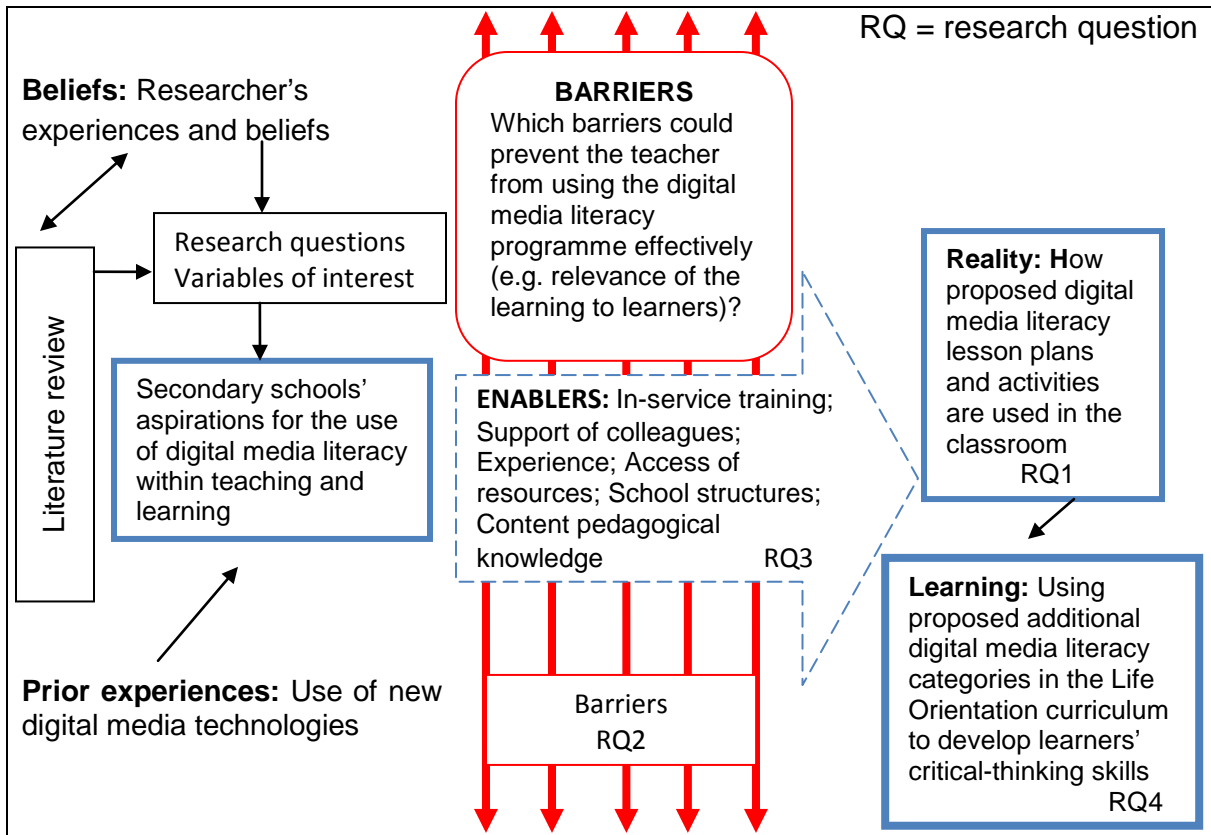
Figure 1.1: Logic model causal map to guide research

Constructivist, complexity and connectivist theories underpin the logic model in figure 1.1. Connectivism points to where learning can occur (Siemens, 2004), constructivism gives a model for how learning can occur for learners (Kirschner, Sweller, & Clark 2006), and complexity theory helps explain the importance of the context and relationships within the context (Morrison, 2002). These concepts will be explained in chapter 5.

1.7.2 Method of research

One of the most important ideas in this research study is the unit of analysis. The researcher called it "unit of analysis" and not the "unit of sampling" because it is the analysis the researcher does in the study that determines what the unit is. For instance, in this study the researcher compares two Grade 9 classes (experimental group and control group) from participating secondary schools regarding critical thinking. The unit of analysis is the group, in this case Grade 9 classes, because the researcher only had a critical thinking skill score for the classes as a whole and not for each individual learner. On the other hand, if you are comparing the learners in the two classes on achievement test scores, the unit is the individual learner because you have a score for each learner. Therefore, for different analyses in the same study you may have different units of analysis. The researcher decided to compare the average performance of the classes in this research study. Since the data used in the analysis are the average itself (and not the individual scores), the unit of analysis is actually the group.

The research design was kept flexible to allow for changes during the research process. This allowed for alterations in the research questions as a result of findings and emerging literature.

1.7.3 Methodological orientation

Both qualitative and quantitative research methods were employed in this study (mixed method). The quantitative research methods supported the qualitative research methods. The researcher used the outcomes of the quantitative research (the parent and learner surveys) to drive the qualitative process. These two approaches involve different ways of thinking about and therefore investigating the world (Bernard, 2000).

Table 1.1: Qualitative data versus quantitative data

Qualitative data	Quantitative data
Overview: • Deals with descriptions. • Data that can be observed, but not measured. • Colours, textures, smells, tastes, appearances, beauty, etc. • Qualitative → Quality	Overview: • Deals with numbers. • Data that can be measured. • Length, height, area, volume, weight, speed, time, temperature, humidity, sound levels, costs, members, etc. • Quantitative → Quantity

Source: Bernard (2000, p. 417)

The empirical study was conducted in four phases. Phase 1 involved the parent and learner surveys; Phase 2, initial interviews with the school principals/Life Orientation teachers and individual interviews/training sessions with the teachers; Phase 3, the digital media literacy programme learning outcomes, and Phase 4, workshops with the learners and follow-up interview survey with the teachers. Data were collected and processed quantitatively in Phase 1, and qualitatively in Phases 2, 3 and 4. The outcome from each phase was used in the next phase.

In this study the researcher shares the idea with Creswell (2003) that qualitative and quantitative methods should be viewed as complementary rather than as rival camps. The manner in which the qualitative and quantitative research methods were combined is illustrated in figure 1.2.

**Quantitative
methodology**
(Parent and learner
surveys)
Phase 1

DATA

ANALYSIS

**Qualitative
methodology**
(Initial interviews with
principals/teachers;
individual interviews/
training sessions
with teachers)
Phase 2

**Qualitative
methodology**
(Digital media literacy
programme learning
outcomes; learner
workshops and follow-up
teacher interview survey)
Phases 3 & 4

Figure 1.2: Mixed methodology combining qualitative and quantitative approaches

Since the objective of this study was to collect verbal information with regard to perceptions, beliefs and attitudes of the participants, and the explanation of these perceptions, beliefs and attitudes with the help of words and observations, the method most useful for this research was qualitative research. What made it even more suitable was that it is a flexible method that makes room for discussions of which the form and directions are not known to the researcher.

1.7.4 How the results would be shared

The data would be collated and analysed, then included in a doctoral thesis that would be available from Unisa's library. Results would be shared with the education and teaching communities through journal articles and conference presentations.

1.7.5 Confidentiality

The participants and the schools they attended would remain confidential. Pseudonyms for participants would be used in the thesis, journal articles and presentations. Any information that might identify the learners or the schools would be changed or omitted from the thesis and presentations. All raw data would be destroyed at the conclusion of the research.

1.8   CHAPTER DIVISION

Over and above this chapter, this study comprises the following chapters:

Chapter 2, C*yberbullying: description, analysis and therapeutic intervention*, comprises a literature review and theoretical background of the phenomenon of "electronic aggression", which is any kind of aggression perpetrated by means of new technology, as well as of the impact of cyberbullying and the ways in which it differs from other forms of bullying.

Chapter 3, *Psychological features of cyberspace: understanding how adolescents react to and behave in cyberspace*, offers a literature review and theoretical background of the psychological aspects of the environments created by computers and online networks in order to present an evolving conceptual framework for understanding how adolescents react to and behave in these environments.

In **Chapter 4**, *Digital media literacy: educating adolescents to create their own future*, the theoretical background of the concept of digital media literacy is explored and a model for digital media literacy in secondary schools is proposed.

In **Chapter 5**, *Research methodology*, the research design and research methodology concerning the questionnaires, the programme evaluation by the teachers, interviews and learner workshops are discussed.

Chapter 6, *Summary and findings*, centres on the empirical study. The data obtained from the questionnaires, the programme evaluation by the teachers, interviews and learner workshops are noted and compared. The findings are examined and discussed.

Chapter 7, *Logging off: limitations, recommendations and conclusion*, offers a summary of the major findings of the study, highlights the limitations of the study and provides recommendations for future research. The findings are discussed in the light of the proposed digital media literacy education model. Finally, key conclusions are presented.

1.9   CONCLUSION

This chapter offered brief arguments for the strategic merits of the evaluation of digital media literacy education. A brief overview of the origins and application of logic modelling was given, culminating in the creation of the actual methodology used in this study.

While digital media is also used and computer skills also developed outside the school walls, a critical evaluation of digital media use needs to be developed and supported within the school structure. This implies that collaboration between adolescents, parents and schools is crucial. If digital media literacy education is to fully harness the power and potential of the existing digital media, learners must be equipped with critical-thinking skills and ethical criteria to become competent, safe and responsible users of new media. Digital media literacy education should therefore constitute a framework and pedagogy for this new form of literacy.

Accepting this evolution of digital media literacy as inevitable, the literature reviews in chapters 2, 3, and 4 address topics that schools and Life Orientation teachers should consider as they construct or apply an education model to analyse and possibly guide the evaluation cycle of the Life Orientation curriculum for secondary schools in South Africa.

The growing incidence of cyberbullying is validated in the next chapter. "Always being online" has become a crucial way of life, especially for adolescents. The effects will

reach them in areas of communication and education, but also expose them to electronic violence. The spotlight also turns to the grey areas between the benefits and risks of new digital media, as well as to the probable lack of adult awareness of the fact that cyberbullying is rampant among adolescents in South Africa.

CHAPTER 2

AUTONOMY COMPOUNDS THE ISSUE OF CYBERBULLYING

Adolescents tend to be meaner if they think no one knows who they are. With new media, everything can happen at the touch of a button, which makes it even harder for adolescents to take the time to be critical about what they are saying or doing.

CHAPTER 2

CYBERBULLYING: DESCRIPTION, ANALYSIS AND THERAPEUTIC INTERVENTION

2.1   INTRODUCTION

Chapter 1 provided an overview of the area of research for this study by, among others, defining the objective and aims of the study and identifying the importance attributed to the study. Technology and adolescents seem destined for each other: both are young, fast-paced, and ever-changing (Huesmann, 2007). With the rapid technological advancements, "internet", "SMS", "MMS" "Myspace", "blogs" and "personal digital assistants/PDAs" have become household terms, especially among adolescents. This new technology has been eagerly embraced by adolescents and has led to extended usage and an expanded vocabulary.

While it is undeniable that technological advancements have deeply enriched adolescents' lives, it has also brought about many an iniquity, one of which is the growing incidence of cyberbullying. New digital media have many social and educational benefits, but more and more parents express concern about the dangers adolescents could be exposed to when using them.

The literature on cyberbullying remains thin; there is much more and established literature on other forms of aggression, particularly in adolescents. A better understanding of the co-occurrence of and commonality between cyberbullying and other forms of bullying and the unique aspects of electronic aggression will inform potential effective prevention approaches to cyberbullying.

Electronic aggression is any kind of aggression perpetrated by means of technology, including any type of harassment or bullying (e.g. teasing, telling lies, making fun of others, making rude or mean comments, spreading rumours, and making threatening or aggressive comments) via email, SMSs, instant messages (e.g. BBM), chat rooms and

websites (including blogs) (Lenhart, 2009). The internet and cellphones have such power to change adolescents' lives for the better, but when they are misused, they can cause real pain and distress. The instant online life of cellphones combined with poor impulse control make adolescents particularly vulnerable to online bullying (Skinner, 2011).

A variety of terms are used to describe and measure this new form of aggression, such as "internet bullying", "internet harassment" and "cyberbullying". "Electronic aggression" seems to be the term that covers the widest range of situations where new communication media are used to conduct aggressive acts. In such situations, an adolescent may be described as a victim, a perpetrator, or both. Some authors reserve narrower terms for specific subtypes of electronic aggression where young victims are attacked by adult perpetrators. For example, Aftab (2008, para. 4) suggests that terms such as "cyberharassment" or "cyberstalking" be used in such cases. For situations where electronic aggression is at the same time peer aggression, the most proper term seems to be "cyberbullying". For the purposes of this study, "cyberbullying" is also the preferred term, as peer aggression is most common among 13- to 15-year-olds (Shafie, 2011).

Raskauskas and Stoltz (2007) describe cyberbullying as a means of indirect aggression in which peers use electronics to taunt, insult, threaten, harass, and/or intimidate a peer. It is classified as relational or indirect aggression because it is a deliberate attempt to inflict direct or indirect harm on peers through manipulation and damaging peer relationships (Berger, 2007). This type of bullying can consist of any of the following actions committed by an individual or group against another individual or group (SafetyWeb, 2010). These actions are:

- threats of violence
- hate speech
- harassment
- peer pressure
- bribery
- psychological abuse
- extortion

Research into the extent of cyberbullying indicates that it features in many adolescents' lives. In 2005, the number of adolescents between 14 and 17 years of age who indicated they had been involved in cyberbullying was twice the number of that in 1999/2000 (Wolak, Mitchell, & Finkelhor, 2006).

Cyberbullying is also perpetrated against school staff members and other adults; there are examples of staff members being ridiculed, threatened or otherwise abused by learners using new media. Fifteen per cent (15%) of the teachers responding to a 2009 survey carried out by the Teacher Support Network and the Association of Teachers and Lecturers reported that they had been victims of cyberbullying. In May 2007, the National Association of Schoolmasters Union of Women Teachers surveyed teachers on cyberbullying over a period of five days, and almost 100 teachers reported incidents of cyberbullying by learners via cellphones and web-based sites that had caused them real distress and trauma. The cyberbullying of school staff is an issue that schools need to address in their whole-school cyberbullying strategy.

Considering this misuse by children and adolescents of new media, the lack of a clear school policy on cyberbullying, and the questionable effectiveness of traditional media literacy programmes, it is imperative that the school community work collaboratively and proactively to tackle this problem (Trolley et al., 2006). Discipline alone is not working (Fuentes, 2003), and if children and adolescents are to learn more appropriate, prosocial behaviours, we therefore need to look at assessment and therapeutic intervention (Jackson, 2006). It is not just the learners that must change, but the school environment as well (Trolley et al., 2006).

2.2   UNDERSTANDING CYBERBULLYING

Adolescents are highly connected to the internet; they know the popular sites of adolescents, the acronyms that users have created as an effort to save keystrokes, and the applications. And although many of them seem light years ahead in cyberspace, they still need adult guidance on tough issues such as cyberbullying.

The implications of cyberbullying for schools are significant. Even if the harassment occurs outside of school, victims frequently display behavioural problems or anxiety at school (Ybarra, Diener-West, & Leaf, 2007). Cyberbullying is now a pervasive and growing problem that can have devastating effects on adolescents' lives and on those around such affected adolescents (Kowalski et al., 2008). Teachers, and parents, should engage adolescents in dialogue about the interactions adolescents have with others via new media. To

Bystander bullying happens in the playground but it can happen at home too.

help start the conversation, teachers could consider using the digital media literacy curriculum to facilitate discussions about appropriate online behaviour and cyberbullying.

Parents also need to be aware of comments, photos and videos their sons and daughters are posting online. Families need to talk about their children's online activities just as they would discuss any other daily activity.

It has been noted that much of this type of bullying occurs in the home via cellphones and the internet; it is therefore vital that parents are informed and aware of what steps they can take to prevent any such problem (David-Ferdon & Hertz, 2007).

Parents often struggle with how much freedom and autonomy to give their adolescent children; it is important to find ways in which to balance privacy and protection.

2.2.1 The differences between traditional bullying and cyberbullying

While often similar in terms of form and technique, there are substantial differences between bullying and cyberbullying, some of which can make the latter even more devastating (Trolley et al., 2006).

Bullying among school-age adolescents is a common phenomenon, with three out of four learners reporting being bullied at some point during their school careers (Hoover, Oliver & Hazler, 1992). Olweus (1993) defined bullying as intentional aggressive and mean behaviour between individuals when there is an imbalance of power, such that the person being bullied has a difficult time defending him or herself.

Ybarra and Mitchell (2004) states that cyberbullying is also an intentional, mean and overt act of aggression towards another person. For example, a learner willing to abuse technology can easily wield great power over his or her target just by having the ability to reach a large audience, and often by hiding his or her identity. Mean cybermessages are easily repeated by forwarding them to multiple individuals and posting them on websites for hundreds of classmates to view. Cyberbullying therefore includes the same mechanisms as general bullying behaviours, but the bullying is done via a ubiquitous mechanism – technology (Kowalski et al., 2008).

The differences between bullying and cyberbullying are depicted in figure 2.1.

BULLYING		CYBERBULLYING
• DIRECT	⬌	• ANONYMOUS
• Occurs on school property	⬌	• Occurs on or off school property
• Poor relationships with teachers	⬌	• Good relationships with teachers
• Fear retribution **Physical:** Hitting, Punching & Shoving **Verbal:** Teasing, Name calling & Gossip **Nonverbal:** Use of gestures & Exclusion	⬌	• Fear loss of technology privileges
		• Further under the radar than bullying
		• Emotional reactions can not be determined

Source: Trolley et al. (2006, p. 55)

Figure 2.1: Bullying versus cyberbullying

2.2.2 Emotional and psychological consequences

The psychological effects of cyberbullying are as harmful, and in some cases, even more harmful than physical bullying. Cyberbullying allows the bully to remain anonymous. It is easier to bully in cyberspace than face to face because with cyberbullying, a bully can pick on people with much less risk of being caught. Also, in cyberspace, bullies can enlist the participation of other children who may be unwilling to bully in the real world. Children who stand around doing nothing during a real-life bullying incident often become active participants in online harassment (Hinduja & Patchin, 2006). However, some might simply not recognise the serious harm they are causing because they are sheltered from the victim's response.
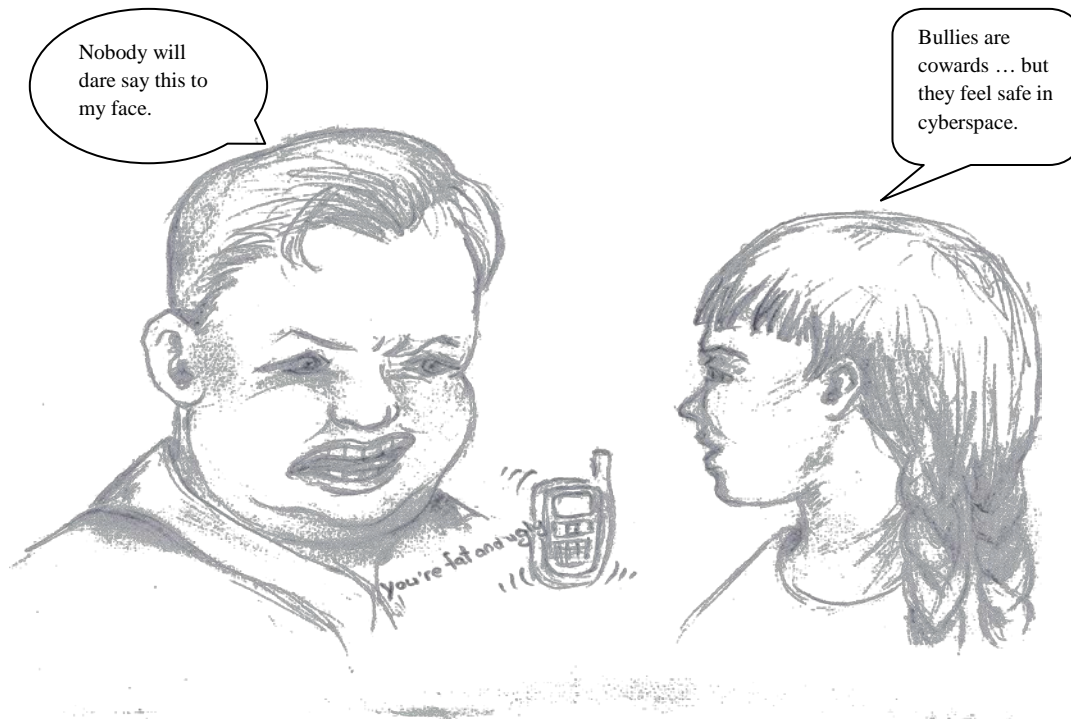
Although cyberbullying occurs both at home and on the school grounds, the consequences are often evident during school hours. According to David-Ferdon and Hertz (2007), there is a growing understanding that these external events negatively affect the functioning of learners at home and in the school environment. A learner who is cyberbullied often does not know the identity of his or her tormentor. In such cases, he or she may be extremely anxious and distracted at school, wondering whether the perpetrator is in their classroom or on their bus.

Neither the bullies nor their victims perform as well in school because of lower self-esteem, personal insecurities, and a heightened sense of paranoia that prevent them from concentrating in the classroom (Johnson, 2009). The victims have also been linked to the development of general psychological distress and poor psychosocial adjustment (Raskauskas & Stoltz, 2007). According to these authors, repeated acts of cyberbullying have also been shown to threaten healthy development of self-esteem in adolescents and contribute to school failure and dropout (Raskauskas & Stoltz, 2007). It also increases psychological symptoms such as depression and anxiety (Due, Holstein, Lynch, Diderichesen, Gabhain, Scheidt, & Currie, 2005).

A survey conducted by Hinduja and Patchin (2008) on cyberbullying yielded the following results concerning the victims' emotional state:

> Looking at the victims of cyberbullying, both boys and girls are likely to report feeling frustrated, angry and sad. Slightly more girls than boys feel frustrated, sad and angry while sigificantly more boys were not bothered by cyberbullying. (Hinduja & Patchin, 2008, p. 13)

Hinduja and Patchin (2006) completed an online survey of approximately 1,500 Internet-using adolescents. The research summary outlines findings on cyberbullying offending:

- 16.7% of respondents reported that they had bullied others online.
- Most online bullying involved relatively minor behaviour, yet 4.1% of respondents said they threatened others and 2.7% said they deliberately scared others.

Adolescents also bully gay peers at school. A 13-year-old boy from Houston shot himself in the head, and his grieving parents said it was in response to the relentless antigay bullying at his school. He was constantly picked on for his small size, his religion, and because he did not wear designer clothes and shoes. Some of the children also accused him of being gay (O'Hare, 2010).

Tyler Clementi was a Rutgers University student who, in 2010, committed suicide after being harassed for being gay. His roommate allegedly broadcast that Clementi had a sexual encounter with a man on the internet without Clementi's knowledge. Clementi jumped off the George Washington Bridge into the river, and his body was recovered about a week later. There are many known suicides where the victim had been bullied or harassed for being gay or for being perceived as gay. Clementi was only one of many in a string of gay youth suicides (Ridgewood, 2010). His suicide was even more sad when it was discovered that he had been posting on message boards seeking help and advice about the harassment.

Former pop star and openly gay celebrity, Lance Bass has confessed to bullying gay classmates in school. In an interview with the United States talk-show host Larry King,

Bass admitted to bullying gay kids at his school to cover up his own sexuality. His confession came after five United States adolescents committed suicide after suffering similar treatment (HateTheHate, 2010).

Raskauskas and Stoltz (2007) emphasised the fact that being a bully has also been associated with poor psychosocial adjustment. Adolescent bullies are not as socially and emotionally developed as their peers when they mature. They are accustomed to demeaning others for their own gratification and need help from professionals to coach them into changing negative interaction into a more positive one (Johnson, 2009). These same adolescents are at risk of drinking alcohol and getting into fights (Berger, 2007).

2.2.3 Should cyberbullying be taken seriously?
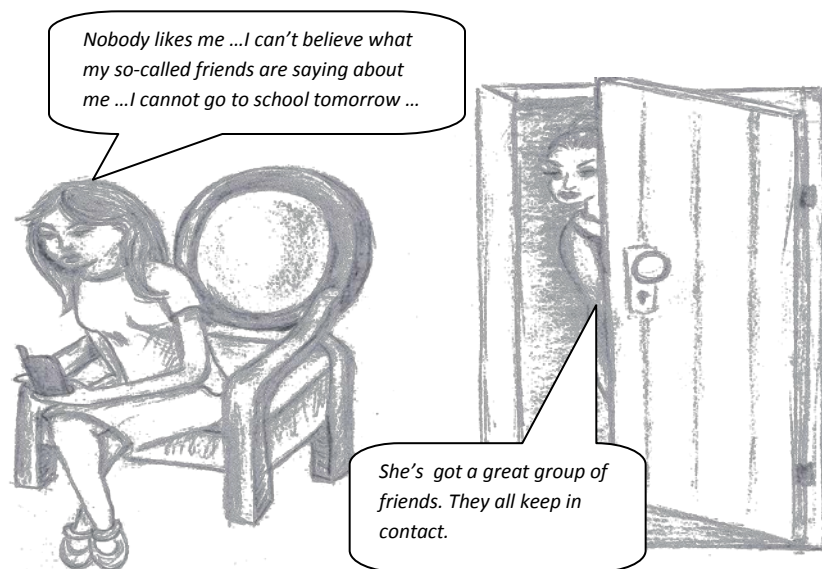
What is wrong with this picture? Do parents really know what their adolescents and their peers are saying to each other?

Ryan Halligan, Jeffrey Johnston, Megan Meier and Rachael Neblett are American adolescents whose names have become inextricably linked to the issue of cyberbullying. Their pictures and stories have been plastered across newspapers, magazines, in YouTube videos and web memorials denouncing cyberbullies and mourning the victims.

Their families have made their stories public in order to fight this growing trend among adolescents.

Jeffrey Johnston died by suicide as a result of online bullying. Jeffrey's mother, Debbie Johnston, wrote:

> With the keyboard as his weapon, the bully violated the sanctity of my home and murdered my child just as surely as if he had crawled through a broken window and choked the life from Jeff with his bare hands. It was not a death that was quick and merciful. It was carried out with lies, rumours and cruelty portioned out day by day. (High, 2011, p. 2)

The founder of Make a Difference for Kids, Mark Neblett, is a father who knows the devastating consequences of cyberbullying. His 17-year-old daughter, Rachael Neblett, died by suicide in 2006 after being stalked online by a peer from her school. Mark said:

> I was like the old school dad and told her not to worry. In my day, we were eye to eye and this stuff didn't last. She said, "You don't understand, it's different." She was right. (Make a Difference for Kids, 2010, p. 4)

There have also been several cases in South Africa where cyberbullying has led to the victims committing suicide (Oracle Education Foundation, 2009). The perpetrators either spread rumours about them via SMSs or instant messaging, or circulated videos or pictures of them in embarrassing situations. Pictures and videos always spread fast because they have visual content and give the viewers more pleasure because the victims cause people who do not even know them to comment on their ordeal. Sometimes the humiliation is too much to bear and ends in the victims killing themselves.

In the province of KwaZulu-Natal, one of the worst scenarios was that of the Mangosuthu schoolgirl who was recorded during an intimate encounter with her boyfriend. It was in fact her boyfriend who recorded it, and he then sent it around. This

video clip reached more than 80 schools. The girl committed suicide shortly after she heard the video was circulating (Oracle Education Foundation, 2009).

Although these names represent victims who committed suicide due, at least in part, to cyberbullying, there are countless other victims whose stories have not been told; children who continue to endure cyberbullying every day. Trolley et al. (2006) advocate three simple rules for adolescents facing cyberbullies:

Figure 2.2: Break the cyberbullying circle

One vital lesson these authors want adolescents to learn is to ignore the message, not the problem. They encourage adolescents suffering from cyberbullying to speak out and fight this kind of victimisation. They are best suited to tell their own stories, and their stories can make a difference (Trolley et al., 2006).

According to the Executive Research Summary *Teens and Cyberbullying* produced by the National Crime Prevention Council in 2007, not just the victims are in danger – the perpetrators also have an increased risk of suicidal behaviour.

Research conducted at the National Institute of Child Health and Human Development noted that, unlike with traditional forms of bullying, adolescents who are the targets of cyberbullying at school are at greater risk of depression than the adolescents who bully them:

> Notably, cybervictims reported higher depression than cyberbullies or bullyvictims, which was not found in any other form of bullying. … Unlike traditional bullying which usually involves a face-to-face confrontation, cybervictims may not see or identify their harasser; as such, cybervictims may be more likely to feel isolated, dehumanised or helpless at the time of the attack. (Wang, Nansel, & Iannotti, 2010, p.1)

Iannotti noted that, although bullies are less likely to report feelings of depression than bully victims or other victims, they are more likely to report depression than adolescents not involved with any bullying behaviour – either traditional or cyberbullying (Wang et al., 2010).

In cyberbullying, bystanders can easily become perpetrators – by passing on or showing to others images designed to humiliate, for example, or by taking part in online polls or discussion groups (Department for Education UK, 2007). They may not recognise themselves as participating in bullying, but their involvement compounds the misery for the person(s) targeted.

2.2.4 Who is most likely to be a cyberbully?

Although many of adolescents can display bad attitudes or aggressive behaviour online, not all of this behaviour is bullying. It is therefore important to address potential reasons and possible motivations for cyberbullying events. Willard (2007) differentiates between the following:

- **Entitlement bullies:** Put-downers who think they are superior and have the right to harass and demean others, especially those who they think are different or inferior.

- **Victims of entitlement bullies:** Children who get picked on because bullies think they are different or inferior.
- **Retaliators:** Get-backers who have been bullied by others and are using the internet to retaliate.
- **Victims of retaliators:** Most often children who have been bullies.
- **Bystanders who are part of the problem:** Those who encourage and support the bully or watch the bullying from the sidelines without doing anything to intervene or help the victim. These are sometimes the one's that may record incidents of bullying and then sending it to others.
- **Bystanders who are part of the solution:** Those who seek to stop the bullying, protest, provide support to the victim, or tell an adult.

There are also several avenues of cyberbullying. Understanding these avenues can further assist in the detection of cyberbullying incidents. These avenues as defined by Willard (2007) include:

- **Flaming:** Online fights using messages with angry and vulgar language.
- **Harassment:** Repeatedly sending offensive, rude and insulting messages.
- **Cyberstalking:** Repeatedly sending messages that include threats of harm or that are highly intimidating. Engaging in other online activities that make a person afraid for his or her own safety.
- **Denigration:** "Dissing" someone online. Sending or posting cruel gossip or rumours about a person to damage his or her reputation or friendships.
- **Impersonation:** Pretending to be someone else. Sending or posting material that makes that person look bad, gets them in trouble or danger, or damages their reputation or friendships.
- **Trickery and outing:** Tricking someone into revealing secrets or embarrassing information and then sharing it.
- **Exclusion:** Intentionally excluding someone from an online group, such as a buddy list.

While typical schoolyard bullies are sometimes easier to spot, cyberbullies can come in all shapes and sizes (Trolley, Hanel, & Shields, 2009). There is no single profile of an

adolescent who cyberbullies. According to Kowalski et al. (2008), there is a fairly sizeable overlap between adolescents who are involved in traditional forms of bullying and those who are involved in cyberbullying. For example, these authors found that of those middle and high school learners who had not been involved in traditional bullying, 5% had cyberbullied someone else, and only about 9% had been cyberbullied. On the other hand, of those learners who had bullied in traditional ways, 20% had also cyberbullied, and 19% had been cyberbullied. Hinduja and Patchin (2006) found that adolescents who had bullied offline were more than five times as likely to bully online as those who did not bully offline.

New studies published in the book *Bullying Beyond the Schoolyard* by Hinduja and Patchin (2009) revealed the following reasons why adolescents bully online:

- 22% were motivated by revenge.
- 18,7% said the victim deserved it.
- 10,6% said they did it for fun.
- 3,9% hated the victim.
- 3,5% were pressured by peers.
- 2,8% retaliated against a bully.
- 2,5% were venting anger.
- 5,7% had other reasons.

2.2.5 Who are the victims?

Ann Frisén, professor of Psychology at the University of Gothenburg, says 10% of all adolescents in Grades 7 to 9 are victims of cyberbullying (Frisén, 2010). These statistics confirmed the researcher's choice of research participants (see chapter 1, 1.3).

Victims of cyberbullying have no refuge. According to Frisén (2010), this type of bullying can be more serious than conventional bullying because with conventional bullying the victim is at least left alone on evenings and weekends.

There is a clear connection to school life – the perpetrator is almost always from the same school as the victim (Frisén, 2010). Frisén also states:

> It is a lot easier to be a perpetrator on the internet since it enables you to act anonymously. This also makes it possible for a weaker person to bully a stronger, which is uncommon in conventional bullying. (Frisén, 2010, p.1)

According to Kowalski and Limber (2007), there is also no uniform profile of an adolescent who is cyberbullied. Some research suggests that girls are somewhat more likely to be cyberbullied than boys (Willard, 2007). In the mentioned study conducted by Kowalski et al. (2007) almost a quarter of the children who were identified as victims of traditional bullying had also been cyberbullied. These authors noted that victims of cyberbullying often did not report their experiences to adults because of fear of retribution from their tormentors, and also fear that their computer or phone privileges would be taken away.

2.2.6 The basic signs to look for

According to Trolley et al. (2006), victims of cyberbullying will:

- avoid the computer, cellphone and other technological devices, or appear stressed when receiving an email, instant message or SMS
- withdraw from family and friends, or act reluctant to attend school and social events
- avoid conversations about computer use
- exhibit signs of low self-esteem, including depression and fear
- have declining grades
- have a lack of appetite and/or sleep

On the other hand the cyberbully will:

- avoid conversations about computer and cellphone activities
- quickly switch screens or close programmes when you walk by the computer
- laugh excessively while using the computer or cellphone
- use multiple online accounts, or an account that is not their own

- spend an unusual amount of time on the computer or cellphone
- become upset when access to the computer or cellphone is denied

Hinduja and Patchin (2010) from the Cyberbullying Research Centre also state that cyberbullies may avoid discussions about the computer, as do the victims.

2.2.7 Electronic dating violence

Since the vast majority of adolescents have embraced the use of computers and cellphones, the researcher believes it is important to consider how violence against a dating partner through the use of electronic devices may occur.

There are some similarities between cyberbullying and electronic dating violence (Hinduja & Patchin, 2009; Mulford & Giordano, 2008). Firstly, both naturally employ technology. Secondly, cyberbullying is largely perpetrated by and among known peers, as is aggression in romantic relationships, where adolescents typically select dating partners from their peer group. Thirdly, both lead to specific negative emotional, psychological and behavioural outcomes. Finally, both also may have similar contributing factors, such as personal insecurities and a need to demonstrate control. With regard to differences, cyberbullying tends to occur between adolescents who do not like and do not want to be around each other. Electronic dating violence transpires between adolescents who are attracted to each other on some level.

There are many ways in which adolescents can use internet-enabled devices to cause harm to a dating partner (Hinduja & Patchin, 2009). Some adolescents may be excessively bold, sarcastic and malicious to their significant other when communicating with them online, for the same reasons cyberbullies do. In addition, privacy violations can occur when perpetrators check up on, monitor, and even stalk their partners if they can easily access the latter's computer or cellphone. They may also use textual, audio, picture or video content stored on their electronic devices to blackmail, extort, or otherwise manipulate their partner into saying or doing something against their will (Mulford & Giordano, 2008). This content can be shared with the entire school, a neighbourhood, or the entire world – with ease and speed, either by forwarding a text or

multimedia message or by uploading it to Facebook or YouTube. These devices allow abusers to feel constantly connected to and within reach of their dating partner, who often feels that he or she has no escape from the torment (Hinduja & Patchin, 2009).

According to Burgess-Proctor, Patchin, and Hinduja (2010), motivations for adolescent dating violence include anger and a felt need to demonstrate power. An adolescent can quickly send a scathing or harassing email or instant message to a girlfriend or boyfriend solely based on negative emotions, without taking the time to calm down and react rationally to a feeling or situation, and without considering the implications of that textual content. This is enhanced by the fact that adolescents constantly have their cellphones with them, day and night, and use it as their lifeline to grow and maintain relationships.

Clearly, more suffering and pain may result from cyberbullying within a romantic relationship than from cyberbullying among strangers, casual acquaintances or even platonic friends.

2.3   USE AND ABUSE OF NEW TECHNOLOGY

While much attention has been paid to educating our adolescents to be aware of things such as "stranger danger" and to "just say no to drugs", cautions and limits associated with the use of new technology are just beginning to be addressed. The internet and new communication technology can be used and abused. One of today's challenges that makes it difficult to prevent cyberbullying relates to who is willing to step up and take responsibility for responding to inappropriate use of technology (Heath & Sheen, 2005).

Parents often say that they do not have the technical skills to keep up with their adolescents' online behaviour; teachers are afraid to intervene in behaviours that often occur away from school, and law enforcement is hesitant to get involved unless there is clear evidence of a crime or a significant threat to someone's physical safety. As a result, cyberbullying incidents often slip through the cracks. Indeed, the behaviour often continues and escalates because it is not quickly addressed, as many people do not see the harm associated with it.

2.3.1 Modes of sexting technology

An increasing number of children, some even in primary school, engage in sexting – the practice of sending sexual messages by electronic means (Brodie, 2011). Sexting can be done in plain text format, but in many cases includes pictures. These messages can be posted on social networks such as Facebook, but the most common way of transmitting them is by means of a cellphone (Van Wyk, 2011).

Sexting is a reality in South African schools. The school sex case in Jeppestown, Johannesburg in 2010 serves as an example. A 15-year-old Jules High School girl at first accused two boys, aged 15 and 16, of gang raping her. Later on she changed her story and said that the sex was consensual. The adolescents appear in a cellphone video apparently showing the youngsters having sex (Subira, 2010).

Sexting is a serious practice with harmful consequences. The moment adolescents put a sex message out in cyberspace, they become vulnerable. Their reputation is at risk, and this one thoughtless act can change their lives forever (Brodie, 2011). Whether parents or adolescents want to admit it or not, adolescents sending sexual messages and naked pictures of themselves is child pornography, especially where any of the adolescents in the video is younger than 18 years (National Center for Missing and Exploited Children, 2011). Six teens in Greensburg, Pennsylvania, were charged as juveniles with possessing child pornography after three girls sent nude or semi-nude pictures of themselves to three boys (Galanos, 2009).

2.3.2 Modes of cyberbullying technology

Since many modes of technology are available to adolescents, cyberbullying can take many forms; the methods used are limited only by the adolescent's imagination and access to technology (Van Wyk, 2011). Examples are:

2.3.2.1 Cellphones

Cellphones have been used to cyberbully in a number of different ways: making unkind calls, sending mean SMSs, taking and sharing humiliating images, videoing and sharing acts of bullying and assault via camera phone using MMSs. The content can be posted online or sent from phone to phone, or shared using a short-range wireless connection between devices, bypassing the cellphone network altogether (Bullying Statistics, 2009).

Supervising an adolescent's use of a cellphone is far harder than, for example, the use of the family computer, since cellphones are rarely shared and potentially always switched on (Bullying Statistics, 2009). It is very easy for adolescents to create and circulate content and that includes inappropriate content. Using a short-range wireless connection, content can be sent for free between enabled devices. Once forwarded, the content is almost impossible to control and can easily spread by being passed on.

2.3.2.2 Instant messaging

Bullies can use instant messaging to send unkind messages or content to other users. BlackBerry Messenger, WhatsApp and Nokia Messenger is instant messaging programmes designed to allow smartphone device users to communicate with each other. Some instant messenger products can hold up to 600 "buddies", or contacts, and some adolescents regard having as many "friends" as possible as important. It is common for people with large buddy lists to know only a small proportion of the people on those lists (Binks, 2008). People can also "hack" into instant messenger accounts and send nasty messages to contacts.

2.3.2.3 Chat rooms and message boards

Public chat rooms can be populated by anyone, since accounts usually only require an email address to verify a user's identity. Most chat rooms do not carry age verification, therefore adolescents can visit chat rooms of an adult nature. People can behave inappropriately or abusively in chat rooms. The nature of chat room exchanges tends to be less inhibited than when people meet in the real world for the first time, and

adolescents can be persuaded to give out too much personal information and contact details or enter into apparent friendships with people who are lying to them about who they are in order to develop a friendship which they later exploit. Chat rooms are also not necessarily moderated (by a person observing conversations as they happen) or monitored (by someone reviewing previous chat session transcripts). There have been cases of adults using public chat rooms to begin relationships with children and adolescents in order to sexually abuse them (Safe Internet Surf, 2011).

A number of chat rooms have been created where people can "trash" each other just for the sake of doing it (Malala, 2010, para. 1). Everybody are encouraged to tell the truth when using these chat rooms. Even if users do not tell the truth, the webmaster cannot do anything about it and the webmaster will not be held responsible for the messages posted by users. These websites believe in freedom of speech, therefore everybody is allowed to say whatever they want, whenever they want (Malala, 2010). Popular radio DJ, Linda Sibiya, had a tough time trying to extinguish the stink which was posted about her on the website toilet.wen.ru; the post stated that she had HIV/AIDS and that she sleeps around. She says she did not know about the website until she started noticing people talking about her while others were insinuating that she is dying. From her experience the website should be regulated as people tend to write "hogwash" about others and their posts are ill-informed (Malala, 2010, para. 3). Despite the calls to remove the website, the daily traffic keeps increasing by the minute (Malala, 2010). Malala is of the opinion that more parents should be made aware of these chat rooms, and believe many adolescents are on the websites secretly. Adolescents can also be targeted in these chat rooms by bullies and become victims of hate speech. Racial tensions and victimisation are running high in secondary schools provoked by this thoughtlessness (Malala, 2010).

2.3.2.4 Email

People can send bullying or threatening messages, or repeatedly send unwanted messages via email. Unsuitable images or video clips can also be passed on. Personal emails can be forwarded inappropriately. The majority of computer viruses are also forwarded by email.

If an adolescent has an email account he or she is subjected to as much inappropriate spam as adults. Spam emails are mostly derived from phantom computers and run by robots. The robot will not discriminate according to age as it has no way of determining how old someone is. That being said, a cyberbully could easily find out the email address of the person whom they wish to victimise and start signing them up for inappropriate websites, such as pornographic and hate websites (Online-bully.com, 2011).

2.3.2.5 Webcams

Children and adolescents are often persuaded to take or send inappropriate photographs of themselves, either by their friends or people they have only had contact with online. Webcam use can be difficult to supervise if the computer is in the adolescent's bedroom or private space. Although fairly rare, there have been cases of people using virus programmes to "hijack" the output of a remote webcam and send the images to their own computers (McDonough, 2009, p. 1).

Once someone else has the image, the adolescent would not want their parents to know about it or it to be made public, which puts them at risk of being further manipulated or threatened.

2.3.2.6 Social networking sites

Social networking sites can be abused in a number of ways. Most allow comments to be left unchanged (although some sites enable users to review/approve content before it is shown), and unkind comments may be posted. Adolescents might use their own sites to spread rumours or make unpleasant comments about their peers, or post humiliating images or videos of them (Perez, 2010).

Comments made by adolescents on their social networking pages can have grave consequences. 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). The entire case against the Facebook man who was allegedly responsible for the gruesome death of Anika Smit turned out to be a misunderstanding. It all started with an unfortunate remark made on Facebook. She was just one of his hundreds of Facebook friends, but her death nearly destroyed him – all because of a comment made out of frustration on his Facebook page (Media24, 2010).

In life we all face criticism from time to time and it can be difficult to deal with such criticism, but the people involved have to deal with it professionally. It goes without saying that resorting to threats of violence is unacceptable. The recent case of the music journalist, Diana Coetzer is set to be the first in South Africa concerning defamation via a social network. Coetzer criticised a Parlotones show in a *Daily Maverick* review. Eban Olivier, whose company Catalyst Entertainment was involved in the production, reacted in a very angry way on Facebook, posting comments threatening Coetzer and her family. The situation has escalated, and Coetzer is currently suing Olivier for R150 000 in damages, and an unconditional apology (Mallinson, 2011).

Adolescents have to realise that social networking sites can be destructive and that it is reckless to spread untested stories. Fake profiles are also fairly common and could be used to bully, harass or get someone else into trouble.

Many adolescents view the social networking site they use as the hub of their online activity and will spend much time on the look and content of their pages. Profiles and blogs may contain a lot of detailed and personal information – about themselves as well as their friends. This can be misused by bullies and sexual predators to gain information about an individual, their interests and tastes, as well as their location or contact details.

A more recent case concerned 17-year-old Louise de Waal from Roodepoort who was abducted while walking to school with a friend. Her body was found the next day on a farm near Magaliesburg, burnt beyond recognition. Louise's mother believed that the murderer could have been someone who saw her modelling pictures on Facebook, because even though her friend was apparently closer to the man, he pushed her away and went for Louise (Skade & Bailey, 2011).

Another international case concerned 17-year-old Ashleigh Hall from Darlington in the north of England. She met someone calling himself Peter Cartwright on Facebook. He was supposedly also an adolescent. Unfortunately, he turned out to be a recidivistic sex offender who tricked Ashleigh into meeting him in person, then sexually assaulted and finally killed her (Carter, 2010).

These actual cases 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.

Children and adolescents often mistakenly view public sites as private and personal places and post photographs for their immediate friends that are inappropriate or embarrassing in other contexts. Sites which are not made private, or registered as belonging to an audience of 18-year-olds and older, are easy to search for and can be indexed and cached by search engines such as Google.

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).

Social networking can be seen as the "Pied Piper" of today's youth (Moatshe, 2009, para. 1). It has become a prominent force that lures adolescents into conversations and situations in a virtual arena 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).

Educators and parents may view the time spent on social networking sites as inappropriate and excessive, since many adolescents check their sites several times per day for messages and to view their friends' activities (Crawford, 2011).

However, social networking sites can also have a positive function. The following is one such an example: The mother of one of the victims of the Facebook rapist, who also murdered the 26-year-old model Nomfundo Tyula in Cape Town, South Africa, in 2011, started a Facebook group, Community4Community, to help victims and their families. The mother explained that this is a platform to support families who need someone to talk to, a person who listens to them and understands their emotional pain. The mother said she started this group to give victims and their families a place where they could find healing (Philip, 2011).

2.3.2.7 Video hosting sites

Video hosting sites such as YouTube can also be misused for cyberbullying, and learners as well as teachers have been victim to content posted on such sites. The cyberbullying may take the form of videos taken without the subject's knowledge, even in a classroom, and then posted and shared, as are acts of violence against people or property (Childnet International, 2007).

There are two ways in which adolescents may be exposed to risk on video hosting sites: they may access inappropriate material (for example, violent or pornographic content), or they may post inappropriate material, which might make them contactable and vulnerable, or lead to embarrassment to themselves or others.

2.3.2.8 Virtual learning environments

Although the users are tracked, adolescents may still misuse these platforms or post inappropriate messages or images. Virtual learning environments usually consist of a range of tools – for example, message boards, chat rooms and instant messaging – that can be misused in the same ways as services outside of the school environment. Hacking can provide a range of opportunities for cyberbullying, including sending malevolent messages from someone else's account, posting inappropriate comments, and deleting schoolwork (Childnet International, 2007).

