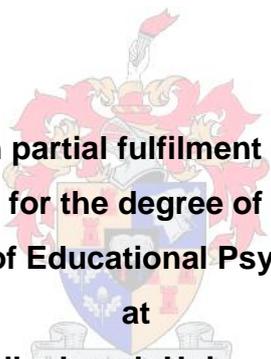


EXPLORING ADOLESCENTS' VIEWS OF THE IMPACT OF COMPUTER-MEDIATED COMMUNICATION (CMC) ON THEIR LIVES

Andrew Verrijdt

**Thesis presented in partial fulfilment of the requirements
for the degree of
Master of Educational Psychology
at
Stellenbosch University**

The image is the official crest of Stellenbosch University. It features a shield with a blue and white checkered pattern, a red and white striped section, and a central emblem. Above the shield is a red and white crest with a crown. The shield is supported by two figures, and there are two open books at the base.

**Study Leader: Charmaine Louw
Co-Study Leader: Lynette Collair**

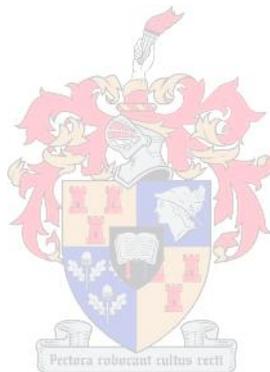
August 2009

DECLARATION

By submitting this thesis electronically, I declare that the work contained herein is my own, original work, that I am the owner of the copyright hereof (unless to the extent explicitly stated otherwise) and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

Signed:

Date:



ABSTRACT

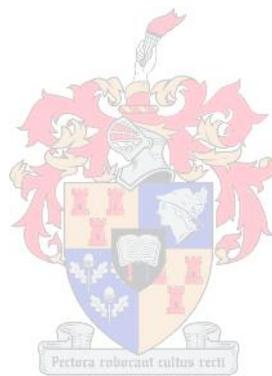
Computer-Mediated Communication (CMC) refers to any form of communication that can only be achieved through the use of a computer. This includes such diverse means as e-mail, MXit, Facebook, MySpace and Twitter. Many of these forms of communication have become extremely popular within the past few years. Research internationally has shown that adolescents rapidly adopt new technologies, but there is very little research on how this process is impacting South African adolescents. This leaves parents, educators and academics without adequate information about the advantages and dangers of adolescent CMC use.

The aim of the study was to investigate the views of adolescents around the topic of CMC. The central research question related to adolescents' views of the impact of CMC on their lives. Sub questions related to the reasons behind the popularity of CMC, the advantages of CMC use, the effect of CMC use on language, schoolwork and relationships, the dangers of using CMC and the use of CMC for bullying.

The study was of qualitative design and was guided by a constructivist theoretical framework. A qualitative design was chosen because it was felt that qualitative methodology is most suited to investigating the subjective experiences of participants, and thus answering the research questions. Two focus groups participated and three semi-structured interviews were conducted with grade 11 learners from a Cape Town private school. Focus groups were used because this was felt to be an effective means to gather the opinions of multiple participants at once. Individual interviews were used as a means to supplement the focus groups and thus increase the trustworthiness of the study. A semi-structured approach was chosen for the interviews because this allowed the researcher to probe specific areas of interest and thus gather further data on these areas. The focus groups and interviews were audio recorded and the recordings transcribed. Content analysis was performed on the transcriptions. After several rounds of coding, the codes that occurred most often within and across the focus groups and interviews formed the basis for thematic analysis.

Several central themes around CMC use emerged from this analysis. The most central of these related to the importance the participants placed on ease of use, and the speed at which CMC can satisfy their desires. Further issues related to how CMC can have both positive and negative effects on relationships and the various dangers of CMC use. Something that recurred throughout the analysis was the idea that a CMC can, in a sense, form a semi-permeable barrier between users. These barriers allow a user to control their

communications with others, typically allowing users to express whatever they wish to express while restricting possible negative effects of their communication. A model of adolescent CMC use was created that was based on these findings.