If the site is accessible from any internet location, schools will want to ensure that a specific "Acceptable Use Policy" is in place: Although users are tracked, learners need to be aware of appropriate and acceptable behaviour (Childnet International, 2007, p. 2). It is also important that teachers be aware of data protection issues, and how to respond to reports or discovery of offensive messages or images. Ensuring that passwords are kept private is also important, so that accounts cannot be accessed or misused by anyone else (Li, 2007)

2.3.2.9 Gaming sites, consoles and virtual worlds

As with other programmes that allow people to communicate with one another, there have been instances of name-calling and abusive or derogatory remarks on these platforms. In addition, players may pick on weaker or less experienced users by repeatedly killing their character. Wireless-enabled consoles can be used to forward unwanted messages to other compatible devices (Kowalski et al., 2008).

Many games are designed for the adult market and are inappropriate for children and adolescents because of adult themes and explicit imagery. Games should carry labels to indicate for which age they are appropriate. Parents will often want to limit the amount of time spent on games, since completing levels and finishing will be fairly addictive in any effective game. Games and virtual worlds accessed online are harder to monitor for appropriateness of content (Childnet International, 2007).

2.4   SCHOOLS' RESPONSIBILITY WITH REGARD TO CYBERBULLYING

The benefits of a positive school atmosphere have been identified through much research over the past 30 years (Welsh, 2000). Welsh, Greene, and Jenkins (1999, p.73) have defined school atmosphere as:

… the unwritten beliefs, values, and attitudes that become the style of interaction between learners, teachers, and administrators … It sets the parameters of acceptable behaviour among all school actors and it assigns individual and institutional responsibility for school safety.

These authors are in essence referring to the quality of life for learners and staff in the schoolyard.

The school atmosphere contributes to attendance, learner achievement, and other desirable learner outcomes (Stover, 2005). Creating a positive atmosphere on the school grounds has also been linked to improvements in learner behaviour, such as decreased peer-on-peer bullying and an increase in perceived and actual safety (Stover, 2005).

In a study conducted by Hinduja and Patchin (2009), learners who experienced cyberbullying (both the victims and those who admitted to cyberbullying others) perceived a poorer atmosphere or culture at their school than those who had not experienced cyberbullying. The adolescents were asked a variety of questions, such as if they:

- enjoy going to school
- feel safe at school
- feel that teachers at their school really try to help them to succeed
- feel that teachers at their school care about them

Those who admitted to cyberbullying others or who were the target of cyberbullying were less likely to agree with those statements.

The principal is responsible for establishing and enforcing policies to contend with cases of cyberbullying and sexting in the school. Classroom teachers have an even greater responsibility, since they are dealing more directly with learners who may be affected by these practices (Kuiper, Vlotman, & Terwel, 2008).

2.5 THE PREVENTION OF AND RESPONSE TO CYBERBULLYING

Trolley et al. (2006) emphasise the importance of psychological, educational and social responses to cyberbullying, not just disciplinary responses. It is common knowledge that punishment does away with unwanted behaviour but does not teach new, desired behaviour. Consequences such as suspension, while possibly necessary, tend to only isolate the cyberbullies from the school site. While safety is certainly the utmost factor to be considered, more often than not this is not the key issue. Parental instinct tells one to protect one's children, but why not empower them to protect themselves and their peers? In this regard, it is important to look at skills and abilities, such as communication, social, anger management and conflict resolution skills, as well as at the need for improved self-esteem.

Trolley et al. (2006) have proposed a psychological, educational and social intervention programme as an important supplement to typical disciplinary measures. In addition to interventions, it is crucial that prevention and the education of our adolescents in a developmentally appropriate manner be simultaneously achieved. Trolley et al. (2006) have therefore developed the comprehensive Psychological-Educational-And-Social (PEAS) programme designed to be a means of providing both cyberbullying intervention and prevention. This programme suggests that "cyberbalance" is the missing ingredient in existing psychological, educational and social intervention programmes (Trolley et al. 2006, p. 3). Trolley et al. (2009) used this term to describe how digital media education reduces cyberbullying and improves school atmosphere by helping learners to use these media responsibly.

2.5.1 The PEAS programme

A successful intervention programme involves structured approaches to planning and evaluation. It is essential that current practices be assessed and new approaches determined – based on needs assessment and careful deliberation. This means that cyberbullying issues in schools need to be identified and the existing therapeutic response programmes thoroughly evaluated.

The PEAS programme emphasises prevention, assessment and evaluation. This proactive programme shows how to advance learning, reduce cyberbullying, and improve school climate. The programme was designed by Trolley et al. (2006) to provide school counsellors, educators, administrators and parents with the necessary information and tools to implement a holistic approach to the issue of cyberbullying. Key features of this programme include:

- Psychological response

Psychologically, there are several goals. It is important to assess and address the cyberbully's motivation for the behaviour. If the cyberbully's needs, such as power, belonging, fun, esteem, safety and survival (Shariff, 2008), can be identified, then alternative behaviours to cyberbullying can be developed to meet those needs in a more productive manner. There are many reasons why adolescents become bullies or cyberbullies. In order to stop the cyberbullying you have to find out the reasons behind the cyberbully actions. An adolescent who bullies might also do it in order to feel better about himself or bullying others because he or she is self being bullied and thus bully to retaliate or avenge himself or herself.

- Educational response

In order to effectively identify and respond to cyberbullying, learners, counsellors, teachers and parents must be educated. The cyberbullying education can take place in many formats, such as in the classroom, during school assemblies, and after-school continuing educational programmes.

- Social response

With the growing age of technology, it is not surprising that the problem of poor social skills is compounded. Children and adolescents are frequently working alone on computers at schools instead of in small groups, and playing alone on computers at home instead of with peers. If one looks at the different potential motivations for cyberbullying, such as isolation, entertainment and power, it is essential that fundamental social skills be addressed. Unkind or threatening messages can be sent without the target necessarily knowing who sent them. Groups may exclude and ignore individual adolescents.

Table 2.1 explains how to make use of the PEAS programme as a learning facility in the school.

Table 2.1: The PEAS programme

"P" *PSYCHOLOGICAL*	"E" *EDUCATIONAL*	"S" *SOCIAL*
1. Outside counselling referral	1. Curriculum infusion	1. Skill building (communication & social interaction)
2. Family support centre referral	2. Peer matching	2. Team projects
3. In-school counselling	3. School assemblies	3. Peer mentoring
4. Anger management group	4. Development of public service announcements	4. School policies
5. Peer mediation/Conflict resolution	5. Parent education	5. Field trips
6. Apology & Impact Statement	6. School in-staff service	6. Extracurricular activities
7. "Online safebox"		7. Community Involvement

Source: Trolley et al. (2006)

2.6   CONCLUSION

This chapter provided an in-depth discussion of the emerging issue of cyberbullying. In our increasingly digital world, cyberbullying has emerged as an electronic form of bullying that is difficult to monitor and supervise as it often occurs outside the physical school setting and outside school hours on home computers and personal cellphones.

The resulting issues have created an urgent need for research with cyberbalance as its aim. It is essential that today's adolescents are taught from an early age the benefits and cautions associated with new media use, as well as how to use it responsibly. Adolescents need to find ways of using these media more positively in their lives, or they may end up being victims or perpetrators of cyberbullying, the consequences of which can be most damaging.

This chapter also presents information about the qualities that make adolescents likely to be victimised, or behave aggressively towards someone else electronically.

The literature reviews in both chapters 1 and 2 point out that adolescents are everything but passive when it comes to new digital media. Unlike their parents, who grew up watching television and listening to music, they are connecting, and transferring themselves, to a virtual reality. In the next chapter, the basics of how adolescents react to and behave in cyberspace are explored. It offers an investigation into self-expression and identity in the virtual world, as well as the effect of this realm on their levels of aggression.
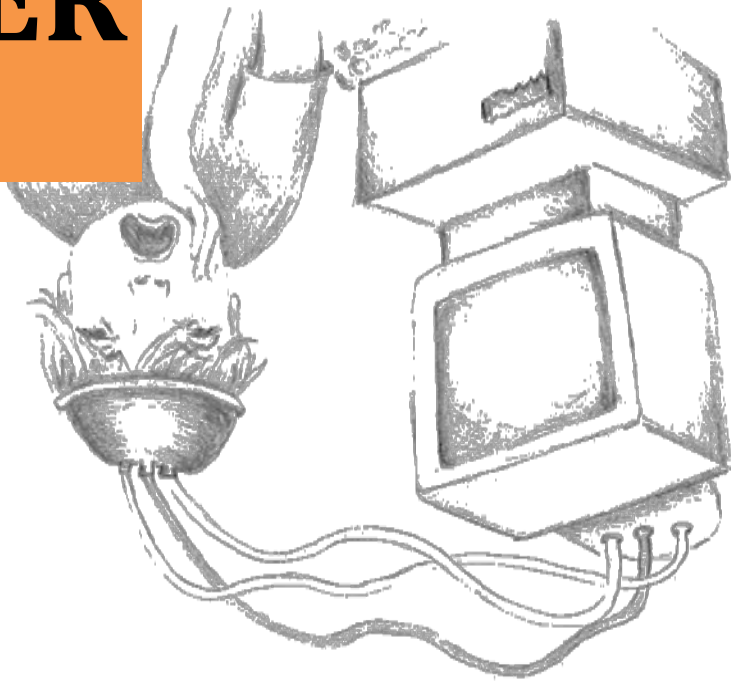
A NEW DIMENSION OF HUMAN EXPERIENCE

Whith the advance of computers and online networks, a new dimension of human expeience emeged: cyberspace. While some virtual spaces are down-to-earth realms, others lean toward fantasia.

CHAPTER 3

PSYCHOLOGICAL FEATURES OF CYBERSPACE: UNDERSTANDING HOW ADOLESCENTS REACT TO AND BEHAVE IN CYBERSPACE

3.1   INTRODUCTION

In this chapter, the psychological effects of environments created by computers and online networks are explored. An evolving conceptual framework for understanding how adolescents react to and behave in cyberspace is presented.

Unlike most computer terms, "cyberspace" does not have a standard, objective definition. Instead, it is used to describe the virtual world of computers (Wicks, 2001, p. 163). For example, an object in cyberspace refers to a block of data floating around a computer system or network (Dictionary of Technical Terms, 2011). With the advent of the internet, cyberspace extended to the global network of computers. After sending an email to a friend a person could say he or she sent a message through cyberspace (Wicks, 2001).

The internet provides a constant, ever-changing source of information and entertainment. Emails, blogs, social networks and message boards allow for both public and anonymous communication about any topic. Most people enjoy the benefits of the internet, and for many of them it is also an indispensable tool for work, education and communication. However, the environment created by computers and computer networks can in many ways be understood as a psychological "place" or "space" (Suler, 2007, p. 1). When adolescents power up their computer, launch a programme, write an email, or log on to their online service, they may often feel, consciously or subconsciously, that they are entering a space that is filled with a wide array of meanings and purposes (Barak & Suler, 2008). According to Suler (2007), users often describe that their computer is an extension of their mind and personality – a space that reflects their tastes, attitudes and interests.

Computers permeate nearly every human activity in the modern world and affect human behaviour from the most basic sensorimotor interactions to the most complex cognitive and social processes (Norman, 2008). The developing field of cyberpsychology encompasses all psychological phenomena that are associated with or affected by emerging technology. "Cyber" comes from the word "cybernetics", which is the study of the operation of control and communication, and "psychology" refers to the study of the mind and behaviour (Gordo-López & Parker, 1999, p. 130). Although this chapter focuses on the effects of the internet and cyberspace on the psychological well-being of adolescents, topics include online identity, online relationships, personality types in cyberspace, transference to computers, addiction to computers and the internet, regressive behaviour in cyberspace, the occurrence of parasocial interaction, and the influence of avatar creation on behaviour.

A fair amount of research has focused on the isolation effects of using the internet (Kraut, Kiesler, Boneva, Cummings, Helgeson, & Crawford, 2002; Moody, 2001; Tyler, 2002; Wellman, 2001). All of these authors agree that the internet is changing the nature of social relationships. Since it is becoming increasingly easier to communicate via electronic media, the way adolescents socialise has changed. The effects of adolescents' online socialisation are very controversial and intriguing. Many are concerned about whether electronic communication versus in-person communication negatively affects the development of adolescents, and there are also worries about whether strangers who intend to harm adolescents, like sexual predators, are easily able to contact and develop relationships with adolescents through publicly posted information on social websites (see chapter 2, 2.3.2.6) (Steinberg, 2008).

Among the most common beliefs about adolescence is that it is the time when teens form their personal identities. Empirical studies suggest that this process might be more accurately described as identity development, rather than formation, but confirms a normative process of change in both content and structure of the thoughts about the self (Steinberg, 2008). Researchers have used three general approaches to understanding identity development: self-concept, sense of identity and self-esteem (Steinberg, 2008).

The perspectives in this study stem from psychology and not from computer science. The psychology field in this study is developmental psychology. This field of psychology attempts to analyse the behavioural patterns of individuals in different age groups. Developmental psychologists usually focus on a particular age group and the development of particular skills during that time period (Shaffer, 2009). This research study examines the effect of digital media technology on adolescents' social behaviour and critical-thinking skills. Thus, influences of electronic media on adolescents development. Developmental psychology complements several other basic research fields in psychology including social psychology and educational psychology (Shaffer, 2009). The educational psychology and social psychology approaches in this study is how adolescents learn in educational settings, the effectiveness of digital media literacy education interventions, the psychology of teaching, and the social psychology of schools as organisations.

This chapter will briefly review what developmental psychology has already taught us about adolescence, the challenges and the factors, particularly contextual ones that affect adolescent development. The chapter pursues this line of reasoning, and examines the role of technology in the fundamental adolescent developmental issues of sexuality and identity. The final part of the chapter examines the role of digital media during adolescence and presents the chapter's theoretical position that adolescents' online and offline worlds are psychologically connected. In other words, their online and offline lives are connected to each other. The digital world is very real to adolescents, and within their subjective experiences, the "real" and "virtual world" may even blend with each other.

3.2   ONLINE SOCIAL INTERACTION: PROBLEMATIC INTERNET USE

The rise of the internet has led to debate about whether internet use can have a negative effect on people regarding their ability to socialise with others (Engelberg & Sjöberg, 2004). Douglas and McGarty's (2001) main argument is that using the internet cuts one off from genuine social relationships and an active social life. People's social interactions are mediated in many ways by their emotions, through which they obtain

useful information for creating and maintaining various relationships (Keltner, Horberg, & Oveis, 2006).

Neuroscientist and expert on brain function and behaviour, Dr. Gary Small, explored how technologies' march forward have altered the way young minds develop, function, and interpret information (Small & Vorgan, 2008). He revealed a new evolution catalysed by technological advancement and its future implications. But what are the social implication of this new brain evolution on adolescents? With such a broad exposure to computers and their displays, adolescents' perceptions go beyond objects and images in our natural environment and now include the graphics and images on the computer screen (Small & Vorgan, 2008). Wallace (2001, p. 4) identifies six different internet environments. They differ in certain basic features, affecting the way adolescents behave when they experience them:

- the World Wide Web
- electronic mail (email)
- asynchronous discussion forums (newsgroups)
- synchronous chats (internet relay chat)
- multi-user dungeons (more commonly known as MUDs): text-based virtual environments, metaworlds (3D MUDs), and 3D virtual environments
- interactive voice and video (webcams)

3.2.1 Online relationships

When used responsibly, the internet can be a great place to interact socially, meet new people, and even start a romantic relationship. However, online relationships are often more intense than those in real life. A case was reported by a school counsellor who was treating a female adolescent learner who reported feeling extremely depressed because of a recent break-up with her boyfriend. The counsellor assumed the boy was another adolescent learner at the school or a boy from back home. Not until their fifth session, and only by accident, did the counsellor learn that this boyfriend only existed in cyberspace. Yet the girl's devastation appeared just as real as if she had known him in real life. The counsellor was surprised at how this young girl could get so emotionally attached to a computer friend (Center for Internet Addiction, 2010).

Most school counsellors know little, if anything, about the ways of the internet, or its special allure for learners. In order to help learners, it is crucial that they learn everything about the internet and what learners do there (Caldwell & Cunningham, 2010). They have to be able to talk to learners about their online activities and ask them questions about what they get out of it. They have to go online themselves and see what goes on in chat rooms, and what interactive online games look like. And when a learner reports depression or anxiety, they have to inquire about the learner's internet habits.

3.2.2 Extent of problems caused by excessive internet use

3.2.2.1 Addiction to computers and the internet

Subjective reports indicate that some online users are becoming addicted to the internet in much the same way that people become addicted to drugs or alcohol, which results in academic, social and occupational impairment (Goldberg, 2011; Greenfield, 2009). However, research by sociologists, psychologists and psychiatrists has not formally identified addictive use of the internet as a problematic behaviour (Chou, Condron, & Belland, 2005; Wallace, 2001). But how much is too much internet usage? According to Caplan (2005), it is when adolescents feel more comfortable with their online friends than their real ones, or when they cannot stop themselves from playing games, gambling, or compulsively surfing, even when it has negative consequences in their lives.

Chapter 1 (see 1.2.2) indicated that to the youth cellphone addiction and internet addiction sometimes go hand in hand as they use cellphones to access the internet, to access Facebook, Twitter, MXit, Whats App – all internet applications. They also download games and music on cellphones and feel lost without their cellphones. Wallace (2001 p. 99) states that the internet addiction syndrome can be a "time sink" – an activity that consumes significant time. A variant of this term is a "time drain". In massively multiplayer online role-playing games, time sinks are a method of increasing the time needed by players to do certain tasks, hopefully causing them to subscribe for longer periods of time (Miller, 2010). Wallace (2001, p. 99) points out that what we see in this "addictive" behaviour is really something psychologists have long known about,

namely the way that variable reinforcement schedules lead to high rates of responding and behavioural persistence. Game developers and websites have simply implemented this principle. Skinner's rats pressed a bar, we press a mouse; the more things change, the more they stay the same (Tyler, 2002).

Similar operant conditioning processes seem to drag people into the time sink in the more game-orientated MUDs and chat rooms. Wallace's (2001) hypothesis is that internal locus of control individuals may be more attracted to the resources to be found online and are therefore also vulnerable to the time sink effect. One example is the Trivbot chat room, where players join one of two teams and answer Trivial Pursuit type questions. The bot (short for infobot or robot) congratulates the player who is first to type the correct answer. The player's team gets another point and the player enjoys the reward access.

3.2.2.2 Loneliness, depression and anxiety can contribute to internet abuse

Many adolescents may turn to the internet to manage unpleasant feelings such as stress, loneliness, depression and anxiety. When they are looking for a way to escape from their problems or relieve stress quickly or self-soothe, the internet can be an easily accessible outlet (Livingstone, 2002). Losing yourself online can temporarily make feelings such as loneliness, stress, anxiety, depression and boredom vanish (Caplan, 2003). It is therefore important that parents and teachers encourage healthier and more effective ways of keeping their difficult feelings in check. These may include exercising, meditating, using sensory relaxation strategies, and practising simple breathing exercises.

3.2.2.3 Types of internet addiction

Young (1998, p. 60; 2009a, p. 4) categorised five specific types of internet addiction:

1. cybersexual addiction – to adult chat rooms or cyberporn
2. cyber-relationship addiction – to online friendships or affairs, which replace real-life situations

3.   compulsions to gamble online, bid on online auctions, or obsessive online trading
4.   addiction to information overload – compulsive web surfing or database searches
5.   addiction to game playing or programming

Adolescents' fantasies are given free rein, and the idea of being with their online friends can exceed all realistic expectations. Since few real-life relationships can compete with these wild, fantasy relationships, internet addicts will prefer to spend more and more time with their online friends (Wicks, 2001).

In Young's (2009c) study *Internet Addiction: The Emergence of a New Clinical Disorder*, internet addicts reported that excessive use of the internet resulted in the personal, family and occupational problems that have been documented in established addictions such as pathological gambling, eating disorders and alcoholism. Non-addicts reported no adverse effects resulting from the use of the internet, apart from poor time management because they easily lost track of time once online. The problems reported were classified into five categories: academic, relationship, financial, occupational and physical.

3.2.2.4 Addicts versus non-addicts

A study on internet addiction by Young (2007) lists the applications rated as most utilised by addicts and non-addicts. The results suggest that the two groups prefer different internet applications, as non-addicts predominantly used those aspects of the internet that allowed them to gather information (information protocols and the World Wide Web) and email, while addicts predominantly used the two-way communication functions available on the internet (chat rooms, MUDs, news groups and email).

Table 3.1: Internet applications most utilised by addicts and non-addicts

Application	Type of computer user	
	Addicts	Non-addicts
Chat rooms	35%	7%
MUDs	28%	5%
New groups	15%	10%
Email	13%	30%
Web surfing	7%	25%
Information protocols	2%	24%

Source: Young (2007, p. 673)

It should be noted that MUDs differ from chat rooms. In order to log into a MUD, a user creates a character. MUDs can be social in a similar fashion to chat rooms, but all dialogue is typically communicated while "in character" (Young, 2004, p. 407). There are literally hundreds of different MUDs, ranging in themes from space battles to medieval duels.

3.2.2.5 Engaging in compulsive online activities can adversely affect real-life relationships

Compulsive online gamers can isolate themselves for many hours at a time, participating in virtual reality or online fantasy games and neglecting other aspects of their lives such as work and family (Yee, 2007). While gambling has been a well-documented problem for years, the availability of internet gambling has made gambling far more accessible also for adolescents. Net compulsions such as compulsive online stock trading or online auction shopping can be just as financially and socially damaging as online gambling. eBay addicts, for example, may wake up at strange hours in order to be online for the last remaining minutes of an online auction. They may purchase things they do not need and cannot afford in order to experience the excitement of placing the winning bid (Wang, 2008).

While online pornography and cybersex addictions are types of sexual addiction, special challenges on the internet include its relative anonymity and ease of access (Young, 2008). People can spend hours on the internet in the privacy of their own home and

engage in fantasies impossible in real life (Young, 2008). According to Young (2005b), approximately 70 000 sex-related websites are visited by an estimated 15% of all users. Internet pornography statistics become outdated very quickly, especially in the internet environment where numbers change daily. Table 3.2 provided children pornography statistics. These statistics have been derived from FamilySaveMedia.com, 2011.

Table 3.2 Children internet pornography statistics

Average age of first internet exposure to pornography	11 years old
Largest consumer of internet pornography	35 – 49 age group
15 to 17-year-olds having multiple hard-core exposures	80%
8 to16-year-olds having viewed pornography online	90% (most while doing homework)
7 to 17-year-olds who would freely give out home address	29%
7 to 17-year-olds who would freely give out email address	14%
Children's character names linked to thousand of pornography links	26 (including Pokemon and Action Man)

Adapted from FamilySafeMedia (2011, p.3).

The accessibility of these sites, along with the anonymity and privacy, contribute to a sense of being in control. Compulsively spending hours on the internet viewing pornography or engaging in cybersex activities can adversely affect real-life relationships, career and emotional health (Huang, 2006).

Turkle (1996) showed that the use of the internet is likely to result in social isolation. Adolescents have created their so-called "own world" on the internet, a place where they can talk freely (Whang & Jang, 2002, p. 84). Consequences of extensive internet use by adolescents may include problems of mood, behaviour and learning, and poor health outcomes (Owens, 2004).

Goodwin (2011) reports an alarming new trend in the *HealthDay News*, namely adolescents posting videos on YouTube that depict "cutting", in which troubled adolescents use a razor blade or other sharp object to dig into their skin and draw blood, or other forms of self-injury, such as embedding objects under the skin or burning themselves. The text of one such video reads:

My secret is my blade, it is my obsession, it is my dark secret, when I am empty I bleed, when I am sad I bleed, when I have no hope I bleed. (Goodwin, 2011, para. 2)

Goodwin (2011) quotes Niranjan Karnik, a professor of Psychiatry and Behavioural Neuroscience at the University of Chicago who specialises in treating adolescents. Karnik said that, for many adolescents, cutting is like releasing a pressure valve, and that they will do this until we can give them some better strategies for coping (Goodwin, 2011). Goodwin also reports a study in which the researchers searched for the top hundred most-viewed videos of self-injury or self-harm. Together, these videos had been viewed more than 2,3-million times, and many were rated favourably by viewers. By sharing the sometimes graphic images with other vulnerable adolescents, the videos may make the behaviour seem more normal and even prompt some adolescents to try it out (Goodwin, 2011). Goodwin also quotes Lewis, a professor of Psychology at the University of Guelph in Ontario, Canada, who said that some individuals who view this, if they are vulnerable and if they are regularly and repeatedly viewing these types of videos, could form a virtual community in which self-injury could be reinforced and the means of getting help are not always conveyed.

Although the merits of the internet make it an ideal research tool, learners experience significant academic problems if they surf irrelevant websites, engage in chat room gossip, converse with internet pen pals and play interactive games at the cost of productive activity. Due to such internet misuse, learners often have difficulty completing homework assignments, studying for exams or getting enough sleep in order to be alert for class the next morning. They are often unable to control their internet use, which eventually results in poor grades (Young, 2009a).

3.2.2.6 Risk factors for adolescent internet abuse

When investigating internet addiction and the extent of the problems it causes, it is important to look at the major contributing factors. Young (2009a, p. 28) indentifies the following risk factors for learner internet abuse:

- **Unlimited internet access**. As indicated in chapter 1 (see 1.2.2.2), South African adolescents' use of the internet has not only surfaced in the home environment as many of them access the internet via their cellphones, where there are no limits to the time they are logged on. With internet cafes being open round the clock for their convenience, they are also an internet user's dream.

- **Unstructured time**. Most secondary school learners attend school for 25 to 28 hours per week. The rest of the time is their own to read, study, go to the movies or parties, join clubs and explore the environment outside the school walls. However, many of them forget those other activities and concentrate on only one thing – the internet.

- **Freedom from parental control**. Away from home and their parents' watchful eyes, adolescents use their time by hanging out in the MUDs and chat rooms in cyberspace.

- **No monitoring or censoring of what they say or do online**. When adolescents move on to secondary school, they may find that their parents are less suspicious, or less likely to peek over their shoulders or monitor their online time and activities. In school, teachers are not watching the internet learners' activities. Computer laboratory monitors tend to be volunteer Grade 12 learners, whose only responsibility it is to assist anyone who needs help using the internet, not to tell them what they can and cannot do on the computers.

- **Encouragement from school and teachers**. Secondary school learners understand that their teachers want them to make full use of the internet's vast resources. The school management and governing body want to see their investments in computers and internet access justified.

- **Training in similar activities**. By the time most children get to secondary school, they will have spent years staring at video game terminals, shutting out the world around them with Walkmans, and engaging in the rapid-fire clicking of the TV remote. Even if they have not been introduced to the internet in primary school, these activities have made them well suited to slide into aimless web surfing, skill-testing MUDs and chat room dialogue.

- **The desire to escape school stressors**. Adolescents feel the pressure of making top grades and fulfilling parental expectations. The internet, ideally, helps to make it easier for them to do their schoolwork as quickly and efficiently as possible, but

they instead turn to their internet friends to hide from their difficult feelings of fear, anxiety and depression.

- **Social intimidation and alienation**. Adolescents can get lost in the crowd at school. When they try to reach out, they often run into the in-crowds of secondary school. Maybe they do not dress correctly or look right. However, when they join the faceless community on the internet they find that with little effort they can become popular with new "friends" throughout the world – why bother trying to socialise at school?

- **A higher legal drinking age**. With the drinking age in most clubs being 18 or 21, adolescents cannot openly drink alcohol and socialise in such places. The internet then becomes their substitute drug of choice. No identification document is required, and there is no closing hour.

Most adolescents laugh off any suggestion that they are becoming psychologically dependent on the feelings they get from playing games or visiting chat rooms, because packed internet cafes provide an even more effective cover than a crowded club. While sitting among other internet users whose obsessions manifest in eight-hour sessions, no one is going to tap them on the shoulder and say, "Hey, I think you have a problem – you need to get some help" (Goldberg, 2011, para. 6).

Internet addicts become angry at and resentful of others who question or try to limit their internet use. Just like alcoholics who hide their addiction, internet addicts engage in the same lying about how long their internet sessions really last or hide bills related to fees for internet services (Young, 2009b).

Vieru (2009) maintains that adolescents who are addicted to surfing the web are more likely to engage in aggressive behaviour, and therefore need monitoring by parents and teachers. Vieru (2009) points out that it could be that using the internet causes adolescents to behave more aggressively, or that aggressive adolescents seek out the internet.

School principals and managements are concerned that they have invested a lot of money in an educational tool that some learners use for self-destruction as they chat,

play interactive games, download pornography or scan the web (Passey, 2002). Parents are rightly angry when they find out that their huge investment in their child's education is going to support all-night internet sessions.

3.2.3 The positive side of internet "overuse"

The positive side of internet "overuse" is seldom credited by the popular press. Computers are certainly intriguing and captivating, and the internet is most assuredly alluring with its research and communicative capacities, but overall, new media can be considered a positive enhancement to growth. This is affirmed by Tapscott (2008), who states that when children are online, they are reading, thinking, analysing, criticising and authenticating, and composing their thoughts. Tapscott (2008) is also of the opinion that children use computers for activities that go hand in hand with adults' understanding of what constitutes a traditional childhood. They use the technology to play, learn, communicate and form relationships as children always have and their development is enhanced in an interactive world.

According to Wallace (2001), there is also a remarkable degree of altruism seen online. Wallace also praises the benefits of the internet in actually grooming the social skills of adolescents. Simon (1997, p. 3) offered the following view:

> While the educational pros of the technology of computers cannot be forgotten, what about the social aspects? When we think of children and computers, the image of endless hours of playing games comes to mind. There are however many opportunities for children and youth to interact online in productive and positive ways.

Simon (1997) suggested that an online magazine such as *Spank* is a good way for adolescents to express themselves. Online magazines are virtual forums in which adolescents can write and communicate their ideas. Creativity and imagination are the prerequisites for innovative thinking that will never be obsolete. Yet the heavy use by children of ready-made computer images and programmed toys appears to stunt imaginative thinking. Teachers report that children in our new electronic society are

becoming alarmingly deficient in generating their own images and ideas (Alliance for Childhood, 2004).

Technology is changing rapidly, and with it our theories and research change. Norman (2008) suggests in his book *Cyberpsychology: An Introduction to Human-Computer Interaction* that cyberpsychology is the new psychology. It seems that the psychology discipline is at the stage of investing in extensive internet research on the one hand, and discovering great opportunities inherent in this medium on the other (Riva & Galimberti, 2001). Different psychological applications using the internet, especially the World Wide Web, have recently appeared. According to Barak (2008), there are ten types of psychological internet applications: information resources on psychological concepts and issues; self-help guides; psychological testing and assessment; help in deciding to undergo therapy; information about specific psychological services; single-session psychological advice through email or ebulletin boards; ongoing personal counselling and therapy through email; real-time counselling through chat, web telephony and videoconferencing; synchronous and asynchronous support groups, discussion groups and group counselling, and psychological and social research. MySpace and Facebook, for example, provide thousands of referrals to the National Suicide and Prevention Hotline; this could reduce the rate of suicidal gestures and attempts among adolescents.

3.2.4 Human-computer interaction

Norman (2008, p. 409) states that, although "human" and "computer" appears side by side in the term "human-computer interaction", the human takes precedence over the computer rather than being on the same plane. According to Riva and Galimberti (2001), technological advances have gradually shifted the focus from computers, which have become less of an end in themselves and more of a means in terms of what people actually do with them. In other words, whether expert computer users or not, people act independently and have their own reasons for what they do, and it is computers and systems that have to adapt to people, not vice versa (Riva & Galimberti, 2001). The most evident sign of this change has been the birth and increasing popularity of the internet (Yee, Bailenson, Urbanek, Chang, & Merget, 2007).

How is the internet changing the way specifically children and adolescents think? This is one of the dominant questions of our time, and the answer affects almost every aspect of our lives and future. The impact of internet use on cognitive development has not been widely studied. However, there is no evidence that internet use either benefits or has any negative effects on the school performance of adolescents (Steinberg, 2008). Moreover, there are a few studies that have shown that playing video games may improve reaction times and hand-eye coordination and improve visual skills (Jamieson & Romer, 2008).

As noted by Wallace (2001, p. 9), "the most important mediator of behaviour in these internet environments is the purpose of the people who visit or inhabit them." In particular, their use depends on how they are interpreted, what projects are in them, and what they think about daily reality (Mantovani & Riva, 1999). In this sense, the internet experience may be defined as a process by which a group of social actors in a given situation negotiates the meaning of the various situations that arise between them (Kari, 2010; Mantovani, 2001).

If the internet experience is a process of negotiation, then:
- the only way to understand it is by analysing the subjects involved in it, and in the environment in which they operate, meaning that the social context in which the internet experience occurs plays a crucial role, and
- new processes and activities will develop that challenge and change the initial relationship between subject and context (Riva & Galimberti, 2001, p. 131).

According to Mantovani (2002), the early 1990s saw changes in the study paradigms of person-computer and person-computer-person interaction. The main result of this has been the realisation that interaction can only be fully understood through a detailed analysis of the social context in which it happens (Tscheligi, 2008). "At this point we should no longer see people simply as 'users' of given systems, but as social 'actors'" (Mantovani, 1996, p. 63).

With the rising number of internet and computer users in South Africa (see chapter 1), it is evident that new technology's effects on the human psyche will continue to

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significantly shape both persons interactions with each other and their perceptions of the world, which is literally at their fingertips. Research in the field of cyberpsychology is therefore crucial to understand children and adolescents' lifestyles.

3.3   CONNECTING ONLINE BEHAVIOUR TO ADOLESCENT DEVELOPMENT

The psychology of cyberspace, or cyberpsychology, is an evolving theoretical and philosophical concept that aims to understand the effects of computer and internet use on human motivations and behaviours (Wallace, 2001).

Cyberpsychology+ Adolescent Development+ Individual Personality= Behaviour Online

Cyberpsychology is about humans and computers and the psychology of how they interact (Norman, 2008). It also includes the study of human and machine intelligence, and the psychological implications of virtual reality, among other things (Fogel, 2006).

3.3.1 Avatars and graphical space

An avatar is a two- or three-dimensional graphical representation in cyberspace of the internet user's self – a cyber-self. It is also defined as a picture drawing or icon that users choose to represent themselves (Chung, deBuys, & Nam, 2007). Rather than limiting users to text-only communication, like in most chat rooms, multimedia programmes add a visual dimension that creates the illusion of movement, space and physicality. The result is a whole new realm for self-expression and social interaction with its own subtleties and complexities.

Avatars are primarily used in the entertainment industry as high-tech novelties, controlled by gamers for high-end video games. Statistics indicated that games draw adolescents to the world of the internet (Information Society Statistical Profiles, 2009). Adolescents experience games as electronic mock-ups of the real thing, accessed easily

by the family's online computer or a tablet/smartphone. When avatars were first introduced, users could only choose a gender; the rest of its characteristics were provided as a default.

Change Your Style
Trying on a cool pair of jeans or a different hairstyle is easy and fun. Get a new look every day.

However, owing to the development of interactivity, users can now create their own avatars and dress them up by purchasing various accessories, such as pants, shirts, hats and rings (Jacko, 2007).

Get Animated
Laugh out loud, frown, or wink at a cute guy or gal -- your avatar can express your moods while you chat.

Avatar heads are also capable of displaying the "universal" facial expressions of emotion: happiness, surprise, anger, fear, sadness and disgust (Jacko, 2007, p. 219).

Avatars can also perform actions: kiss, shoot, make rude gestures, and yes, have sex (Chung et al., 2007). For many adolescents these cyberspace "hangouts" are no less treasured or real than the real thing (Barak & Suler, 2008, p. 4).

The positive side is that avatars give adolescents fun, safe ways to explore different personalities and express themselves while keeping their real identities secret. However, there are also negative effects of these identities that can have psychological repercussions. A significant one is that the anonymity avatars provide can give adolescents courage to act out in ways they would not have if they were not disguised (Gauntlett & Horsley, 2004). Cloaked by an assumed identity provides the opportunity to be mischievous or even bullying (see chapter 2, 2.2.1). Because skin colour and body types are variable, adolescents can make stereotyped or racially charged decisions. Sure it is pretend, but prejudice is as real in cyberspace as it is in real life. Both the positive and the negative aspects have therefore to be considered.

3.3.1.1 Avatars: the realism of digital human representations

It is clear that avatar realism is critical to the future of collaborative virtual environment development. Highly realistic avatars with real-time facial form and tracking require more

resources, both computationally and in terms of the person-hours required to implement them (Bailenson, Yee, Merget, & Schroeder, 2006). Also, more broadly, the realism of digital human representations is a key issue for a range of new media other than immersive virtual environments, such as videoconferencing, mobile telephony, online gaming, instant messaging, and any other media that include online representations of users (Blascovich & Bailenson, 2011).

Understanding the relationship between form and behavioural realism is critical when examining the use of these new forms of media. Since avatars are playing an increasingly central role in virtual environments and other electronic media, it is important to investigate the suitability of different types of avatars for representing the user. Figure 3.1 provides a framework for considering representations of humans that are not limited to avatars.
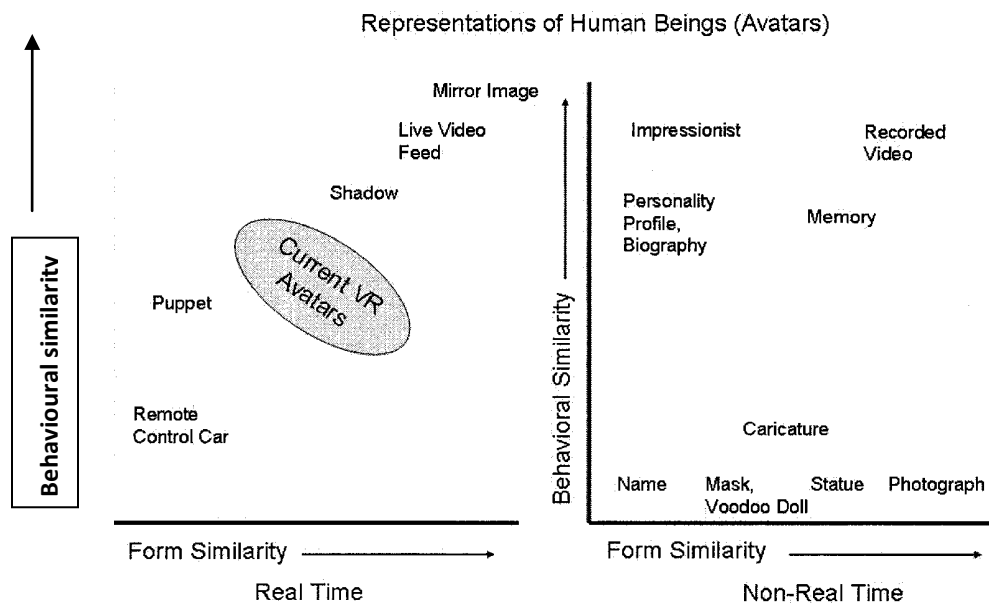
Source: Bailenson et al. (2006, p. 360)

Figure 3.1: A framework for classifying representations of humans in physical and digital space

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The y-axis denotes behavioural similarity – how much the behaviours of the representation correspond to the behaviours of a given person. The x-axis indicates form similarity – how much the representation statically resembles the features of a given person. On the left side are representations that correspond to a given person's form or behaviour in real time. On the right are representations that correspond to a person's form or behaviour asynchronously (Bailenson et al., 2006).

As is evident from figure 3.1, there are lots of different types of representations of people used today. The shaded oval denotes the space in which we typically discuss avatars and digital representations of humans that are used in immersive virtual environments. According to Bailenson et al. (2006), the virtual environment can induce parasocial interaction and strong feelings of social presence through interactive communication among avatars.

It has been clear throughout this discussion that parasocial interaction in cyberspace is the extent of virtual environment users' interpersonal involvement with other avatars and perceptions of themselves as interacting with the other virtual actors in the environment. "Self-construal" refers to an individual's view of the self. Self-construal plays an important role in shaping parasocial interaction in interactive media environments (Duck, 2007, p. 51). Jin and Park (2009) found that the personality trait of high interdependent self-construal (people for whom close relationships are essential for self-expression, self-enhancement, and self-verification) contributed both to increased immersion in a game and an increased parasocial relationship with the player avatar.

3.3.2 Parasocial interaction in cyberspace

"Parasocial interaction" and "parasocial relationship" are terms used by social scientists to describe one-sided interpersonal relationships, in which one party knows a great deal about the other, but the other knows very little. Historically, the most common form of such relationships is the one-sided relationships between celebrities and their audiences or fans (Reymann, Alves, & Lugmayr, 2008). In parasocial interaction there is no "normal" social interaction; it is a very one-sided relationship. The knowledgeable side has no direct control over the actions of the side it observes, and it is very difficult for the knowledgeable side to contact or influence the other side.

The internet has been said to be a "construct of the imagination", an inkblot test into which people projects their desires, fears and fantasies (Noam, 2005, p. 57). With the advances in multisensory immersion in persistent spaces, these synthetic worlds may more magnify fragmented realities, those of the real and the virtual world (Hai-Jew, 2009). The new immersion then involves shared mental, emotional and cognitive interaction spaces that involve symbolic human "presences" through avatars. Human-embodied avatars are more full-sensory. They may interact using a variety of channels, with more multimedia-rich audio or video interactions outperforming text-based communication in many studies (Bente, Rüggenberg, Krämer, & Eschenburg, 2007). Their bodies also have all sorts of non-verbal behaviours and physical states of being that may be conveyed (Bente et al.). Deictic gestures (referential movements that people use as part of communication) that add richness to interactivity and intercommunication may also be conveyed virtually. Talking facial images have been shown to increase human attention and the phenomena of virtual presence (Rajava, 2004).

The immersive parasocial therefore refers to the one-way relationships people may form with anthropomorphic automated bots (a programme used to search the internet for data) and avatars. The parasocial aspect refers to the degree to which users illogically overlook the mediated or artificial nature of interaction with an entity within a medium (Lee, 2004). Historically, parasocial relationships tended to be imaginary one-way relationships between media users and on-screen characters through frequent exposure (Horton & Wohl, 1956). Based on that concept, some researchers suggest that people who are more exposed to their own avatars through the creation process may have a greater sense of parasocial interaction (Chung et al., 2007). Research using self-report from participants has found that people consider embodied conversational agents who resemble them to be more persuasive, in the same way that people consider others who resemble them to be more persuasive (Forlizzi, Dey, & Kiesler, 2007).

Tsao (2004) observed that such relationships do not involve much of a sense of obligation, effort or responsibility on the part of the spectator, or much of an expectation of reciprocity or relationship development. Participants may quit at any time and end the imaginary moment. Table 3.3 contains some of the differences between the social and the parasocial.

Table 3.3: Salient points of comparison between the social and parasocial

The traditional social	The immersive parasocial
Multiway relationships	A simulated relationship(s); one-way discourse with a bot or avatar
Real, authentic	Imaginary or partially imaginary
Developed over time; gradual	Built on swift trust and assumptions
Animated human other	Inanimate object of attention; human-mediated avatar
Mutual commitment	Zero to no commitment between parties
Continuing relationship	Transitory relationship
Healthy	Vicarious, obsessive and substitutional
In the real	In the virtual, augmented reality, and augmented virtuality

Source: Hai-Jew (2009, p. 5)

The concept of the immersive parasocial is a nuanced one and may be understood along a spectrum of effects. Figure 3.2 shows a spectrum of effects of immersive parasocial relationships.
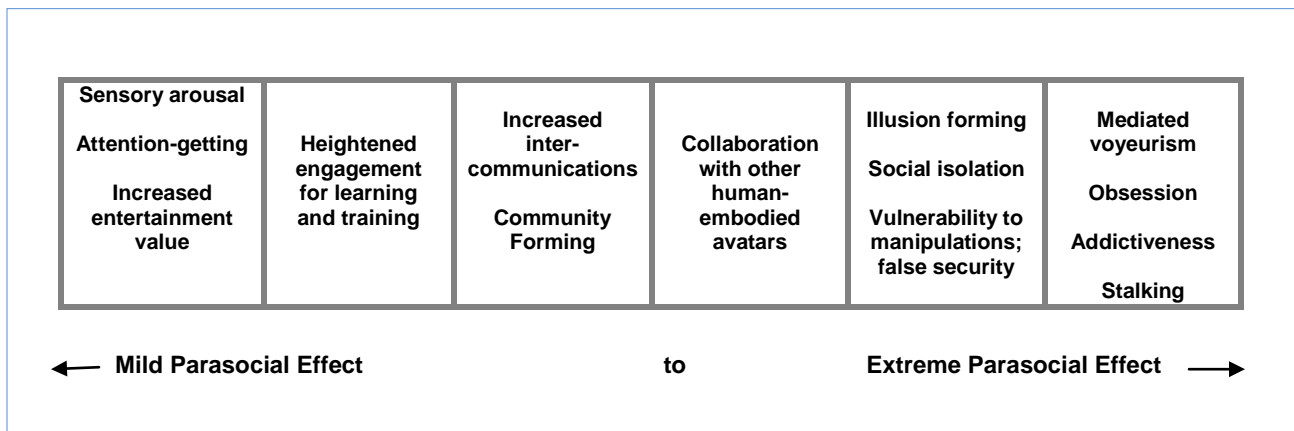
Source: Hai-Jew (2009, p. 6)

Figure 3.2: A spectrum of effects of immersive parasocial relationships

As can been seen in figure 3.2, the mild end of the parasocial effect may involve sensory arousal, attention-getting and some increased entertainment value, and it may be seen as more socially positive than the extreme parasocial effects to the right, which allude to obsessions.

3.3.3 Socialising in cyberspace

Gaunlett and Horsley (2004) explain that the internet has enabled like-minded people to form communities, regardless of where they are in the physical world. As Bonebrake (2002, p. 553) states: "The internet provides a unique environment for relationship development; it can be very personal yet at the same time, a feeling of personal space can be maintained."

It goes without saying that these virtual communities are different to real-world ones. They are much more flexible, with people coming and going, making new connections, or choosing to ignore parts of the community they do not like (Gauntlett & Horsley, 2004).

A good example of a virtual community that is strictly for adolescents is Mad Dog Mobile (Wolak, Mitchell, & Finkelhor, 2003b). As stated in chapter 1 (see 1.6), an adolescent is usually a youth who has undergone puberty, but who has not fully matured, for example a teenager. The Mad Dog Mobile site enables adolescents from around the world to communicate through chats and avatars. The site is an ideal example of a place where adolescents can take on diverse personas and identities, and it appears to be absolutely secure and has made the users aware of the privacy issues (Wolak et al., 2003a).

The success of the creation of these identities can possibly be attributed to the limited amount of emotions. Firstly, neither the sender nor the receiver knows if the other is stating the truth. Secondly, the real-life expressions of an individual can hardly be expressed in an instant message window. Figure 3.3 is a screen shot of an instant message window.
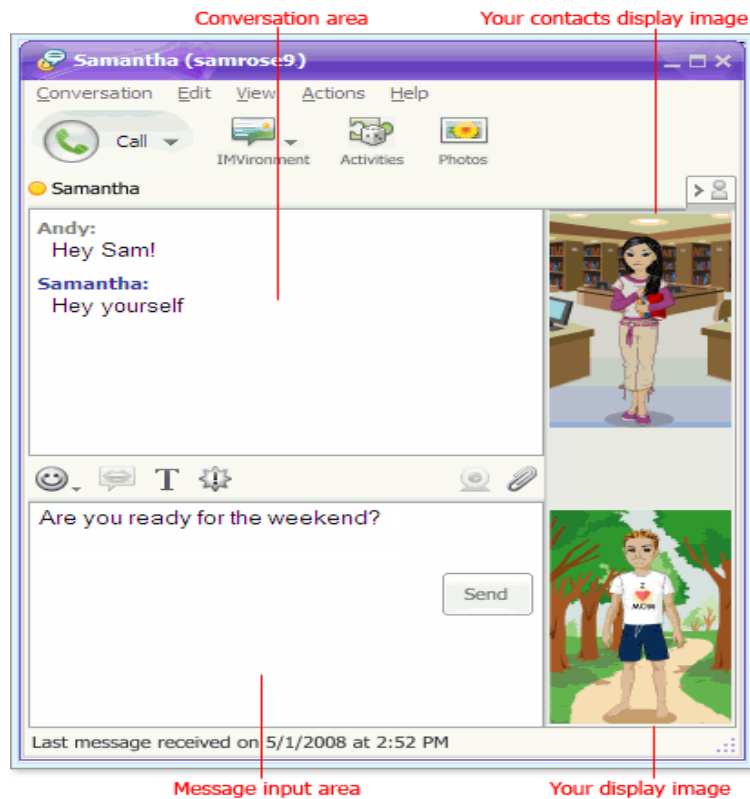
Figure 3.3: Screen shot of an instant message window

Most people feel a sense of insecurity when they do not know the true identity of the individual with whom they are having a conversation (Suler, 2002). Many people who create multiple identities in cyberspace have difficulty in understanding themselves. In most cases this applies to adolescents (Suler, 2002).

Conversations via instant messaging include many different topics. Instant-message chat is as varied as face-to-face conversations. Some adolescents' online conversations may be shallow and impersonal, but there are also many whose conversations are deep and meaningful.

One trend Bonebrake (2002) found in her study of learners' internet use is that if a conversation using instant messaging becomes too personal, the learner will use another form of communication to continue the topic. Conversations that are normally regarded as impersonal and informal (gossiping, complaining, organising social events,

etc.) were much more likely to be discussed via instant messaging, while those that are considered more serious and personal (the sharing of bad news or religious or political views, etc.) were rather discussed in person or over the phone.
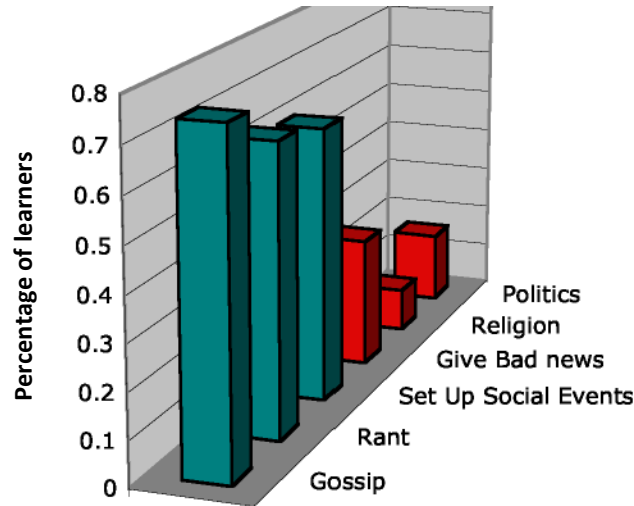
Figure 3.4: Percentages of types of instant-message conversations

3.3.4 Identity management in cyberspace

Suler (2002) is of the opinion that adolescents achieve great satisfaction, experience different personalities or gender change, and resolve their confusion of identity by creating multiple identities. Cyberspace provides a person with the opportunity to explore and change his or her identity within seconds. Different identities may reflect different moods, or perhaps other aspects of the personality. Avatars that symbolise or icons that represent a user in cyberspace are often used to exhibit some aspects of oneself in cyberspace (Suler, 2002). The subconscious mental processes within the user that affect the choice of an avatar are said to be the same as those that produce dreams (Wallace, 2001).

In cyberspace, identity is a complex issue, since it is hard to determine the true identity of an individual. Some people have a desire to experience life from other people's perspective (Yee & Bailenson, 2007). As pointed out in chapter 1, adolescents have

adopted new technology with great enthusiasm. It is therefore seen that mainly adolescents switch personalities and genders to see how they would be treated. However, there are still a fair number of adults who use the internet, and adults, too, enjoy trying out different personalities and gender roles. A classic example is that of an older man playing around with gender switching online: A young man and woman meet online and start corresponding through emails. Eventually, the young man falls in love with the girl and insists they meet. The truth comes out when the "girl" confesses to being a 50-year-old man (Suler, 2002, p. 460). As Gauntlett and Horsley (2004, p.31) explained it: "When you can be interactive and have multiple identities, you have the chance to experiment, to some extent, with what it feels like to be of a different gender or a completely different person altogether."

Internet users have various identities online, and this constitutes an issue when it comes to accountability in various situations. Online communities are now struggling with the issue of forged identities, which people create in order to get away from a previous negative reputation. As Gauntlett and Horsley (2004, p.31) put it: "When you have hundreds of email addresses, internet or cyberspace identities, and screen names, you have the ability to play hide and seek as you interact."

Many people join virtual communities and start open forums about various topics. For example, there was a website community of religious fundamentalists where the members were posting information on the forums. One particular person kept using foul language and the moderators subsequently asked the person to leave the forum. Later, a new member joined the discussion, but the members eventually realised that it was the same person they had asked to leave; the person had merely changed his or her nickname and re-entered the discussion (Driskell & Lyon, 2002).

The online world therefore opens the door to yet another new phenomenon – incognito gender bending (Kendall, 2002). Gender bending, however, is more than merely assuming an alternate gender – it is also a voyeuristic practice, which is most common in video gaming, whether online or on a console.

Trust is therefore often an issue in interaction in cyberspace as we are often unaware of important features, such as the actual gender, age or occupation of the individual(s) we are interacting with (Wallace, 2001). Cyberpsychology concerns the underlying reasons why people misinform others about their age or gender, among other things. It could be because of a need of privacy, or because the person wishes to express personal opinions that he or she can only do incognito.

Suler (2007) emphasise the importance of parent and teacher discussions with adolescents about their alternative selves. An avatar can reveal much about an adolescent's inner life (Suler, 2007). Adolescents therefore need to be asked about their avatars and how much they identify with them. What do they think are the similarities, and what the differences? They also need to be told that just because they are disguised does not mean any behaviour is acceptable; that the golden rule is that if you would not do something in real life, then your avatar should not either. Adolescents need to be reminded that in online life, other people relate to their avatar personalities – not their real selves. Parents and teachers should feel free to question the choices the adolescents have made. However, an open mind is crucial: If an adolescent says his or her avatar means nothing, it could be a valid response. They could just be playing around and like what they have created.

3.3.5 Identity and role confusion

Most people are familiar with Erik Erikson's eight stages of human development. Figure 3.5 depicts Erikson's theory of psychosocial development.

| Individual change | Increasing complexity | Environmental change |
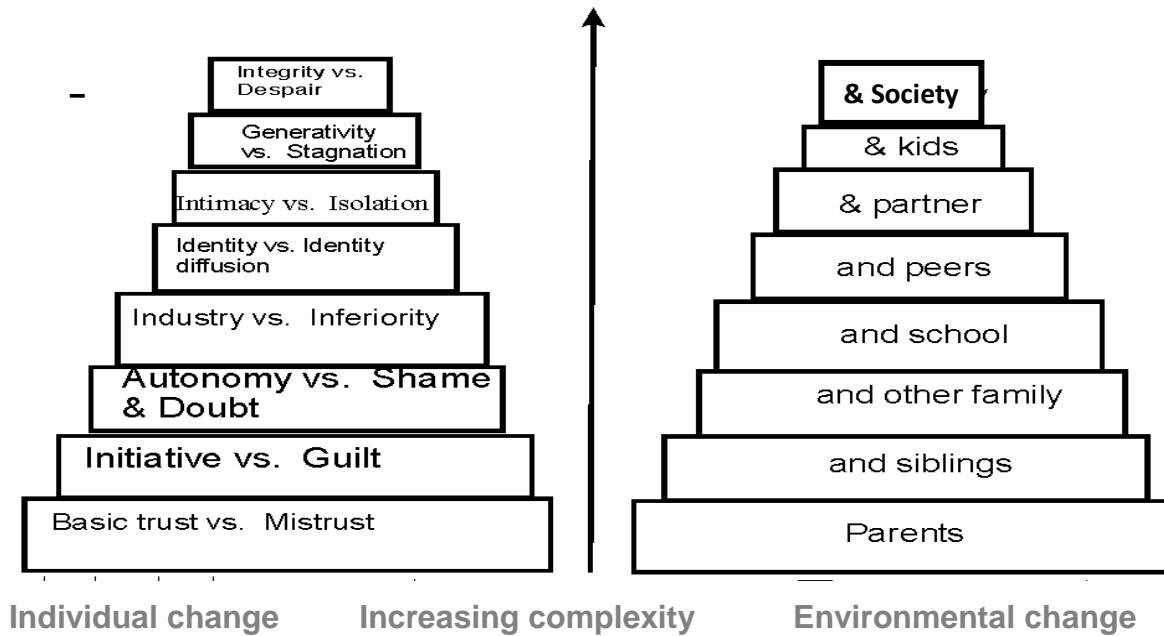
Source: Harder (2009, p. 1)

Figure 3.5: Erik Erikson's developmental stages

The stage relevant to this study is stage five: identity vs. role confusion. This stage deals with adolescents aged 12 to 18. According to Erikson (as cited in Harder, 2009), up to this stage, development depends mainly on what is done to individuals. From here on, development depends primarily on what individuals do. And as adolescence is a stage in which a child is neither a child nor an adult, life definitely gets more complex as they attempt to find their own identity, struggle with social interactions and grapple with moral issues, in much the same way Sigmund Freud and Erikson believed that personality develops in a series of stages. However, unlike Freud's theory of psychosexual stages, Erikson describes the impact of social experience across the whole lifespan (Harder, 2009).

Table 3.4: Erikson's theory: Social experience across the whole lifespan

Stage	Basic conflict	Important events	Outcome
Infancy (birth to 18 months)	Trust vs. Mistrust	Feeding	Children develop a sense of trust when caregivers provide reliability, care and affection. A lack of this will lead to mistrust.
Early childhood (2-3 years)	Autonomy vs. shame and doubt	Toilet training	Children need to develop a sense of personal control over physical skills and a sense of independence. Success leads to feelings of autonomy; failure results in feelings of shame and doubt.
Preschool (3-5 years)	Initiative vs. Guilt	Exploration	Children need to begin asserting control and power over the environment. Success in this stage leads to a sense of purpose. Children who try to exert too much power experience disapproval, resulting in a sense of guilt.
School age (6-11 years)	Industry vs. inferiority	School	Children need to cope with new social and academic demands. Success leads to a sense of competence, while failure results in feelings of inferiority.
Adolescence (12 to 18 years)	Identity vs. role confusion	Social relationships	Teens need to develop a sense of self and personal identity. Success leads to an ability to stay true to yourself, while failure leads to role confusion and a weak sense of self.
Young adulthood (19-40 years)	Intimacy vs. Isolation	Relationships	Young adults need to form intimate, loving relationships with other people. Success leads to strong relationships, while failure results in loneliness and isolation.
Middle adulthood (40-65 years)	Generativity vs. stagnation	Work and parenthood	Adults need to create or nurture things that will outlast them, often by having children or creating a positive change that benefits other people. Success leads to feelings of usefulness and accomplishment, while failure results in shallow involvement in the world.
Maturity (65-death)	Ego integrity vs. despair	Reflection on life	Older adults need to look back on life and feel a sense of fulfilment. Success at this stage leads to feelings of wisdom, while failure results in regret, bitterness, and despair.

Source: Harder (2009, p. 4)

At stage five, adolescents are in search of an identity that will lead them to adulthood. Adolescents make a strong effort to answer the question, "Who am I?" and they usually overcome this by trying different roles and identities. Erikson stated that, in order to answer this question, previous stages must be fully dealt with. Adolescents who have successfully dealt with earlier conflicts are ready for the search for an identity, which Erikson considered to be the single most significant conflict a person must face (Harder, 2009).

- **Elements for a positive outcome**

The adolescent must make a conscious search for identity, built on the outcomes and resolutions of conflict in earlier stages.

- **Elements for a negative outcome**

If the adolescent cannot make deliberate decisions and choices, especially about vocation, sexual orientation and life in general, role confusion becomes a threat.

For many adolescents, the issue of identity and role confusion may be easier to resolve in cyberspace. They find it easier to communicate online than face to face, and many experiment with new and varied roles in chat rooms. Suler, a clinical psychologist who has been studying the psychology of cyberspace for a number of years, explains that there are five interlocking factors that are useful in navigating that maze of how people manage who they are in cyberspace:

➢ The multiple aspects of one's identity may be dissociated, enhanced or integrated online.
➢ Negative aspects of identity can be acted out or worked through. Positive aspects can be expressed and developed.
➢ One's online identity can be real-to-life, imaginary or hidden.
➢ People differ in how much their unconscious needs and emotions surface in their online identities.
➢ Different communication channels express different aspects of identity (Suler, 2002, p. 455).

According to Suler (2002), each one of the above factors explains how adolescents may in fact benefit from creating multiple identities.

3.3.6 Online disinhibition effect

The online disinhibition effect is a psychological occurrence which involves human expression without limits (Suler, 2004b). In cyberspace, one's identity is concealed more often than not, which makes it possible to express oneself more freely without fear of rejection or negative responses.

From a Freudian/psychoanalytic point of view, the disinhibition effect has a tendency to make people believe that everything that humans inhibit, such as repressed and suppressed feelings and emotions, is exactly what would define who they really are (Tokunaga & Rains, 2010). This suggests that when adolescents use the internet, their true selves are revealed. This is, however, not necessarily true, as their online behaviour may conceal as much as it reveals. Adolescents behave differently in different environments, therefore one form of behaviour in one environment cannot account for the entirety of a person's self (Suler, 2004b).

There are many interlinking factors that suggest reasons for the occurrence of the online disinhibition effect. Suler (2004b) names five primary factors influencing why people sometimes act radically different on the internet than in normal face-to face situations:

- **You can't see me**

  Core concept: Invisibility

The internet provides a shield for its users. Often all one receives when interacting with another person on the internet is a username or pseudonym that may or may not have anything to do with the person behind the keyboard. This allows for misrepresentation of a person's true self; online a male can pose as a female and vice versa, for example. Additionally, the invisibility of the internet prohibits people from reading standard social cues; in normal face-to-face interaction, small changes in facial expression, tone of voice, aversion of the eyes, and so on, all have specific connotations.

This particular aspect overlaps heavily with anonymity, because the two often share attributes. However, even if one's identity is known, that is, anonymity is removed from the equation, the inability to physically see the person on the other end causes one's inhibitions to be lowered. Typically, one cannot be physically seen on the internet, therefore the need to concern oneself with appearance and tone of voice is dramatically lowered and sometimes absent.

- **See you later**

  Core concept: Asynchronicity

The asynchronous nature of the internet can also affect a person's inhibitions. On internet message boards, conversations do not happen in real time. A reply may be posted in as short a time as several minutes; however, it may also take months or longer for someone to post. Because of this, it is easier for someone to "throw their opinions out" and then leave. A person can make a single post that might be considered very personal, emotionally charged or inflammatory, and then "run away" by simply not logging in again. This way, the person achieves catharsis by voicing their feelings, even if the audience is invisible.

However, the asynchronous nature of the internet also allows a person to examine what they want to say more closely and to choose their words more carefully. As a result, someone who might have difficulty in face-to-face interactions could suddenly seem

eloquent and well-mannered when reading their message board posts, or even in text-chat forums, such as internet relay chat and instant messaging.

- **It's all in my head**
  Core concept: Solipsistic introjection

Lacking any kind of visual face-to-face cues, the human mind will assign characteristics and traits to a person in interactions on the internet. Reading another person's message may insert imagined images of what that person looks or sounds like into the mind, and the mind then mentally assign an identity to those things. The mind will attribute traits to a user according to one's own desires, needs and wishes – traits that the real person might not actually have.

Moreover, this allows fantasies to be played out in the mind, because the user may construct an elaborate system of emotions, memories and images – inserting the user and the person with whom they are interacting into a role play that helps reinforce the "reality" of the person on the other end in the user's mind.

- **It's just a game**
  Core concept: Dissociation

Combining solipsistic introjection with the imagination results in a feeling of escapism, which produces a way to throw off mundane concerns to address a specific need without having to worry about consequences. In Suler's personal discussion with Emily Finch (a criminal lawyer studying identity theft in cyberspace), Finch's (Finch & Fafubsju, 2010) observation was that people may see cyberspace as a kind of game where the normal rules of everyday interaction do not apply to them. This way, a user is able to dissociate his or her online persona from the offline reality, effectively enabling that person to shed that persona whenever they wish, simply by logging off.

- **We are equals**

   Core concept: Minimising authority

As pointed out earlier, a person's status may not be known to others online, and often this lack of hierarchy causes changes in interactions with others. If people cannot see the user, others have no way of knowing if the user is an on-duty police officer, head of state, or just some kind of "ordinary" person hanging out in their space on their computer. Suler (2004b) stated that while real-world status may have a small effect on one's status on the internet, it rarely has any true bearing. Instead, things such as communication skills, quality of ideas, persistence, and technical ability determine one's status in cyberspace.

Furthermore, people can be reluctant to speak their minds in the presence of an authority figure; fear of reprisal or disapproval quashes the desire to speak out. Also, on the internet, the levels of authority that might be present in real life are often completely absent. This turns what might otherwise be a superior-inferior relationship into a relationship of equals, and people are far more likely to speak their mind to an equal.

3.3.7 Personality types in cyberspace

The basic psychological features of online environments shape the way in which people and groups behave in those realms. But that is only half the story. Online behaviour will always be determined by how those features interact with the characteristics of the people in those environments (McKenna & Bargh, 2000). A variety of systems might be useful in classifying those characteristics. One might focus on specific features of the user, such as the person's computer skills, goals for using the internet, or demographic characteristics such as age, socio-economic status and occupation (Birnbaum, 2000).

There are several ways of categorising different types of avatars. One way would be to use well-known personality types as a guideline, for example McWilliams's (1994) system for psychoanalytic diagnosis (Suler, 2004b). For each of these types, McWilliams explored the characteristic affects, temperament, developmental organisation, defences, adaptive processes, object relations, transference/counter-transference and phenomena

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(Mc Williams, 1994). The theme, characteristics or interpersonal impact of an avatar may be closely associated with one of these specific types (Suler, 2004c). The psychoanalytic system uses the following categories, each containing thematic representations:

- psychopathic (antisocial, superficial)
- narcissistic (power, status)
- schizoid (indifference, interpersonal detachment, intellectual)
- paranoid (distrust, isolation)
- depressive (gloomy, dark, lack of self-esteem)
- manic (energetic, impulsive, happy)
- masochistic (self-destructive)
- obsessive and compulsive (serious, perfectionist)
- histrionic (dramatic, emotional, vain)
- schizotypical (dissociative, superstitious) (Suler, 2004c).

To explore how these personality types behave online, how they subjectively experience and react to the various psychological features of cyberspace, how they shape the online experience for others, and the pathological as well as potentially salutary aspects of their online activities, questions might include the following:

- Does online anonymity and freedom of access encourage antisocial personalities? Are they some of the hackers of cyberspace?
- Do narcissistic people use the access to numerous relationships as a means to gain an admiring audience?
- Do people with dissociative personalities tend to isolate their cyberspace life from their real lives? Do they tend to engage in the creation of multiple and distinct online identities?
- Are schizoid people attracted to the reduced intimacy resulting from online anonymity? Are they lurkers?
- Do manic people take advantage of asynchronous communication as a means of sending measured responses to others, or do they naturally prefer the terse, immediate and spontaneous conversations of chat and instant messages?

- Are compulsives generally drawn to computers and cyberspace for the control it gives them over their relationships and environment?
- Do histrionic people enjoy the opportunities for theatrical displays that are possible in online groups, especially in environments that provide software tools for creative self-expression (Suler, 2004c)?

Another, simpler, approach to categorising avatars would be to group them according to more general visual types (Suler, 2004c):

- animal
- cartoon
- celebrity
- evil
- real face
- idiosyncratic
- positional
- power
- seductive
- other
  - odd/shocking
  - abstract
  - billboard
  - lifestyle
  - matching
  - clan
  - animated

Suler (2004c) maintains that these categories are fairly obvious, and that each conveys interesting psychological and social themes – themes that, in some cases, overlap with the personality types described above.

To summarise: Dissociation entails the personality features of a person that divide and become separate entities, and seem to occur in the representation of avatars.
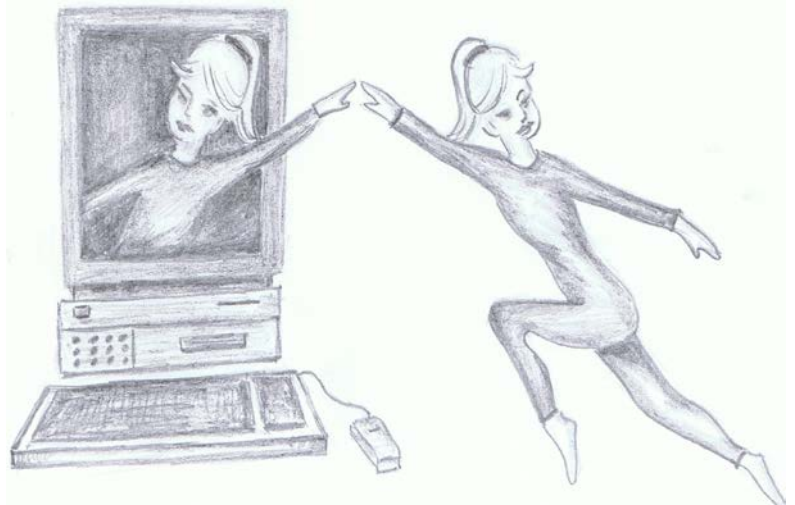
Through the use of avatars in cyberspace, one personality aspect of an individual is strengthened and exaggerated, while others are minimised to disappear completely. This creates a dualistic self: the person in cyberspace, as well as the person behind the computer.

3.3.8 Presence in cyberspace

Where is "here" and when is "now" in cyberspace?

According to Fenichel (2011), cyberspace may be described as a psychological construct that we as an online society invent, individually and collectively, to describe where experience takes place when people interact via computer. As people continue to grow into modern networking technologies such as the internet, they begin to describe their interactive experiences in terms of spatial metaphors (Suler, 2008). For example, one may "travel" through cyberspace, "get lost" in it, "surf" to a web page, open or close "windows", put "files" on a "desktop", and so forth.
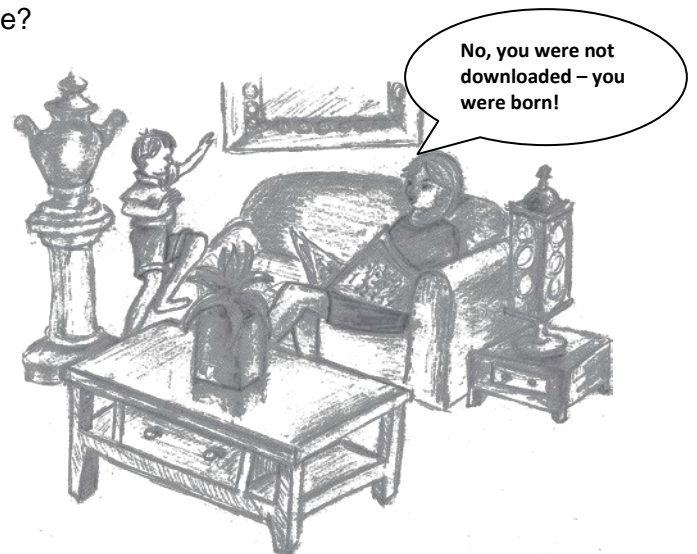
Computers are no longer the only means to "get onto cyberspace". Cellphones, PDAs and tablets have become more popular among adolescents. This adds to the "anywhere and anytime" need to be in cyberspace.

According to Wallace (2001), there are at least five cues for the perception of presence in an environment:

➢ Sensory stimulation from the environment: The more sensation one perceives within an environment, the more "real" it will seem.
➢ Change in the environment: Cyberspace is not static; there is continuous growth and movement, therefore, it is alive in some form.
➢ Interactivity with the environment: This allows one to travel within, explore and leave the environment.
➢ Interactivity with other users: This adds a sense of presence and comfort within cyberspace.
➢ The degree of familiarity: This allows a user to feel in place and comfortable within the environment. Anxiety occurs in new environments where a person has no idea what to expect.

3.3.9 Transference in cyberspace

In addition to the perception of cyberspace as a physical space, it can also be regarded as a "transitional space", an extension of one's mind (Fenichel, 2011). In a more general sense of the term, transference is the tendency for people to revert back to a typical pattern of thought, feeling and behaviour through the establishment of new relationships (Suler, 2007). For example, adolescents may exhibit certain behaviours within an online relationship that may be reminiscent of the type of relationship they have with their mother or father. For instance, if the adolescent often plays a subordinated role in relation to his or her parents, which may create fear of rejection and the need for acceptance, then the adolescent may re-enact this same role in an online relationship.

Transference may also be exhibited through gaming. Some experts maintain that the social nature of these games fills a void of friendship and acceptance that the world does not provide (Kalning, 2011). Often, the first thing done in a game is to recreate oneself and one's life (Wan & Chiou, 2006). Suler (2004a) states that in many cases a game is used as a coping strategy. For example, a frustrated angry teenager starts playing Angry Birds in order to help him or her vent out that anger. After all, spending an hour gaming

your anger away is much better than a minute of scowling and screaming at the people around you. Angry Birds is an anger management game and is at present the fastest growing computer/cellphone/tablet game in the world (Kalning, 2011). Angry Birds gives adolescents a place to vent their anger of the world through a game. Firing coloured birds from a slingshot into structures in order to kill pigs is actually aggressive but fun at the same time and will allow a gamer to channel that negative energy out of him or her and into the game they play, a great way to release some stress.

3.3.9.1 Player personality in online games

Bartle (2003) did research on player personality in massively multiplayer online games. In his analysis, he divides the players into four types: achievers, explorers, socialisers and killers. One of the appeals of online gaming to the achievers is that they have the opportunity to show off their skill and hold elite status to others. Achievers value (or despise) the competition from other achievers, and look to the socialisers to give them praise. The explorers benefit much the same way as the achievers in the massively multiplayer environment as they are surrounded by people who will benefit from their wisdom. The online environment is very appealing to the socialiser as it provides near limitless potential for new relationships. For the killer, it is more about power and the ability to hurt others. These gamers love to sow destruction, thus games that are high in carriage ("own design" or "dress up"), action, and destructible environments are definitely a plus. According to Bartle (2003, p. 199), many killers also enjoy the opportunity to depart from the norm and being "the good guy" who comes to save the day. Otherwise, they will play on the side of evil or conquest. Bartle (2003) pointed out that many make the mistake of thinking killers are antisocial or without friends, but that this is not too often the case. Even the more hostile and aggressive killers can inspire a sort of hero worship by less talented killer or achievers.

Bartle's (2003) research indicated that certain games are intended to appeal to a particular audience. Which means that many of the adolescents who are engaging in risky or harmful behaviour online are those who are also at greater risk in the real world. They are "at-risk" adolescents whose risky behaviour is now manifesting in the use of new media. The more significant risks most often involve known peers and could

therefore lead to a disruptive impact at school, or create a hostile environment that prevents adolescents from being successful at school.

3.3.9.2 Regressive behaviour in cyberspace

According to psychologists, there is no doubt that people regress on the internet (Jones, 2011; Norman, 1996). Regression, according to Sigmund Freud, is a defence mechanism leading to the temporary reversion of the ego to an earlier stage of development rather than handling unacceptable impulses in a more adult way (Deselle, 2008; Freud, 1961).

Internet communication leads to a special type of regression, evidenced by uninhibited anger, sex and generosity (Norman, 1996). Norman maintained that computers evoke regressive fantasies, for example: I command immense power, speed and size (especially in males); I fear damage; I could become dependent or addicted, lost in seas of information. The computer does your bidding, does not criticise or judge you, and waits patiently until you "get it" (Norman, 1996, parra 10). Such an ideal helpmate lends itself to sexual fantasies of a totally obedient partner.

Jones (2011) also suggested that cyberspace weds the highest intellectual functions and the most primitive instincts of the human personality. It may also be a space wherein the more sublime aspects of humanity are expressed (Modayil, Thompson, Varnhagen, & Wilson, 2003). Humans, by their very nature, are always looking for new ways to express themselves and connect to others, to find new media for creative activity, to expand their consciousness beyond its usual boundaries, and even to help others through generosity and honesty that transcend unconscious conflicts. According to Norman (1996) and Jones (2011), cyberspace can be a place where these things happen.

There are three signs of regressive behaviour in cyberspace (Norman, 1996): flaming sexual harassment, and the extraordinary generosity, and openness you sometimes see on the internet. Norman traced these regressions to the transference reactions people have to the computer itself – unconscious fantasies about power, dominance, sex, narcissistic gratification and mirroring, oral engulfment, and parental acceptance and love. At the heart of the regression is the individual's tendency to confuse the person and the machine. In cyberspace, the user sees the computer as human and other people as something less than human – resulting in a disinhibition of sexual and aggressive acting out (Suler, 2004b).

Norman's (1996, para.11) arguments are both fascinating and convincing:

> In our minds, person and machine merge. We feel ambivalent toward the helpful but stupid computer. That transfers to the person we are "talking" to. We attack as though the person were insensitive, a machine that couldn't be hurt. We demand sex as though the person were a compliant machine. We feel open and giving toward the person because the computer is open and giving to us.

The internet is an extraordinary technological achievement; one of the great human achievements of the past century. But homo sapiens reverts to primitive childish behaviour. Why?

In short, the paradigm of regression and communication on the internet has its plusses and minuses. The plusses are generosity and openness. The minuses are aggressive flaming, sexual attack and increased vulnerability. They are two sides of the same coin: sex and aggression in positive and negative, active and passive, forms. Both begin because of a lack of inhibition – a regression. But what lures people into this regression? The simplest answer is: the computer itself (Norman, 2008).

When communicating on the internet, we set up a relationship with other people in which the people get less human and the machine gets more human. This is how the three signs of internet regression come into play: flaming, flirting and giving. Our feelings towards the computer as computer become our feelings towards the people to whom we

send email or post messages. We flame to the person as though he or she were an insensitive thing, a machine that cannot be hurt. We flirt with the machine as though it were a person and could interact with us, compliantly offering sex. We feel open and giving towards the computer because the computer is open and giving towards us (Norman, 2008).

3.3.10 What is the reality in virtual reality?

Mayer (1999) maintained that virtual reality is not just a tool – it is at once technology, medium and engine of social relations. It not only structures social relations – it is the space within which the relations occur and the tool that individuals use to enter that space. It is more than the context within which social relations occur, for it is commented on and imaginatively constructed by symbolic processes initiated and maintained by individuals and groups.

Most virtual reality environments are usually displayed on a computer screen or through special three-dimensional displays coupled with virtual sound. Users interact with the environment through devices such as a keyboard and mouse, bodysuits and wired gloves (input devices for human-computer interaction that the users wear). Bodysuits and wired gloves allow gestural interaction. These send body and hand position and movement information to the computer using sensors. The user's sense of immersion increases when the devices that take part in the navigational section are efficient and smooth and tally with the real-life experience of the user. Users experience a sense of presence when engaged in an immersive virtual world (Burdea & Coiffet, 2003).

There has been an increase in interest in the potential social impact of new technologies such as virtual reality. Cline (2005) argued in his book *Power, Madness, and Immortality: the Future of Virtual Reality* that virtual reality will lead to a number of important changes in human life and activity. He gave the following arguments:

- Virtual reality will be integrated into daily life and activity, and will be used in various human ways.

- Techniques will be developed to influence human behaviour, interpersonal communication and cognition.
- As we spend more and more time in virtual space, there will be a gradual "migration to virtual space", resulting in important changes in economics, world view and culture.
- The design of virtual environments may be used to extend basic human rights into virtual space, to promote human freedom and well-being, and to promote social stability as we move from one stage of sociopolitical development to the next.
- Virtual reality can also be used to induce body transfer illusions.

Woodford (2007, p. 2) described a virtual reality experience as follows:

> You know where you are and what you're doing at any given moment because your five senses (vision, hearing, smell, touch, and taste) are sending a constant stream of information to your brain. This information is called the brain's sensory or perceptual input. When you're sitting on a beach, you know you're there because you can smell the salt water, hear the waves crashing down, and feel the sand between your toes …
>
> Have you ever done one of those relaxation exercises when someone tells you to close your eyes and imagine you're on a beach? It's not quite the same thing and it never really works because your brain is not receiving the same sensory information. In short, you might feel relaxed, but you're never convinced you're actually on a beach. But what if you sat in a laboratory with a mad scientist who was determined to fool you into thinking you really were on a beach? She could sit you in a huge sand tray, up close to a TV monitor playing a surfing video, with an audio track of crashing waves playing in your ears, while she tips grains of sand from a bucket over your fingers and toes. Would you be fooled?
>
> Virtual reality is a bit like this: it tries to persuade your brain into thinking you're somewhere else in the world, only using advanced computer technology instead of real-world props.

Virtual reality provides a communication environment in which the dangers of deception and the benefits of creativity are amplified beyond the levels that humans currently experience in their interpersonal interactions (Kurzweil, 1999).

On the one hand, virtual reality is a bit sad. Children and adolescents play tennis on a computer screen when they could actually go out and hit a ball with a friend in the real world. Many of them play computer games in which they pretend they are in artificial worlds, slaying dragons, jumping off skyscrapers, and generally saving the world.

Adolescents need time for active, physical play, hands-on lessons of all kinds, especially in the arts, and direct experiences of the natural world. However, many schools have cut already minimal offerings in these areas to shift time and money to expensive technology. This despite the fact that research shows that sports facilities are not frills, but essential for healthy child development (Alliance for Childhood, 2004). Adolescents need stronger personal bonds with caring adults, yet powerful technologies are distracting adolescents and adults from each other.

3.3.10.1 The advantages of virtual reality lie in training people

The advantages of virtual reality lie in training people to do things that are difficult or expensive to do in real life (Kurzweil, 2005). For example, pilots have long been trained on flight simulators because it is much cheaper and safer than having beginners go out and crash airplanes (Woodford, 2007). The South African Air Force flying training makes extensive use of computer-based training that includes every aspect of flight instruction (The South African Air Force, 2011). The United States Air Force also trains its pilots this way, and its paratroopers practise their landings wearing helmet-mounted displays and

real parachute harnesses in realistic virtual simulations (Woodford, 2007). National Aeronautics and Space Administration also has for a long time used virtual reality to train astronauts and other space scientists (Woodford, 2007). It is not easy to practise being on Mars, but artificial virtual reality simulations can help us imagine what it might be like. In the 21st century, the onus is on the individual to choose appropriate tools, environments and technologies for learning (Heinrich, Bhattacharya, & Rayudu, 2007).

3.3.10.2 Avatars as an assistive, educational and therapeutic technology

Fabri, Elzouki and Moore (2007) believe that the use of avatars as an assistive, educational and therapeutic technology may help people with autism to overcome some of the limitations that characterise their condition. Concerning the potential educational use of virtual reality, the idea is to use the technology as a means of educating the user with autism, possibly in an attempt to help overcome their autism-specific "deficits". Therefore, the conversational partner of a user with autism may in some sense be their "teacher". One specific way in which this might be used is for the purposes of practising and rehearsing events in the "real word", for example a forthcoming school visit, family gathering or interview.

Another interesting possibility is that using tools such as virtual reality can help people with autism with any theory-of-mind deficit. Theory-of-mind deficit is an inability to recognise that other people have thoughts, feelings and intentions that are different to one's own and an inability to intuitively guess what these might be (Winner, 2003). By not understanding that other people think differently than themselves, many autistic individuals may have problems relating socially to and communicating with other people. That is, they may not be able to anticipate what others will say or do in various situations. In addition, they may have difficulty understanding that their peers or classmates even have thoughts and emotions and may therefore appear to be self-centred, or uncaring (Chari, 2002).

According to Volkmar, Paul, Klin and Cohen (2005), the perception of others is not systematically or specifically deficient in people with autism. These authors argued that children with autism can be successfully taught to interpret mental states. Moreover,

being able to express their emotions by choosing appropriate facial expressions for their avatars, and being required to interpret the emotions displayed by their interlocutor's avatars may help address the theory-of-mind issue in users with autism. McIlhagga and George (1999) suggested that users who see other avatars' behaviour and facial expressions may build a model of the emotional state of the underlying agent (virtual agent/avatar that present the user). Fabri et al. (2007) maintained that enabling people with autism to work in such environments provides them, in principle at least, with an opportunity to practise their mind-reading skills and address theory-of-mind issues.

In their use of virtual reality in the future, adolescents will be limited only by their imagination. When adolescents design avatars to represent themselves within virtual worlds and gaming environments, their appearance has considerable impact on their virtual and real world behaviour (Baylor, 2009). Virtual reality is therefore neither good nor bad, but rather what they make of it. According to Kershner (1995, p.4), virtual reality could be "a lifesaving godsend, a groundbreaking educational tool, a means of becoming our best selves. Or, it could be a mindless, energy-sapping diversion, an off-ramp to electronic isolation, a playground for immortality. Chances are, it will be all of these things."

3.4 UNDERSTANDING HOW ADOLESCENTS REACT TO, AND BEHAVE IN CYBERSPACE

Whether we like it or not, media technology are part of modern life. The typical adolescent wants to explore and do more. Today's adolescents are so immersed in technology that they multitask in their cyberspace lives, SMSing while listening to their iPods, talking on cellphones as they view each other's Facebook pages (Suler, 2010). But what draws adolescents to the cyberworld? To answer this question, one first needs to consider some of the underlying, interlocking needs and motives of the adolescent.

Lowenstein (2010), a psychologist, considers the following four basic and familiar principles to be useful in understanding why adolescents do what they do in this seemingly exotic and strange land called cyberspace:

> **Identity experimentation and exploration**

There is evidence that adolescents' identity differs across contexts. That is, teenagers often see themselves differently when they are with parents and teachers, than they do when they are with peers (Steinberg & Morris, 2001). Adolescents (approximately ages 14-16) in particular are often marked by behaviour that varies depending on where they are and with whom they are – for example, being outgoing with friends, but shy at home (Steinberg & Morrison, 2001). Erikson described adolescent identity exploration as a *crisis of identity versus identity diffusion*: What kind of person am I? What do I want to do with my life? What kind of relationships do I want? (see 3.4.4). These are unanswered questions that some adolescents seek answers for in cyberspace.

> **Intimacy and belonging**

During adolescence, humans experiment intensely with new intimate relationships, especially opposite sex relationships. They look for comrades and new groups where they can feel a sense of belonging. All these relationships become a big part of exploring their own identity. On the internet, there is an almost limitless array of people and groups to interact with – all with all kinds of personalities, backgrounds, values and interests.

> **Separation from parents and family**

Adolescents' search for their own identity, relationships and groups goes hand in hand with their drive to separate from their parents. They want to be independent, to do their own thing. It is an exciting process, and the internet is an exciting place to fulfil those needs of a pioneering, adventurous spirit; especially if their parents know almost nothing about the internet. On the other hand, adolescents are also scared of the separation/individuation process. After all, relying on Mom, Dad and the old homestead does have some advantages. The fascinating thing about the internet, and perhaps one of the reasons why it is so enticing to some adolescents, is that it neatly takes care of this ambivalence. Want to meet new people, do exciting things, explore the world, but want to stay at home too? Adolescents can do it simultaneously, on the internet.

> **Venting frustrations**

An old theory about adolescence proclaims it to be a period of "storm and stress". This theory may be a bit melodramatic, but the adolescent years certainly can be a difficult

and frustrating period of life. The pressures of school, family and friends – what do they do with all those frustrations, especially those sexual and aggressive ones that hormonal surges like to heighten? They need to vent them somewhere, and the anonymous world of cyberspace makes it easy.

None of the above principles is new or earth shattering. Psychologists and parents have known all of this for quite some time. However, these basic and familiar principles can be very comforting tools for understanding adolescents in cyberspace.

3.4.1 Cyberspace makes adolescents more aggressive

The long-term effects of prolonged internet exposure are subject to debate among researchers. One group maintains that adolescents who are addicted to cyberspace are more likely to engage in aggressive behaviour and therefore need monitoring by parents and teachers (Subrahmanyama, Greenfield, Kraut, & Gross, 2001). The other group is reluctant to accept that the two phenomena are related, which does not mean that they completely dismiss the hypothesis (Atkinson & Newton, 2010; Ferguson, 2010).

Ferguson (2010, p. 329), who examined pathological/serious adolescent aggression and violent behaviour using well-validated clinical measures, states that:

> Long-term prediction of youth violence remains spotty at best and practitioners may need to be careful not to "profile" youth who have not committed serious aggressive acts. Predictive results based on sociological variables (or video game use) may run the risk of significant over identification of "at risk" status. Practitioners and policy makers may be eager to identify and intervene with at-risk youth, but where long-term prediction remains unreliable, the potential for damage as well as good should temper and restrain efforts in this realm.

For criminal behaviours (both violent and non-violent), although no direct effects of video games or television violence were seen, total media violence consumption interacted with antisocial traits (Ferguson, 2010). Interestingly, for children with low antisocial traits,

media violence exposure was associated with less criminal behaviour. Only for the most antisocial children was media violence exposure associated with more violent crimes.

There are two possible explanations for this phenomenon. The first is that antisocial children who are most inclined towards criminal behaviour are also those most likely to select violent media (Ferguson, 2010). The second, however, is that children who see a lot of violence are more aggressive. They may even learn that hurting others is acceptable (Ferguson, 2010).

Suler (2007) also found it everything but uncommon for people to get aggressive in this realm. Due to the online disinhibition effect, people argue, criticise, berate and insult others without much provocation (Suler, 2007). This might be the collecting ground for the argument that cyberspace does make adolescents more aggressive.

3.5   CONCLUSION

In this chapter, the spotlight fell on the psychological aspects of the cyberworld – cyberpsychology. It offered an in-depth look at how specifically adolescents "invent" themselves on the internet, and the subsequent role playing, impression formation and management, and identity experiments. The researcher examined the ways in which these users attempt to overcome the lack of the usual non-verbal cues in face-to-face communication and add socio-emotional expressiveness to their online personas. A detailed discussion was offered on how the process of online self-projection can become altogether delusional, deceptive and dangerous, as participants morph between generational, gender and personality profiles. Finally, the argument that cyberspace does indeed make adolescents more aggressive was considered.

The challenge set out in chapter 4 is to raise adolescents to use new media for growth, knowledge, and a broader understanding of and connection to the world, whilst protecting them, keeping their social skills and physical health intact, and ensuring their empathic understanding.

CHAPTER 4

THE GOAL OF 21ST-CENTURY DIGITAL MEDIA LITERACY

If we do not help adolescents see new digital media in perspective, it will inevitably negatively influence their entire lives. We are already seeing far too many cases of adolescents saying, "It's on the net – it must be true."

CHAPTER 4

DIGITAL MEDIA LITERACY: EDUCATING ADOLESCENTS TO CREATE THEIR OWN FUTURE

4.1   INTRODUCTION

Digital media literacy is increasingly becoming an explicit goal of schools throughout the country. However, few teachers, parents or even policy-makers have a clear idea of what is meant by this phrase (Seidel & Kett, 2007). As was seen in chapter 3, adolescents' lives are full of technologies of every kind. Consequently, the first challenge in addressing literacy in these media is to expand our own conception of it. In this chapter, the theoretical background to the concept "media literacy" is explored, and the key features of a model for digital media literacy education in secondary schools proposed.

4.2   THE HERITAGE OF DIGITAL AND MEDIA LITERACY

The traditional definition of literacy, when print was the supreme media format, was the ability to decode, understand and communicate in print. But the world has evolved, and print is no longer the dominant media format. That role has been taken over by electronic media. Literacy today means people must be able to:

- decode, understand, evaluate and write via, and with, all forms of media
- read, evaluate and create text, images and sounds, or any combination of these elements

In other words, literate individuals in the modern world possess media literacy as well as print literacy, numeric literacy and technological literacy.

4.2.1 Traditional definition of media literacy

The traditional definition of media literacy is "the ability to access, analyse, evaluate and communicate messages in a wide variety of forms" (Firestone, as cited in Hobbs & Frost, 2001, p. 1). Media literacy therefore implies the skills of analysing, evaluating and creating media and technology messages that make use of language, moving images, music, sound effects and other techniques (Hobbs & Frost, 2001).

In traditional media literacy, the emphasis is on the following elements :

- critical-thinking skills that allow people to develop independent judgements about media content
- an understanding of the process of mass communication
- an awareness of the impact of media on the individual and society
- the development of strategies with which to discuss and analyse media messages
- an awareness of media content as a "text" that provides insight into our contemporary culture and ourselves
- the cultivation of enhanced enjoyment, understanding and appreciation of media content
- in the case of media communicators, the ability to produce effective and responsible media messages (Silverblatt, 2001)

4.2.2 Principles for new media literacy

The Center for Media Literacy (2009, para. 3) expanded the traditional media literacy definition in order to respond to new situations in the 21st century media culture and now defines media literacy as a movement and an approach to education, rather than just an "ability". Media literacy builds an understanding of the role of media in society as well as essential skills of inquiry and self-expression necessary for citizens of a democracy (Center for Media Literacy, 2009). In this definition, media literacy and digital media literacy are interchangeable, except that the latter refers to these skills in the context of digital technologies.

Digital literacy was first defined by Paul Glister in 1997:

> Digital Literacy is the ability to understand and use information in multiple formats from a wide variety of sources when it is presented via computers. (Glister 1997, p. 31)

More recently, Stergioulas and Drenoyianni (2011, p.119) defined digital literacy as:

> … the awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process.

At the beginning of the 1990s, it was clear that children had to learn to comprehend media messages as well as use technology to create their own messages. Media literacy's low presence has expanded considerably in the late 1990s, while the concepts of network and digital literacy only emerged in this time (Bawden, 2001).

The 21st century will require knowledge generation, not just information delivery, and schools will need to create a "culture of inquiry" (Compendium of Cultural Policies and Trends in Europe, 2011, p. 3).

How should education be structured to meet the needs of learners in the 21st-century world? How do we now define "school", "teacher", "learner" and "curriculum"?

Wesch (2008, para. 5) offered the following new definitions of "school", "teacher" and "learner" appropriate to the 21st century:

Schools will go from "buildings" to "nerve centres", with walls that are porous and transparent, connecting teachers, learners and the community to the wealth of knowledge that exists in the world.

Teacher: From primary role as a dispenser of information to orchestrator of learning, and helping learners turn information into knowledge, and knowledge into wisdom.

Learner: In the past, a learner was a young person who went to school, spent a specified amount of time in certain courses, received passing grades and graduated. Today we must see learners in a new context:

- Firstly, we must maintain learner interest by helping them see how what they are learning prepares them for life in the real world.
- Secondly, we must instil curiosity, which is fundamental to lifelong learning.
- Thirdly, we must be flexible in how we teach.
- Fourthly, we must excite learners to become even more resourceful so that they will continue to learn outside the formal school day.

A new approach to media literacy, calibrated for the 21st century, requires us to help children develop the habits of mind, heart and action that can, over time, mature into adult capacities for moral reflection, ethical restraint, and compassionate service (Cordes & Miller, 2000). Adolescents are growing up on the most sobering technological frontier in history. They inherit a complex set of global dilemmas. All these concerns have led the Alliance for Childhood (2004, p. 54) to redefine media literacy as follows:

Media literacy is the mature capacity to participate creatively, critically, and responsibly in making technological choices that serve democracy, ecological sustainability, and a just society.

The Alliance for a Media Literate America (2005, p.1) defines media literacy as:

… the development of skills to empower persons to be both critical thinkers and creative producers of an increasingly wide range of messages using image,

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language and sound. It is the skilful application of literacy skill to media and technology messages. As communication technologies transform society, they impact our understanding of ourselves, our communities, and our diverse cultures, making media literacy an essential life skill for the 21st century.

4.2.3 In-service teachers and digital media literacy in school settings

Whatever definition we take as a basis, it is obvious that we cannot think of media literacy without thinking of education. In relation to the teaching of new media literacy, the researcher uses the all-encompassing term "digital media literacy". A general definition of this term is that it incorporates the skills, knowledge, creativity and attitudes everyone needs when using digital media for learning and mastering the knowledge society (Newman, 2009). This is, however, a general definition, which only to a certain extent manages to encompass digital media literacy in school settings. Therefore, the researcher found it necessary to include a narrower definition that more directly focuses on in-service teachers and digital media literacy in school settings:

> Digital media literacy for in-service teachers is the ability to use digital artefacts as an integrated part of the their pedagogical content knowledge and be aware of what implications this has for teaching, learning strategies and building aspects. (Almas & Krumsvik, 2007, p. 480)

4.2.4 Learning and teaching: what works

Silverblatt (2001) identified seven required skills for traditional media literacy (see 4.2.1), but according to the Alliance for Childhood (2004), new digital media literacy requires at least four other additional skills, namely:

- a rudimentary understanding of how at least a few fundamental technologies work, including their underlying principles
- the capacity to think critically and creatively, for oneself, about the design, use, and evaluation of technologies to serve personal, social and ecological goals

- love and concern for all living creatures that direct decision making about technological issues
- a sense of responsibility for actively taking part in democratic choices about technologies

The Alliance for Childhood (2004) called for a new approach to media literacy, based on two fundamental concerns:

- Firstly, we must approach our capacity to develop and use powerful new technologies with restraint and respect – a respect that takes into account its potential for enormous material, social and ecological repercussions, both positive and negative. This will require educating ourselves and our children about our technological heritage, including the full range of effects of individual technologies and the complex interplay of technological systems.

- Secondly, we must give our children and adolescents the full opportunity to get to know themselves through play, the arts, and hands-on learning. This will help them to have a solid sense of the self and gain confidence in their own creativity and competence before tackling the major issues of the world. We must recognise the essential need of children to engage in real relationships with human beings and with nature while they are young. Adolescents need this for their own growth and development, and in order to later make wise and compassionate decisions about powerful technologies that will affect human life.

Based on the goals and priorities outlined above, Cordes, Miller, Monke, and Jost (2002) offer ten principles for teaching digital media literacy:

1) Slow down. Honour the developmental needs of children.
2) With adolescents, teach the use of digital media as social ethics in action, with technical skills in a supporting role.
3) Relationships with the real world come first.
4) Technology is not destiny – its design and use flow from human choices.
5) Choice implies limits, and the option to say "no".

6) Those affected by technological choices deserve a voice in making them.

7) Be mindful when using tools and technologies.

8) To teach technology literacy, become technologically literate.

9) Honour the precautionary principle: When uncertain, err on the side of caution.

    a. Ask tough questions about long-term consequences.

    b. Make time, space and silence for reflection.

    c. Remember that responsibility grows from humility.

    d. Be resourceful with the tools you already have.

10) Respect the sacredness of life in all its diversity.

4.2.4.1 Role of the teacher

Teachers cannot afford to ignore or trivialise the complex social, intellectual and emotional functions of digital technologies in the lives of young people (Hobbs & Frost, 2001). In order to reach today's learners, teachers need to be responsive to learners' experience with their culture — which is what they experience through television, movies, YouTube, the internet, Facebook, music and gaming. When teachers learn more about learners' choices, the first thing they will notice is how different their learners are from them. When it comes to media and technology, every two years brings a new set of changes in the landscape of their daily life. Even if a teacher is only a few years older than his or her learners, there may be important differences because technology tools are changing so very rapidly. That is why teachers need to gain the latest information about the media and technology choices learners make at home (and at school) each day.

4.3   ISSUES TO CONSIDER WHEN IMPLEMENTING DIGITAL MEDIA LITERACY PROGRAMMES

The digital media literacy programme in this research study considers an ecological view of the developing adolescent, which considers the microsystems, the immediate settings in which the adolescent interacts with people and digital media, and the larger social contexts in which these settings are situated (see figure 4.1). As such, what a adolescent learner does in school inevitably shapes what he/she does at home, and vice

versa. Moreover, his/her cultural heritage and what his/her parents do for a living bear strongly on his/her activities at home, in school, and in his/her community.
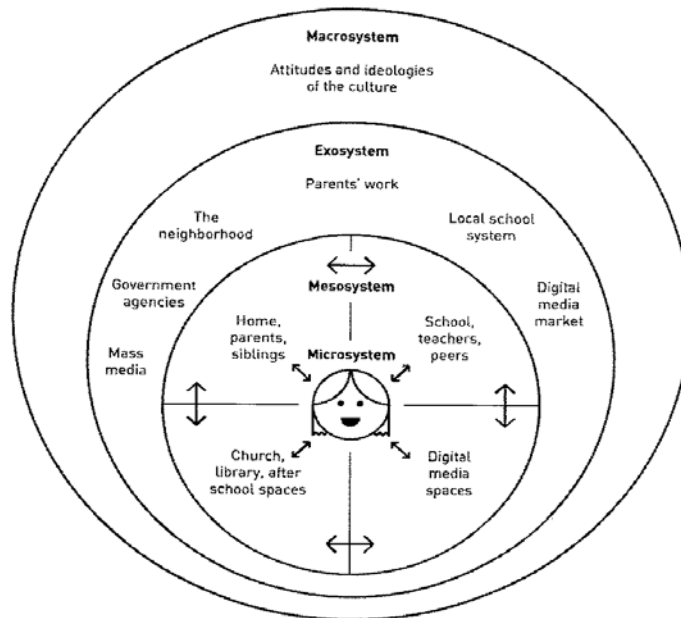
Macrosystem: The overarching institutional patterns of the culture, such as its economic, social, educational, legal, and political systems (cultural influences)
Exosystem: The larger social structures that influence what goes on in the child's immediate settings (institutional influences)
Mesosystem: Interrelations among the major settings that the child inhabits (distal influences)
Microsystem: Interactions between the child and her immediate environment (proximate influences)

Source: Takeuchi (2011, p. 16)

Figure 4.1: An ecological perspective of child development

This section of the chapter examines findings in light of these ecological considerations and pay particular attention to what is developmentally appropriate.

The new media that are reshaping so much of our culture present a formidable challenge to education. The challenge is, however, not to mechanise the education of children even further; rather, the most pressing issue is how to enliven and rehumanise education in the face of an increasingly dehumanised culture. As part of its Digital Diaries campaign, the antivirus internet security company AVG looked at the challenges of growing up in a digital age and discovered that today's children are learning computer skills before life skills (Smith, 2010). According to their study, a whopping 69% of two- to five-year-olds can operate a computer mouse, but only 11% can tie their shoelaces.

Knorr (2011) reported another couple of levels on which digital skills are winning out, two of which are:

- More young children know how to play a computer game (58%) than swim (20%) or ride a bike (52%).

- As far as making phone calls are concerned, 28% of young children can make a cellphone call, but only 20% know to dial 911 in case of an emergency.
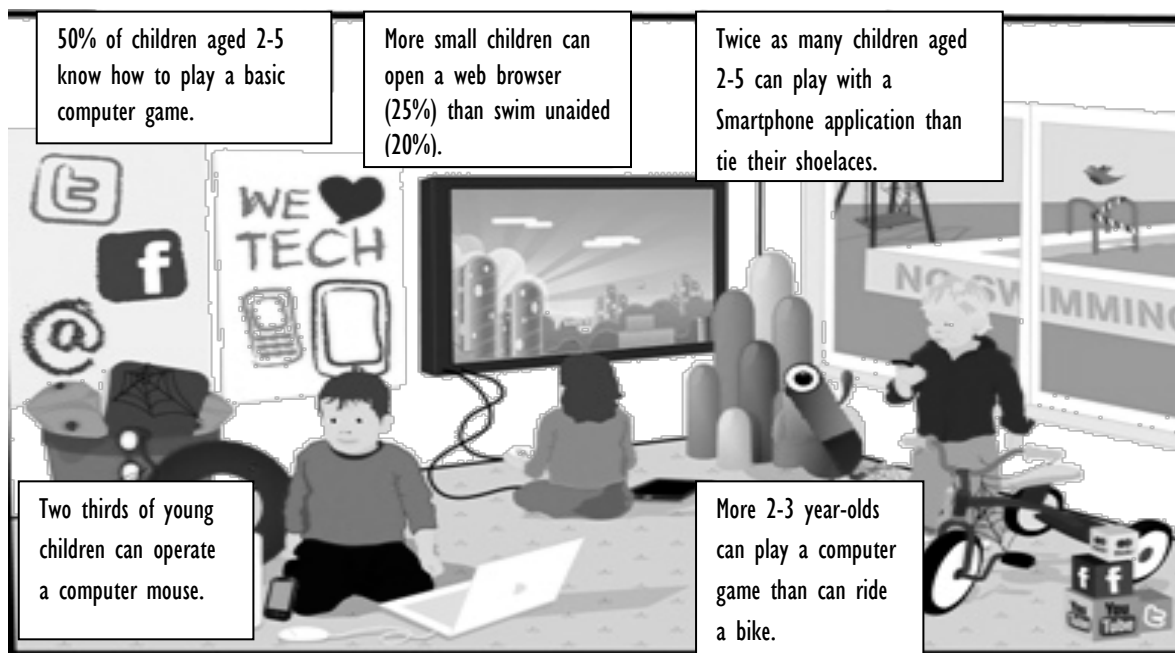
This is a crystal clear indication that children's lives are increasingly filled with screen time rather than real time with nature, caring adults, the arts and hands-on work and play. It is therefore high time to rethink the media literacy curriculum that schools currently offer.

Researchers are convinced that, at elementary school level and below, there is little evidence of lasting gains and much evidence of harm from hours spent in front of screens (Clements, 1999; Coley, Cradler, & Engel, 1997). These researchers strongly indicate that face-to-face relationships with people and the rest of the natural world are critical not just for young children, but for adolescents as well. According to Clements

(1999), the decision is an easy one when it comes to elementary school and below : De-emphasise high-technology products and let children thrive and grow; there is plenty of time in adolescence for children to learn, with adult guidance and within reasonable limits, to navigate the complex world of advanced electronic technologies.

Secondary school learners are therefore in an environment that builds an online collaboration. Adolescence, those ranging from 13 to15 are ready to tackle the kinds of research for which access to the tremendous resources of the internet would be useful (Common Sense Media, 2011b). 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, 2011b).

4.3.1 Lifelong digital media literacy: modelling practices
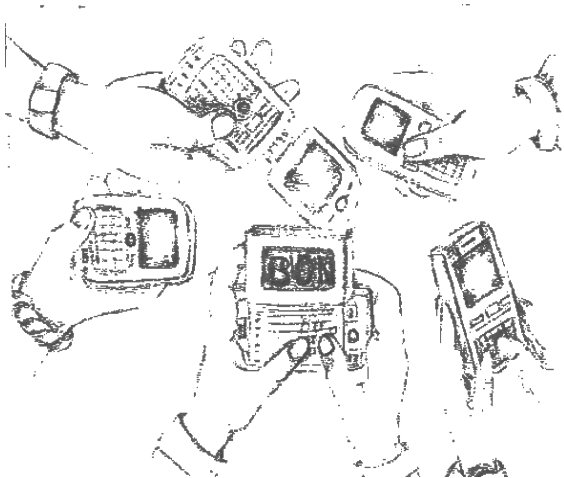
These days, one rarely sees adolescents without a cellphone in their hands. But they are probably not talking on it; they are more likely SMSing, surfing the web, updating their Facebook pages, playing games, downloading music, playing with ringtones, taking pictures, or recording videos. Electronic power can exceed adolescents' emotional maturity (Cassell, Huffaker, Tversky, & Ferriman, 2006).

Even where strong family relationships exist, the power of electronic toys can be dangerous in the hands of adolescents, who are, by definition, neither emotionally nor morally mature (Alliance for Childhood, 2004). In Ireland, school officials were under pressure to ban cellphones with cameras after a child was photographed partially clothed and the pictures broadly distributed via other cellphones with cameras (Carroll, 2004). Schools in the United States of America were discussing limiting or banning their

use in locker rooms and elsewhere to avoid student voyeurism and cheating (Carroll, 2004).

The National Association of School Governing Bodies wants a ban on children using cellphones at South Africa's schools (Techcentral, 2011). According to the Association cellphones were a distraction that resulted in the disintegration of the teaching environment. Other school governing bodies said it would be impossible to enforce a ban on cellphones (Techcentral, 2011). The Federation of Governing Bodies of South Africa Schools (Fedsas) said it would be selfish to ban cellphones, as they were an important safety device that kept children and parents in touch. According to Fedsas the onuses were on parents to teach their childen responsible cellphone use (Techcentral, 2011).

With little adult advice that is relevant to their online lives, adolescents often find themselves in emotionally complex situations with limited guidance (Girl Scout Research Institute, 2002). According to the Girl Scout Research Institute (2002), it is because adolescents are forced to navigate potentially difficult or emotional situations online with little pertinent or useful advice that they are in effect driving the information highway without a licence. Girls aged 13 to 18 in a 2001 survey commissioned by the Girl Scouts of the United States of America reported that they frequently encountered pornography online. About a third reported having been sexually harassed in a chat room, but only 7% of those girls told a parent about it. They also did not think their parents worried enough about their online behaviour, especially lying and cursing, or about what kind of people they could run into online, or what information they could access if they wanted to. They reported that they often felt "freaked out" by the information they were exposed to online, and that they did not know how to respond to online sexual harassment (Girl Scout Research Institute, 2002, para. 7).

According to Xu (2011), the quality of parent-adolescent relationships may be associated with the prevalence of internet use and internet addiction in adolescents. Adolescents from married-but-separated families or single-parent families, and left-behind adolescents require particular attention (Xu, 2011). The internet is transforming the experience of growing up. It is also transforming the job of being a parent. Livingstone

(2002) identified a contemporary loss of public leisure spaces, of street-corner culture, so that leisure and everyday life are increasingly privatised and take place in media-rich homes, where there is a shift from family television to bedroom culture. This trend is simultaneously a result of the multiplication, privatisation and diversification of media in the home, and a response to the fact that leisure increasingly takes place in the domestic environment, so that the home increasingly needs to accommodate the tastes of a range of family members. The internet brings the world, the good, the bad, and the ugly, to the family's doorstep (Third Way Culture Project, 2005).

Trolley et al. (2006) suggest that schools take a whole-community approach to digital media literacy, providing parents with educational resources and engaging them in discussions (see chapter 2, 2.3.5). The critical-thinking skills adolescents need in order to make safe and smart online decisions are not just a parental responsibility – everyone in the community can play a role. Research shows that, what matters most, is giving adolescents rich human interactions – at home, at school, and in the community (Cordes & Miller, 2000). Proactive measures taken by a school to open and enhance lines of communication and cooperation with the community encourage them to see the school as an important resource rather than as an institution separate from the community. In addition to parents, community members with a potential stake in the school include senior citizens, childless couples and singles (Pohlmann, 2010). In chapter 2, the PEAS programme (see table 2.1) suggested for the prevention of cyberbullying also considers making the fundamentals of whole-school approach and community involvement part of the core digital media literacy curriculum.

Digital media literacy can be perceived in terms of the benefits to the individual versus the benefits to society. The latter viewpoint is more likely to lead to reflective teaching and learning practices and a broader cognitive perspective of digital media literacy. Shields and Behrman (2000) said as new technology becomes ubiquitous in our daily lives, it is important to understand how digital technology can enhance or detract from a child's growth and development. According to these authors, digital technology is not an end in itself, but a means to an end. 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. If correctly implemented, digital media

literacy education could offer learners and teachers a shared platform that would afford learners a safer environment to explore, learn and ultimately understand the responsibility that comes along with new technologies and social media.

4.4 AN SOUTH AFRICAN PERSPECTIVE: JUSTIFYING DIGITAL MEDIA LITERACY EDUCATION IN SECONDARY SCHOOLS

Many adolescents in South Africa, including those in biological families, reconstituted families, foster homes, safehouses, and street children, are at risk because of inadequate opportunities for harmonious socialisation in their communities (Richter, Brookes, Shisana, Simbayi, & Desmond, 2004). Because authority structures are often weak, adolescents never learn the value of discipline and self-discipline, and lack support towards achieving responsible adulthood. This situation highlights the need for orientation programmes in South African schools that adequately prepare learners for the complex and dynamic life of the 21st century.

A study on digital media literacy around the world found that there are nine factors that appear to be crucial to the successful development of digital media literacy programmes in secondary schools (Pungente, 2010):

- Digital media literacy programmes, like other innovative programmes, must be a grassroots movement. Teachers need to take the initiative in lobbying for its inclusion in the curriculum.
- Educational authorities must give clear support to such programmes by mandating the teaching of digital media studies within the curriculum, establishing guidelines and resource books, ensuring that curricula are developed, and making certain materials available.
- Faculties of education must hire staff capable of training future teachers in this area. There should also be academic support from tertiary institutions in the writing of curricula and in sustained consultation.
- In-service training at school district level must be an integral part of programme implementation.

- School districts need consultants who have expertise in digital media literacy and who will establish communication networks.

- Suitable textbooks and audiovisual material that are relevant to the country and/or area must be available.

- A support organisation must be established for the purposes of workshops, conferences, dissemination of newsletters, and developing curriculum units. Such a professional organisation must cut across school boards and districts to involve a cross-section of people interested in digital media literacy.

- There must be appropriate evaluation instruments suitable to the unique attributes of digital media studies.

- Because digital media literacy education involves such a diversity of skills and expertise, there must be collaboration between teachers, parents, researchers and media professionals.

4.4.1 Purpose and scope of the Life Orientation learning area

The South African Department of Education has realised the scope and intensity of the problem and has endeavoured through the introduction of outcomes-based education, and in particular the Life Orientation learning area, to make a difference in the lives of a new generation of learners. The South African Department of Education (2003, p.9) defined the Life Orientation learning area as follows:

Life Orientation is the study of the self in relation to others and to society. It applies a holistic approach. It is concerned with the personal, social, intellectual, emotional, spiritual, motor and physical growth and development of learners and the way in which these dimensions are interrelated and expressed in life. The focus is the development of self-in-society, and this encourages the development of balanced and confident learners who will contribute to a just and democratic society, a productive economy and an improved quality of life for all. Life Orientation guides and prepares learners for life and for its responsibilities and possibilities. This learning area addresses knowledge, values, attitudes and skills about the self, the environment, responsible citizenship, a healthy and productive life, social engagement, recreation and physical activity and career choices. It

equips learners to solve problems, to make informed decisions and choices and to take appropriate actions to enable them to live meaningfully and successfully in a rapidly changing society.

Life Orientation has five learning outcomes, of which Learning Outcome 5 is only applicable in the senior phase (Grades 7-9). Following is an overview of the learning outcomes for the senior phase (Department of Education, 2002):

Learning Outcome 1: Health promotion: *The learner will be able to make informed decisions regarding personal, community and environmental health.*

The senior phase learner is exposed to a wider range of risky situations. The health and safety issues encountered are still due to the physical and socio-economic environment. The learner should acquire the skills to make informed choices. The learner needs to develop a healthy lifestyle, informed by environmental awareness and by other health and safety aspects. Lifestyle choices related to sexuality are crucial at this age and should be dealt with sensitively.

Learning Outcome 2: Social development: *The learner will be able to demonstrate an understanding of and commitment to constitutional rights and responsibilities, and to show an understanding of diverse cultures and religions.*

The senior phase learner is increasingly influenced by peers, while the family continues to play an important role. The learner is engaged in a variety of social activities and should be encouraged to participate in civic and human rights programmes. Knowledge of diverse cultures and religions will also contribute to the learner's own orientation in the world, and will enable the making of informed decisions on human rights, social relationships and moral issues.

Learning Outcome 3: Personal development: *The learner will be able to use acquired life skills to achieve and extend personal potential to respond effectively to challenges in his or her own world.*

Adolescence is marked by emotional and physical changes. The learner needs to continue the formation of a positive self-concept. Acceptance by the peer group is still very important. The learner needs opportunities to develop further life skills. It is necessary to develop emotional intelligence, to empower the learner in order to cope with challenges.

Learning Outcome 4: Physical development and movement: *The learner will be able to demonstrate an understanding of and participate in activities that promote movement and physical development.*

The senior phase learner is entering adolescence and experiences rapid physical changes. The refinement of movements is aimed at developing precision and agility. These are to be emphasised in different situations. Lifelong participation in physical activities promoting fitness needs to be encouraged.

Learning Outcome 5: Orientation to the world of work: *The learner will be able to make informed decisions about further study and career choices.*

While study skills and work ethics are addressed in the earlier phases, in the senior phase, the learner needs to make choices for further study or the world of work. In order to achieve this successfully, the learner needs a realistic understanding of his or her own abilities, interests and aptitudes. The learner should be aware of various career options and the implications of choices. The learner needs to be informed about a range of options for further study, and be oriented to the world of employment.

Learning Outcome 1 (Health promotion), contains links to the skills required for digital media literacy. The learning outcomes for digital media literacy are:

- introduction to media and the procuring of information from available sources such as dictionaries, atlases, newspapers, the internet and email
- knowledge of computer technology and information networks

These outcomes will equip learners with knowledge and skills to be competent and confident in accessing and working with various forms of media, information and data. These skills are:

- investigative skills, for example the ability to gather, store, process and manage information
- communication skills, for example the ability to present information and to identify sources

It is clear that the aim of the learning outcomes for digital media literacy is to capitalise on new and emerging forms of media to advance adolescent learning.

Secondary school adolescents still do not have the power of judgement to always make great decisions, but they are smart enough to understand the effects of risky practices. With regard to these learners, the Life Orientation learning area will show more success if it emphasises the positive and negative impacts of digital media. For example, it should explain the reasons why too much screen time is harmful, or why too much exposure to violent video games raises aggression and lowers empathy. Adolescents may actually be able to see evidence of this in their peers who spend too much time playing games.

Meanwhile, digital media literacy education in secondary schools in South Africa remains a marginal aspect of the compulsory curriculum. There is also little evaluation of this education in formal schooling. The skills suggested by the National Curriculum and the skills actually learned by the learners differ. In some instances this is because the National Curriculum itself is inconsistent to teaching practices. Furthermore, the importance of digital media literacy skills is not sufficiently explained in the National Curriculum, and the current curriculum also does not recognise the skills required in our increasingly multimodal society. (Please note that this review expresses the opinions of the researcher and not the Department of Education.)

4.5   CONCLUSION

In this chapter, the theoretical and conceptual aspects of media literacy education were explored in order to find a framework for a model for digital media literacy education in secondary schools. Ultimately, the goal of digital media literacy education should be to enable adolescents to develop their own creative as well as critical capacities in relating to technology. In so doing, they will realise that their choices are not limited to adjusting themselves to a century determined by technology; instead, they will have the awareness, the moral and ethical sensibilities, and the will to adjust technology to fit into their 21st century.

Today's adolescents engage in activities on interactive websites, TV programmes and other media and technologies that shape their literate identity. Using technology, adolescents are becoming active participators and developers. Typical competencies have not been clarified by research at the time of this study, and this should be rectified in order to enable the development of appropriate curricula on pedagogy. Competence can no longer be restricted to individual competencies – it should also be defined in terms of collective intelligence. Adolescents need to use technology to share ideas, evaluate others and work collaboratively.

At this point the researcher wishes to emphasise that when digital media literacy merely entails the pursuit of skills to be able to use the latest technology, then the means becomes the end. Over and above the necessary skills, digital media literacy must include our attitudes towards technology, as well as knowledge of the effects technology has on us and society as a whole.

4.6.   THE END OF THE REVIEW

The purpose of the literature review was to set the stage for the researcher's own research. Therefore, the researcher concludes the review with a summary of findings to rationalising the significance of the problem. To organise the studies in the review the researcher group them according to the variable of interest. The researcher offers a plan

of action on how these principles could be translated into practice, and provides developmental guidelines to apply them in a school curriculum.

4.6.1 Summary of findings from the literature review

Technology is evolving at a dizzying pace, presenting opportunities and challenges that are new to this generation. Many parents embrace the educational potential of new media, but are also concerned about the amount of time their adolescents spend on these media and how it may impact the way they make decisions, learn and socialise. The literature study provided an overview of today's new media landscape, the impact it has on adolescents (both the positive and the unintended negative consequences), and, most importantly, how a digital media literacy programme in secondary schools can help adolescents to be safe, smart and responsible online.

Following is a brief summary of the findings from the literature review that address risks of new media, opportunities/benefits and challenges, as well as ideas on what a digital media literacy programme should teach to increase learners' critical-thinking skills and the the barriers and enablers experienced while attempting to integrate digital technologies into teaching praxis.

➢   **The risks of the digital world for adolescents**

 Internet addiction

Thanks to wireless technology, adolescents have access to new media 24/7 – in their bedrooms, on the bus, in the classroom, and at the dinner table. For some adolescents this leads to sleep deprivation, which has an effect on their academic performance (see chapter 3, 3.2.2.5). Constant access can also lead to internet and cellphone addiction (see chapter 3, 3.2.2). If an adolescent becomes irrationally upset and starts missing meals when being away from new media, or has plummeting grades, it is time to take a hard look at how much time he or she spends with these media. Something else to consider is that researchers still do not know what the effects of multitasking on adolescents' brains are (see chapter 3, 3.2). Some, however, maintain that technology

has created a more distracting educational environment and that, as a result, children are less able to focus and concentrate, which can be detrimental not only to their grades but also their overall ability to accomplish tasks.

Cyberbullying, sexting and electronic dating violence

Digital information can be replicable and reach a large audience. The fact that anything posted or shared online can be taken out of context and shared widely in no time – an entire school can find out something within minutes – amplifies the impact cyberbullying has on adolescents (see chapter 2, 2.2.3). The anonymity that digital media offer compounds the issue. Adolescents tend to be more impolite if they think no one knows who they are. More gossip can be spread when adolescents believe that there will be no consequences. Since everything can happen at the touch of a button, taking the time to think critically about what they are saying becomes even harder for adolescents (see chapter 2, 2.2.2).

This problem is further complicated when cyberbullying is combined with sexting – people taking sexually revealing pictures of themselves and sending them as SMS attachments (see chapter 2, 2.3.1). Adolescents "sext" to show off, entice someone, show interest in someone, or to prove commitment (electronic dating violence). The problem is that the moment the relationship ends (and most of them do) someone is in possession of highly compromising images that can easily be posted on a social networking site or sent around via SMS or email (see chapter 2, 2.2.7).

Damage to reputation

Adolescents post all kinds of information about themselves online, often without thinking who would be able to see it and how they might interpret it. In addition to pictures of activities such as drug use, older adolescents explore their sexuality through texts, comments on photos, and so forth to the point of being inappropriate and even damaging to themselves and others (see chapter 2, 2.3.2.3). Adolescents send nude photos and write each other racy emails and instant messages without thinking about the consequences, which could be severe. They can get themselves in trouble with the

law, and also get other adolescents into trouble (see chapter 2, 2.3.1). It is therefore not only what their own adolescent posts that parents need to worried about, but what other people are posting as well.

Exposure to inappropriate content and risky people and influences

Adolescents have access to all sites varying in content from pornography, hate speech, violence, sites that exacerbate self-destructive behaviour such as cutting or eating disorders (see chapter 3, 3.2.2.5). With new media being so accessible, it is difficult for parents to monitor what their adolescents are seeing and with whom they are communicating, particularly adolescents who have cellphones with internet access.

The biggest concern for parents is the possibility that their adolescent will connect with a sexual predator (see chapter 2, 2.3.2.6). Despite the news hype about this issue, research shows that very few adolescents are at risk of becoming a victim. Even supplying their name and address online does not put adolescents at risk. What does is engaging in sexually provocative conversations in chat rooms, or sending explicit photos or videos to people they do not know. Keep in mind that in nearly all the cases we hear about on the news, the adolescent met the sexual predator willingly, often because of being manipulated into believing that the predator loves them and that they are special. The large majority of adolescents just block messages from people they do not know. The adolescents who are at risk are those who have low self-esteem and often lack meaningful relationships offline.

Pressure to broadcast

Modern-day adolescents have a culture of what adults consider to be "oversharing". From fear of missing out, they feel the need to always keep their status updated online (see chapter 1, 1.2). In their attempts to explore their identities, they may be boxing themselves in a particular identity before they really know who they want to be (see chapter 3, 3.3.4). They may also recreate themselves to the point where they are being dishonest about who they are, which could be a sign of low self-esteem. An example would be an adolescent girl who posts photos of "herself" that is not her, or writes things that she does not mean just to get attention.

Information overload could prevent critical-thinking skills that allow adolescents to develop independent judgements about media content

Adolescents may well have access to a world of information, but it is hard to assess and evaluate a high volume of facts (see chapter 3, 3.1). A Google search on a topic for a school assignment can easily produce more than a million results. Learners could therefore get loads of information that could easily be cut and pasted, without digesting or analysing any of it (see chapter 4, 4.2.4).

Parasocial interaction

Online community usage may lead to consumption-related behaviour (e.g., a non-participative online community user may decide what product to purchase; decide to switch to another brand advocated by active members of an online community, etc.) Parasocial interaction theory has been used to describe the one-sided relationships that can occur between a media user and the media being consumed. Used to understand the process by which individuals form attachments to media personae, the theory may also help explain the behaviour of those consumers who use internet based online communities (see chapter 3, 3.3.2).

Raised aggression levels

Exposure to violent video games, brutal movies and TV shows can lead adolescents to think that violence is an acceptable way to settle conflict. Studies have also shown that repeated exposure to violence can lead to harmful acts and bullying (see chapter 3, 3.4.1). The literature study also showed that desensitised adolescents are less empathetic towards victims of violence (see chapter 2, 2.2.2). People can also behave inappropriately or abusively in chat rooms, it everything but uncommon for people to get aggressive in this realm (see chapter 2, 2.3.2.3). This might be the collecting ground for the argument that cyberspace does make adolescents more aggressive (see chapter 3, 3.4.1).

➢   **Benefits of the digital world for adolescents**

Access to information versus digital divide

Today, the world is literally at adolescents' fingertips. They can learn about school-related topics, explore topics they are curious about, which can open them up to learning about different cultures and ideas, or delve into a particular topic of interest. Learning new things also make them feel empowered. South Africa has one of the greatest divides between rich and poor in the world, and this divide is also evident in the area of technology (see chapter 1, 1.5). Socio-economic circumstances, imbalanced education policies under the apartheid regime, as well as technology and language barriers, are some of the factors recognised in this exclusion. The new technology world unwittingly has excluded the masses as technology has raced on leaving many South Africans behind.

Connecting, collaborating and networking

Digital media offer adolescents countless opportunities to connect, collaborate and network. The skills they acquire on social networking sites, blogs, and others, such as how to communicate with friends, lead to constructive feedback and connected groups of people with common interests. It will also serve them well when they enter the working world. Global connectedness also has the benefit of encountering different perspectives. Furthermore, adolescents can participate and organise around a cause online. One example is adolescents who used the social networking site Facebook to promote and support social justice issues (see chapter 2, 2.3.2.6).

Community support

The internet can be a very positive tool for community-building. It gives adolescents the opportunity to find like-minded people in their communities, as well as people who can provide support. An adolescent who is shy in the real world can create a new persona and be part of an online group of friends or a community (see chapter 3, 3.3.1). Online support can be particularly beneficial for adolescents in rural areas, who may feel alone

and marginalised. It can even help adolescents who are going through emotional periods. MySpace and Facebook, for example, provide thousands of referrals to the National Suicide and Prevention Hotline (see chapter 3, 3.2.3). This support helps adolescents realise that their world is bigger than their class, school, or even town. With other media, such as cellphones, adolescents are never alone – friends can be only an SMS or a call away (see chapter 3, 3.2.2.2).

Self-exploration

Adolescence is a stage of developing a sense of the self – Who am I? How do I fit in with my world? Digital media give them a vast playground to explore (see chapter 3, 3.3.5). For example, they explore their identities through the avatars they create and through how they represent themselves in their social networking profiles. An adolescent who is not popular at school can create a person in the virtual world who has lots of friends and is "cool". Digital life offers adolescents the opportunity to try out a new persona and see how others react to it.

Creative expression

Digital media also offer adolescents countless ways to share their talents and interests (see chapter 3, 3.2.3). Today, anyone can publish content. Sites like MySpace and YouTube allow ordinary people to gain huge international followings by letting them post their music and performances online for free. An online magazine such as *Spank* is a good way for adolescents to express themselves (see chapter 3, 3.2.3).

Educational and therapeutic technology value

All the above-mentioned benefits are important for the development of the 21st-century skills adolescents will need in the workplace. Researchers believe that the use of avatars as an assistive, educational and therapeutic technology may help people with autism to overcome some of the limitations that characterise their condition (see chapter 3, 3.3.10.2). Digital media can also be harnessed in the classroom. For example, many teachers use video games to teach learners mathematical and scientific skills.

➢ **How a digital media literacy programme in secondary schools can help adolescents to be safe, smart and responsible online.**

The literature study explored the theoretical background of the concept of media literacy for the purposes of proposing a model for digital media literacy education in secondary schools based on recent research. 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. Debate around how teachers are using digital media literacy education in their teaching practice and the outcomes for learners appeared to be a gap in the literature. The following information on what teachers need to know about digital media literacy is based on the digital ethic research of Common Sense Media (see chapter 1, 1.3 and Addendums 7 and 8).

Encourage creativity

Adolescents can do astounding things digitally, and there are so many wonderful sites that engage them in creating works of art. Get familiar with some of these sites, especially the ever-popular YouTube. Steer adolescents towards sites that further their interests and values.

Caution adolescents against strangers' online identity

Just as information may not always be accurate, people may not always be who they say they are. Adolescents should not assume that just because someone says they are 17, or that they are a girl, they really are.

Explore bullying versus cyberbullying — identify cyberbullying roles

Experts who understand schoolyard bullying often misunderstand cyberbullying, thinking that it is just another method of bullying. However, the motives for and nature of cyber-communications, as well as the profile of cyberbullies differ from that of their offline counterparts. Consequently, the responses and solutions to all forms of cyberbullying

have to be different. Schools can be very effective brokers in working with the parents to stop and remedy cyberbullying situations. They can also educate the learners on cyberethics.

Teach adolescents to ask the who, what, and when questions

Help adolescents learn who and what they can trust and believe online. One of the best ways to do that is to teach them to ask who, what, and when questions about websites. Who created the site? What information does it include? When was the site last updated?

Encourage responsible use of creativity

The promise of an audience and instant recognition can inspire adolescents to use creative tools in antisocial or inappropriate ways. Videos of fights, sexually revealing images, and speech that is hateful or plain cruel are far too common in the digital world and should be considered off limits.

Talk about copyright issues

Talk to adolescents about the fact that if they use someone else's work, they need to give the relevant person credit for having created the original text, image, video or graphic. When adolescents use someone else's creation without the creator's permission or crediting the creator as the source, it is plagiarism piracy, or copyright violation. Adolescents may use small parts of other people's work; that is called fair use, but they must still credit the source.

Warn that cheating using new media is still cheating

All of the above apply not only to adolescents' artistic creations, but also their schoolwork. Many learners pass online information off as their own (plagiarism), or use their cellphones to obtain answers to tests from friends. Adolescents need to understand

that cheating using new media is still cheating, and that it is not only unethical behaviour, but that they could get into a lot of trouble for doing that.

Encourage a balance of research resources

Teachers must educate learners that they need to balance research sources, and not just for their homework. For example, they should look at different news sites to get the full picture of a certain issue as well as different viewpoints. They should also be taught to verify what they have learned.

Point out the ways marketers target adolescents

Adolescents need to realise that they are being targeted by marketers everywhere they turn, from traditional TV, print and radio adverts to product placements in TV shows and movies. Interactive adverts blaze throughout online and gaming worlds, where sponsorships, contests and product endorsements appear regularly. Adverts also come to adolescents as free cellphone ringtones (in exchange for receiving SMS adverts), surveys, and pass-along games and quizzes that capture email addresses when adolescents respond or forward them (viral marketing). Help adolescents to identify different types of advertising so that they can see through the hype (see chapter 3, 3.2.2.5)

➢ **Barriers and enablers secondary schools experienced while attempting to integrate digital technologies into teaching praxis**

The barriers and enablers were based on patterns identified from the literature review in chapters 2, 3 and 4:

- Learners' habits when using media at home are generally unknown to their teachers.

- Adolescents need opportunities to engage with adults in making sense of the wide variety of experiences they have with mass media, popular culture, and digital technologies.

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- Teachers' own attitudes about digital media literacy education shape their teaching praxis of digital media literacy in the classroom.

- Whether teachers like it or not, this digital media culture is adolescent learner's culture. A teacher's job is to prepare them to be able to critically participate as active citizens with the abilities to intelligently and compassionately shape democracy in this new millennium. Digital media literacy programmes offer teachers the framework to build upon their entertainment and social experiences with media so as to provide their learners with meaningful academic, civic and public experiences that are critical and empowering.

- A process model for digital and media literacy includes these components: access, analyse, compose, reflect, and take action.

- Digital media literacy class assignments should stimulate more rich conversation about learners' love–hate relationship with media and technology. Encourage learners to comment or offer a thought.

- Digital media education is aimed at giving the learner teaching and practice that can deepen his or her understanding of the central role of digital media in our culture. Digital media literacy means more than just understanding how to use Facebook or conduct an effective Google search – it means being able to use and create digital media to participate in civic life and collaborate around the issues that matter to society. It also means changing the way children think about accessing, analysing, and evaluating media, as the web provides them with an increasing number of choices for information, news, and entertainment and complicates their media landscape with new advertising and marketing tactics.

- As this study discussed digital inclusion and closing the digital divide in chapter 1, it is important not to leave the issue of literacy out of the conversation. In addition to ensuring that all adolescent learners have access to the web, secondary schools need to make sure learners have the skills to use it to it's full potential.

4.7   PROPOSED MODEL FOR DIGITAL MEDIA LITERACY EDUCATION

One of the expected results or outputs of this research study was a model for digital media literacy education in secondary schools. The model the researcher proposes has a dual purpose: it is 1.) a model for learners to follow as they are introduced to digital safety analyses as well as the essential skills of inquiry and self-expression necessary for digital citizenship, and 2.) a model for teachers to use as an example and a source of information for digital media literacy education. The intention is to help teachers develop their own programmes for media literacy that include digital media literacy.

The idea of a dual-purpose model connects with some of the premises of the constructivist paradigm, which considers the learning process as an interactive experience that involves both learner and teacher (Hague & Williamson, 2009). In digital media literacy, the constructivist theory provides an interesting background for planning activities, determining attitudes and strategies during the teaching/learning process, and focussing on certain resources. But most of all, it allows the researcher to look at digital media literacy as a learning process for both learners and teachers, as reflection and collaborative learning are at its core. To integrate all the components of digital media literacy, changes must occur at school level.

4.7.1 Digital and media literacy: a plan of action

The curriculum for the Life Orientation learning area forms an excellent basis for equipping learners to respond positively to social demands, assume responsibilities, and optimise their life chances (Prinsloo, 2007). However, the researcher is of the opinion that the current learning outcomes for digital media literacy are neither designed to empower learners to think critically, nor to make informed choices about how they create content, and communicate with and treat others in the digital world. The outcomes do not incorporate ethics or responsibility (see chapter 4, 4.4.1).

In view of the excellent basis the Life Orientation programmes form in providing learners with support in their development towards responsible adulthood, one of the aims of this research study is to investigate the importance of expanding the learning outcomes for digital media literacy. To this end, the researcher suggests two additional learning outcomes, each with its own lessons and outcomes: Digital Safety and Security, and Digital Citizenship. These are set out in tables 4.1 and 4.2.

Table 4.1: Digital safety and security lesson outcomes	
o **Safety lesson outcome**	o **Security lesson outcome**
Learners explore the benefits and risks of online talk. They learn about the rewards of communicating online, but also how to recognise inappropriate contact. They learn how to apply knowledge to online talk, and to stay safe when connecting with others.	Learners learn strategies to manage their information online to keep it secure. They learn how to guard against identity theft, keep their data safe from hacking, malware and spam, and protect themselves from phishing.

Table 4.2: Digital citizenship lesson outcomes	
o **Digital life lesson outcome**	o **Privacy and digital footprint lesson outcome**
Learners explore the positive and negative impacts of digital media on their lives and communities, and define what it means to be a responsible digital citizen.	Learners learn that the internet is a very public space and that they must therefore carefully manage their information as well as respect the privacy of others online.
o **Self-expression and identity lesson outcome**	o **Connected culture learning outcome**
Learners identify and explore different ways to present themselves online, while also learning to recognise when playing with identity crosses the line into deception.	Learners explore the ethics of online communities, the negative behaviours to avoid, such as cyberbullying and hurtful behaviour, and the positive behaviours that support collaboration and constructive relationships.
	o **Respecting creative work lesson outcome**
	Learners learn the value and responsibilities of being a 21st-century creator: receiving credit for one's own online work, and respecting others by properly citing their work.

Due to the cultural diversity in South African classrooms (see chapter 1, 1.2.2.2) lessons are designed to be developmentally and culturally appropriate, are geared towards diverse learning styles, and will engage learners whether they attend a school with one computer per learner or a school with no computers at all (Addendum 7). The lesson plans connect digital media literacy education to community issues.

4.7.1.1 Developmental guidelines for the proposed digital media literacy model: What to evaluate and how?

This section offers a plan of action for how to bring digital and media literacy education within complex secondary school settings. In-service training of teachers should make use of the instructional practices of digital media literacy education outlined in the lesson plans. A rigorous evaluation component must assess programme effect on both teachers' classroom practices and their learners' knowledge and skills (see chapter 1, figure 1.1). Learners' verbalisations were used to ascertain the learning that was occurring in the classroom. Thus learners use verbalised thoughts and speaking skills to communicate new understandings effectively. This approach is consistent with constructivist education. Consistent with the constructivist theory, teachers should continue to construct and refine their teaching strategies; therefore the goal of this study is to invite teachers to share, and working in teams, continue to develop and construct teaching practices that foster learners' critical-thinking skills.

The learning outcomes for "digital media literacy" encompass the full range of cognitive, emotional and social competencies that includes the use of texts, tools and technologies; the skills of critical thinking and analysis; the practice of message composition and creativity; the ability to engage in reflection and ethical thinking; as well as active participation through teamwork and collaboration (Common Sense Media, 2011b). Figure 4.2 introduces the proposed digital media literacy programme learning outcomes. A programme learning outcome is a statement of what the learner is expected to know, understand or be able to do on successful completion of the entire programme.

Digital Media Literacy Learning Outcomes →	Safety	Security	Digital Life		Privacy and Digital footprints		Connected Culture			Self-Expression and Identity		Respecting Creative Work	
Digital Media Literacy Lessons →	Safe Online Talk	Private and Personal information	My Media	With Power comes responsibility	Trillion dollar footprint	Secret Sharer	What's cyberbullying?	Overexposed: Sexting and relationships	Forms and norms	Your Online Self	Which Me Should I Be?	A creator's rights and responsibilities	Rework Reuse and Remix

Figure 4.2 Proposed digital media literacy programme learning outcomes

In addition to the proposed digital media literacy programme learning outcomes, the programme also aims to educate parents. The literature review highlighted a holistic approach to digital media literacy as a key feature of a digital media literacy programme (see 4.3.1 and chapter 2, 2.5.1). Therefore, the parents of learners (experimental group) who participated in this study received handouts linked to the suggested additional lessons in figure 4.2. These handouts introduce the proposed digital media literacy programme and provides tips for engaging and educating parents on the key issues their adolescent learners face with media and digital technology (Addendum 9).

In chapter 5, the research design and method are explained, which provide a basis for the aims, strategies, activities and evaluation system for digital media literacy education in secondary schools. The scope of the digital media literacy programme as well as an implementation plan is discussed. A logic model (figures 5.2 & 5.3) was designed to summarise the key beliefs and experiences identified that may have influenced the teachers' aspirations for using digital media literacy lesson plans and learning (critical thinking) that occurred as learners received digital media literacy lessons.

CHAPTER 5
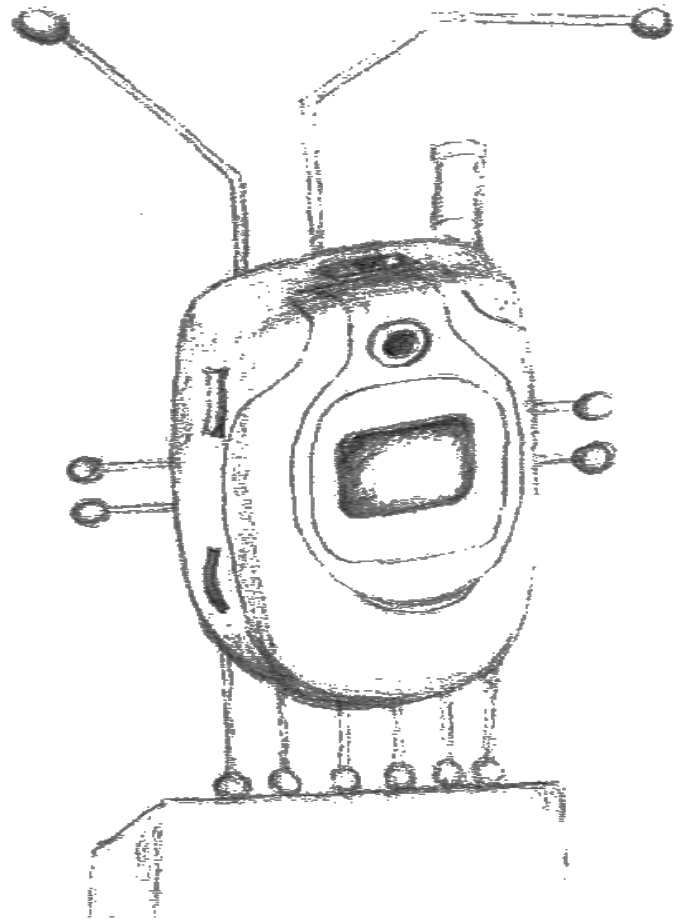
ADVANCING ADOLESCENTS' CRITICAL-THINKING SKILLS

It is not enough just knowing how to press buttons on technological equipment – it is paramount that adolescents think what they are doing.

CHAPTER 5
RESEARCH METHODOLOGY

5.1   INTRODUCTION

The South African school curriculum has undergone major changes. At the same time, international emphasis on the importance of digital media literacy has found reflections locally in many calls for the development of a school digital media literacy programme. The actual implementation thereof has, however, remained a problem. A digital media literacy programme was developed for the purposes of this study to consider learning activities within digital media literacy.

As will be indicated in this chapter, this research focuses on three secondary schools' Life Orientation teachers' experiences of using the proposed digital media literacy programme during their teaching of the Life Orientation curriculum. Data were collected through interviews, observation and learners' verbalisations of their learning. Causal-based assertions were drawn from the data and then compared in a cross analysis of the three secondary schools participating in the research. An interpretative qualitative analysis was used to identify findings beyond the research questions. Quantitative research methods were used to drive the qualitative process. In this chapter, the methodological approach taken is discussed, followed by details of the research design.

5.2.   METHODOLOGICAL APPROACH

According to Niemann (2005), methods are a range of approaches used in research to gather data which are to be used as a basis for inference and interpretation for explanation and prediction. Complexity theory, as far as education goes, states that all the components of a classroom, such as the teacher, learners, environment, context, framework of curriculum, engagement and the interpersonal relationships, create a

complex system (Morrison, 2002). Table 5.1 (adapted from Starkey, 2010) describes the research framework:

Table 5.1: Methodological approach

Conceptual framework:	Complexity theory
Paradigm:	Qualitative supported by quantitative
Model for research:	Interpretive causal study
Data collection methods:	Parent and learner questionnaires; interviews; teacher self-evaluation – lesson plans; group assessment on critical thinking (learners' verbalisations) and observation
Data analysis:	Group causal analysis applying logic models includes comparative analysis and interpretive qualitative analysis; and application of an alignment matrix of the proposed digital media literacy programme outcomes and lesson plans
Research participants:	Secondary schools; principals; Life Orientation teachers; Grade 9 learners (and to a lesser extent their parents)
Organisational structures or networks of the participants:	School structures; support of colleagues and in-service training

5.2.1 Conceptual framework

Complexity theory was used as basis for the conceptual framework chosen to examine the rapidly developing field of research into the use of new technology and the associated psychosocial risks in adolescents, and to explore if digital media literacy programmes can make a difference. The research methodology is an interpretive causal study grounded in complexity theory in which the researcher places all data, decisions

and methodological approaches through a filtering lens that is shaped through personal experiences and beliefs.

Complexity theory is a theory of change, including curriculum change and innovation. It fits with straightforward cause-and-effect models, linear predictability, and an analytically fragmented approach to understanding phenomena (MacGill, 2007). Science usually examines the world by breaking it into smaller and smaller pieces until the pieces can be understood. Using this approach often makes people miss the bigger picture. "Knowing all about an individual ant will not teach us about how a whole ant colony works" (MacGill, 2007, para. 2).

Sometimes the way the parts interact is critical to how the whole system works. This research acknowledges that schools and ideas about education are not static. The thesis focuses on teachers' new proposed teaching practice to accommodate the media literacy outcome. The processes and structures that influenced their teaching practice were examined, looking narrowly at those that impinged on or enhanced the use of the digital media literacy programme in the school. This included the interactions between the Life Orientation teachers and their support networks in the school structure to examine the types of barriers and enablers that were emerging. New knowledge will emerge through connections and in considering the history, culture and experiences of the organisation and participants (Buchanan, 2000).

To have a well-rounded picture of the notion of digital media literacy in a specific context, three dimensions of digital media literacy, namely intended, implemented and achieved, must be investigated (Markauskaite, 2006). Each level is related to different levels and aspects of an educational system: intended to top-level policy aims and strategic attitudes; implemented to middle-level teaching and learning approaches, and achieved to base-level empirical learning activities and learner experiences and outcomes.
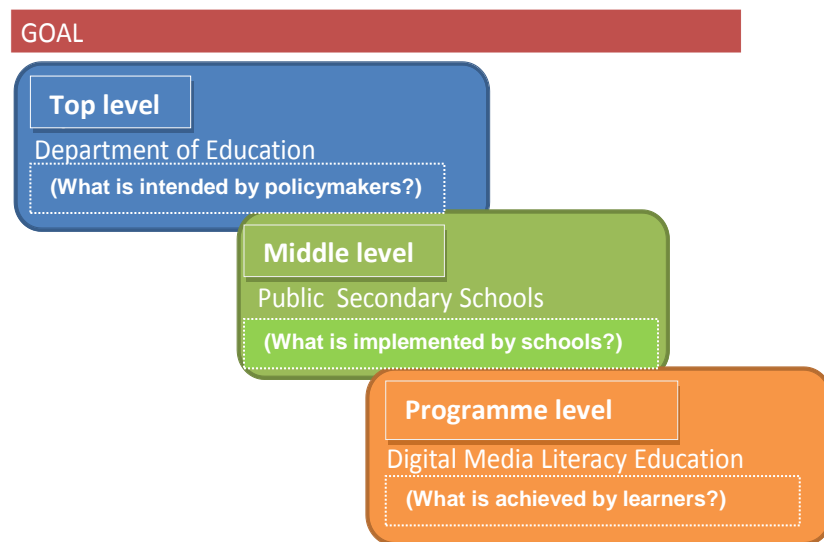
Figure 5.1: Levels in the education system

A literature review, underpinned by complexity theory, acknowledges that as new knowledge develops about how digital media literacy education influences the teaching and learning process in schools, new questions are asked and previous literature is reviewed through a new lens. The literature review in this study aimed to situate the study in a historical context and to build on the emerging knowledge of teaching and learning in the digital age. Gaps or research directions identified in the literature that this thesis hopes to develop include the following: a way of measuring the effective application of digital media literacy programmes in secondary schools; the way the secondary school Life Orientation teachers transfer their knowledge of digital media literacy to the classroom, and the effect of digital media literacy on learners' critical-thinking skills. A causal study approach was chosen to situate the participants within the complex system in which they were teaching.

The experiences of the adolescent learners and their parents using new technologies prior to them receiving the experimental intervention were examined. An interpretive approach thus allowed consideration of factors that may influence the emergence of critical-thinking skills. Quantitative data such as the following were collected by means of parent and learner questionnaires (Addendums 4 & 5):

- the number of households with internet access
- the number of adolescents with own cellphones

- the number of learners and parents using email

- the number of professional development opportunities

- achievement outcomes

- non-cognitive outcomes (discipline referrals).

5.3   RESEARCH DESIGN

The empirical research was conducted in an interpretive qualitative paradigm underpinned by a complexity theory conceptual framework. The aims of the research and the questions that emerged pointed to a causal study as being the most appropriate methodology. The most effective way of doing this is through a controlled study where two groups of people who are comparable in almost every way are given two different sets of experiences (in this case, one group of adolescent learners received the proposed digital media literacy programme and the other received the current media literacy education which forms part of the South African Department of Education's prescribed Life Orientation curriculum), and the outcomes are then compared. If the outcomes for the two groups differ considerably the different experiences may have caused the different outcomes (Cherry, 2011).

In this study, a sample of the Life Orientation teachers' use of digital media literacy lessons was the area of interest. The context was South African secondary schools in 2011. The variation between the case studies included different secondary schools to represent different socio-economic circumstances and cultures (ex-DET and ex-Model C schools; see chapter 1, 1.3). The data were gathered over a period of six weeks in the course of 2011 by means of surveys (Addendums 4 & 5), semi-structured evaluation questionnaires to teachers (Addendum 11), individual interviews and group interviews, and learner observation and verbalisations. This study evaluates the proposed digital media literacy programme's ability to effect improvements in the following objectives for Grade 9 learners:

- critical-thinking skills

- information-seeking strategies

- goal-setting/future aspirations

- social responsibility
- decision-making/social skills
- social connectedness
- digital media literacy.

5.3.1 Research objective

The main objective of this research study could therefore be defined as follows: To address the practical process of providing a quality digital media literacy programme that is integrated with the school curriculum to guide secondary school adolescent learners to develop the capacity to think critically for themselves about the entire realm of designing, using and adapting new media to serve personal and social goals in ways that will deepen their relationships with the world, rather than have those relationships defined by these media; in other words – good digital citizenship.

The proposed digital media literacy programme in this study also aims to prepare Life Orientation teachers for the classrooms of the future. Sime and Priestley (2005) noted that teachers often expressed their lack of confidence in their digital technology skills and that this can implicitly affect their attitudes towards the use of digital media literacy in their teaching.

Current education creates a split between school and home spaces, but adolescents' digital media practices flow across both. For this reason, one of the aims of this study is to also educate parents. The parents of learners in the experimental groups received handouts about the suggested additional lessons in the curriculum (Addendum 9). These handouts provided an overview of today's new media landscape, the impact it has on adolescents (both the positive and the unintended negative consequences) and, most importantly, how they could help and discipline their adolescents to be safe, smart and responsible online (see the specific aims in chapter 1, 1.5.2).

5.3.2 Research problem

The research in this study originated from a general problem. Secondary school digital media literacy should be geared towards practice for the real world. Most skills, particularly critical-thinking skills, are best achieved in formal learning environments, in structured and directed learning situations (Lankshear & Knobel, 2008). A practical strategy to realise this at school level should be determined and agreed on. The inclusion of digital media literacy education will be best achieved if teachers and learners can be persuaded that it involves valuable skills from which they will benefit. There is therefore a desperate need for more research and outcomes data.

It also appears that there is a need for research that concentrates on associated psychosocial risks of using new technology (see the statement of the problem in chapter 1, 1.4).

5.3.3 Structure of the research

The research process starts with a broad area of interest – the initial problem the researcher wishes to study. This initial interest, however, is far too broad, which necessitates the narrowing down of the question to one that can be reasonably studied.

5.3.3.1 Variables of interest

The research problem as discussed in 5.3.2 is too broad; the researcher could not hope to address it adequately in a single research study. The area of interest was therefore narrowed down to specific focus areas, which are encapsulated in the research questions. These questions are the central issues being addressed in the study and are often phrased in the language of theory. For example, the first research question in the design phase of this research study was:

Is the proposed digital media literacy programme more effective than the current digital media education embedded in the Life Orientation curriculum of secondary schools at developing critical-thinking skills in adolescents?

The problem with the above question was that it was still too general to be studied directly. In most research, the researcher consequently develops a more specific statement, called a hypothesis, which describes in operational terms exactly what he or she thinks will happen in the study. In this study there is no formal hypothesis; the purpose of the study is to explore digital media literacy education in secondary schools in South Africa more thoroughly in order to develop specific hypotheses or predictions that could be tested in future research. Therefore, in this research, "hypotheses" were broadened in the design phase to become "variables of interest". Variables of interest were designed to take account of existing literature and focus the research on aspects that might be useful to explore, but not limiting the findings to these.

In causal studies there are at least two major variables of interest: the cause and the effect. Before researchers can show that they have a causal relationship, they have to show that they have some relationship (Trochim, 2008). For instance, consider the syllogism:

<div align="center">

If X then Y

If not X then not Y

</div>

This same syllogism in the programme evaluation terms of this study would therefore be:

If a digital media literacy programme then critical-thinking skills

If not a digital media literacy programme then not critical-thinking skills

In order for a researcher to argue that he or she had demonstrated internal validity – that they have shown there is a causal relationship – they have to "rule out" the plausible alternative explanation (Trochim, 2008, p.183). One of the major ways to do this is by way of the research design. The researcher in the current study did this by pre- and post-evaluation. The researcher evaluated the Grade 9 experimental groups before they started the programme (establishing a baseline), then gave them the programme (digital media literacy lessons), and afterwards used post-evaluation to evaluate their performance in critical thinking. The researcher expected to see an improvement in the learners' critical-thinking skills, which she would like to infer to be the result of the digital media literacy lessons.

One of the plausible alternative explanations is a history threat: It is not the digital media literacy lessons that caused the gain, but some other specific historical event. For example, it is not the digital media programme that caused the development of critical-thinking skills, but rather the latest television show on cyberethics that happened to be broadcast between the time of the pre- and post-evaluations. To rule this out of the research design in the current study, the researcher incorporated a control group – a group who was comparable to the experimental group, with the only difference being that they did not receive the digital media literacy lessons, but, for instance, were also exposed to the latest television show on cyberethics. If the researcher found that the control group did not show development in critical thinking even though they were exposed to the cyberethics television show, then the researcher effectively "ruled out" the television show as a plausible alternative explanation.

5.3.4 Research questions

The research design was kept flexible to allow for changes during the research process. This allowed for alterations in the research questions as a result of findings and emerging literature. Niemann (2005) noted the need for progressive focusing during the research process. The initial draft of the research included two questions with ten additional questions for the purposes of the explanatory objectives of the study (Addendum 12). This was refined after the first planning stage to include just one main and three sub-questions, integrating the variables of interest. Stake (1995, p.15) noted that "the most difficult task of the researcher is to design good questions, research questions that will direct the looking and thinking enough and not too much". The researcher believes the refined questions were able to do this. These are:

- **The main research question**

> **How do Life Orientation teachers in secondary schools make use of the proposed digital media literacy programme for teaching and learning?**

Variables of interest for the main research question include the purpose (accessing information, recording, processing information, lesson planning, activities,

communicating), type of learning activity, and the type of digital media literacy outcome used.

- **Sub-questions**

> **What factors impede or encourage the implementation of the digital media literacy programme by Life Orientation teachers?**

> **How do Life Orientation teachers in secondary schools connect and collaborate in their teaching of digital media literacy?**

> **What is the potential learning and the actual learning that occurs in a Life Orientation teacher's classroom as learners engage in digital media literacy activities?**

The variables of interest for these sub-questions include engagement levels, creativity, conceptual understanding, critical thinking, reflection, and connections.

The research questions do not exist in isolation. A logic model (see chapter 1, figure 1.1) guided the data gathering and analysis and the four research questions were embedded in the logic model. They are connected, and through the connections a greater understanding of teaching digital media literacy in the digital age will be constructed.

As indicated in chapter 1, constructivist, complexity and connectivist theories underpin the logic model (see figure 1.1).

5.3.4.1 Constructivist learning theory

Dewey (2009) believes education must engage with and expand experience; those methods used to educate must provide for exploration, thinking and reflection, and that interaction with the environment is necessary for learning. Dewey (2009) therefore advocates the learning process of experimental learning through real-life experience to construct and conditionalise knowledge, which is consistent with the constructivist

learning theory. This research looks at the constructivist role of Life Orientation teachers to support learners in becoming effective thinkers. In the constructivist classroom, the teacher's role is to prompt and facilitate discussion. The learning environment should also be designed to support and challenge the learners' thinking. It appears that a focus on learning through practical activity has been categorised as constructivist learning in this research (the work of Hernández-Ramos (2005) referred): Through practical activities learners construct meaning on an intrapersonal level, while speech connects this meaning with the interpersonal world shared by the learners and their cultures. In this study, learners with different technology skills and backgrounds collaborated in digital media literacy tasks and discussions to arrive at a shared understanding of cyberethics and digital citizenship. If learners had to present and train new contents with their classmates, a non-linear process of collective knowledge construction would be set up.

5.3.4.2 Complexity learning theory

The literature in this study was examined from a complexity theory perspective to identify the emerging knowledge of teaching and learning in secondary schools in the digital age – the context in which Life Orientation teachers work. A complex system or organisation consists of a number of levels, with each level having a recognisable open boundary (Davis & Sumara, 2006). For example, the complexity of secondary schooling can be examined at a national/regional, school, or classroom level (see figure 5.1).

A further construct of complexity theory is the decentralised control or bottom-up emergent knowledge (Davis & Sumara, 2006). While schools, education systems and classrooms appear to be driven top-down, there is research that reflects how the relationships, history and culture within each level and from the bottom up influence and informally control the changes that occur in a classroom (Bishop & Glynn, 1999; Wink, 2000). Emerging knowledge within schools is therefore influenced by the parts, participants and processes within the system.

One helpful way to conceptualise complexity theory is in the light of the following example: You cannot make a plant grow. You can, however, provide the necessary ingredients for optimal growth, but even then it may not thrive, for who knows what the weather, or other random events, will be (Morrison, 2002)?

The emerging knowledge within a complex system is informed by its history. In a schooling context this could include how the process of change occurred in the past, or the particular culture or values that developed over time within an organisation. Each school has a unique culture that has developed over time. These constructs are reflected in the underpinning assumptions of schooling and teaching throughout this thesis (see chapter 1, 1.2.2.1). From a complexity theory perspective, each school, region, department and network of teachers has the characteristics of a complex system with unique variables or parts, such as its history, culture, community, leadership, learners, policies, communication networks, structures, resources and considerations for practitioners, policymakers and future researchers, to consider within their context (Starkey, 2010).

5.3.4.3 Connectivist learning theory

Connectivism was introduced as a theory of learning based on the premise that knowledge exists in the world rather than in the head of an individual (Siemens, 2006). Siemens (2008) indicates in his paper, *A Learning Theory for the Digital Age*, the special importance that is given to the effect technology has on how people live, how they communicate, and how they learn.

The effectiveness of learning in a connectivist learning environment would include ideas about knowledge in the digital age, including critical thinking, connections, collaboration, and creating knowledge (Siemens, 2008). Any measure of effective use of digital media literacy in digital age schooling should be underpinned by a view of knowledge that is relevant to the digital era. Ideas about "knowledge" appear to be changing from something that is found in the heads of individuals or in books to something that is not fixed, is debatable, accessible through a range of mediums, and created through networks, connections and collaboration (Gilbert, 2005; Siemens, 2006). It would

therefore be appropriate to include these ideas in a logic model to examine learning through digital media literacy.

Teachers often do not expect learners to be sharing knowledge through connections (a key aspect of learning in the digital age and connectivist learning theory) (Siemens, 2011). Connectivism's focus on connections requires that learners be exposed to elements that extend beyond the classroom and allow for real-life experience (Siemens, 2011). In a connectivist environment, a teacher blends his or her educator expertise with learner construction (Siemens, 2006). The role of the digital media literacy teacher is to create learning resources that expose learners to critical ideas and concepts within the field of digital media literacy. Learners create work which is in full view of peers, and teachers can observe the activities of all learners and draw attention to specific approaches. Learners are at the centre of the learning experience, rather than the teacher and institution (Siemens, 2004).

The current researcher is of the opinion that there is a gap between the digital media literacy education currently used in secondary schools and the conceptual understanding of learning and knowledge creation in the digital age. Siemens (2004) suggests that education has taken the wrong approach. Education is trying to achieve a task (learning) with a tool (teaching) in an artificial knowledge construct (course). This perspective on teaching and learning then becomes about the institution, not the learner (Siemens, 2004). This gap between a theoretical education model and the reality in classrooms could be attributable to the time lag between the development of digital media literacy models and their subsequent uptake and integration into the complex system of secondary schooling and the Life Orientation curriculum. The Life Orientation teachers in this study were working from a model that is underpinned by connectivist learning theory in the digital age and the proposed digital media literacy programme's pedagogical reasoning and action, which reflects teaching in the digital age that could be useful to secondary schools. Verhagen (2006), for instance, has argued that connectivism is not a learning theory, but rather a pedagogical view. Summing up connectivist teaching and learning, Downes (2007, para. 3) states: "to teach is to model and demonstrate, to learn is to practise and reflect."

5.3.5 Selection of participants

Secondary schools were targeted (specifically Grade 9 classes). Adolescents particularly in the 13 to 15 age segment use the knowledge-based aspects of the online world on a more sophisticated level than most parents and teachers realise, and peer aggression is most common among 13- to 15-year-olds (see chapter 2, 2.1 and chapter 4, 4.3).

One Life Orientation teacher and two Grade 9 classes from each of three schools were selected to participate.

The Grade 9 classes who participated were selected by using convenience sampling, as the principals of the schools prioritised specific classes on that level in an effort to redress the potential dangers of misusing and abusing media technology. A convenience sample is a sample where the participants are selected, in part or on the whole, at the convenience of the researcher (Leedy & Ormrod, 2005). The disadvantages of this type of sampling are the risk that the sample might not represent the population as a whole, and that it might be biased by volunteers. Still, convenience samples can provide the researcher with useful information. Convenience sampling was used in this pilot study because it allowed the researcher to obtain basic data and trends regarding adolescents' media use and digital media literacy education without the complications of using a randomised sample. The advantages of this type of sampling are the availability of and the quickness with which data can be gathered. The convenience sampling technique is also useful in documenting that a particular quality of a substance or phenomenon occurs within a given sample (Gravetter & Forzano, 2008). Such studies are also very useful for detecting relationships among different phenomena (Leedy & Ormrod, 2005). Furthermore, by surveying only one class in each school, the researcher imposed on the school as little as possible.

In school A, 28 Grade 9 learners, 19 parents, 1 teacher in the Life Orientation learning area and 1 principal participated.

In school B, 31 Grade 9 learners, 21 parents, 1 teacher in the Life Orientation learning area and 1 principal participated.

In school C, 26 Grade 9 Learners, 20 parents, 1 teacher in the Life Orientation learning area and 1 principal participated.

See chapter 1, 1.3 for the background of the selected schools.

It is to be noted that the control groups are not included in these numbers. A total of 79 Grade 9 learners selected from the three schools formed the control groups (see chapter 1, 1.3). The Life Orientation teachers who participated in this study taught media literacy to both groups.

A total of 230 people (n=230) participated in this research.

5.3.6 Data collection

The data collection was undertaken between June 2011 and August 2011. The research methodology used aimed to construct meaning from data and observations while taking into account the complex relationships within the context in a holistic way. A logic model (or graphic organiser) (figure 5.2) guided the data gathering and analysis of the individual schools.

A logic model is a framework for describing the relationships between investments, activities and results (Carroll & McKenna, 2001). It provides a common approach for integration, planning, implementation, evaluation and reporting (Kaplan & Garrett, 2005). A logical chain of connections shows what the programme is to accomplish. This model therefore enabled the researcher to collect information about the various components of the programme and the links between them as well as the outcomes to determine which processes lead to the desired results or prevent them from happening (Taylor-Powell et al., 2003).

The empirical research was done in phases, combining qualitative and quantitative methods — mixed methods — (see chapter 1, figure 1.2):

Phase 1:   Quantitative (parent and learner surveys)

Phase 2:   Qualitative (initial interviews with principals and teachers)

Phase 3:   Qualitative (the digital media literacy programme learning outcomes:
              interview survey with teachers (critical thinking and digital citizenship
              checklists), skills assessment forms and self-evaluation questionnaire by
              teachers)

Phase 4   Qualitative (learners' workshops (verbalisations) and follow-up interview
              survey with teachers)

Outcomes from each phase were used in the next phase. Figure 5.2 (adapted from WK
Kellogg Foundation (2007)) illustrates a sequence of cause-and-effect relationships to
communicate the path towards the desired result.
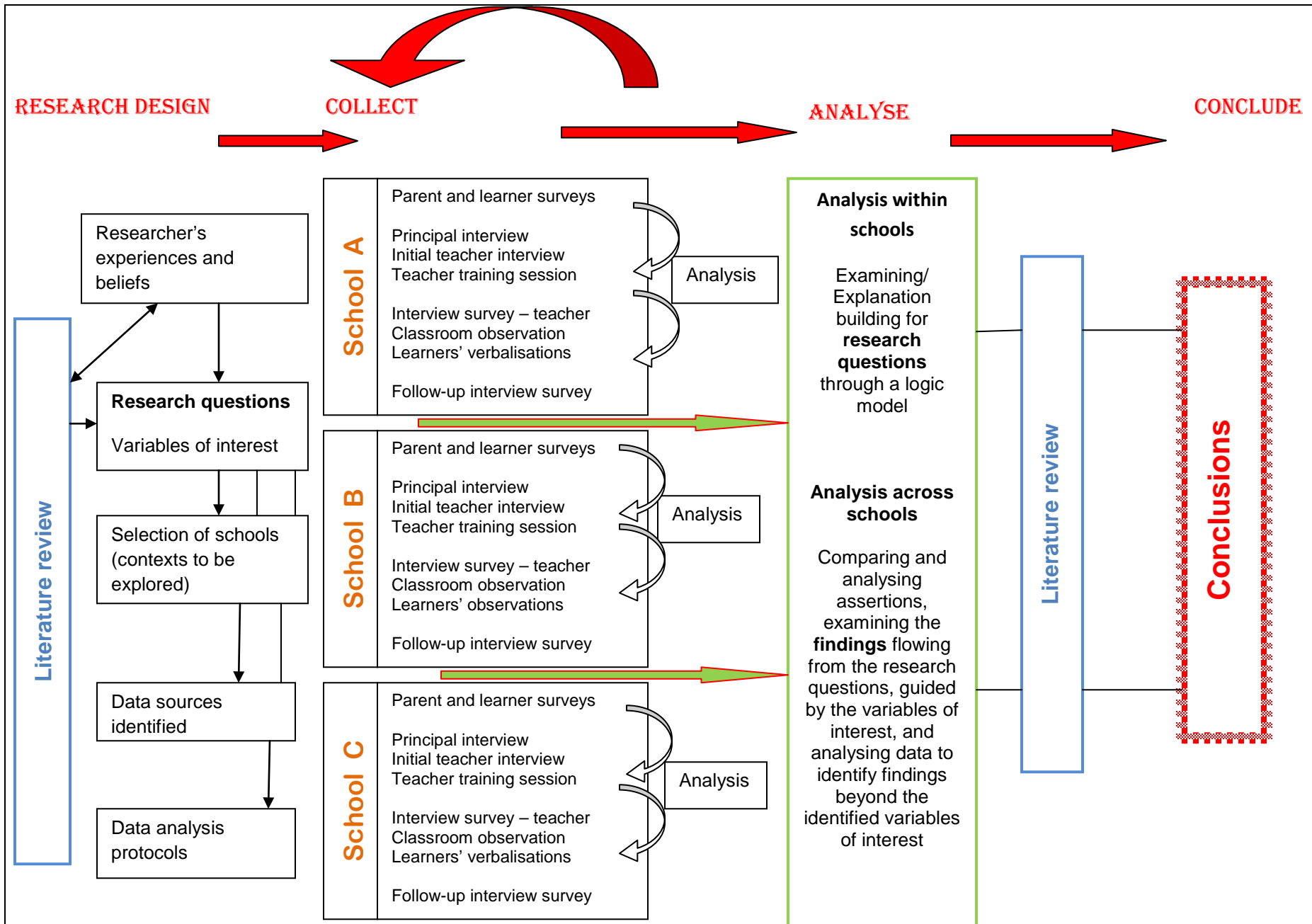
Figure 5.2: Logic model: Causal connections

5.3.7 Research method: building a logic model for data collection

5.3.7.1 Structuring of the questionnaires

When planning a questionnaire, the first thing the researcher has to be aware of is what information he or she aims to obtain with the questionnaire. This will determine which questions the researcher will ask. For example, the current researcher wanted to conduct parent and learner surveys to measure the online use patterns of Grade 9 learners. The questions were therefore aimed at:

- the extent to which Grade 9 learners engage in online activities that may involve personal risk

- the strategies they use to deal with illegal and inappropriate content, interaction with strangers, and online invasion of their personal privacy

- the parents' awareness of and ability to address the challenges their children are facing online.

The structure of a questionnaire is as important as the content in order to maintain the interest and co-operation of the respondents. The researcher included an introduction with the aim to briefly introduce the background of the questionnaires so that the parents and learners could know what they were going to be asked.

The researcher included different kinds of questions in the questionnaires. A few questions required the respondents to fill in an answer (e.g. "Which school does your child attend?") Most of the questions required the respondents to mark the applicable or most applicable answer by ticking the box next to the answer (e.g. "What is your child's gender? Female $_1\square$ Male $_2\boxtimes$"). In some cases where the respondents ticked a box they were asked to specify their answer (see question 15, Addendum 4). Other questions required the respondents to tick a box in a specific column. For example, the parents were asked to rate their level of confidence in talking to their children about cyberbullying. If they felt that they were not at all confident about it, they would tick the box in the column "Not at all confident" (see question 29, Addendum 4). The same applied to questions where the respondents were asked to indicate whether they agree or disagree with a statement (see question 45, Addendum 4). In almost all of the cases

the respondents were only expected to give one answer. In a few cases they were specifically requested to tick all the answers that applied to them (see question 39, Addendum 4).

The researcher tried to ensure that the respondents understood all the questions in the questionnaires. Because there could have been a few words they were not familiar with, or that people understand differently, the researcher included definitions at the beginning of the questionnaires.

To increase the validity of the questionnaires, the questions were first reviewed by a language editor, the content of the questions was scrutinised by an expert in the field from the Institute for Curriculum and Learning Development at Unisa, and the clarity of the questions and ease of use were evaluated by three potential participants, who were not included in the study. A statistician also reviewed the questions and layout to ensure ease of use and accurate data capturing.

The researcher collated the responses manually. The quantitative data were statistically analysed and are displayed as graphs and figures in chapter 6.

5.3.7.2 Parent media and technology survey

This survey was conducted at the beginning of the research study. The Parent Questionnaire (Addendum 4) was administered in such a way that the results were collected anonymously to ensure honest responses and greater parent participation. The questionnaire was distributed through the school in print to parents to determine their knowledge, attitudes and concerns about their children's media lives. The estimated time it would take to complete was 20 minutes. The parents were given envelopes in which to seal their completed questionnaires before returning them to the school. These envelopes were sent directly to the researcher, who conducted the analysis and wrote the report.

5.3.7.3 Learner media and technology survey

The researcher administered this survey to the learners to gain a picture of their media use, behaviours, attitudes and interests. The Learner Questionnaire (Addendum 5) was tailored to Grade 9 secondary school learners and took approximately 20 minutes to complete.

The survey instrument was anonymous; at no point was the learners asked to provide their names. The questionnaire helped the learners to reflect on their own digital media behaviours, but the schools could also use the results to create awareness among parents.

Many questions in this questionnaire could be compared to questions in the Parent Questionnaire to assess whether the learners and parents as a group have similar perceptions of learner media technology use. The researcher also used this questionnaire for programme assessment to measure change in the learners in the following areas: time spent with new media, new media behaviours and interests, and parental involvement.

The researcher administered the Learner Questionnaire at the beginning of the research study as a pre-evaluation. Upon approval by the school principals, the appropriate document packages were distributed to the three schools. Teacher instructions for introducing and managing the questionnaire in the classroom were provided. The teachers were requested to give the learners all the help they needed to understand the questions, but to ensure complete confidentiality – that is, not to look at the learners' responses. At the end of the session the teachers put the completed questionnaires in a return envelope and sealed it in the learners' presence. These envelopes were sent directly to the researcher, who conducted the analysis and wrote the report.

5.3.7.4 Principal interviews

The principal interviews consisted of an in-depth conversation with each principal individually conducted by the researcher. These interviews were used in an exploratory

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context – in other words, the researcher also gained insight into what the principals saw as priority topics to be addressed by the study. The principals were interviewed and questioned on the level of support they provided for Life Orientation teachers, their perceptions of the influence of the media literacy education outcomes on the general behaviour of the learners, the skills of their Life Orientation teachers, and the type of reports they received from their Life Orientation teachers. This evaluation and the responses evoked provided the basis for the in-depth interviews with the individual teachers.

5.3.7.5 Initial teacher interviews

Interviews according to a schedule were used to address the identified themes, and to leave enough room for the participating teachers to explain any meaningful themes that arose from the discussions (Addendum 13). The initial focus group interview was conducted with all the participating staff members of each of the three schools to determine the general influence of media literacy education programmes on the entire school climate. The researcher brainstormed the topic with the teachers and wrote down every theme of interest without analysis or judgement.

5.3.7.6 Individual teacher interviews

The researcher conducted individual interviews with the participating teachers at the respective schools. These "in-context" individual interviews put the teachers at ease and allowed them to talk about the barriers they experienced. Conducting in-depth individual interviews is a qualitative research technique to explore perspectives, in this case, the teachers' perspectives on the digital media literacy programme. For example, the researcher asked the teachers about their experiences and expectations related to the digital media literacy programme, their thoughts concerning the digital media literacy programme implementation, the outcomes, and changes they perceive in themselves and learners as a result of their involvement in the digital media literacy programme.

5.3.7.7 Individual training sessions as part of the interviews

Initially, teacher training moved digital media literacy to a skill for the teacher, rather than being an essential part of the curriculum they have to teach. This is where the main objective of this study comes into play – to provide teachers with guidelines to teach digital media literacy. At present, when teachers want to give learners an assignment, for example on how to create a web page, the available curricular materials are extensive and include, among other things, textbooks, manuals, software manuals, online tutorials and instructional websites. However, there are few available resources for teachers trying to understand the developmental risks to adolescents posed by the new media.

This research study focuses on the extent to which schools and Life Orientation teachers succeeded in achieving the outcomes for digital media literacy (see chapter 4, figure 4.2). To improve the quality of teaching and learning in the attempt to achieve these outcomes, the researcher provided teaching support material with additional lesson plans (Addendum 7) to the digital media literacy curriculum for Grade 9 learners. The lessons were carefully planned according to an agreed agenda and evaluated afterwards by the researcher and the teachers.

To successfully integrate digital media literacy education in schools, teachers have to understand the learning outcomes and the instructional strategies used in the design of class assignments. They need to ask the right type of questions to evaluate the alignment of curriculum, instruction and assessment. Alignment in this context has been defined as the extent to which curricular expectations and evaluations are in agreement and work together to provide guidance for teachers' efforts to facilitate the learners' progress towards the desired outcomes (Roach, Niebling, & Kurz, 2008).

By providing teachers with educational materials, including digital media literacy lesson plans, and trained them in its use, the researcher hoped to ensure that this exercise would be woven into the classroom curriculum in a meaningful way. These lessons were aligned with the objective and aims of this study. The concept of digital media literacy relates to the responsible, ethical, and safe use of new media by adolescents as members of society and citizens of the global community. The affective domain of the

developmental continuum for the digital media literacy lessons contains four key paradigms that encompass digital citizenship and enhance critical thinking, namely:

- ethics and responsibility
- social implications collaboration
- motivation
- confidence.

The participating teachers of the respective schools also supported each other by planning their lessons as a group (or by sending lessons by email), and by a weekly peer review while implementing the strategies in class. The researcher assessed the lesson plans and teaching materials, and each participant received individualised feedback as part of their training in appropriate use of materials. Further communication was by email. Ongoing support provided by the researcher at the schools further enhanced the effect of the training.

5.3.7.8 Evaluation of the digital media literacy programme

The evaluation of a programme is an important phase in its development, therefore the teachers also completed a skills assessment form (Addendum 10) for each lesson outcome. The skills assessment forms provide a record of the skills and competencies the learners attained as a group.

In chapter 4 (see 4.7.1), the researcher highlighted the importance of expanding the current learning outcomes for media literacy. In the preparation stage for the activities in the data collection it was important to provide the scope and sequence of these outcomes.

The skills assessment forms the teachers completed and the accompanying lesson plans, presented as tables 5.2 to 5.8, indicate the scope of the additional digital media literacy lessons. The order they appear in constitutes the sequence of the lessons.

- **Lesson outcome: safety and security**

Table 5.2: Skills assessment – lesson outcome: safety

Skills and competencies the learners attained as a group	Yes	No	No evidence	Comments
Describe positive aspects of online talking and messaging.				
Identify situations in which online talking may be risky.				
Learn to recognise the warning signs of online predators and feel empowered to deal with them.				

Lesson	Overview and objectives	Activities	Components
Safe online talk	**Learners will**: • understand that online flirting and sexual talk are risky. • learn how to identify and avoid unwanted online contact.	• Recognise warning signs of potential online predators. • Analyse case studies about online interaction with strangers. **Extension**: Write a "Do" and "Do not" list of appropriate behaviours for using social networks and blogs. **Homework**: Create "Stay safe online!" posters and put on display at the school.	**For learners**: • Warning signs – handout • Internet traffic light – handout **For parents**: • Safe online talk – tip sheet

Table 5.3: Skills assessment – lesson outcome: security

Skills and competencies the learners attained as a group	Yes	No	No evidence	Comments
Understand the concept of online privacy and the purpose of privacy policies.				
Feel empowered to keep their information safe and secure by applying critical-thinking strategies to identity protection.				

Lesson	Overview and objectives	Activities	Components
Private and personal information	**Learners will**: • distinguish between different types of information that are safe or unsafe to share online. • recognise what type of identity information is safe or unsafe to share online.	• Match the correct identity information to the kind of personal information or private information. • Write a list of personal information that would be okay to share in a public online profile. **Extension:** Find websites that request information and classify it as either personally identifying or personal information. **Homework:** Teach family members about personal and private information, reflecting on how they keep their information secure.	**For learners**: • Protect yourself – handout • All about me – handout **For parents**: • Protecting and respecting privacy – tip sheet

- **Lesson outcome: Digital citizenship**

Table 5.4: Skills assessment – lesson outcome: digital life

Skills and competencies the learners attained as a group	Yes	No	No evidence	Comments
Gain basic vocabulary and knowledge for discussing digital media, the internet and online life.				
Explore the role digital media plays in their lives by examining their own media habits and online activities.				
Evaluate the perils and possibilities of digital life for themselves and their communities.				
Learn that using digital media safely, responsibly and respectfully is an important part of being a good digital citizen.				

Lessons	Overview and objectives	Activities	Components
My media	**Learners will**: • assess how much time they spend on media activities. • record and compare the time they spend on different forms of digital media and on different activities. • formulate a viewpoint on the role that digital media play in their lives.	• Discuss My media logs. • Make My media bar graphs.	**For learners**: • My media log – handout • My media bar graph – handout **For parents**: • Healthy media diet – tip sheet

| With power comes responsibility | Learners will:

 • consider their responsibilities to their offline communities.

 • reflect on their responsibilities to their online communities.

 • learn that good digital citizens navigate the digital world responsibly and respectfully. | • Discuss rings of responsibility.

 • Create a word web about digital citizenship.

 Extension: Create comic strips about digital citizenship. | **For learners**:

 • Rings of responsibility – handout |

Table 5.5: Skills assessment – lesson outcome: privacy and digital footprint

Skills and competencies the learners attained as a group	Yes	No	No evidence	Comments
Become aware of the digital footprint they leave online and reflect on the kind of personal information to share about themselves.				
Celebrate a "culture of sharing" through digital media while considering some possible harmful effects of oversharing.				
Learn to respect the privacy of others online.				
Develop privacy management skills and personal and community privacy codes of conduct.				

Lessons	Overview and objectives	Activities	Components
Trillion-dollar footprint	**Learners will**: • learn that they have a digital footprint and that information from it can be searched, copied and passed on, seen by a large, invisible audience, and can be persistent. • recognise that people's online information can be helpful or harmful to their reputation. • consider their own digital footprint and what they want that footprint to be like in the future.	• Examine online profiles of two applicants for a fictional TV show and choose a host based on their digital footprints. **Extension**: Design future digital footprints for themselves by writing online search results. **Homework**: Analyse candidate profiles with parents.	**For learners**: • Digital footprint – handout **For parents**: • Protecting and respecting privacy – tip sheet
Secret sharer	**Learners will**: • learn that it is the responsibility of digital media users to respect the privacy of others online. • understand how putting information about others online could compromise their own safety, reputation and/or relationships. • generate ideas about how to respect the privacy of others. • discuss what role parents and teachers should have in their online lives.	• Analyse case studies about compromising other people's privacy. • Play online interactive. • Discuss major privacy issues that arise in interactive. **Extension**: Analyse the Bloggers' Code of Ethics.	**For learners**: • Privacy of others – handout

Table 5.6: Skills assessment – lesson outcome: connected culture

Skills and competencies the learners attained as a group	Yes	No	No evidence	Comments
Recognise that different audiences require different types of communication and online etiquette.				
Learn to identify, respond to, and limit the negative impact of cyberbullying and other unethical or harmful online behaviours.				
Consider ways to create positive online communities rooted in trust and respect.				

Lessons	Overview and objectives	Activities	Components
What's cyberbullying?	**Learners will**: • empathise with the targets of cyberbullying. • recognise key similarities and differences between bullying and cyberbullying. • identify strategies for dealing with cyberbullying responsibly.	• Make a chart comparing bullying with cyberbullying. • Read a cyberbullying story and identify players and feelings. **Extension:** Write email advice to a cyberbullied learner.	**For learners**: • That's cyberbullying – handout **For parents**: • Cyberbullying – tip sheet
Overexposed: Sexting and relationships	**Learners will**: • learn what the risks and responsibilities are when you share online in a relationship.	• Brainstorm ways to avoid sexting and to use digital technologies responsibly in romantic relationships.	**For learners**: • How should it end? – handout **For parents**: • Digital relationships – tip sheet

Table 5.7: Skills assessment – lesson outcome: self-expression and identity

Skills and competencies the learners attained as a group	Yes	No	No evidence	Comments
Understand how anonymity impacts the way people explore and express different aspects of their personality online.				
Consider the motivations, benefits, and potential harms to oneself and others of assuming an online identity that is different from one's offline self.				

Lessons	Overview and objectives	Activities	Components
Your online self	**Learners will**: • identify the unique characteristics that make up who they are, both online and offline. • recognise that they have choices about how they present themselves to others on the internet.	• Diagram the differences between their online and offline personas. **Extension:** Design an online profile for a partner on a piece of paper. **Homework:** Design a personal profile on a paper "website".	**For learners**: • Offline/Online me – handout **For parents**: • Self-expression and identity – tip sheet
Which me should I be?	**Learners will**: • identify the motivations, benefits, and risks associated with presenting their identities in different ways online.	• Analyse ethical dilemmas about online self-presentation. **Extension:** Write case studies to extend the Take a Stand class activity. **Homework:** Design a personal profile on a paper "website".	**For learners**: • Take a stand – handout

Table 5.8: Skills assessment – lesson outcome: respecting creative work

Skills and competencies the learners attained as a group	Yes	No	No evidence	Comments
Learn about the importance of copyright law, fair use and the public domain, and their rights as owners and users.				
Consider the differences between sharing creative work ethically and legally, and pirating, plagiarising, illegal downloading, and digital cheating.				
Explore different models for getting attribution for their own creative work.				
Learn that giving other people credit for their contribution is a sign of respect.				

Lesson	Overview and objectives	Activities	Components
A creator's rights and responsibilities *Rework* *Reuse* *Remix*	**Learners will**: • understand the meaning of copyright, fair use, and the rights they have as creators. • reflect on their responsibilities as creators and as users of creative work.	• Explore credit for creative work. • Read case studies and discuss ethical challenges. **Extension:** Role-play ethical dilemmas about respecting creative work. **Homework:** Interview family members using learner discussion guide.	**For learners**: • Respecting creative work – discussion guides **For parents**: • Respecting creative work – tip sheet

(Addendum 7 contains detailed lesson plans and handouts for teachers, and Addendums 8 and 9 the student and parent handouts.)

After each lesson the teachers completed a self-evaluation form (Addendum 11) by answering the following questions:

Preparation:

- How useful was your lesson plan? Were you able to follow it or did you have to depart from it during the lesson?
- What difficulties did you find in planning the lesson?
- Now that you have taught your lesson, what changes would you make to the plan for the next time?

Teaching:

- How successful was the lesson?
- Which part of the lesson was most successful? Why?
- Which part of the lesson was least successful? Why?
- How did you ensure that all the learners understood and were engaged?
- How much did you use the blackboard, whiteboard or smartboard? Was it effective?
- What other aids did you use? Were they effective?
- What aspect of the lesson gave you the most difficulty? Why?
- How was this lesson different from the one you taught before?

The learners:

- Which activities did the learners enjoy most? Why?
- What did the learners find the most difficult? Why?
- Did any of the learners fail to participate? If so, why was this?
- What discipline problems were there? What caused them? How did you deal with them?
- What advice might the learners give *you* about the lesson?

The researcher used the information in the self-evaluation and skills assessment forms to draw the programme theory evaluation. An alignment matrix expressing the data obtained by using the two techniques was constructed (see chapter 7, table 7.3). The purpose of the matrix was as a research tool, one that a teacher and the researcher

could use to discuss the aims and outcomes of a learning activity in the digital media literacy programme.

5.3.7.9 Interview survey

To consider expected changes as a result of participating in the programme (changes to learners' cyberethics and critical-thinking skills), the researcher conducted an interview survey with the participating teachers. The researcher administered the interview survey at the beginning of the study as a pre-evaluation, and again at the end of the study as a post-evaluation. The teachers completed the pre-evaluation interview survey for both the experimental and control groups. After the experimental groups participated in the digital media literacy programme for six weeks, the teachers completed a critical thinking checklist and digital citizenship checklist based on their observations. The teachers rated both the experimental and control groups on the following:

Table 5.9: Critical thinking checklist

	Always	Almost always	Some-times	Never	Not observed
Critical thinking, problem solving and decision making					
Learners of the group:					
a. identify and define authentic problems and significant questions for investigation.	4	3	2	1	0
b. plan and manage activities to develop a solution or complete a project.	4	3	2	1	0
c. collect and analyse data to identify solutions and/or make informed decisions.	4	3	2	1	0

Table 5.10: Digital citizenship checklist

	Always	Almost always	Some-times	Never	Not observed
Digital citizenship					
Learners of the group:					
a. advocate and practise safe, legal and responsible use of information and technology.	4	3	2	1	0
b. exhibit a positive attitude towards using technology that supports collaboration, learning, and productivity.	4	3	2	1	0
c. demonstrate personal responsibility for lifelong learning.	4	3	2	1	0

Using a pre- and post-evaluation design greatly helped the researcher to document how the programme effected change in the adolescents' critical-thinking skills.

5.3.7.10 Class workshops

In order to determine the possibility of intermediate outcomes of the digital media literacy programme two weeks after the experimental groups had undergone the programme, class discussion workshops were facilitated with both the experimental and control groups and the participating Life Orientation teachers. Intermediate outcomes are those expected to take place once the programme has matured (in this case, after two weeks and at the end of the research).

The researcher attended the workshops as an observer. Learners may well not behave in their usual manner whilst aware of being watched, or when being interviewed while carrying out an activity. In qualitative research, a realistic aim for the researcher is to remain impartial – that is, to be impartial to the outcome of the research, to acknowledge

their own preconceptions, and to operate in a as unbiased and value-free way as possible.

The focus of the class discussion workshops was to develop a confident ability in the learners to think critically when considering what it means to be media literate in the digital age.

Digital citizenship is a developmental process of critical thinking, self-reflection and maturation (Ribble & Bailey, 2005). The workshops provided exceptional opportunities to measure critical thinking. For example, the researcher could record and transcribe learner interactions and discussions in a face-to-face situation. One of the aims of this study was to examine a different set of outcome measures than standardised tests and grade point averages. The researcher focused on two dependent variables: the gain from the pre- to the post-evaluation on the learners' critical-thinking skills, and the grading of the workshops using discussions around digital citizenship.

- **Discussion of workshop activities**

Ribble and Bailey (2005) state that learning digital citizenship is a lifelong journey. These authors are of the opinion that learning digital citizenship is rooted in discussions and dialogue, and provide scenarios that teachers can use for class discussions to stimulate dialogue as well as self-reflection in learners (verbalisations):

- A learner sends a harassing email to another learner. The receiving learner retaliates with "flaming email". Is sending a harassing and flaming email message wrong?
- When hanging out with friends, one learner sends or posts semi-nude pictures of him- or herself on a cellphone. Is using a cellphone for sexting right?
- A learner logs on to a file-sharing website and downloads the latest hit song. Is downloading music from the internet wrong?
- An hour before class, a learner remembers that a writing assignment is due. The learner goes to the library, logs on to a website and copies and pastes information

without giving credit to the authors. Is using internet material without giving credit to the authors wrong?

- At home, a learner uses a software package to copy movies from DVDs for his or her friends. Is copying copyrighted material right?
- Two learners SMS on their cellphones to share information with each other during class. Is it wrong to send SMSs during class?
- A group of learners creates a website for a teacher at school, but the website cannot be read by learners with special needs. Is it right to create websites that are not accessible to learners with disabilities?
- Learners obtain a copy of the final exam from the teacher's computer by "hacking" the password. Is hacking into the teacher's computer wrong?
- A group of learners posts to a Facebook wall, saying rude and mean things about a classmate. Is posting rude things or lies about someone wrong?
- A learner signs up another learner for something online without the other learner's permission. Is it right to sign up someone else for something online without their permission?
- A learner who plays interactive games at home insults someone in an interactive room. Is insulting someone in an interactive game room right?

Each of the workshops entailed the learners being divided into three or four working groups, in which discussions took place. There are sound educational reasons for requiring learners to participate in group activities. Peer learning can improve the overall quality of learner learning. Group work enhances learner understanding. Learners learn from each other and benefit from activities that require them to articulate and test their knowledge. Group work provides an opportunity for learners to clarify and refine their understanding of concepts through discussion and rehearsal with peers.

A group comprised no more than eight learners. The teachers read the scenarios and then instructed the learners to indicate their opinions. Once each group had committed thought to paper, there was a report-back session during which a representative from each group had the chance to present the group's perceptions and opinions. After the report back, the teacher allowed the learners to analyse their answers. The teachers explored the reasons behind the learners' answers by posing questions such as:

- Why do you feel that way?
- What would your parents say about this situation?
- What would adults do if they were faced with the same situation?
- Who are the role models of good digital citizenship behaviour?

The teachers also brainstormed the consequences of abusing and misusing new media with the learners.

All these perceptions and opinions were captured and trends in thinking were identified in order to present a coherent picture of whether the digital media literacy programme improved the learners' critical-thinking skills necessary to increase benefits and reduce risks associated with new media. These activities resonated with the learners as they recognised it as relating to real life.

5.3.7.11 Follow-up interview survey

After the workshop discussions the researcher administered the follow-up interview survey to the teachers to determine the possibility of intermediate outcomes of the digital media literacy programme. The teachers completed the same critical thinking checklist and digital citizenship checklist based on their observations (see tables 5.9 & 5.10). The follow-up interview survey was completed for both the participating and control groups.

5.3.8 Data analysis

There were three data analysis orientations used in this research, not independent, but different. These approaches were undertaken to examine the data within context as well as out of context across the three schools participating in the study. The first was the assertions that emerged from the parent and leaner surveys which were contextual. The second orientation was from across the case studies (schools) through directly examining the findings flowing from the research questions, guided by the variables of interest. The interviews, verbalisations and observation data were analysed to re-examine the data out of the context of the participating schools to identify themes directly from the data that may have been otherwise overlooked. The third orientation

was through a generic inductive qualitative analysis to capture any findings or themes not evident in the first two orientations. Conclusions (and limitations of the conclusions) were drawn as a result of the analysis and synthesis. The interview transcripts were analysed using general inductive qualitative analysis procedures, following the methodological approach of Creswell (2002). This approach provided a representation of participant experiences from the data to broaden the findings beyond the contexts and identifying concepts or variables of interest that may not be evident by examining the data within individual contexts or from the literature review (Creswell, 2002). The analysis progressed through stages, beginning with the creation of analysis instruments from the first round of interviews. This included coding the data by dividing the text into small units (sentences or paragraphs) and assigning one or more code to each unit. The codes were based on concepts and main ideas from participant interviews, as recommended by Cresswell (2002).

Table 5.11: The coding process in inductive analysis

Initial read through text data	Identify specific segment of information	Label the segments of information to create categories	Reduce overlap and redundancy among the categories	Create a model incorporating most important categories
Many pages of text	Many segments of text	30-40 categories	15-20 categories	3-8 categories

Source: Creswell (2002, p. 266, figure 9.4)

The data were analysed within a framework determined by the areas of particular interest, namely:

- adolescents' knowledge of and skills pertaining to critical thinking
- the training and skills of Life Orientation teachers
- the degree of success of schools' achievement of digital media literacy learning outcomes
- the climate of support received from school structures
- factors that constituted barriers in the successful presentation of the digital media literacy programme in secondary schools.

The value of 1 was assigned to items that confirmed or positively described or supported the codes categorised under specific themes to answer the research questions, and the value of 2 was assigned to all items that refuted or contrasted the items categorised under a specific theme.

It was found that the majority of the concepts in the data were aligned to the research questions' variables of interest as identified by the literature, though additional variables of interest were identified through this process and these were integrated into subsequent data gathering and analysis processes. This initial analysis helped inform the next step of data gathering and organised the data for final analysis. The interview data were detailed in spreadsheets, with the left margin used for source and the right margin used for concepts or ideas, followed by themes (renamed variables of interest for consistency), following the process outlined by the methodological approach of Creswell (2003). The variables of interest were initially identified through the literature, modified after the first interviews through the initial data analysis, and developed further following the second data analysis.

This set in motion the programmatic response – as displayed in the logic model of what is expected to occur, namely the connections and relationships between cause-effect. Evaluation runs over the course of the programme and is part of the programme design. One of the most important distinctions in logic model development is the difference between cause and effect, and "what we do" versus what the results are (outcomes/benefits) (Taylor-Powell & Henert, 2008, p. 5).

Figure 5.3 (adapted from WK Kellogg Foundation (2007)) describes the logic model to develop the evaluation.
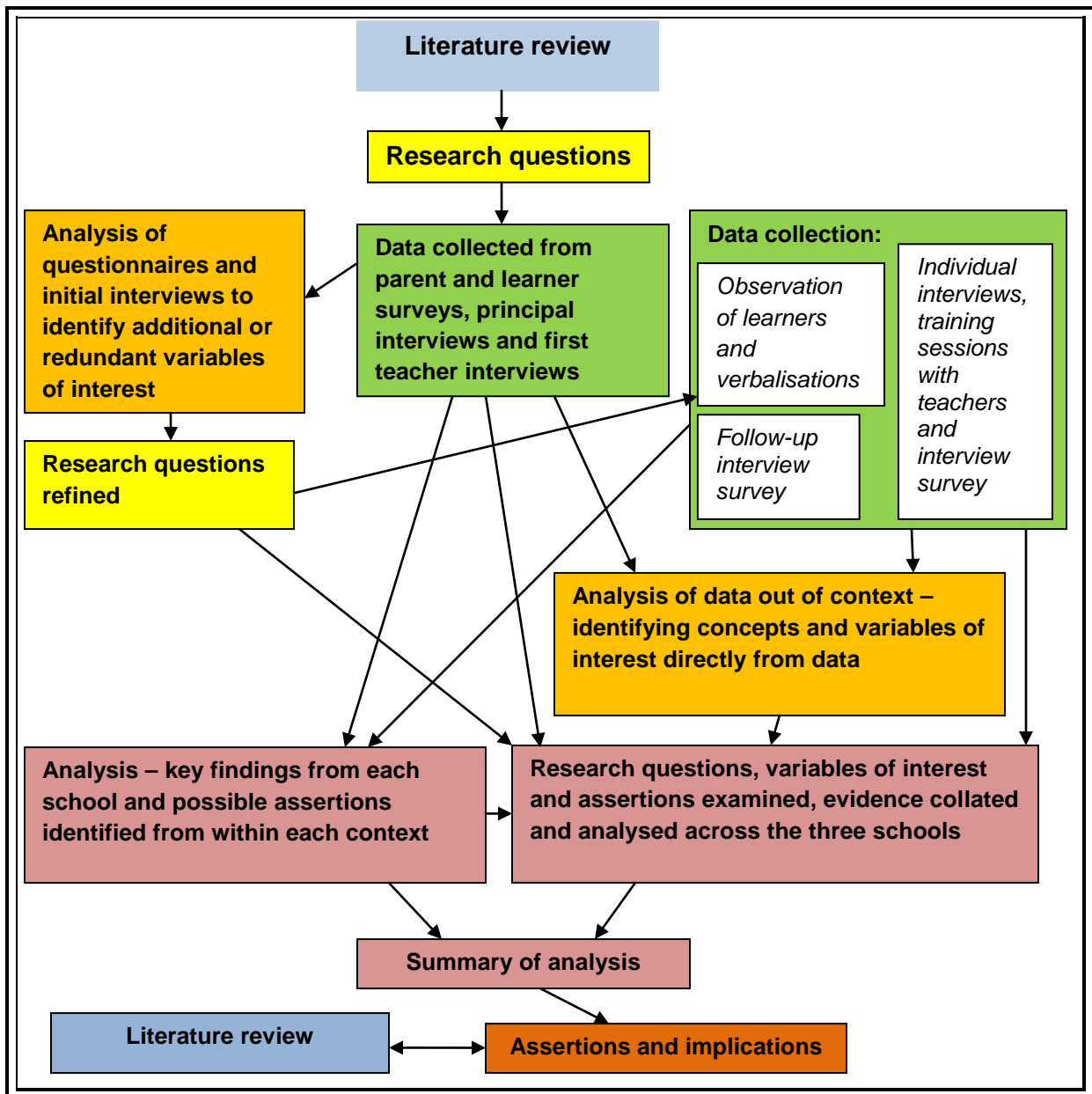
Figure 5.3: Logic model to guide the evaluation

5.3.9 Reporting findings

The findings are reported in a logical sequence following the three orientations of analysis. The results of the "entire group" who participated are provided. The "entire group" refers to all the Grade 9 learners, teachers and parents from the three participating schools. The researcher is of the opinion that the small number of participants per school is not a defensible sample for evaluation, therefore the results are not delineated per school. The results will not seem like an answer to the original research question until the entire group's results are presented on paper, from the original problem statement to the interpretation of the results. In preparing the findings report, the researcher sought to identify evidence that repeats or that raises fundamental questions that beg further inquiry. For example, the results of the entire group who participated may identify issues that should be explored further through surveys of a larger, more representative sample. In other words, although the results are not delineated per school, they are open to interpretation, for example the difference between "affluent parents" and "less affluent parents", and also between learners from ex-Model C and ex-DET schools. The researcher's interpretations are based on the demographic information provided by the parents by way of the questionnaire (see questions 52-57, Addendum 4).

Reporting the findings in this manner meets what Lincoln and Guba (2002, p. 205) term "applicability criteria" (the reader should be able to draw inferences that may apply to his or her own context).

5.3.10 Assessing trustworthiness

In the process of constructing reality, the researcher believes it is important to acknowledge her background and perspectives. All research passes through the lens of the researcher and it is through this lens that the research questions develop, literature is acknowledged or ignored, and findings interpreted. While attempts are made to ensure the conclusions are valid, the nature of the research is always influenced by the researcher. The researcher questioned her own immersion as counsellor in the subject matter of digital media literacy education for adolescents and how this may impact on the

participants. As a volunteer counsellor at secondary schools, the researcher is engaged with the Life Orientation learning area on a deep level and acknowledges that she is passionate about the importance of adolescents' digital media literacy and critical-thinking skills development. This suggests a level of subjectivity.

The researcher therefore considered the provisions of trustworthiness and transparency outlined by Maykut and Morehouse (2004), namely:

- multiple methods of data collection, including interview data, survey data, field observation and reviews of relevant literature
- detailing and recording every step related to the process of carrying out and deriving the outcomes of the study, from conception to presentation
- working within a research team; this allows discussion, discovery of bias or blind spots to emerge and to be monitored by others.

The researcher also used stakeholder checks to assess the trustworthiness of the data analysis. Participants (teachers and principals) commented on categories or the interpretations made. Stakeholder checks were carried out on the initial documents (e.g. interview transcriptions and summaries) and on the data interpretations and findings. Stakeholder checks enhance the credibility of findings (Creswell, 2003).

5.3.11 Ethical considerations

Approval was obtained from the school principals and the governing bodies of the participating schools (Addendum 3), and approval from the Gauteng Department of Education was sought to conduct the research (Addendums 1 & 2). All the learners and parents who were selected to participate in the study were invited in June 2011 to indicate their interest in participating in this study through an information sheet and consent form (Addendum 3). A parent or guardian was also required to give consent before a learner could take part in the study (Addendum 3). When a learner chose not to take part or did not have a parental consent form, any statement they made was not included in the data.

Interviews were conducted with respect for the person and the privacy of the participants, and care was taken to ensure that no school, principal, teacher, learner or parent could be identified in reporting the results. The research was ethical in intent and the findings were designed to be of benefit to the Department of Education and its research teams, and therefore to all children in South Africa.

5.3.12 Construct validity

The research questions and variables of interest emerged from the literature review to develop construct validity. Multiple sources of evidence were used in data collection, across a six-week time period. The interviews, evidence and observations were all crossmatched with the research questions and variables of interest. A chain of evidence was developed during the data collection and analysis phases of research as advocated by Yin (2003). This chain of evidence should be evident in this thesis. What was being recorded and reported was checked to ensure an accurate representation of the ideas and experiences of the research participants. The participants (teachers and principals) reviewed their interview transcriptions and the draft report, correcting any aspects that were not valid representations.

The research objective and research method were presented in a paper at the Seventeenth International Conference on Learning in Mauritius to gain peer feedback and critique, and the research method has been used successfully with participating teachers developing knowledge of digital media literacy in their teaching practice.

5.4   CONCLUSION

This chapter offered a detailed discussion of the research methods and the application thereof in this research study. Within the exploratory context of the study it was shown to be clear that a qualitative research approach was more applicable than a quantitative approach to gain insight into the relevant phenomena. The employment of a logic model supported the efficient gathering of data, and the necessary steps were taken to increase the validity and reliability of the study.

In conclusion: There is value in the process of developing the digital media literacy education model with secondary schools. The process is an interactive one that requires stakeholders to work together to clarify the underlying rationale for the programme and the conditions under which success is most likely to be achieved. Gaps in activities, expected outcomes, and theoretical assumptions can be identified, resulting in changes being made based on consensus-building, a logical process, rather than on personalities or ideology. The clarity of thinking that occurs in the process of building the logic model becomes an important part of the overall success of the programme. The model itself provides a focal point for discussion. It can be used to explain the programme to others and to create a sense of ownership among the stakeholders.

Chapter 6 contains the analysis of the data as well as a discussion of the findings.
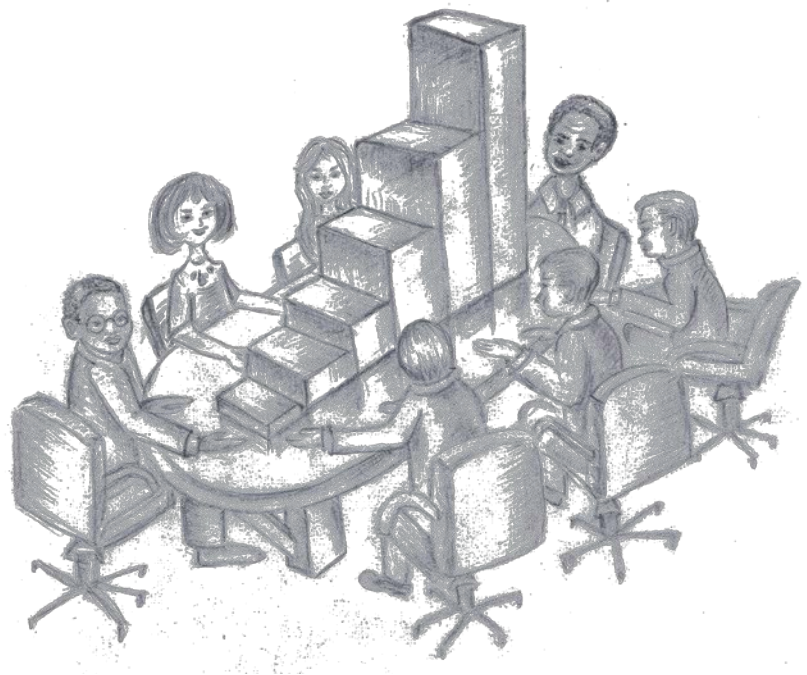
RESEARCH-TO-RESULTS

Researchers often find data analysis the most enjoyable part of a research study as they finally get the chance to find out the answers. The results are the embodiment of the reward for all their hard work.

CHAPTER 6
SUMMARY AND FINDINGS

6.1   INTRODUCTION

In order to construct the empirical study of this research, a large body of literature was studied. The literature consulted covered the development outcomes along which a digital media literacy programme for secondary schools should move to help learners develop the habits of inquiry and skills of expression they need to be critical thinkers, effective communicators and active citizens in today's digital world. The psychosocial risks associated with increased exposure to new media were also closely examined to justify the research topic (see chapter 4, 4.6.1).

The consulted literature provided background information for the study and served as referential framework for the digital media literacy education lessons (Addendum 7), the compilation of the questionnaires (Addendums 5 & 6) and evaluations, as well as the class discussion workshops and interviews.

Chapters 2, 3 and 4 offered the literature that covers the extent to which South African adolescents engage in online activities that can involve risks, parents' awareness of and competencies to address the challenges their adolescents face online (including cyberbullying), and strategies to support and encourage digital media literacy education and its widest possible integration into schools, homes and communities.

In chapter 5, the manner in which the empirical research was planned and executed was described in detail.

This chapter begins by examining the assertions emerging from parent and learner questionnaires by exploring their relevance to the school context and variables of interest. The data were generated as a statistical analysis of a quantitative multivariate nature. In this chapter, the results will be shown in the form of graphs to illustrate the relation between variables, followed by a discussion of the findings. Questions for

demographic purposes (Parent Survey questions 52-56) were included to help the researcher better understand the families being served by the digital media literacy programme. The results emerging from these questions were used to interpret differences between affluent and less affluent parents and learners from ex-Model C and ex-DET schools to compile the proposed digital media literacy programme for secondary school learners.

The chapter then moves to looking at findings for each of the research questions, applying the evidence that emerged from the findings and evaluation of the digital media literacy lessons, the interviews with teachers and principals, the class discussion workshops and follow-up interview survey with teachers. Here, the data were of a qualitative nature, having being recorded and transcribed. The themes from the qualitative analysis that were not linked directly to the research questions are then discussed. General trends emerged, as well as specific elements within those trends. These enjoyed further analysis. As pointed out in chapter 5, the results are not delineated per school; the results of the "entire group" who participated are provided (see chapter 5, 5.3.9).

Although the study findings are weighty and lengthy, the process added a richness that a single investigation would have failed to produce.

6.2   PARENT AND LEARNER MEDIA AND TECHNOLOGY SURVEYS

This section centres on the findings of the quantitative study (Phase 1). The literature study was used to generate questionnaires, which were administered in the form of a survey and only given to the empirical group (learners and parents). Because very little information about South African adolescents' digital media lives, and parents' knowledge of their adolescents' activities in cyberspace is available, the researcher compiled parent and learner questionnaires in order to obtain such information. The parent and learner questionnaires were respectively distributed and administered prior to conducting the empirical study. Responses were collected anonymously to ensure honest responses and greater participation. The researcher distributed the survey in print and collated the responses manually.

From the researcher's experience as a volunteer school counsellor and psychologist dealing mainly with adolescents, it seems clear that teachers themselves know very little, if anything, about adolescents' cyberculture. The surveys were conducted at the start of the digital media literacy programme so that the results could be shared at the first initial interview discussions with teachers. The initial interviews with the teachers, and principals, were therefore conducted to identify additional variables of interest (see figure 5.3). The information obtained from the questionnaires and interviews was also borne in mind in compiling the digital media literacy education lessons (see chapter 5, tables 5.2 to 5.8 and Addendum 7) to ensure that these were relevant and on the learners' level of understanding. The researcher is, however, of the opinion that this additional information could also be of great value in future research in this field.

6.2.1 Parent questionnaire

The results of this survey are based on the answers to the questions posed in the questionnaire to 85 parents with adolescents aged 13 to 15 who are Grade 9 learners in the participating schools. A total of 60 questionnaires were completed. Table 6.1 presents the completion results:

Table 6.1: Parent survey completion results

	#	%
Number of questionnaires sent to parents	85	100
Number of questionnaires completed and returned to schools	60	70,6

As can be seen, the completion rate was 70,6%. The response rate was obtained by dividing the number of parents who submitted a completed questionnaire by the number of parents the researcher attempted to contact.

The response rate for a survey provides some indication of the reliability of the sample (Babbie & Mouton, 2001). A response rate of 60% or more is usually regarded as very

acceptable, 50% is normally regarded as adequate, and less than 50% presents a minority of the sample.

The representativeness of the gender of the parents in the Parent Survey is 58% female and 42% male.

The effective representative rate for ex-Model C and ex-DET schools in the Parent Survey is 61% and 39% respectively.

The response rate for the survey is therefore acceptable. Response rates are less important if the purpose is to gain insight. The purpose of this study was not to measure effects or make generalisations to a larger population.

6.2.1.1 Analyses of questions in parent questionnaire

- **Internet use by parents**

| Question 3: **Do you currently have internet access from your home?** |
| Question 4: **Have you ever personally used the internet?** |

Percentage saying "yes"
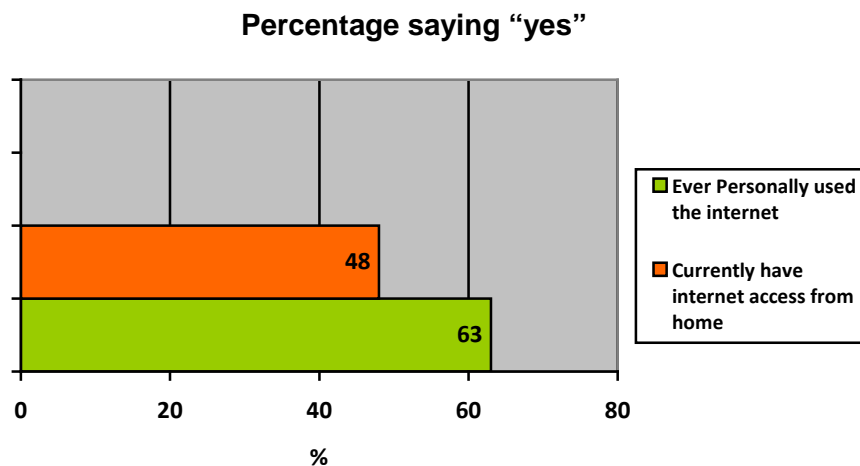
Figure 6.1: Parents' internet access and use

Interpretation:

More than four in ten parents said they had used the internet. The usage rates were highest among more affluent parents. The usage rates in low-income housing areas were the lowest. One reason for this could be that affluent parents are more educated than parents from impoverished backgrounds, who also have limited access to new media.

Question 5: **For how long have you been using the internet?**
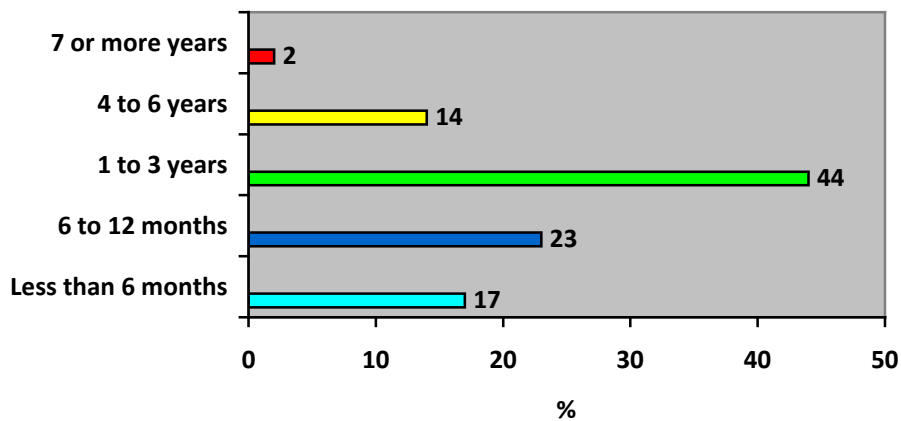
Figure 6.2: Time period of parents' use of the internet

Interpretation:

Among those who had used the internet, more than four in ten said they had been using the internet for more than one year. Only 2% said they had been using the internet for seven or more years. This confirms the statement in chapter 1 that the internet is still a relatively new phenomenon in the lives of South African families.

Legend:
- Newspapers/magazines
- Games
- Banking
- Work
- Email
- Browsing
- Research

Values: 5, 6, 7, 28, 19, 30, 32

Figure 6.3: Parents' uses for internet

Question 7: **How many times in the past month have you gone online from home?**

- Never
- Once or twice
- Evey few days
- Every day/almost

Figure 6.4: Frequency of parents going online from home in the previous month
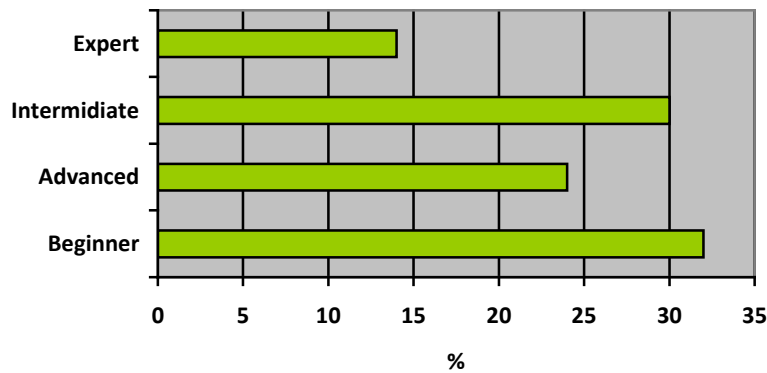
Figure 6.5: Parents' internet expertise

Interpretation:

Parents who are familiar with the internet use it for a wide range of activities. The most common activities reported were conducting research (32%), browsing in general (30%), and work-related activities (28%). More affluent parents and those who considered themselves to be advanced users of the internet were more inclined to use the inte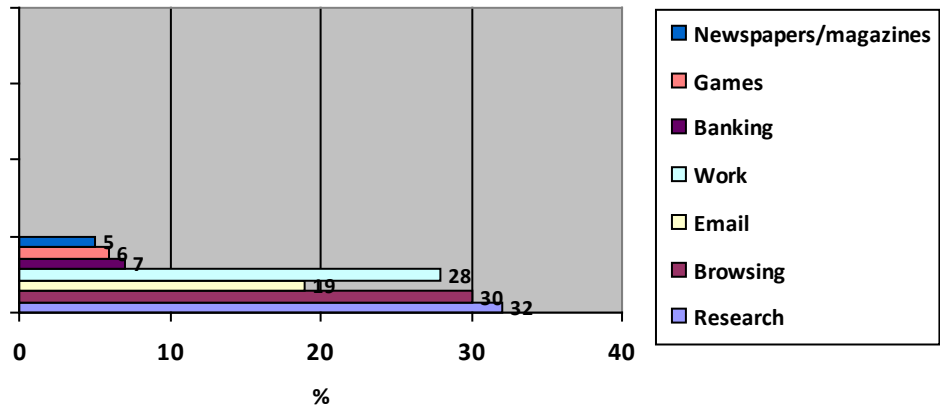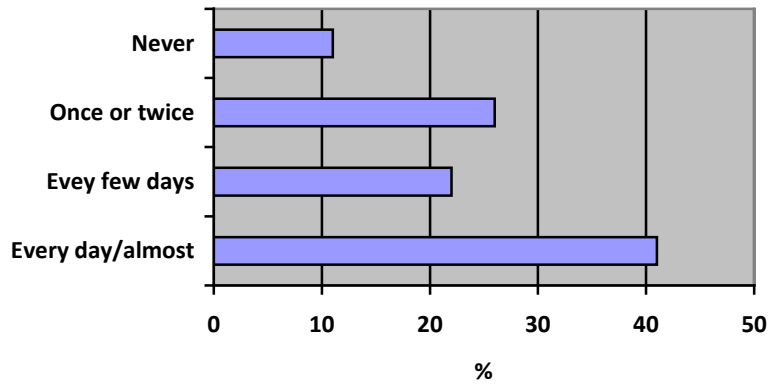rnet for work-related activities. Twenty-three per cent (23%) reported using the internet for other activities: window shopping for goods: 5%; chatting in chat rooms: 5%; purchasing goods: 5%; spending time on Facebook: 5%, and spending time on hobby interest sites: 3%.

Among the parents who had internet access from home, 41% reported that they had gone online every day or almost every day in the previous month. Twenty-two per cent (22%) said they had gone online every few days, and 26% said once or twice. More educated parents and those who considered themselves to be advanced or expert users were more inclined to report going online every day. Those who considered themselves to be novice users were more inclined to report going online only once or twice a month. More affluent parents were more inclined to consider themselves advanced or expert users, and less affluent parents were more inclined to consider themselves beginners.

- **No internet access at home**

Question 9: **Do you plan to get access to the internet at home in the next six months?**

Question 10: **Why do you currently not have access to the internet at home?**
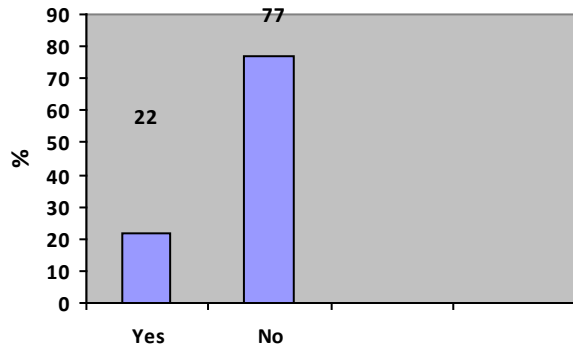
Figure 6.6: Parents planning to get internet access in the following six months
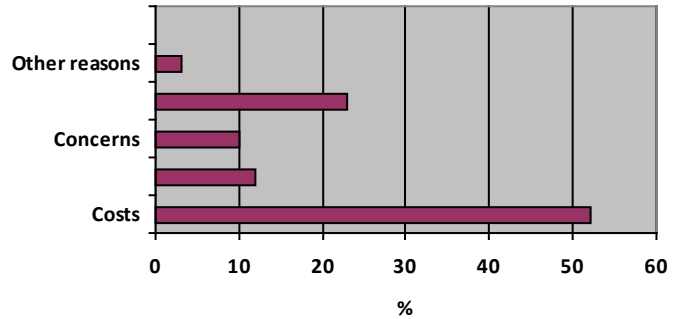
Figure 6.7: Reasons for not having access

Interpretation:

Of those who did not have internet access at home, only 22% planned to get access in the following six months. The majority (78%) did not plan to get access in this time period. The main reason was the costs involved. However, a significant proportion also mentioned lack of interest. Women (mothers) were more inclined to mention factors related to concerns about or opposition to the internet.

- **Main influences**

Question 11: **Which of the following has or have the biggest influence on your view of the internet?**

Question 12: **How much influence did your child have in the decision to get access to the internet at home?**
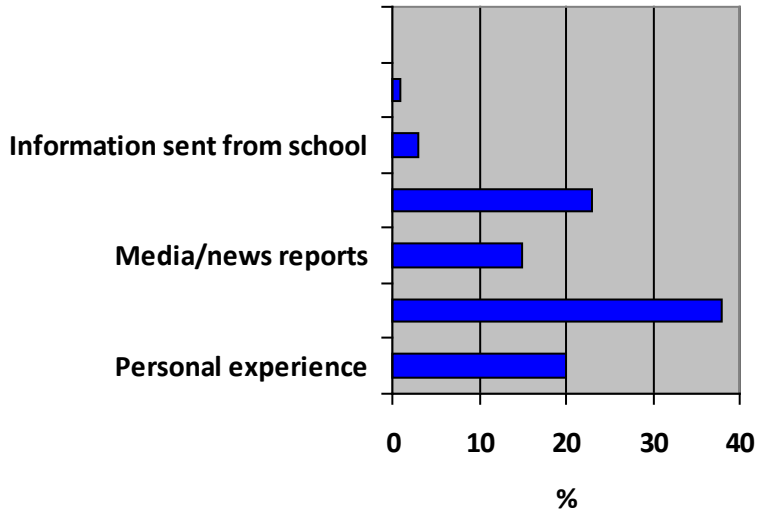
Figure 6.8: Biggest influence on parents' view of the internet
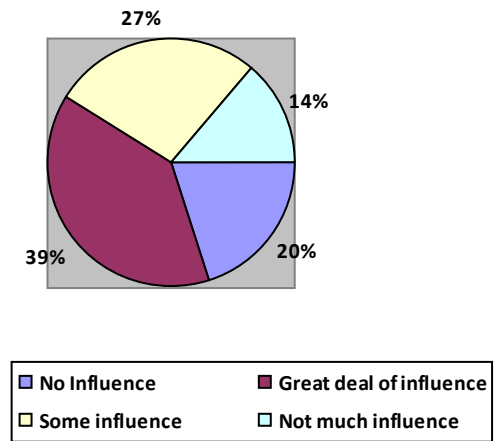
Figure 6.9: Child's influence on decision to get internet access at home

Interpretation:

When the parents were asked to choose from a list of things that had had the biggest influence on their view of the internet, the largest percentage (38%) said "experience of others who know the internet". Twenty-three per cent (23%) said "experience at work", and 20% "personal experience". Smaller percentages said media and news reports or advertising" (15%) and "public education information sent home with children" (3%). One per cent (1%) mentioned other influences. More educated and more affluent parents, those with internet access at home and those who considered themselves to be advanced users of the internet were more inclined to mention "personal experience". Those who considered themselves to be novice users of the internet were more inclined to mention the "experience of others who know the internet". Less affluent parents were more inclined to mention "media and news reports or advertising" and "public education information". Those who considered themselves advanced or expert users of the internet were more inclined to mention "experience using the internet at work".

   Of those who had internet access at home, more than half said their child had had a great deal of influence (39%) or some influence (27%) in their decision to get internet

access at home. Only 20% said their child had had no influence, and 14% not much influence. Those who said their child used the internet and those who considered themselves to be novice users of the internet were more inclined to say their child influenced their decision.

- **Children's use of media**

Question 13: **Does your child use the internet?**
Question 14: **Does your child have his or her own cellphone?**
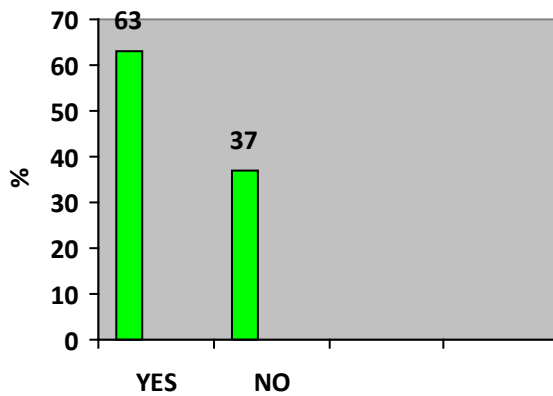
Figure 6.10: Children using the internet
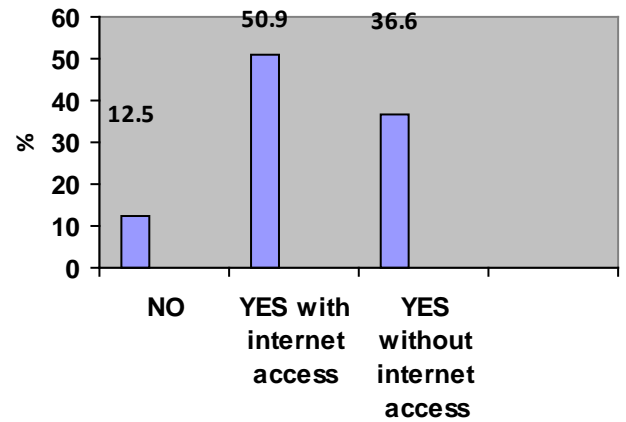
Figure 6.11: Children with own cellphone

Figure 6.12: Children's access to media at home

Interpretation:

Sixty-three per cent (63%) of the parents surveyed said their Grade 9 child used the internet. Parents with internet access at home were more inclined to report their child used the internet.

Half (50,9%) said their child had a cellphone with internet access, and 36,6% had a cellphone without internet access. A small percentage (13,5%) said their child did not have his or her own cellphone. The preliminary literature investigation supports these scores indicating that cellphones, in particular, have enhanced the ability of adolescents to communicate and that they are used in combination with other tools, such as social networking sites and MXit, both of which are accessed via cellphones (see chapter 1, 1.2.2.2).

Parents were asked to indicate to which of the media their child had access at home. Most cited traditional media – television (80%) and books and magazines (53%). New media were slightly less cited: Cable/satellite TV: 51%; DVD/movie player: 43%; desktop computer: 48%; video game device: 38%; music playing device: 40%) laptop computer: 28%; high-speed internet: 18%; wireless internet: 30%, and digital/video camera: 17%.

- **Knowledge about child's internet use**

Question 16: **Does your child have his or her own email account?**
Question 17: **Does your child ever use the family email account?**
Question 18: **Does your child have access to instant messaging such as MXit?**
Question 19: **Does your child ever spend time in a chat room?**
Question 20: **Has your child made new friends on the internet?**
Question 21: **Has your child ever come across sexually explicit material on the internet?**
Question 22: **Does your child have his or her own web page?**
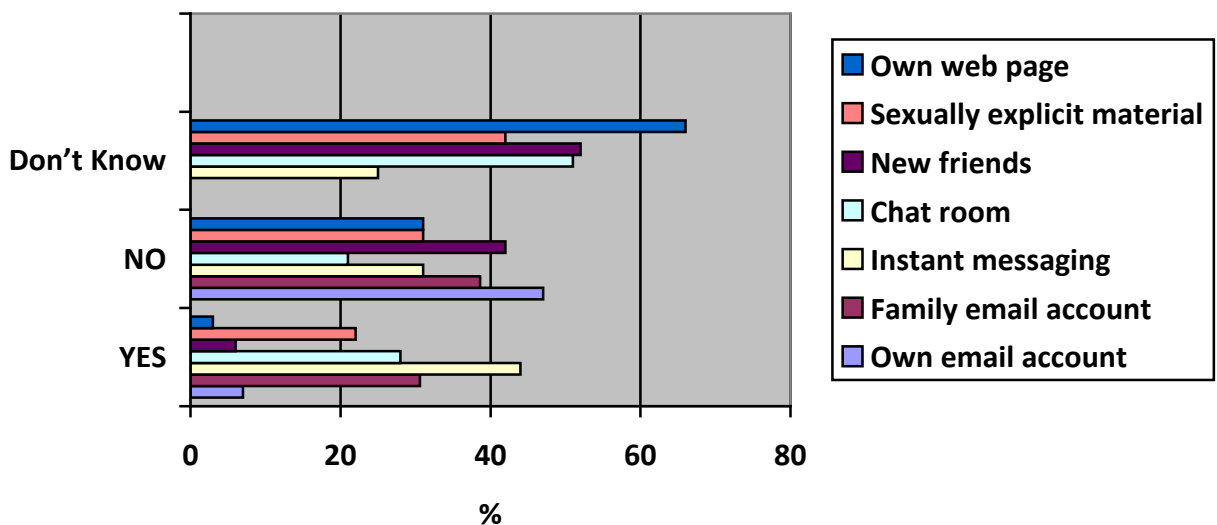
Figure 6.13: Children's uses of the internet

Interpretation:

More than 30% of the parents reported that their child used the family email account. Only 7% reported that their child used his or her own email account. Only 6% said that their child had made new friends on the internet. Twenty-two per cent (22%) reported that their child had come across sexually explicit material on the internet. Forty-four per cent (44%) said their child had access to instant messaging such as MXit. Three per cent (3%) reported that their child had his or her own web page.

Parents who considered themselves to be advanced or expert users of the internet were more inclined to say their child had done or experienced all of these things. More educated and more affluent parents were more inclined to say their child used the family email account. The most affluent parents were also more inclined to say their child spent time in a chat room. Less educated and less affluent parents were more inclined to say their child had made new friends on the internet.

The extensive number of parents saying "don't know" indicated that parents felt out of their depth when dealing with their adolescents' online activities.

- **Benefits/concerns about children's use of the internet**

Question 23: **What is the biggest benefit for your child being on the internet?**
Question 24: **What is your biggest concern about your child being on the internet?**
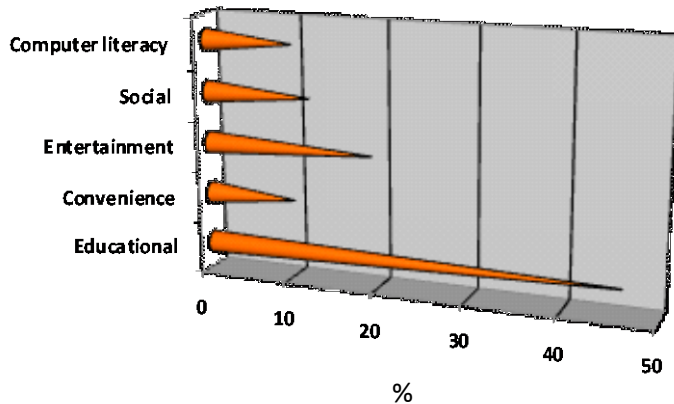
Figure 6.14: Biggest benefit
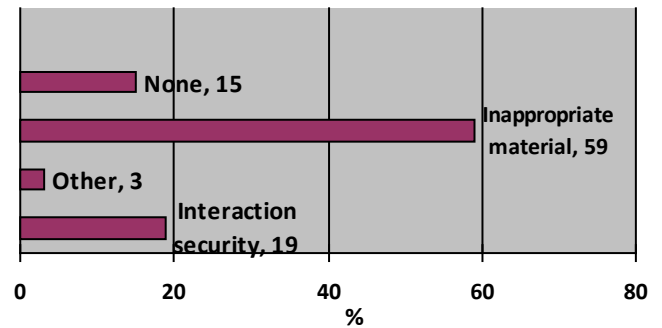
Figure 6.15: **Biggest concern**

Interpretation:

When asked about the biggest benefit of the internet for their child, 46% of the parents indicated educational advantages. Fourteen per cent (14%) mentioned the convenience of having access. Only 11% said social benefits, such as email, socialising and exposure

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to the world and new people. Nineteen per cent (19%) said entertainment, such as games, topics of interest and fun that kept the child occupied. One in ten (10%) said computer literacy.

Their greatest concern was the possibility of their child accessing sites featuring inappropriate content (59%). Nineteen per cent (19%) expressed concerns related to interaction with bad/dangerous people or security. Fifteen per cent (15%) said they had no concern at all. Three per cent (3%) mentioned other concerns, such as that the internet was a waste of time.

Less educated and affluent parents were slightly less inclined to mention educational benefits and more inclined to focus on the social and entertainment benefits.

Parents with a daughter in Grade 9 were more inclined to mention social benefits, and those with a son were more inclined to mention entertainment and computer skills.

- **Perspectives on the internet**

Question 25 & 26: **Which of the following statements is or are closest to your own view?**

Legend:
- Way of the future
- More trouble than it's worth
- Personal responsibility
- Needs to be controlled
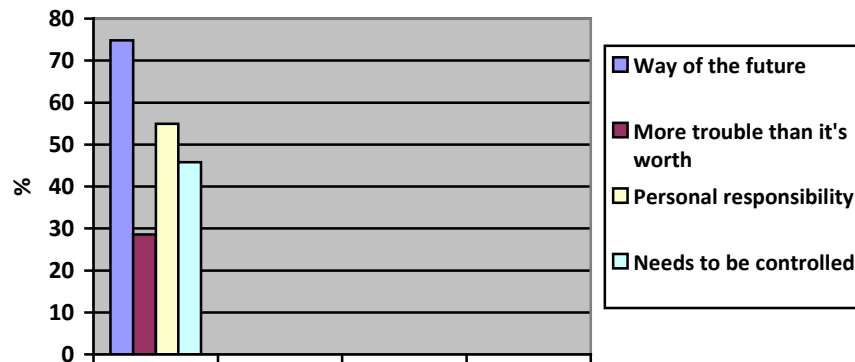
Figure 6.16: Parents' attitudes towards the internet

Interpretation:

The majority in all demographic groups (74,8%) thought that the internet was the way of the future. However, less educated and less affluent parents, those who considered themselves less capable users of the interest and those whose child did not use the

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internet were more inclined to think the internet was more trouble than it's worth (28,6%).

A slight majority thought the internet could never really be controlled and that personal responsibility for protecting themselves and their families (54,9%) was preferable to putting controls on the internet (45,8%).

- **Parents' views on their children's use of the internet**

Question 27: **How much would you say you know about the websites your child visits?**

Question 28: **Would you say you talk to your child about his or her internet use?**
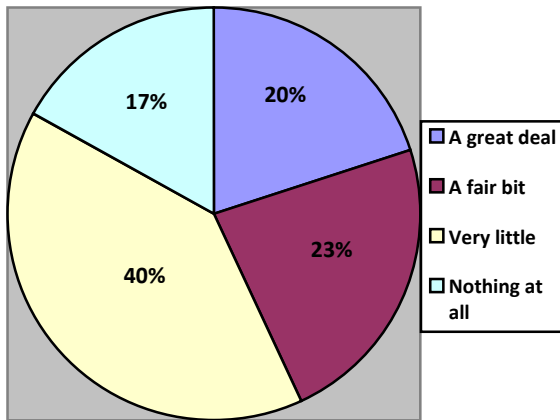
Figure 6.17: Knowledge about visited websites
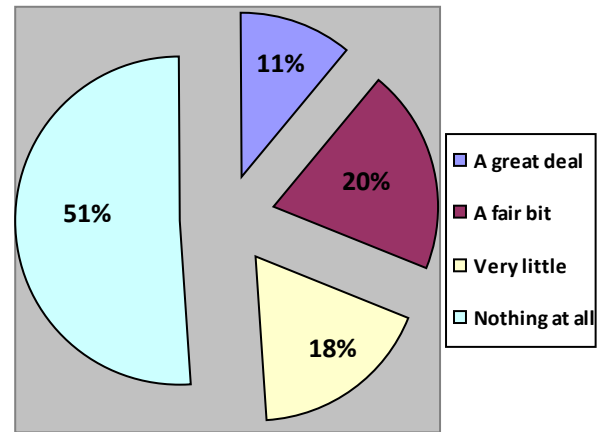
Figure 6.18: Talk about internet use
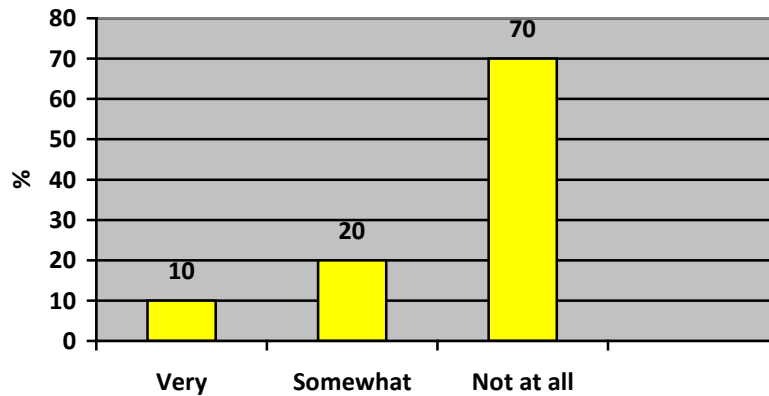
Figure 6.19: Parents' level of confidence to talk about internet use and ethical online behaviour

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Interpretation:

Only 20% thought they knew a great deal, and 23% a fair bit about the web pages their child visited. Four in ten parents (40%) said they knew very little, and 17% that they knew nothing at all. More educated parents, those with internet access at home and those who considered themselves more capable users of the internet were more inclined to think they knew a great deal about the websites their child visited.

Only one in ten parents (11%) said they talked to their child about internet use a great deal. Twenty per cent (20%) said they did a fair bit, and 18% said very little. More than two thirds said they did not talk to their child about it at all. Those with internet access at home and those who considered themselves more capable users of the internet were more inclined to say they talked to their child about internet use a great deal.

When the parents were asked to rate their level of confidence to talk to their child about topics chosen from a list on internet use and ethical online behaviour, the majority (70%) rated themselves not at all confident. Only 10% rated themselves very confident, and 20% somewhat confident.

The lack of confidence and skills parents reported to talk to their children is worrisome, with the score lying in the critical zone. To be noted is the fact that it confirms

the findings in the literature that few parents understand their adolescents' cyberculture sufficiently to provide guidance (see chapter 1, 1.2.2). Also to be noted is the importance of the parent component in this study. Schools are encouraged to ensure that parents understand the issues and arm them with skills and knowledge to help them talk to their adolescents.

Question 30: **From which one of the following locations does your child access the internet most often?**
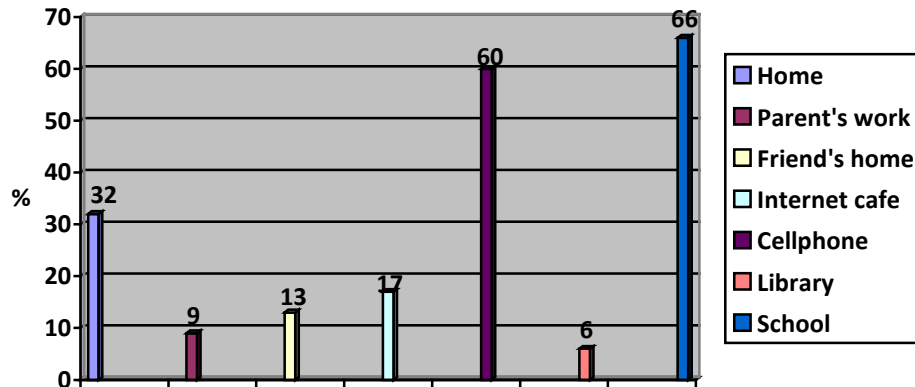
Figure 6.20: Location of children's internet use

Question 31: **As far as you know, what does your child use the internet for?**
Question 32: **Is the computer your child uses to access the internet from home in a communal/non-private room?**
Question 33: **When your child searches for information on the internet, does he or she normally do it alone, or with the guidance of a parent, teacher or another adult?**
Question 34: **Does your child ask your permission before submitting information or partaking in activities on the websites he or she visits?**
Question 35: **Do you think your child knows how to protect his or her privacy online?**
Question 36: **Do you think your child knows what to do if an online situation makes him or her uncomfortable?**
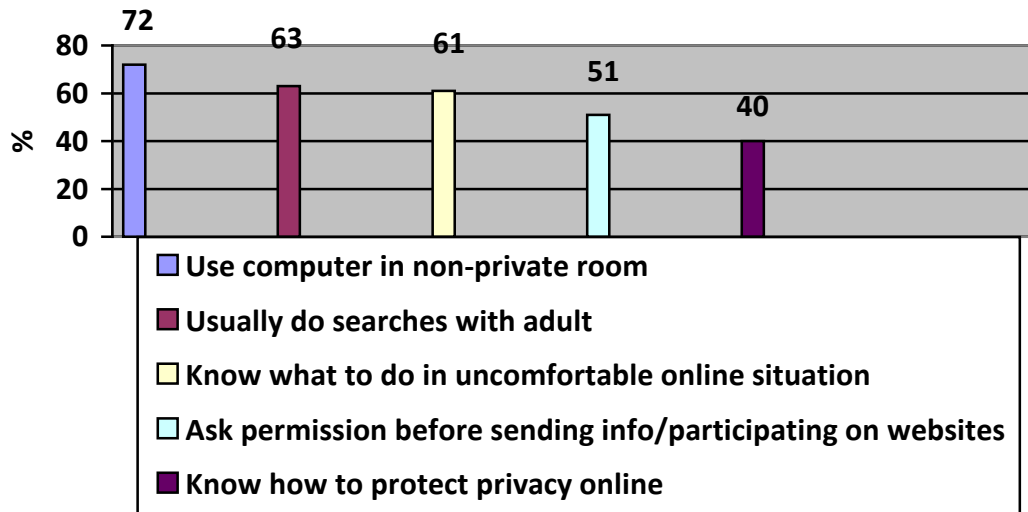
Figure 6.21: Perceptions of children's internet use

Interpretation:

The majority of parents said their child accessed the internet most often from school (66%), and 60% said from his or her cellphone. Only 32% thought their child accessed the internet most often from home. Smaller percentages said from a friend's home (23%), internet cafe (17%), a parent's workplace (9%), and a library (6%).

It is to be noted that the extensive use of cellphones for internet access the parents reported is in line with the literature findings that suggest that many young urban South Africans first access the internet via their cellphones, and that their concept of the internet may therefore be strongly shaped by a distinct set of cellphone applications.

Sixty-five per cent (65%) of the parents said their child used the internet for schoolwork. Twenty per cent (20%) said their child used the internet for conducting research, and 31% for playing games. Smaller percentages said email (11%), chat rooms (18%), and downloading music (13%). Those with a son were more inclined to say playing games, and those with a daughter were more inclined to say email and chat rooms. More educated parents were more inclined to think their child used the internet for conducting research.

Seventy-two per cent (72%) of the parents said that the computer was in a non-private room in the house. A majority of 63% thought that when their child searched for information on the internet, they usually did it with the guidance of a parent, teacher or

another adult. Especially those with internet access at home were more inclined to think their child conducted searches on the internet on his or her own.

Half of the parents (51%) thought their child always asked their permission before submitting information to websites or participating in site-based activities. Those with internet access at home and those who considered themselves less capable of using the internet were more inclined to think their child never asked them permission.

Forty per cent (40%) thought their child had learned how to protect their privacy online. Parents with no internet access at home were more inclined to think their child had not learned how to do this.

A majority of 54% parents thought their child had learned what to do if an online situation made them uncomfortable. Especially those with internet access at home were more inclined to think their child knew what to do if they were in an uncomfortable online situation.

It is clear from these findings that the majority of parents believed that their child's use of the internet was under control and that the child knew how to take care of himself or herself online. This is worrisome as parents cannot expect adolescents to exercise wisdom in the use of new media (see chapter 1, 1.2.2 & chapter 2, 2.2).

- **Supervision of children's use of media**

Question 37: **How much supervision do you provide regarding each of the following?**
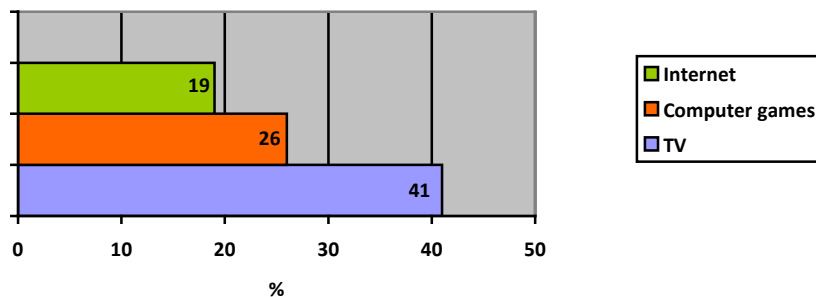
Figure 6.22: Percentage of parents providing a great deal of supervision of child's media use

Table 6.2: Hours spent on media on a typical weekday

	0	1	2	3	4	5+
Watching TV, movies or DVDs			✓			
Listening to music on a mobile device (iPod, MP3 player)		✓				
Playing video games on a console or mobile device (Wii, PlayStation, Xbox, cellphone, etc.)		✓				
Using a cellphone to communicate (talking or SMSing)				✓		
Using the internet for entertainment and socialising (playing games, visiting social networking sites, instant messaging, watching videos, creating content, etc.)		✓				
Using the internet for schoolwork		✓				
Reading magazines or books for entertainment (not for schoolwork)			✓			

Interpretation:

The parents' supervision of their children's internet use was not in line with their supervision of the use of other media, such as television and computer games. Only 19% said they provided a great deal of supervision of their child's internet/online use. Another 17% said they provided some supervision in this area. A total of 64% said they did not provide much supervision, or provided no supervision at all. Those with internet access at home were more inclined to say they provided a great deal of supervision in this area.

Four in ten parents said they provided a great deal of supervision regarding the amount of television their child watched. Another 39% said they provided some

supervision in this area. A total of 20% said they did not provide much supervision, or provided no supervision at all in this area.

Just under three in ten parents said they provided a great deal of supervision regarding the amount of time their child spent playing computer games. Another 29% said they provided some supervision in this area. A total of 45% said they did not provide much supervision, or provided no supervision at all in this area. Parents with a son were more inclined to say they provided a great deal of supervision.

Table 6.2 provides the average amount of hours the parents thought their children spent with media on a typical weekday. The majority (71%) thought their child used his or her cellphone for three hours per day. Another 49% thought their child spent two hours per day watching TV and reading magazines or books. These scores indicate that traditional media were not under threat, but rather complemented by new media, this supports the finding of Tustin, Van Aardt and Shai (2009; also see chapter 1, 1.2.2.3). Only one quarter (26%) thought their child spent one hour per day listening to music, playing games, and using the internet for schoolwork.

- **Submitting personal Information to websites**

Question 39: **Would you allow your child to submit the following on child-oriented websites?**

Percentage saying "no"

Legend:
- Photograph of themselves
- Phone number
- Postal address
- Full name
- Age/date of birth
- Personal email address
- Gender
- Personal Interess/hobbies

Values shown: 40, 50, 60, 71, 82, 85, 85, 90
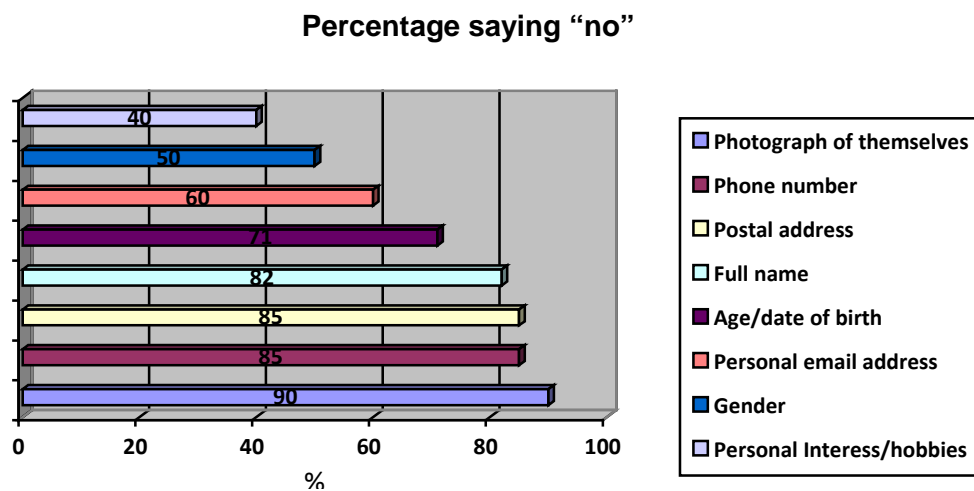
Figure 6.23: Personal information not allowed to be submitted to websites

Interpretation:

An overwhelming number of parents said they would not allow their child to submit a photograph of himself or herself (90%), his or her phone number (85%) or his or her postal address (85%). A large majority also said they would not let their child submit information such as his or her full name (82%), his or her age or date of birth (71%) or his or her email address (60%). A minority of 35% would permit their child to submit his or her email address. Half (50%) would not allow their child to submit information about his or her sex, but a large minority (45%) would allow it. Forty per cent (40%) said they would not allow their child to submit information about his or her interests or hobbies, but a slight majority (51%) would allow it. Those who considered themselves more capable users of the internet were more inclined to say they would allow their child to submit information about his or her age or date of birth, personal email address and interests or hobbies.

These findings indicated that most parents did not allow their children to submit personal information to websites and encouraged them to protect their privacy.

- **Rules regarding children's internet use**

Question 40: **What rules, if any, have you set regarding your child's internet use?**
Question 41: **Have you ever checked the bookmarks or browsing history to see which sites your child has visited?**
Question 42: **Do you use any monitoring software to track what your child does while being on the internet?**
Question 43: **Do you have any filtering software or devices on your computer to block or restrict your child's access to certain websites?**
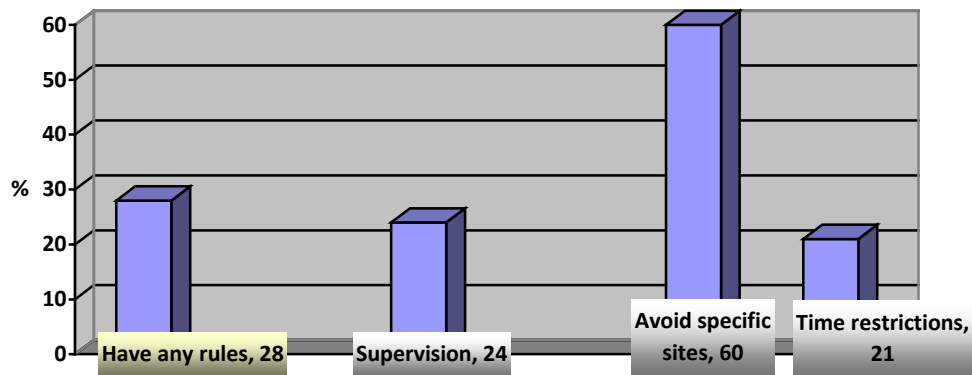
Figure 6.24: Parents' rules regarding internet use

Interpretation:

Nearly three in ten parents (28%) had rules regarding their child's use of the internet, and 24% had rules regarding supervision or permission, such as adult supervision. Six in ten parents (60%) had rules about the avoidance of specific sites, such as pornographic sites. Twenty-one per cent (21%) had set time restrictions. Thirty-five per cent (35%) had not set any rules. These scores indicated that parents were less inclined to have set rules regarding supervision or permission. Less educated parents were less inclined to say they had set rules. Those with a son were more inclined to have set time restrictions.

A majority of 76% of the parents said they had not checked the bookmarks or browser history to see which websites their child had visited. Only 4% said they used blocking or monitoring software. More educated parents and those who considered themselves more capable users of the internet were more inclined to say they monitored their child's internet use this way.

- **Solutions for internet safety in public schools**

Question 44: **How important is it that something is done by public schools to improve the safety of children using school computers?**
Question 45: **Please indicate how effective you think each of the following would be in schools: Blocking software; the supervision of learners; posting signs at the school to notify learners about rules for internet use etc.**

Interpretation:

Almost seven in ten parents thought it very important for public schools to improve the online safety of children using school computers. Few thought that this was not very or not at all important. Blocking software and the supervision of learners were seen as the most effective relevant measures for schools (61%). A large minority (43%) thought posting signs at the school to notify learners about rules for internet use would be very effective.

Question 46: **Please indicate how effective you think the following would be in reducing the amount of offensive or controversial content your child might encounter on the internet: teaching children at school how to stay safe online; educating parents.**
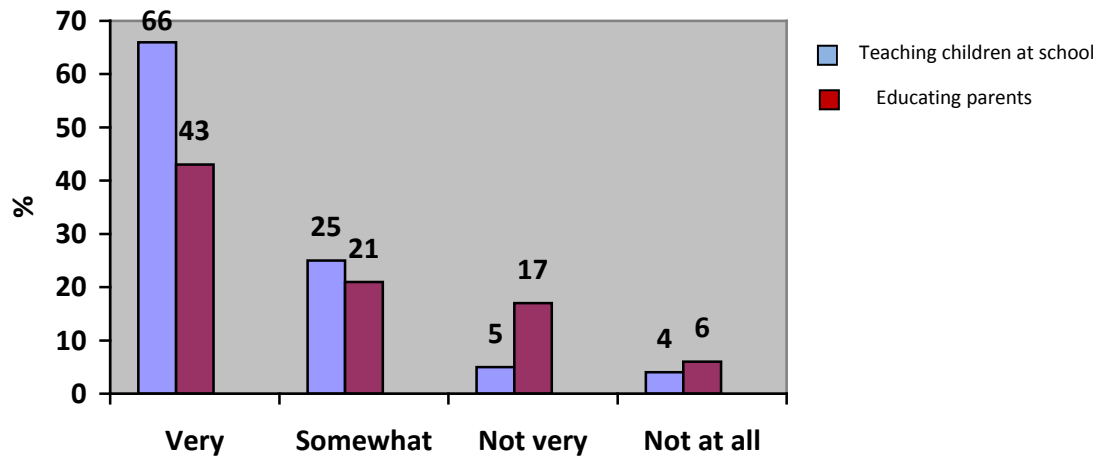
Figure 6.25: Parents' views on the importance of internet safety in schools

Question 47: **Who do you think should be responsible for educating families about how to use the internet safely and wisely?**
Question 48: **Which media and technology topics are you most interested in learning more about?**
Question 49: **Would you like your child's school to provide parents with information about these topics?**
Question 50: **Do you believe that internet advertising aimed at children should be regulated?**

Interpretation:

A large majority of the parents (66%) thought that teaching children at school how to safely search the internet was the most effective measure to reduce the amount of offensive or inappropriate content children might encounter. Forty-three per cent (43%) said the same about providing internet education for parents.

Less educated and less affluent parents were more inclined to think that the school, internet provider and the media should be responsible for educating families about how to use the internet safely and wisely. More educated parents felt educating families about safe and responsible internet use was a shared responsibility.

Parents cited cyberbullying (35%), SMSing (30%), the impact of media on their child's behaviour (28%), how to help their child think critically about media (18%), and sexting (11%) as key topics they were interested in learning more about. Eighty-one per cent (81%) indicated that they would like schools to provide them with information on these topics.

An overwhelming majority of the parents (92%) thought that internet advertising aimed at children should be regulated.

- **Parents' comments**

Question 51: **Do you have other comments? If so, please add.**

Interpretation:

One parent said they preferred their child looking at pornography on the internet rather than embarrassing them by buying Playboy magazines. Some parents felt that it was not always useful to restrict internet access at home or have other rigid rules because their children still used the internet at friends' homes. Another parent (a dad) said that if his son was looking at "inappropriate stuff" on the internet, he just felt better about it that his son learned about "these sort of things" with him as parent around to "sort him out" and help him "work it through". Another parent reported that her older child taught the Grade 9 child about the internet, so she felt that she need not bother.

Two parents contacted the researcher after completing the questionnaire. Following is a brief discussion of these case studies:

Case study 1:

The first parent was the mother of a 15-year-old boy who sought help for her son's internet addiction. She was devastated after receiving a cellphone bill for the amount of R13 000 from her service provider, only to discover that, after she had gone to sleep at night, her son removed her subscriber identity module – better known as a SIM card – from her cellphone and slid it into his and spent the entire night online. The carrier processed the online access as if it was made from her phone. A SIM card can be thought of as a mini hard disk that automatically activates the phone into which it is inserted.

Case study 2:

The second parent was a father who discovered that his daughter had stolen her teacher's smartphone. He admitted that he could not afford a cellphone with internet access for his daughter. She confessed to stealing the phone, buying a Pay as you Go starter pack and inserting it into the stolen phone. She said she did it because she did not feel part of the in-crowd at school and could then chat to her friends on Facebook and MXit or WhatsApp.

Note that these behaviours may be manifestations of underlying circumstances. However, even so, it validates the researcher's argument that research in the field of cyberpsychology is crucial for understanding children and adolescents' modern lifestyle. The interest in and concern over internet overuse can be attributed to the fact that many adolescents find it increasingly difficult to distinguish between the online and offline worlds.

- **Conclusion**

Summarising the parent survey, there are few significant correlations between demographic variations and the responses to this questionnaire. The survey findings suggest that the parents of the adolescents in the ex-Model C schools and those of the adolescents in the ex-DET schools' attitudes towards the internet differ. Ex-DET parents were less inclined to focus on the educational benefits of the internet and more inclined to see its social and entertainment benefits. They were also more confident about their

children's abilities to protect their privacy online, and less inclined to have set rules regarding internet use, such as supervision or permission.

The researcher comes to the conclusion that new technologies are entering homes at an ever-faster rate, and fundamentally transforming how families live, work, play, and communicate. Some of these technologies (e.g., the internet, video games, e-books, and cellphones) offer new opportunities to engage parents in their children's learning at home. But parents are still more likely to watch TV and read books with their adolescents than play video games or surf the internet with them. In other words, parents are not participating in media activities that they themselves do not take pleasure in. It seems that families are in a transition period, one in which parents recognise the importance of technology in their adolescents' learning and future success but, for many reasons do not always grant them access to the newer forms of media transforming their own adult lives.

6.2.2 Learner questionnaire

The researcher conducted the Learner Survey to provide secondary schools with a factual framework for understanding how learners approach digital media. Eighty-five (85) Grade 9 learners participated in the survey. They represented ex-Model C and ex-DET schools. The effective representative rate for learners ex-Model C and learners in ex-DET schools in the Learner Survey is 59% and 41% respectively.

The representativeness of the gender of the adolescents in the Learner Survey is 51% female and 49% male.

Initially, the learner questionnaire appeared to be a substantial instrument, but it became apparent during the class discussion workshops that many possible areas of investigation had not been tapped. The researcher therefore drew on the findings from the questionnaire as well as the results from the workshops dealing with learner behaviour, beliefs, attitudes, opinions, feelings, expectations, self-classification, and level of involvement with new media to generate quantitative results.

Many questions in the Learner Survey will be compared to questions in the Parent Survey to assess whether the learners and parents as a group had similar perceptions of the learners' use of new media. Their respective perceptions were captured and trends in thinking identified in order to present a coherent picture.

6.3.2.1 Analyses of questions learner questionnaire

- **Learners' digital landscape**

The Learner Survey revealed that 79% of the learners had internet access. Only 20% did not. More than 85% reported that they had accessed the internet during the previous month (July 2011). The vast majority (73,2%) indicated that they had accessed the internet via their cellphones.

New media seem to have diffused to the same extent among Grade 9 learners in ex-Model C and those in ex-DET schools. However, the permeation had been more recent in the ex-DET school due to the notion of the digital divide in the country (see chapter 1, 1.2.2.2).
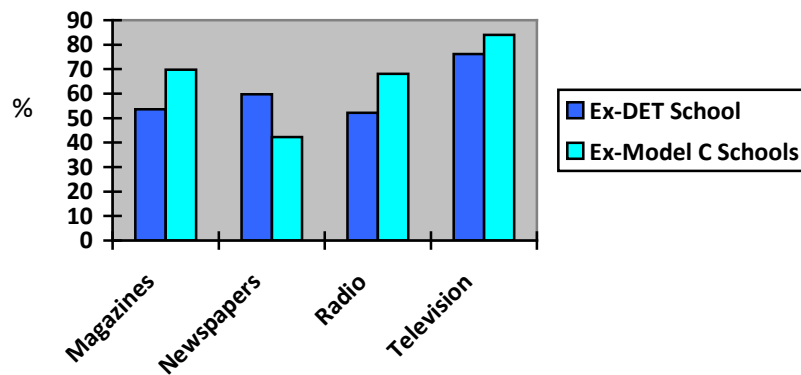
Figure 6.26: Traditional media by school type
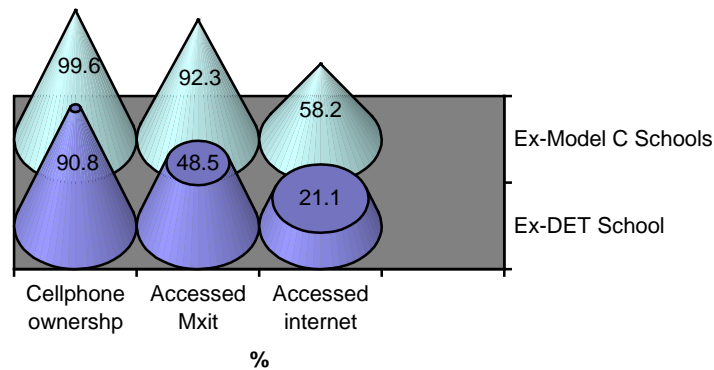
Figure 6.27: Access to new media by school type

- **Protecting online privacy**

The protection of online privacy is an issue of serious concern. To sign up for a free email account, 40% of the learners would supply their real name and address, 37% only an email address, and only 19% would hesitate to supply any information. To register on a game site, 15% would give their real name and address, 55% only an email address, and 30% would supply no information. To create a profile on a dating site, 9% would give their real name and address, 16% only an email address, and 73% would give no information.

Six topics were set out in the survey and the learners were asked if they would like to learn more about them in school. Protecting one's online privacy (72%) was the leading topic, which is interesting as the learners indicated that they often gave out personal information. Learning how to tell if information you find on the internet is true (68%) followed closely. All the other topics were of at least moderate interest: finding information: 47%; internet technology: 40%; legal issues: 39%, and social issues: (33%). The questionnaire listed hate sites, racism and cyberbullying as examples of social issues. Examples of legal issues were downloading, file sharing, copyright and plagiarism. Differences in the interest levels between ex-Model C and ex-DET schools are not statistically significant.

- **What learners like to do online**

In addition to using the internet to obtain information for school assignments, playing interactive games, and interpersonal communication seem to be important reasons. The survey revealed that the internet was used to access social networking sites as well as MXit to make new friends, to join chat groups, to interact with existing friends, and to exchange private messages, which the literature indicated as activities that are part of the social development of secondary school learners or adolescents.

- **Favourite sites**

The learners were asked to list their three favourite internet sites. There are differences as well as many similarities between the learners in ex-Model C and those in ex-DET schools' responses. While these groups differ in their choice of specific sites, the type of site is often similar. Overall, the choices of all the learners are very similar.

Girls and boys have many top favourite sites in common. Game sites such as Addicting Games, Neopets and Runescape appear on the favourites lists of boys and girls. In writing their choices, the respondents used various spellings for the same site, for example "NeoPets", "neopet", and "Npets". The various renditions were recoded into a single spelling in order for the results to be analysed. The girls tended to list social contact and music sites that do not appear on the boys' lists, while the boys listed more sports and game sites.

- **Popular activities**

The survey revealed that the most popular activities on the internet were accessing information (68,7%), downloading content (50,2%) and obtaining information for school assignments (39,8%).
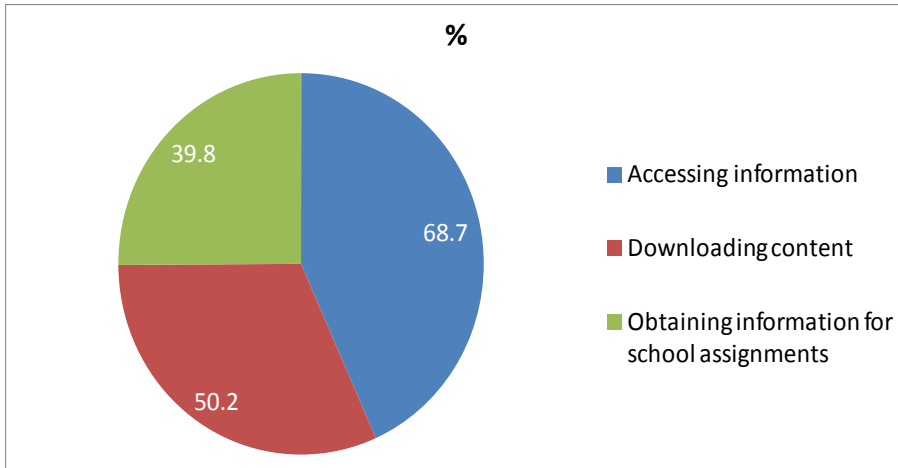
Figure 6.28: Popular activities on the internet among learners

Using the internet to communicate was also very popular – in the form of chatting (20,4%), receiving and sending emails (30%), via Facebook (32,5%) and instant messaging (16,8%).
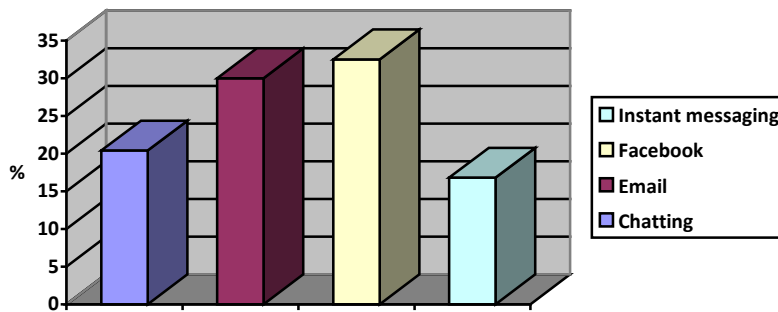
Figure 6.29: Popular ways of communicating on the internet among learners

- **Social interaction**

The survey revealed that Facebook remained the most popular web-based social networking site. Thirty-two per cent (32%) of the learners used Facebook for a number of activities. They tended to treat their profiles as private places where they could post

detailed personal information. For example, close to half (42,2%) posted a profile photo, and four in ten provided the names of their schools, photos of their friends and family, or their email addresses.

Besides sharing personal photos on social networking sites, 39,6% of the learners confirmed that they had met a "cyberfriend" with whom they communicated regularly. Close to half (42,2%) confirmed that they had been approached by somebody for "something upsetting" in the past.

These scores indicated that the internet as a meeting place was becoming more important, and it is hardly surprising that adolescents are interested in meeting some of their new acquaintances in person. A striking feature of the survey results was that a large majority of the learners (75%) had never met an online acquaintance in the real world. Of those how had, 27% described it as a bad experience, and 73% as a good one.

- **Online identities**

The learners used the internet to experiment with their identities. Sixty-one per cent (61%) reported that they pretended to be someone else online. The questionnaire suggested five possible reasons for this, of which the following three were chosen by the learners who had ever pretended to be someone else online: 20% said they did it because they wanted to see what it would be like to be older; 33% wanted to flirt with other people, and 23% wanted to have an appearance different from their real one.

These scores point out that the internet offers adolescents an environment where they feel anonymous and invisible. Although the learners knew that everyone created alternate personae online, the survey revealed that they were often surprised when they discovered, sometimes by meeting someone offline, that that person had lied to them. Interestingly, they somehow expected that person to be exactly who they said they were even though they have very likely presented themselves differently to what they are in the physical world.

- **The internet for school assignments**

The respondents were asked whether they would prefer to get information for school assignments from books in a library or from the internet. The internet was the clear winner: 59% favoured the online option, while 41% indicated books. One third (31%) reported they used the internet once or twice per week for school assignments, while 18% reported that they almost never used the internet for this purpose.

A noteworthy difference between the learners from the ex-Model C and those from the ex-DET schools is that the majority of the former (63%) thought that the internet improved their schoolwork, compared to the 26% of the latter. The Parent Survey revealed that many of the parents of ex-DET schools learners have never had access to the internet to help their children with homework. This could be the reason why most learners from the ex-DET schools might not have seen the influence of the internet in this regard. Interestingly, the learners from the ex-DET school reported that they enjoyed using the internet as much as the respondents from the ex-Model C schools and also used the internet for school assignments almost as much as others.
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- **Self-rating of skills**

The learners rated their skills levels in the general areas of their lives. Most of the skills listed in the questionnaire relate to the world of school and friends; only three are specifically electronic-based: skills for using the internet, skills for playing computer games, and skills for using cellphone technology. Skills for using cellphone technology (68%) was by a slight margin the top ranked, followed by skills for using the internet (65%) and playing computer games (6%). The learners as a group tended to be quite confident about their abilities. Both boys and girls felt confident about their internet and cellphone abilities.

The amount of time spent on the activities listed in question 6 of the questionnaire and the self-rating of the ten skills listed in question 37 were compared to determine the relation between skills and the amount of time spent using media. Learners who saw themselves skilled in making friends, telling jokes or making people laugh, and playing

computer games reported spending three to four hours per day using a cellphone to communicate (talking or SMSing) or using the internet for entertainment and/or socialising. On the other hand, those who saw themselves skilled in mathematics, science, reading and the arts spent less time online and reported zero to one hour per day. What these scores indicate is that, for today's adolescents, making friends and being funny are skills that are rooted in electronic communication.

The composite scores suggest that the internet is an extension of everyday social life and an integral part of the associated skills. The majority of learners did indeed report that the internet was a place for making new friends. These findings are no surprise as the literature study revealed that heavy internet use is associated with skills using the internet and playing computer games.

- **Offensive sites**

The learners were asked about their encounters with different types of offensive sites (porn, violence or gore, gambling and hate sites, and adult chat rooms). In that school year (2011), more than three in ten (34%) learners had visited one or more of these sites intentionally, 35% did it by accident, and 31% did not at all. What is noteworthy is that more than twice as many boys as girls had visited these sites intentionally – 41% of the boys compared to only 18% of the girls. Socio-economic class also played a role: More learners from the ex-Model C schools (middle to upper socio-economic class) than learners from the ex-DET school (lower socio-economic class) had visited one or more of these sites intentionally. Porn sites were most frequently visited (22%), followed by violence or gore sites (20%) and adult chat rooms (16%). Interestingly, fewer learners from the ex-Model C schools, and specifically fewer boys, saw the need for protection from offensive internet sites compared to those from the ex-DET school. These results indicate that adolescents who visit offensive sites intentionally do not see the same need for protection as adolescents who do not visit these sites intentionally.

- **Bullying and sexual harassment**

Several questions concerning bullying and sexual harassment were asked Thirty-eight per cent (38%) of the learners reported that they had been bullied in the relevant school year (2011), and 17% that they had been sexually harassed. Among those who reported bullying, via the internet was the most common way it occurred. Sixty-two per cent (62%) reported being cyberbullied, and 22% indicated that they had been bullied at school. As far as sexual harassment is concerned, the situation was reversed: 43% reported being sexually harassed at school or home, and 12% reported being sexually harassed via the internet.

The survey also revealed a link between bullying and sexual harassment. Of the learners who had been bullied, 18% also reported being sexually harassed. Only 4% of the learners who had not been bullied reported being sexually harassed. Those who reported sexual harassment via the internet were asked about the person who had harassed them. More than half said it was someone they knew in the real world. Only 1% said it was a person older than them.

There is a marked difference between the number of learners from the ex-Model C and those from the ex-DET schools who reported bullying. Exactly twice as many learners (56%) from ex-Model C schools as those from the ex-DET school (28%) reported being bullied. This either implies that the incidence of bullying is much lower in ex-DET than in ex-Model C schools, or that there is a cultural difference in the way bullying is defined. Such a difference might be attributed to the way in which the school management and parents of the different schools treat the issue.

- **Rules in the home**

The majority of learners reported that there were rules in their households about specific internet activities.

Of the rules listed in question 22 of the questionnaire, the three most common rules, in 69% of the households, pertained to:

- the amount of time spent on the internet;
- sites that were off limits, and
- supplying personal information online.

The existence of rules suggests adult supervision. Eighty-two per cent (82%) of the learners reported that an adult was never present when they used the internet, and 20% reported that they were never supervised. In homes with internet access, it was common for the computer to be in a bedroom or private area of the home.

When asked whether they had discussed certain topics with their parents during the relevant school year, the majority (58%) of the learners stated that they had never discussed any of the topics listed in question 35 of the questionnaire.

The fact that internet use, an activity that accounts for a large proportion of adolescents' time, is largely absent from family conversation is worrying. The researcher sought to establish whether rules made a difference to adolescents' online behaviour, and the survey revealed that the existence of rules did indeed make a big difference. While the survey questions concerned specifically rules, school managements should treat the issue in terms of greater parental interest and involvement in the area of digital media literacy.

- **Time spent with new media versus time spent on other activities**

Are the three or more hours per day the learners reported spending with their cellphones a lot or a little?

The researcher wishes to emphasise that the answer to this question raises a red flag against too easily concluding that time spent with new media is synonymous with time taken from other activities. When answering this question, it is also important to keep in mind that many activities are not independent. That is, just as adolescents often engage in several media activities simultaneously, they, too, often engage in multiple activities of

which some are not media-related. For example, adolescents often spend time with their parents and watch TV at the same time; they exercise while listening to music or hanging out with friends, and they quite typically do homework with music in the background, and often while simultaneously talking on the cellphone.

Whether or not one has relatively objective reference points with which to compare judgements of whether adolescents spend too much or too little time with various new media, one's judgement depends on subjective, evaluative views of the medium and the comparison standard. Therefore, one's judgement about whether three hours of cellphone use per day is a good, bad or neutral thing will depend on whether cellphone use is compared with the one hour they devote to homework on a typical day. In short, evaluations of whether the time spent with any of the activities mentioned in the survey is too much or too little, good or bad, depend on who is making the judgement and how they feel about each of the activities.

- **Conclusion**

The parent and learner media surveys build upon the studies literature review in what it has to say about parent guidance and media use: Adolescents in particular require significant guidance to guide and inspire their positive, safe, and age-appropriate uses of technology; however, such guidance is highly unequal in parents surveyed.

The survey reveals significant discrepancies between what parents think their adolescents are doing online, and what the adolescents are actually doing online. Most of the parents participating in this study saw computers and the internet as tools to be used for work/schoolwork, or as expensive toys that allow their children to play games. Most of the parents thought of the internet from a very narrow and often negative perspective. Even the parents who used the technology themselves were often not aware of the opportunities, both positive and negative, it presents, nor that their children used it without thought or consideration.

For most parents, new media are a bit like "magic", whereas adolescents cannot imagine what the world must have been like before they were available. Most parents do not

have any idea how to even begin looking for help in understanding more about the internet, or their children's use of it. Many also do not seem interested in learning how to use these media better themselves. They feel left out of their children's new experiences. Few understand the importance of good decision making in the cyberworld. Many, but not all, believe or fear that adolescents will not choose to avoid material that is disturbing to them. This shows a lack of respect for the abilities of adolescents to make responsible decisions and choices. Few feel that their children will make responsible choices.

The participating adolescents, on the other hand, reported that they were constantly exposed to material they were supposed to reject. One of the boys reported the following in response to question 38 ("Do you have other comments?") of the questionnaire:

> "My parents just don't get it. I am surrounded by porn everywhere I go. It is everywhere – in the movies I watch, the magazines I read, in music videos – it is not only on the internet."

This remark indicates that it is not as if adolescents have to sneak a peak at a rare find of pornography or games of violence, but rather that they have to constantly fend off material they choose to avoid for their own reasons.

A few of the parents' remarks also indicate that some of them feel that adolescence is a time to explore new ideas and to begin considering what it means to be an adult. At this point, the researcher wishes to emphasise that it is also a time when children do not yet have the maturity to make life-affecting decisions, and need parental guidance and clear boundaries set by the responsible adults in their lives. It was for this reason that the researcher requested the participating schools to educate the parents of the participating learners in order for the parents to work in partnership with the teachers to limit exposure to new media in ways that protect adolescents from its negative effects while encouraging their increasing capacities for discernment, critical thinking and self-discipline – that is, digital media literacy.

6.3 ANALYSIS AND FINDINGS OF THE EMPIRICAL INVESTIGATION

Following the completion of the parent and learner surveys, the second, third and fourth phases of the qualitative investigation on issues related to digital media literacy education and the development of critical-thinking skills by learners were conducted. This section offers a summary of the findings of this investigation. The results are based on the experiences and comments of the participating teachers and learners. The data were analysed within a framework determined by the degree of success teachers experienced in presenting digital media literacy lessons.

At this point the researcher wishes to emphasise the fact that the findings of the empirical study solely serve to persuade secondary school Life Orientation teachers to consider the importance of digital media literacy. The rationale is that if these teachers find that digital media literacy does indeed positively influence learners' behaviour, a process could be initiated to convey to the South African Department of Education the significance of including digital media literacy in the Life Orientation curriculum. Much research still needs to be conducted before successful integration of digital media literacy with the said curriculum can take place; this research merely aims to present digital media literacy education as a viable means of improving learners' critical-thinking skills, and as a result positively impacting on their behaviour in the digital as well as the real world. The findings of the empirical study are therefore offered to serve the research questions.

No statistical generalisability is claimed for these results; however, since the study covered different types of schools in different areas, analogies could be drawn and used as a basis for further investigation.

6.3.1 How do Life Orientation teachers in secondary schools make use of the proposed digital media literacy programme for teaching and learning?

Phase 2 began with participatory discussions where the stakeholders (the researcher, principal and teachers) made explicit their assumptions about how the programme (cause) would achieve an outcome (effect). The participants constructed problem trees, carried out a visioning exercise, and drew network maps to help them clarify their

"impact pathways" (see chapter 1, figure 1.1). These were then articulated in a logic model (see chapter 5, figure 5.2). The logic model contains the programme's objectives in the form of variables of interests: which actors need to change, what are those changes, and what strategies are needed to realise those changes. The theory of change describes how the programme will affect adolescents' livelihoods by helping them achieve the expected outcomes. The participants derived outcome targets and milestones, which were revisited and revised regularly as part of programme monitoring and evaluation (see chapter 5, figure 5.3). This research study went beyond logframes and the traditional use of logic models by engaging stakeholders in a structured participatory process, promoting learning, and providing a framework for "action research" on processes of change.

It is the wish of the researcher that this study will change teachers' perception of digital media literacy teaching skills to something they want to acquire to improve their teaching, and that they will make a conscious effort to provide an educational environment that nurtures the imagination and the healthy development of the learners' digital citizenship, rather than just doing a job they feel they have to because of their accountability to donors for funding their teaching profession (not that this is not very important).

6.3.1.1 Programme evaluation and alignment

The teachers completed a self-evaluation form after teaching every lesson in which they made their assumptions clear about how the lesson would achieve an effect on learner's critical thinking (Addendum 10). This form was designed to help the teachers make explicit their theories of change; in other words, how they saw themselves achieving their goals and having an impact. They also completed a skills assessment form after teaching each learning outcome to evaluate the performance indicators for learners in the learning outcome (Addendum 11). The researcher used the information in the self-evaluation and skills assessment forms to draw the programme theory evaluation. An alignment matrix expressing the data obtained by using the two techniques was constructed (see table 6.3).

The additional digital media literacy lesson standards are intended to be incorporated in the foundation skills and core understandings embodied in the Life Orientation curriculum standards. These standards and performance indicators are anticipated to assist teachers in preparing all learners to be lifelong learners and contributing members of a global society.

The evaluation focused on the interpretation of the subjective experiences and meaning attribution of the participating Life Orientation teachers and was therefore approached from an interpretivistic paradigm. Learners and teachers bring varying histories of digital media exposure (and knowledge and skills) to the classroom. These are likely to be influenced by broader social categories, such as class, gender, age, race, and so forth (see chapter 1, 1.2.2). It is therefore necessary to contextualise information processing mechanisms. In these terms, digital media literacy education most probably takes place in individuals' minds, and as a participatory social process. Therefore, it was examined if and how individual and social aspects of digital media literacy interrelate. The digital media literacy lessons map to a number of core standards. Teachers identify the ways in which the lessons and outcomes help meet the learning objective for the Grade 9 learners.

Table 6.3 comprises the alignment matrix illustrating the link between the proposed digital media literacy education model standards and performance indicators for learners in all seven learning outcomes. The digital media literacy learning alignment matrix combines the levels of learning with categories of digital media literacy outcomes and digital media literacy lessons. Teachers using the matrix tick the boxes that reflect where they believe the level of learning intersects for the learning activities in the digital media literacy outcomes and digital media literacy lessons. It was used as the basis for discussion during interviews as teachers explain what they are planning or how they have used digital media literacy lessons with their learners and as a way of summarising and analysing selected learning activities within the classroom.

Table 6.3: Alignment matrix of the proposed digital media literacy education model standards and performance indicators for Grade 9 learners

Digital Media Literacy Learning Outcomes → / Digital Media Literacy Lessons →	Safety	Security	Digital Life		Privacy and Digital footprints		Connected Culture			Self-Expression and Identity		Respecting Creative Work	
	Safe Online Talk	Private and Personal information	My Media	With Power comes responsibility	Trillion dollar footprint	Secret Sharer	What's cyberbullying?	Overexposed: Sexting and relationships	Forms and norms	Your Online Self	Which Me Should I Be?	A creator's rights and responsibilities	*Rework Reuse and Remix*
STANDARDS AND PERFORMANCE INDICATORS													
1. **Critical Thinking, Problem solving, and Decision Making**													
Learners use critical-thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital technology and resources. Learners:													
a. identify and define authentic problems and significant questions for investigation.		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
b. plan and manage activities to develop a solution or complete a project.			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
c. collect and analyse data to identify solutions and/or make informed decisions.		✓	✓		✓	✓				✓	✓	✓	✓
d. use multiple processes and diverse perspectives to explore alternative solutions			✓	✓			✓	✓	✓	✓	✓	✓	

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Digital Media Literacy Learning outcomes → Digital Media Literacy Lessons →	Safety	Security	Digital Life		Privacy and Digital footprints		Connected Culture			Self-Expression and Identity		Respecting Creative Work	
	Safe Online Talk	Private and Personal information	My Media	With Power comes responsibility	Trillion dollar footprint	Secret Sharer	What's cyberbullying?	Overexposed: Sexting and relationships	Forms and norms	Your Online Self	Which Me Should I Be?	A creator's rights and responsibilities	Rework Reuse and Remix
STANDARDS AND PERFORMANCE INDICATORS													
2. Digital Citizenship													
Learners understand human, culture and societal issues related to technology and practise legal and ethical behaviour. Learners:													
a. advocate and practise safe, legal and responsible use of information and technology	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
b. exhibit a positive attitude towards using technology that supports collaboration, learning, and productivity.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
c. demonstrate personal responsibility for lifelong learning.	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	
d. exhibit leadership in promoting digital citizenship.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

In the context of education, alignment can broadly be defined as the degree to which the components of an education model/programme – such as standards, curricula, evaluation and instruction – work together to achieve desired goals (Ananda, 2003).

The suggestions contained in the alignment matrix (table 6.3) suggest that the proposed model provides a practical framework that is not too restrictive or dictatorial and therefore adaptable to context. It will therefore be useful to learners, teachers and parents as well as sustainable in the face of media technology changes. The model is particularly relevant in dealing with adolescent behaviour – both formal question-answering behaviour (common in the classroom) and more unstructured, exploratory search behaviour (common outside the classroom). The researcher is of the opinion that the suggestions contained in the alignment chart support the beliefs underlying the long-term goal of this study. The long-term outcomes are those changes expected to carry on after the completion of the research. They include the ultimate goals that the programme aims to achieve, namely that the Department of Education consider ways in which digital media literacy skills can be incorporated into the Life Orientation curriculum, that adolescent learners will develop critical-thinking skills and show ethical behaviour online by the time they leave school, and that teachers will be trained to adapt their curriculum to digital media literacy. This will improve teaching and learning to help facilitate bottom-up school reform.

The proposed education model standards promote the development of critical thinking and media literate learners who learn, plan, produce, and innovate in a digital world. These standards can foster ethical new media use and responsible digital citizenship in a competitive global society.

6.3.2 What factors impede or encourage the implementation of the digital media literacy programme by Life Orientation teachers?

- **Views of the principals**

The following emerged in the interviews with the principals:

Every principal mentioned that many and sometimes most of the learners were careless and irresponsible in using new media. One principal remarked:

"Learners have no respect for the technology use rules of the school and there is little we can do to enforce it."

The principals were concerned about the influence of community life on the learners' value systems and behaviours. At school, the internet cannot be used for anything other than educational purposes. Accessing any pornography site is strictly prohibited. Using the computers in the libraries is only permitted for school project purposes.

The principals felt that learners will inevitably break the rules. Some of their remarks were:

"On the internet, they tend to seek problematic content on purpose and take few opportunities other than exchanging information with others."

"They seem little bothered by online violence and show an interest in online pornography."

They complained that they struggled to get parents involved in setting rules and guidelines for their children's media use, saying the parents were not interested in becoming involved and often also not interested in exerting themselves on behalf of their children:

"For them, there is a vague fear that the internet is a whole other world, one that is leaving them behind."

"Most parents have the lowest level of online expertise."

However, this problem differed from school to school. The principal of School C was fairly satisfied with parent involvement.

- **Views of the Life Orientation teachers**

The three teachers who were interviewed mentioned that they had little rigorous formal training in the presentation of digital media literacy programmes. They also felt that the Department of Education was not genuinely concerned about their lack of the necessary knowledge and skills. They expressed feelings of abandonment, as is evident from the following remarks:

"They talk and talk about how important media literacy is but they give no examples of how we can handle the undisciplined cellphone behaviour of learners."

"No-one can ever tell me where I must get all the information I need to show the learners the benefits and risks of the online world and to teach them how to make informed choices online."

"Workshops and in-service training which I attended have no intrinsic educational value at all."

They criticised the knowledge and experience of the trainers/facilitators who had been appointed by the Department to empower them to teach media literacy.

The most serious complaints came from the teacher from school A. The teacher remarked:

"I really don't like teaching this subject."

The general impression given by the teachers was that most teachers in public schools, and in particular those in ex-DET schools, were ill-equipped to cope with the demands of the Life Orientation programmes.

The teachers from schools B and C reported a remarkable degree of success in the presentation of the digital media literacy lessons. It enabled them to meet most of the

required outcomes in all seven sections of this learning area. However, they also mentioned their struggle to understand the learners' online world.

The teacher from school A regarded it as extremely difficult and even impossible to reach the outcomes of the digital media literacy lessons. One remarked:

> "Some of my learners are so exposed to digital technology that there is no way in which I can teach them responsible behaviour in this regard."

This points to the importance of some correspondence between teaching style and programme assumptions. The researcher is of the opinion that the success of digital media literacy programmes in schools often relates to the teaching style and knowledge of the teacher. To be noted is the fact that the youngest of the three participating teachers showed much more confidence in teaching digital media literacy. As an "insider" in the digital world, who grew up in the fast-paced digital environment of the current adolescent generation, this teacher was energised and motivated. For the teachers who grew up in a world of books, travelling through cyberspace seems as treacherous and intimidating as having to speak a new language. They therefore approach new media literacy education like a foreign language that is complex and perhaps of questionable use.

The teachers from older generations who participated in the study felt that the effect of the digital media literacy lessons only extended to the times the learners were in their classrooms or on the school grounds; away from school, the influence of their peer group largely eliminated the positive influence of the lessons.

The researcher is of the opinion that school managements need to offer younger teachers opportunities for extended input by means of action research in order for them to work together to create new pathways to effectively integrate digital media literacy into the Life Orientation curriculum. This includes situated practice, overt instruction and critical framing, which lead to transformed practice. Teachers must look at digital media literacy as another realm within which to apply elements of critical thinking and not use the same skills to wit analysis, synthesis and evaluation as centuries before. In our

development of higher-order thinkers, multiple realities are far less important to our survival than our ability to understand what we see, to interpret what we experience, to analyse what we are exposed to, and to evaluate what we conclude against criteria that support critical thinking (Prensky, 2003).

The researcher would stress the need for further research in this field, since we need to further develop teachers' understanding of the need to embed digital media literacy in the curriculum. The presentation of the digital media literacy programme requires expert skills from teachers. They need to receive intensive training in a number of problem areas.

One finding based on the interviews with the teachers is to be noted: The digital media literacy lessons are well developed and well structured. They cover the concept of digital citizenship with regard to the responsible, ethical and safe use of new media by the learners as members of society and citizens of the global community. One teacher remarked:

> "The lesson plan is a good way to learn and teach digital media literacy because you get to read about it and do the activities with learners, learn about the stuff as you go. When I plan and do lessons sometimes I don't understand them as I don't have all the information but here I can go and look at all the information. You can look at it then try and do the activities with learners. … you don't have to read a text book, it is interactive, you are not just writing everything down, you have a model that shows where it all goes."

Another teacher said:

> "The learners did as hoped. I was worried that the learners would get bored, the activities wouldn't sustain them and they would get off task. But really only two of the learners got off task; they are the least mature in the class and are more interested in sexting. All the learners and their parents were positive about the value of using these activities for learning critical-thinking skills and cyber-ethics."

6.3.3 How do Life Orientation teachers in secondary schools connect and collaborate in their teaching of digital media literacy?

A complex system or organisation consists of a number of levels, with each level having a recognisable open boundary. For example, as mentioned in chapter 5 the complexity of secondary schooling can be examined at a national, regional, school, or classroom level (see figure 5.1). Between each there are connections where knowledge can be exchanged and developed. Thus the systems are open in that exchanges occur beyond their boundaries such as through regional or national subject association teacher networks.

The teachers in this study drew on their base knowledge when making pedagogical decisions regarding digital media literacy education. This appeared to restrict the opportunities to include knowledge creation. Connecting with other colleagues, collaboratively developing ideas and understandings within teacher networks or classrooms by the teachers or learner aspects of connectivist learning theory in the design of learning activities for digital media literacy were notably absent in all three schools.

The emergence of knowledge within organisations occurs through the connections between the parts or participants in a system (Davis & Sumara, 2006). In this study it include conversations or group discussions between principals/teachers in different schools and the researcher, communication with parents, planning of research, examining data, and online information exchange with other colleagues or conversations in the classroom setting (see chapter 5, 5.3.6).

It is through the networks and responses to events that new knowledge emerges; this could be applied to networks across schools or networks within schools. This study explores and speculates on what happens when teachers and secondary schools collaborate to drive the expansion and improvement of digital media literacy in the Life Orientation curriculum.

Support was found to be important to help the teachers develop their pedagogical content knowledge and use of digital media literacy lessons within their teaching. Examples of ways that the teachers reported receiving effective formal and informal support included: discussions on digital media literacy education through face-to-face meetings with participating teachers or researcher. Email was used between meetings to keep in contact. An important source of pedagogical support was also through email. For example, participating teachers emailed the group lesson outcomes and ideas are shared.

6.3.4 What is the potential learning and the actual learning that occurs in a Life Orientation teacher's classroom as learners engage in digital media literacy activities?

6.3.4.1 Comparison between pre- and post-evaluations

After judging the quality of content match between the model and the corresponding standards (see table 6.3), the researcher focused on the degree of match regarding the required types of performance evaluations. The participating teachers completed a critical thinking/digital citizenship checklist based on their observations (Addendum 9). A pre-evaluation-post-evaluation research design was used to document learner behaviour change. The teachers rated both the experimental and control groups.

Balance judgements fall into one of five categories: Always; Almost always; Sometimes; Never; Not observed. Performance centrality is scored on a 4-point scale where 4 = Always; 3 = Almost always; 2 = Sometimes; 1 = Never, and 0 = Not observed. Since these judgements are qualitative, the different categories are not delineated by a balance percentage or index.

The analysis is based on the teachers' experience with the learners in the classroom and the result of both a priori observations and a posteriori reflections. The a priori observations concerned the learners' knowledge and skills regarding the topic and consisted basically in a sequence of two aspects: learners use critical-thinking skills, and learners practise legal and ethical behaviour. Learners were observed about their use

and opinion of cyber-ethics regarding digital media technologies in all three schools to give greater depth of understanding about the teaching and learning in the classroom.

After the presentation of the digital media literacy lessons (Addendum 7), the researcher added a posteriori observations that proved to be essential – those regarding the metacognitive aspects: analysis of the acquired knowledge, reflection on the learning process, and application of the acquired knowledge and skills to a future problem or in a different context. Hence, digital media literacy education is a combination of cognitive and metacognitive aspects, which is true for learners as well as teachers. The evaluations of learning were conducted as verbalisations. This involved a process whereby the learners talked teachers through what they were doing and learning as they received digital media literacy education. The verbalisations or "think alouds" were used to examine cognitive thought during a learning activity in the digital media literacy lessons which minimised discrepancies and inconsistencies that can occur when observations are carried out only after the instruction. Ericsson (2006, p. 225) reviewed evidence and concluded that "think alouds" have not been found to change the underlying structure of the thought processes and thus avoids the problem of reactivity. This method of evaluation was used to identify information that passed through the learners' attention while they engaged with digital media literacy learning outcomes as a learning activity. Learners were observed in groups for the learning activity they were engaged in.

Based on their observations and the completed checklist, the teachers scored the groups from 0 to 4 in their pre- and post-evaluations, which are presented in tables 6.4 and 6.5:

Table 6.4: Pre-evaluation by teachers

EXPERIMENTAL GROUP (School: A, B and C)		CONTROL GROUP (School: A, B and C)	
Pre-evaluation of the learners' ability to:		**Pre-evaluation of the learners' ability to:**	
identify and define authentic problems and significant questions for investigation	0	identify and define authentic problems and significant questions for investigation	0
plan and manage activities to develop a solution or complete a project	0	plan and manage activities to develop a solution or complete a project	2
collect and analyse data to identify solutions and/or make informed decisions	0	collect and analyse data to identify solutions and/or make informed decisions	0
advocate and practise safe, legal and responsible use of information and technology.	0	advocate and practise safe, legal and responsible use of information and technology.	0
exhibit a positive attitude towards using technology that supports collaboration, learning, and productivity.	0	exhibit a positive attitude towards using technology that supports collaboration, learning, and productivity.	0
demonstrate personal responsibility for lifelong learning.	0	demonstrate personal responsibility for lifelong learning.	0
Score:	**0**	**Score:**	**2**

Interpretation:

The control group scored just slightly above the experimental group, but the differences were not noteworthy. This suggests that both groups need more digital media literacy education, and that what is taught in the current Life Orientation curriculum does not include digital media literacy skills.

Table 6.5: Post-evaluation by teachers

EXPERIMENTAL GROUP (School: A, B and C)		CONTROL GROUP (School: A, B and C)	
Post-evaluation of the learners' ability to:		**Post-evaluation of the learners' ability to:**	
identify and define authentic problems and significant questions for investigation	0	identify and define authentic problems and significant questions for investigation	0
plan and manage activities to develop a solution or complete a project	2	plan and manage activities to develop a solution or complete a project	2
collect and analyse data to identify solutions and/or make informed decisions	2	collect and analyse data to identify solutions and/or make informed decisions	0
advocate and practise safe, legal and responsible use of information and technology.	3	advocate and practise safe, legal and responsible use of information and technology.	0
exhibit a positive attitude towards using technology that supports collaboration, learning, and productivity.	2	exhibit a positive attitude towards using technology that supports collaboration, learning, and productivity.	0
demonstrate personal responsibility for lifelong learning.	2	demonstrate personal responsibility for lifelong learning.	0
Score:	**11**	**Score:**	**2**

Interpretation:

The scores are generally higher for learners who received the digital media literacy lessons. The proposed digital media literacy programme did therefore have an effect on their critical-thinking skills. There is no difference in the pre- and post-evaluation scores for the control group regarding the underlying critical-thinking skills. This suggests that the Department of Education prescribed Life Orientation curriculum does not address digital media literacy sufficiently. This was also reflected by the majority of the learners in the survey.

This type of design enabled the researcher to evaluate if the learners applied this knowledge and skills during the digital media literacy lessons. However, it is still to be questioned whether these results could be generalised to their everyday lives. Also, immediate effects do not necessarily translate into long-term influence. The long-term transfer effect on learners' critical thinking remains an open question. On the other hand, it is argued by the researcher that this design provides a good example of how to measure the short-term effect of a digital media literacy programme that aims to help teachers and parents understand what learners should know to be able to use new media responsibly. The researcher anticipates that this digital media literacy education model will provide evidence to be a comprehensive and broad-reaching framework that will lead to learners practising responsible use of new media, and that will develop positive attitudes in learners towards new media uses that support lifelong learning, collaboration, personal pursuits, and productivity. The model is therefore meant as an outline for how to best incorporate digital media literacy education in the curriculum for secondary schools.

6.3.4 2 Class discussion workshops and follow-up interview survey

In 21st-century education, it becomes an apt metaphor for describing how learners make decisions for using digital technology (Ribble & Bailey, 2005). Whenever adolescents use digital technology to communicate, our expectation should be that they use the same good manners and make the same wise decisions as in any other kind of human interaction they face. In phase four the researcher therefore included class discussion workshops for learners to brainstorm the consequences of abusing and misusing technology (see chapter 5, 5.2.7.2). This activity was also aimed at determining the intermediate possibilities of the digital media literacy programme and providing an opportunity to explore the reasons behind the learners' thoughts or verbalisations (think alouds). Each school has a unique culture that has developed over time; therefore it is impossible to predict what the outcomes of one aspect of change will be in a school as there are so many factors that will influence the response (complexity learning theory, see chapter 5, 5.3.4.2).

The participating teachers completed a follow-up interview survey for group evaluation (Addendum 9), covering both the experimental and control groups. The data were carefully analysed and searched for merging trends and/or main focus areas.

The acquired critical-thinking skills appear to be consistent. The follow-up- and post-evaluation scores were consistent for both groups. In view of this consistency, the researcher is of the opinion that the influences of the digital media literacy lessons that increased the effectiveness of learners' critical-thinking skills also lead to the intermediate ability to use the knowledge to critical thinking and if schools integrate the proposed digital media literacy education model into the Life Orientation curriculum the possibility of a long-term effect. It is to be noted that the teachers had different opinions about what constitutes critical thinking and appropriate and inappropriate online behaviour for learners.

Most learners from the control group did not derive their opinions from a thorough investigation of digital citizenship, or navigate deeply into critical thinking. There was more agreement between the learners from the experimental group about what is right and wrong as they had learned the tenets of digital citizenship in the instruction. Learners from the control group often argued that there are shades of grey when interpreting each scenario. The researcher believes that a major reason for this is that these learners had not been taught the basic tenets of digital citizenship – "how you behave when using technology" (Ribble & Bailey, 2005, p. 11). As stated earlier, digital citizenship is a developmental process of critical thinking, self-reflection, and maturation.

Interestingly, only a small number of the learners in the experimental group show unethical behaviour; it means going against digital citizenship. One learner's response to the question whether copying copyrighted material is right was:

"Yes – as long as I don't get caught."

The researcher is of the opinion that this statement has more to do with the social networking subculture and adolescents' naturally rebellious tendencies. However, it is worrisome that adolescents tend to find their peers more credible than authority figures.

Findings from the class discussion workshops reveal that the experimental groups have very high levels of awareness and understanding of the basic principles of intellectual property. However, learners from the control groups feel that copyright regimes are unfair and unjust. The implications of this collapse of respect for copyright among adolescents are potentially very serious and indeed require more observational study. It is important to allow all learners to explore their feelings about technology use, misuse, and abuse.

The enthusiasm and creativity the adolescents brought to the digital media they loved were studied by the researcher through interviewing the experimental groups during the class discussion workshops. The learners believed that the content of the lesson was important. The content was also seen as immediately useful with one learner saying (unprompted) that he would apply what he had learnt while playing interactive online games. Most of the learners planned to read the learner handouts again after the lesson. One learner when asked if she would use and read the handouts again responded enthusiastically: "probably this afternoon to show my Mum" which indicated the engaging and possibly the novelty of this learning activity.

Following is the interpretation of these interview group discussions:

Interpretation:

Learners participating in these interview sessions talked about how they move seamlessly between real and virtual, online and offline environments. Technology and the internet are not new or different to them – they are part of the landscape of their lives. For adolescents, the internet is part of the pattern of their day and integrated into their sense of place and time. From the discussions it is clear that adolescents understand that there is a world that is bound by physical realities and limitations, both physical and social. When using the internet, they are not constrained by these features – they can "try on" different identities and take new "shapes" at will. In the physical world, there are often fixed consequences to their behaviours; online, they can move away from it, fast.

      Conversationally, these learners still referred to the offline world as "the real

world". This suggests that they consider the internet as something other than the "real world", signifying that, for them, the online world is separate from the offline world, without denying its independent existence. Many feel open to and comfortable with exploring ideas and experiences online that are outside their "real world" boundaries.

There is significant evidence that adolescents are using new media to develop and create new things, although very few are interested in technology itself. When asked what more they would like to learn about new media, most felt that they knew enough of the basics to go ahead on their own.

Many of the learners were actively involved in creating things and then sharing them both on- and offline. A girl interested in playing the violin said she used audio and video technology to see how to play, and then for feedback on how she was doing She also compared her skills to those of others she experienced online. One boy was learning about photography and using software to modify his photos or alter them as a new form of art. Three boys from the rugby team said they were helping to develop a fundraising campaign for the upcoming rugby tournament. They went on to say that they were just sending out electronic information to friends to raise money for a good cause.

The researcher feels that the class discussion workshops and group interviews with learners provided worthwhile and interesting insights into the role of especially new media in the lives of secondary school learners in South Africa.

6.4   CONCLUSION

The fact that different data gathering techniques were employed in this study indicates that digital media literacy education can indeed be evaluated from a variety of research perspectives. However, it also illustrates how these different conceptual and empirical lenses can be integrated as complementary facets of a singe research object. This way, it becomes possible to more comprehensively understand the complexities of adolescents' digital media practices.

To preserve its real-life relevance, this study looked beyond mere cognitive learning. As explained by, among other things, the theory of reasoned action, behaviour is largely

determined by a person's attitude towards performing the given behaviour (Martens, 2010). It follows logically that influencing adolescents' knowledge and skills will not necessarily transfer to everyday digital media consumption. As Potter (2004) assert, acquiring knowledge or skills by itself does not indicate digital media literacy. Adolescents must actively and mindfully use the information knowledge from the digital media literacy structures during exposures to digital media technology, and may well be inclined to resist what they learn from the digital media literacy lessons. Nonetheless, from an empirical point of view, the education model design in this study enabled the researcher to evaluate whether learners actually use this knowledge and skills during exposure to digital media literacy education. Both cognitive and affective mechanisms were theorised to determine the cognitive, attitudinal and behavioural outcomes of digital media literacy education.

This study was in effect a "one-shot" study that generated exploratory findings based on a number of extensive reviews of related literature, survey data and an analysis of a digital media literacy programme intended for Grade 9 learners in secondary schools. The outcomes of the programme were compared with what teachers felt they really taught in the classroom.

The research revealed that, although learners may be confident technology users, they often do not have sufficient critical-thinking skills. The participating learners had received media literacy education in the Life Orientation learning area, but it appeared to be patchy and taught in isolation.

There is also evidence to suggest critical thinking is best taught by embedding digital media literacy in a subject and working with real-life examples. The digital media literacy lessons was embedded in the Life Orientation curriculum and lasted six weeks. One-hundred-and-sixty-four (164) learners from three secondary schools participated as members of either the experimental or control groups. Both these groups followed the Life Orientation media literacy learning area, but in the case of the experimental group, the digital media literacy lesson outcomes were embedded. During the pre- and post-evaluations, all learners solved a digital media-based problem while thinking out loud,

and the teachers evaluated them on their shown critical thinking and digital citizenship skills.

The analysis of these protocols revealed that the learners who received the embedded instruction showed critical thinking and ethical behaviour more often after the digital media literacy lessons than the learners who did not receive this instruction. The researcher sought to establish whether these behaviours were intermediate carry on with a follow-up evaluation two weeks later. The reports of the teachers recognised that the experimental group still overweighed the control group with regard to ethical online behaviour and conveying critical thinking in their approaches within a wide variety of digital media scenarios.

The researcher's conclusion from these results is that digital media literacy education does make a difference in adolescent learners' online behaviour. The study also suggests that digital media literacy education must be a grassroots movement – teachers need to take the initiative in lobbying for its inclusion in the Life Orientation curriculum. All secondary school learners in South Africa could benefit from a digital media literacy programme that enhances their critical-thinking skills and produces lifelong learners capable of succeeding in global society.

In the final chapter, the limitations of the study are discussed, and recommendations for further research proposed, specifically recommendations to use the findings of this research to create guidelines for teaching sufficient media literacy in secondary schools in South Africa.
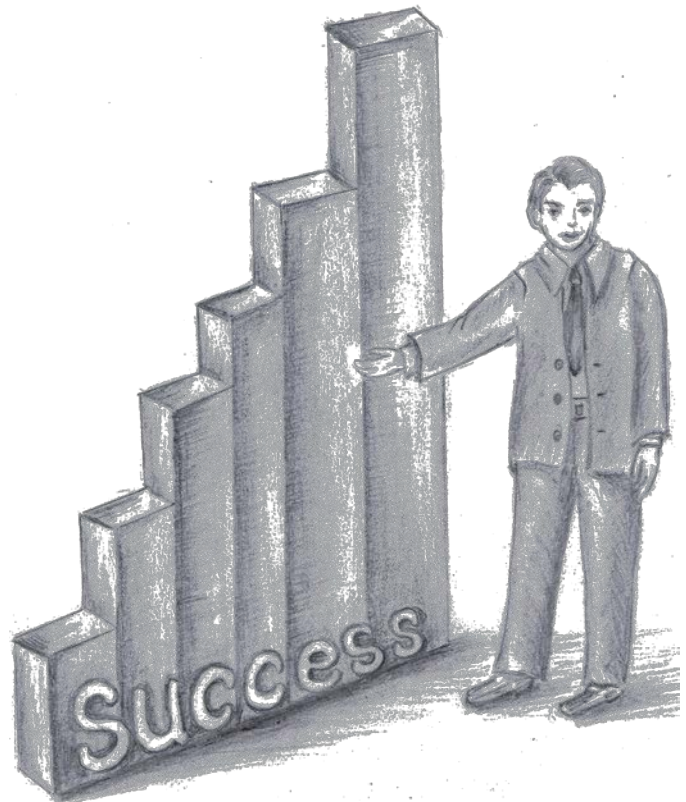
THE VIRTUAL WORLD IN REALITY

The intention of this research study is to instigate changes in digital media literacy education, and therefore in the way adolescents use new media, which will ultimately also impact on their behaviour as individuals in real life.

CHAPTER 7

LOGGING OFF: LIMITATIONS, RECOMMENDATIONS AND CONCLUSION

7.1 INTRODUCTION

This chapter builds on the conceptual framework and empirical analysis set out in the previous chapter to respond to the following questions:

- Can digital media literacy programmes make a difference?
- What is the best way to address the challenges?
- How will digital media literacy programmes impact the learning system in South Africa?

This study has revealed aspects of new media use that are perceived to be problematic as they could negatively impact on adolescents' psychological well-being. Secondary school learners have not yet developed the judgement to always make great decisions, but they are smart enough to understand the effects of risky practices.

What has been observed, however, is that a significant minority of adolescents suffer from internet addiction. This research has identified a need to find ways to define overuse, and to differentiate between internet addiction and obsession, self-medication for depression and other disorders and compulsions.

It is possible for an adolescent learner to have a pathological relationship with a specific aspect of the internet, such as viewing pornography or online gaming, but that does not make the internet itself addictive. For example, whether viewing pornography on a computer or in printed format does not affect whether or not it is pathological. An adolescent with poor impulse control can lose sleep over a suspenseful novel or favourite television show, or a computer game or the temptation to click on another web link. Further investigation into many psychosocial factors is needed in order to ascertain

to what extent overuse of digital media impacts on adolescents' lives. This study, however, suggests that adolescent learners who are addicted to surfing the web are more likely to engage in aggressive behaviour.

It is, however, also true that the internet is largely a prosocial interactive and information-driven medium. This study argues that the internet has tremendous potential to affect the emotions of adolescents, and in turn alter their self-perception and anxiety levels.

This study also suggests that two of the major reasons why adolescents misuse new media and become addicted to the internet, are the lack of limits regarding their use of these media, and the absence of critical-thinking skills and therefore of accountability. Corrective strategies include digital media literacy education, content control, and parental guidance.

7.2   LIMITATIONS OF THE STUDY

Although this research study was conducted on a fairly wide basis, the researcher feels that only the tip of the iceberg has been exposed. So many modern-day exposures of adolescent learners to a range of interactive technologies that increase their psychosocial risks came to the fore and, due to the logistics of the situation, received little or no attention.

In the South African context, there is not a plethora of research findings or guidelines for adolescent learners' exposure to new media. The implementation of digital media literacy education that improves critical thinking increases benefits and reduces risks associated with these media. There is not much tangible local research when compared to the numerous studies that have been undertaken on international level. Worldwide, research about adolescent learners who are greatly exposed to new media and the associated psychosocial risks, including perpetrating and being a victim of cyberbullying, goes back at least 20 years. This provides a valuable basis of findings and methods for dealing with these problems and the evaluation of quality media literacy education programmes integrated into a school curriculum. It is hoped that this study will not only in

some way contribute to local research, but will also inform as to what needs to be included in a quality digital media literacy programme for secondary schools in South Africa.

During the course of the investigation, certain limitations became apparent, some of which are the following:

- An experimental group of 85 Grade 9 adolescent learners took part in the study, leaving unaccounted the other Grade 9 learners who may very well have had opinions and behaviours different from those covered by the questionnaire, the workshops and the group interviews. However, although the evaluation model examined the programme outcomes on a relatively small number of learners, the findings of this research do show similarities with findings obtained on an international level.

- The experimental group consisted of learners from three secondary schools from Gauteng Province only. The results may differ when adolescent learners from other provinces are placed in the equation.

- The empirical study did not always go according to plan. The focus group interviews were difficult to organise, as getting each group of learners or teachers together at a specific time on a specific day proved problematic.

- The research method used in the empirical study turned the investigation into a rather lengthy exercise. Caution had to be exercised, as the findings opened numerous doors to investigative other possibilities. The end result also had to be narrowed down considerably.

- The research findings about effectiveness are framed in the researcher's perspective on teaching, learning and the nature of schooling.

- The fact that the teachers had already established relationships with the learners in both the experimental and control groups, having been their teachers prior to this study, had ethical and research/interpretive validity implications. This was taken into account in the design, data collection and analysis phases. In an attempt to compensate for this, the researcher also held discussions with the teachers at the beginning of the research, explaining that there were no wrong answers – that the focus of the research was the reality of their experiences. This encouraged the teachers to freely explore and explain their experiences and reality. All interview transcriptions as well as a draft of the final report were also sent to the teachers to ensure that their reality was accurately represented in the research.

- This study challenged the teachers to reflect on their teaching praxis, but one of the possible implications of teaching reflexivity in qualitative research methods is that interviewees give the interviewer what they believe the interviewer wants to hear (Yin, 2003). This had the potential to be particularly problematic in this study as the teachers were aware of the researcher's perspectives on effective teaching praxis for digital media literacy and adolescent learners' use of digital technologies. To minimise this possibility, the researcher clearly articulated at the beginning of each interview that the sole purpose of their self-evaluation was to gain insight into their reality. As the teachers were answering questions, prompts and encouragement were also given regarding all aspects that were linked to the research questions and variables of interest.

- Convenience sampling was used in this study. A convenience sample is a sample where the participants are selected, in part or on the whole, at the convenience of the researcher. This could have impacted on the teaching of the teachers and the assessment of the learners. To minimise this possibility, the teachers' indication of interest to participate in the research was collected by the school principals. The researcher was unaware of the identity of the volunteer teachers until the Grade 9 classes were decided upon by the principals.

- The possibility of the questionnaires being in a format that would have generated computerised scores and profiles would have speeded up the data capturing process and reduced the vast number of hours required to mark each answer sheet.

- Although the questionnaire respondents were very clearly asked to answer each question as honestly as possible, there may have been parents or learners who were not entirely truthful.

- The findings cannot be generalised to all Grade 9 learners in secondary schools, as the investigation may have revealed tendencies that are only applicable to a specific category of school. Qualitative research is exploratory by nature. It is designed to gain an understanding of the range of opinions about the topic area, not to determine the weight of those opinions among the general population. The results of this type of research may therefore be viewed as indicative, not projectable.

- The topic studied is one that is undergoing rapid change with new technologies and applications becoming available on a daily basis. The findings on a digital media literacy curriculum development education model may therefore have a limited shelf life before a critical revisionist approach to the findings will be necessary.

- This study addresses the short-term implications of the digital media literacy programme for dealing with learners' unethical online behaviour. The researcher is of the opinion that secondary schools that address both the short- and long-term opportunities of digital media literacy intervention can gain significant competitive advantage to develop learners' critical-thinking skills. However, the long-term initiatives have benefits that are difficult to quantify. The problem with mitigating critical thinking is that the long-term benefits are uncertain and distant. Therefore, the researcher cannot really come to conclusions about the effect of the intervention.

7.3 RECOMMENDATIONS FOR DIGITAL MEDIA LITERACY INTERVENTION PROGRAMMES

Although this study has concentrated on psychosocial risk factors that may arise from adolescent learners' use of new media, there are other, positive factors that cannot be ignored. During this study, the researcher sought to also discover any innovative, creative uses of the new media by adolescent learners.

What has been observed in this study, however, is that there is a strong, positive association between opportunities and risks. This points to the dilemma that teachers and parents face, namely that an increase in opportunities leads to an increase in the risks. Restricting adolescent learners' internet use reduces not only the risks but also the opportunities. Adolescent learners therefore need to get consistent messages from all the adults in their lives about what it means to be a good digital citizen. In an attempt to solve these problems, the recommendations for digital media literacy programmes in this study aim to foster not simply critical intelligence, but critical autonomy.

The adolescent learners who participated in this research attended different school types – ex-Model C and ex-DET schools. They therefore came from different social backgrounds. The study revealed that adolescent learners' critical-thinking skills reflect their local environment, including the length of time they have had internet access at home, the family's ability to purchase technology and stable internet connectivity, rules regarding digital media use in the home, the parents' own experiences and skills regarding technology, and adolescents' leisure choices and internet habits. Adolescent learners (particularly those defined as "inexperienced") and their parents should be targeted by schools to increase their digital media literacy. This study therefore strongly recommends that parental advice be targeted differently for different households; different groups of adolescent learners and parents with different levels of education and expertise. Digital media literacy education in secondary schools should be tailored according to the level of parental expertise and the ways in which individual adolescent learners interact with new media.

This study suggests the parent and learner media surveys to be the best way to start off a digital media literacy programme in secondary schools. Conducting the survey will help school managements and teachers to understand the media habits and concerns of their community and will inform them which topics they need to cover in their digital media literacy programme. The questions in the Learner Survey can be compared to those in the Parent Survey to assess whether the learners and parents as a group have similar perceptions of adolescent learners' media use.

7.3.1 Implementation of the proposed model

In South Africa, the necessary components of media literacy have been advocated for a number of years. However, the empirical evidence of the impact of digital media literacy on teaching and learning is nearly non-existent. One of the reasons this study was conducted was therefore to provide evidence of the effects of digital media literacy education on learners' critical-thinking skills and online behaviour.

The combination of the data from the three collection techniques and the common factors that appear to inhibit adolescent learners' critical thinking performance have led to the conducting of needs analysis. Several factors that are most apparent in the learning area of media literacy in the Life Orientation curriculum for Grade 9 secondary school learners were examined by means of questionnaires and the evaluation of programme lessons and interviews. Combined factors can be addressed by adapting the seven outcomes developmental education model to suit a school's digital media literacy needs. Although some digital media literacy programmes may already be in operation in secondary schools, there are areas that are currently not addressed. The proposed model includes these as initiatives that should be driven. Each developmental outcome is named according to the general digital media literacy area it addresses. These areas are further broken down into specific areas or topics that need to be addressed in the curriculum. A description of the objectives are suggested.

When the areas of digital media literacy, as shown in table 7.1, are examined, the need to address the programme in a holistic manner becomes evident. The proposed model can also be used across grade levels and adjusted as learners age.

Table 7.1: Holistic digital media literacy curriculum development education model

GENERAL AREA	SPECIFIC AREA	DESCRIPTION OF OBJECTIVES
1. **Responsibility**	Communicating information	Use content responsibly, ethically and legally with an understanding of ownership issues.
	Range of content	Identify, avoid or challenge content and services that may be unsolicited, offensive or harmful.
		Engage with content to become an active and responsible citizen who can exercise his or her rights to make informed choices and express opinions.
		Be aware of computer security and privacy issues and solutions.
2. **Communication/ collaboration**	Communicating information	Effectively create content to communicate opinions and ideas through a range of channels.
		Develop critical and informed responses to published content.
		Recognise what information is needed based on a range of needs, both personal and social.
		Create and distribute communications and creative achievements in a range of

		multimedia formats.

3.	Access and selection	Curriculum opportunities	Choose content appropriately according to the purpose behind the intended use.
		Range of content	Recognise what information is need-based on a range of needs, both personal and social.
			Select and evaluate appropriately to make informed choices.
			Have the ability to locate and access information needed by determining all possible sources, selecting the best ones and extracting relevant information.
4.	Application	Exploring ideas and manipulating information	Use information in learning, critical thinking, decision making, research and problem solving in informal and formal education settings.
		Capability	Process the knowledge and skills to efficiently access, store, organise, retrieve and share content to meet individual and community needs and interests.
			Use a range of practical and conceptual tools of current technology.
			Organise information from multiple sources for practical application and integrate it into existing knowledge.
		Developing ideas	Have the skills to adapt to using a wide variety of applications.
			Have skills in using digital media to reproduce and manipulate data, images,

		and sound for creative and practical purposes.
5. **Evaluation**	Evaluation	Review, modify and evaluate work as it progresses.
6. **Reflection**	Critical evaluation	Use higher order critical-thinking skills to reflect on the nature of information, its conventions, style and techniques, questioning, analysing and evaluating. Be aware of bias, misrepresentations, values, and user manipulation through an understanding of the editorial processes and the motivations, such as commercial or political interests, behind the content.
	Impact of technology	Critically reflect on the nature of digital media with an awareness and understanding of its social and cultural context and impact on individuals and different societies. Evaluate the benefits, costs, strengths, weaknesses and limitations of digital media technologies in terms of the individual and society.
7. **Adaptability**	Capability	Adapt to, understand, evaluate and make use of continually emerging innovations in digital media technology.

The model represented in table 7.1 was developed on the basis of an extensive review of literature on digital media literacy and constitutes an amalgamation of some of the most influential research in this area. As such, the model does not represent a definitive answer to the question of what digital media literacy might be, or provide a template for the development of classroom practices; it offers a conceptual framework for embedding digital media literacy as an aim in the curriculum, and for developing strategies to

develop it through classroom activities. It also provides information about what kind of process learners need to go through in order to demonstrate digital media literacy. This process is reflected in figure 7.1:
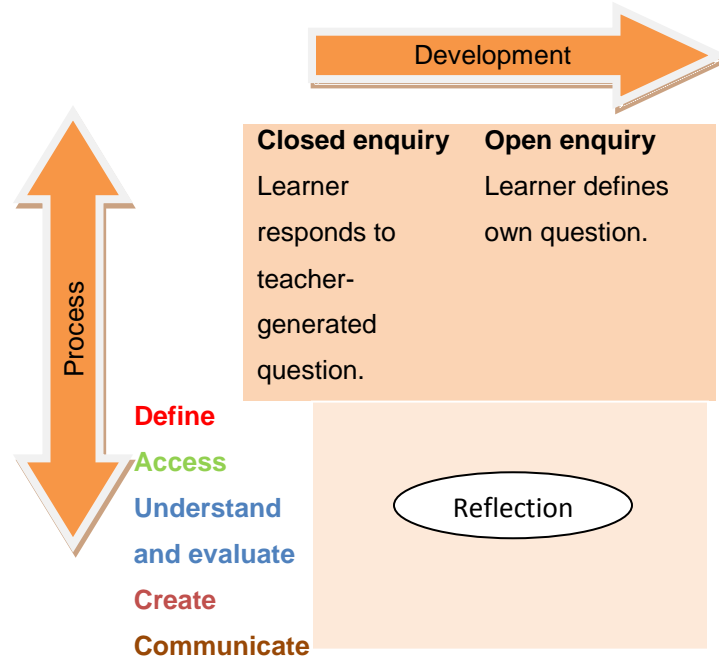
Figure 7.1: Process to demonstrate digital media literacy

The process in figure 7.1 is based on the notion that learners investigate questions and problems set by teachers, and that, over time, they should develop sufficient confidence and competence in their skills, knowledge and understanding of digital media literacy to be able to define their own questions for enquiry. The model therefore offers a potentially useful structure for classroom activities that are aimed at fostering critical thinking. The process the model suggests is not necessarily linear and may involve moving up and down the stages as learners refine their tasks and their thinking.

The proposed model suggests that digital media literacy is an amalgamation of:

- knowledge of digital tools: hardware/software and competence
- critical skills: evaluation and contextualisation
- social awareness: understanding your identity; collaborating and communicating to audiences in context

The researcher believes that a successful combination of these areas is the key to translating digital media literacy into practice in all secondary schools in order to contribute to the development of adolescents' informed digital participation.

One approach to developing a more holistic model of digital media literacy is to perceive it in terms of lifelong learning. Seeing learning as something that occurs continuously through life rather than happening in discrete and unrelated chunks in various educational institutions may lead to a developmental model that encompasses the recursions discussed above. The aim of the proposed model is to map the stages through which an adolescent learner must travel in order to become a good digital citizen. With this proposed model, the study sets out the following vision for digital media literacy education in secondary schools in South Africa:

> In the secondary school of tomorrow, adolescent learners will be using digital media with confidence and innovatively to develop the critical-thinking skills, knowledge and competencies they need to achieve personal goals and become interactive participants in the digital society.

The long-term expectations of this study is that the Department of Education will consider how the Life Orientation curriculum can be expanded to recognise and incorporate digital media literacy, and that adolescent learners will have developed critical-thinking skills and shown ethical online behaviour by the time they leave school, and that teachers will be trained to be able to adapt their curriculum to new digital media literacy.

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. As explained in chapter 1, 1.2.2.2 the "digital divide" refers to the big difference between people who are able to access and use new media effectively and those who are not. This difference often runs along socio-economic lines, but those very same economic lines can also serve to reinforce them. The empirical study revealed a participation gap:

the less affluent families have less access to computers and the internet and are not able to use a computer effectively.

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.

7.3.2 Recommendations highlighted in this research

The recommendations highlighted in this research to support the effectiveness of the proposed model in secondary schools are the following:

- Digital media literacy education should be clearly anchored within the Life Orientation curriculum, syllabus, assessment, and everyday practice in secondary schools in order to become nationalised.

- An involved school principal is essential for sustainable integration and must drive progress and needs to be engaged in the teachers' practices.

- When integrating digital media literacy in the curriculum for secondary schools, it is important to have standards as guidelines to determine goals to be achieved. There should be objectives to each goal that are relevant to the type of learner that will be taught.

- Providing teachers with an opportunity to discuss digital media literacy issues may provide a constructive route to integrate digital media literacy into the school curriculum. While the findings in this study suggest challenges, they also point to possible strategies for change. The degree to which conceptions were revealed or shifted and (secondary school teachers') awareness changed during the discussion process suggests that dialogue may provide a constructive route to establishing immediate and longer term goals for the development of digital media literacy both in the school and outside the school walls.

- Current media literacy education creates a split between school and home spaces, but adolescents' digital technology practices flow across both. This should be acknowledged.

- Only the youngest of the current teachers have grown up in the digital world. The teacher as expert transmitter of knowledge does not apply any more, and this may be a challenge for older teachers. It would therefore be useful to study the practices of our youngest teachers, who may be "insiders" in the digital world. They need opportunities to work together to identify the appropriate pedagogical methods for teaching digital media literacy. Despite all the rhetoric, in South Africa, most school-based digital media literacy initiatives have been based on the efforts of a single school teacher. It must be realised that digital media literacy is not meant to be ephemeral, and that a long-term, continuous digital media literacy teaching approach based on sound pedagogy that is well integrated in the school curriculum will be more effective in ensuring that adolescent learners are equipped with critical-thinking skills.

- All teachers need more training on this issue, and to hold discussions about how to fit it into the Life Orientation curriculum. Teachers need to see the added value of digital media literacy before they will engage in more extensive and comprehensive approaches to integrating it into the existing curriculum. Digital media literacy training and methods of teaching it should therefore be incorporated into teacher training programmes. With regard to the current media literacy teachers, in-service training on digital media literacy and action learning is therefore vital.

- The Department of Education at provincial level as well as the district offices have to make it their task to train and support teachers to implement these programmes effectively. The researcher concluded that the teachers had inadequate understanding about the theoretical concepts of digital media literacy and/or how to incorporate the concepts into their teaching, noting that teacher beliefs are different to teacher knowledge.

- Several strategies across all school levels should be implemented to prevent learners from abusing the internet. These include:
  ‣ Educate parents.
  ‣ Set up a technology committee in the school.
  ‣ Build a class or school website.
  ‣ Organise an internet day or week at the school.
  ‣ Host an internet awareness workshop.
  ‣ Emphasise the importance of learners' participation in the social activities the school offers.
  ‣ Encourage learners to seek counselling when internet-triggered problems arise.

The above strategies crystallised from this study in the digital media literacy field within education at secondary school level. Through her involvement in innovative research, the researcher has witnessed that it is only when these measures are in place that digital media literacy competencies can be effectively imparted to adolescent learners. The attention of school principals, convening bodies, teachers, policy-makers and the Department of Education should be focused on ways and means to accomplish this task as soon as possible. When national policy makes changes to education there can be lag time between policy dissemination and teacher understanding and implementing the practice within the contexts of their classrooms and their schools. Applying complexity theory, the emerging knowledge about learning and teaching digital media literacy will emerge from the connections being made by the teachers and researchers (Starkey, 2008).

7.4   RECOMMENDATIONS FOR FURTHER STUDY

The richness of the study has come to the fore in the variety of possibilities that lie untapped. 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.

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Due to the wide scope of and various points of concern raised in this study, there are a number of recommendations for further research. In view of the fact that other South African secondary schools may be struggling with similar problems and finding that the affective domain of the developmental continuum for digital media literacy seriously needs to be addressed to help learners develop a sense of ethics and responsibility in their use of new media, the following recommendations are proposed:

- Launching similar studies in other South African secondary schools in order to build a national database and network whereby each can help the other to eliminate "re-inventing the wheel".

- Including learners other than Grade 9 learners in future studies in order to profile changing demographics.

- Further research on the impact of new media on adolescents from different cultural groups.

- Further research on the influence of specific types and applications of new media, such as cellphones and online gaming.

- Identifying what enables some adolescent learners to engage more readily with technology than others.

- Observational studies that explore how digital media literacy is used in everyday life.

- Research on the ways adolescent learners use new media for creative purposes, and what demands this creates for the digital media literacy curriculum.

- 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.

- Parents are looking to schools for guidance about ways in which to support their children in their use of new media that will have a positive effect on their behaviour and choices. This is a little-studied area that urgently requires in-depth research.

- Greater sharing of research findings between academic and industry researchers.

- Research on ethical difficulties, particularly concerning research using new media.

- To validate the constructivist approach to teaching digital media literacy concepts, in-depth research is needed to investigate the effectiveness of this strategy. Empirical research should also include a measure of learners' ability to use the knowledge to critical thinking. The results of such investigations will be very beneficial for teachers to help them select the most effective strategies based on sound evidence.

7.5   CONCLUSION

The world children grow up in today is increasingly multimodal due to ever new technologies. These technologies shape what it means to be literate in the 21st century as it continues to impact on how information is communicated and exchanged. This naturally determines the skills adolescent learners need – and raises the question whether the current media literacy curriculum for secondary schools recognises these all-important skills.

This study indicates that there is a digital literacy inequity between richer-poorer learners, which sit alongside the traditional literacy gap. Adolescent learners from more affluent homes attain productive stances on design and form technology-savvy identities to a greater degree than those from less affluent homes. If this problem does not receive urgent attention it will lead to a new gap in terms of the skills and identities tied to success in contemporary South Africa. Lankshear and Knobel (2008) and Gee (2007) agree with this finding in view of findings obtained on an international level.

The effective development of digital media literacy in secondary schools should be seen as a process of professional, interprofessional and curricular development as much as learner development. Williams and Wavell (2007) state that providing teachers with a model for the process of digital media literacy teaching may not be as helpful as allowing them to discuss, collaborate and form consensus about the subject at local (school) level.

One benefit of the model proposed in this study is that it acknowledges that sound digital media learning entails revisiting a concept repeatedly over a period of time in order for learners to learn and fully understand the concept of digital citizenship. The curriculum should therefore revisit basic ideas repeatedly and build on them. The teacher must act as a facilitator to guide and navigate the learner through a process that enables the learner to use critical thinking in the context of new media. The proposed model includes a dimension for learners to "move" with regard to digital media literacy skills – from novice to expert.

This study reminds us that digital media literacy is multidimensional. The nature and extent of the digital media literacy an individual needs and develops largely depend on the purposes they use new media for in the first place. Different social groups may also require different forms of digital media literacy, depending on their motivations for new media use. Teachers therefore need to guard against a reductive or mechanistic approach when assessing the levels of digital media literacy in adolescent learners.

Although this research study was conducted within the context of the South African society, it lays a foundation for research in other countries. Adolescents all over the world use new electronic media. It is imperative that they acquire the skills to safely and positively deal with what they encounter in the digital world. Unethical online behaviour, like cyberbullying in any form, is a harmful practice that can lead to emotional issues and psychological instability that could extend to the rest of their lives.

Levine and Cureton (1998) stated that the digital media generation is no better and no worse than any other generation, but, like every other generation before, is unique. Consequently, this generation requires a unique brand of education that will enable them

to realise their personal dreams and serve the society of which they form part. The media literacy education secondary schools offered in previous generations, whether successful or not, will not work for this generation of adolescents. They are different, as their times are different. Above all, today's adolescent learners are in need of a digital media literacy education that equips them with four crucial life skills: critical thinking, responsibility, an appreciation of differences, and efficacy.

Adolescents are young. They are at an age where they are grappling with who they are, experimenting with all sorts of identities, while dealing with intensified libidinal and aggressive drives. And cyberspace is the perfect place to give their whirlwind of emotions free rein. They do not fully understand the ramifications of some of their actions. The misperception of invisibility and lack of tangible feedback on the consequences of these actions negatively impact on their behaviour. Through healthy social norms and sound digital media literacy education, parents and teachers can greatly reduce the risks this realm poses and raise safe, healthy and responsible citizens of the digital as well as the real world.

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