OPSOMMING

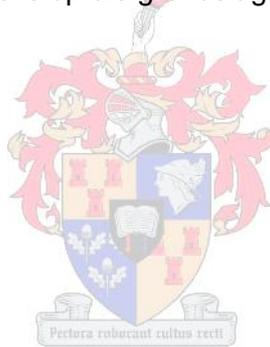
Rekenaar-bemiddelde kommunikasie (*Computer-Mediated Communication of CMC*) verwys na enige vorm van kommunikasie wat slegs met behulp van rekenaargebruik kan plaasvind. Dit omvat 'n verskeidenheid metodes soos e-pos, MXit, Facebook, MySpace en Twitter. Vele sulke kommunikasiemiddele het oor die afgelope aantal jare uiters gewild geraak. Navorsing op internasionale vlak het getoon dat nuwe tegnologie snel deur adolessente aangeneem word, maar weinig navorsing is nog onderneem oor hoedanige impak hierdie proses op Suid-Afrikaanse adolessente het. Dit beteken dat ouers, opvoeders en akademici onvoldoende inligting oor die voordele en gevare van adolessente se gebruik van rekenaar-bemiddelde kommunikasie het.

Die doel van die studie was om die uitkyk van adolessente in verband met die gebruik van rekenaar-bemiddelde kommunikasie te ondersoek. Die sentrale navorsingsvraagstuk het verband gehou met adolessente se opinies oor die impak van rekenaar-bemiddelde kommunikasie op hul lewens. Ondergeskikte vrae het verband gehou met redes vir die gewildheid van rekenaar-bemiddelde kommunikasie, die voordele van die gebruik daarvan, die effek van rekenaar-bemiddelde kommunikasie op taalgebruik, skoolwerk en verhoudings, die gevare van die gebruik van rekenaar-bemiddelde kommunikasie en die gebruik daarvan om ander te treiter.

Die studie het van 'n kwalitatiewe ontwerp gebruik gemaak en het binne 'n konstruktivistiese teoretiese raamwerk plaasgevind. Die kwalitatiewe ontwerp is gekies omdat die kwalitatiewe metodologie as die mees geskikte metodologie vir die ondersoek van subjektiewe ervarings van deelnemers, en dus vir die beantwoording van die navorsingsvrae, beskou is. Twee fokusgroepe het aan die ondersoek deelgeneem en drie semigestruktureerde onderhoude is met graad 11 leerders van 'n private skool in Kaapstad gevoer. Fokusgroepe is gebruik omdat dit as 'n doeltreffende metode vir die onmiddellike verkryging van die menings van 'n verskeidenheid deelnemers beskou is. Individuele onderhoude is gevoer om die fokusgroepe aan te vul en die betroubaarheid van die studie te verhoog. 'n Semigestruktureerde benadering is vir die onderhoude gekies omdat dit die navorser in staat gestel het om areas van spesifieke belang meer deurdringend te ondersoek en daardeur verdere inligting oor hierdie areas in te samel. Die fokusgroepe en onderhoude is op band opgeneem en die opnames is getranskribeer. Inhoudsontleding van die transkripsies is uitgevoer. Na verskeie rondtes kodering, is die kodes wat met die grootste reëlmaat binne

en oor die fokusgroepe en onderhoude heen voorgekom het, as basis vir tematiese ontleding gebruik.

Verskeie sentrale temas rondom die gebruik van rekenaar-bemiddelde kommunikasie het uit hierdie ontleding na vore gekom. Die mees sentrale hiervan het verband gehou met die belangrikheid van gebruiksgemak vir deelnemers en die snelheid waarmee rekenaar-bemiddelde kommunikasie verlangens tevrede stel. Verdere kwessies het verband gehou met hoe rekenaar-bemiddelde kommunikasie 'n positiewe sowel as 'n negatiewe effek op verhoudings kan hê en met die onderskeie gevare van die gebruik van rekenaar-bemiddelde kommunikasie. 'n Idee wat by herhaling gedurende die ontleding na vore getree het, was dat rekenaar-bemiddelde kommunikasie op 'n manier 'n semi-deurdringbare versperring tussen gebruikers daarvan vorm. Hierdie versperring laat die gebruiker toe om beheer oor kommunikasie met ander uit te oefen; dit laat tipies toe dat gebruikers uitdrukking gee aan enigiets wat hulle wil oordra terwyl dit terselfdertyd moontlik is om 'n moontlike negatiewe uitwerking van die kommunikasie te bekamp. 'n Model van adolessente se gebruik van rekenaar-bemiddelde kommunikasie is op die grondslag van hierdie bevindings geskep.



ACKNOWLEDGEMENTS

I would like to thank the following people for contributing to the completion of my thesis:

My supervisors Charmaine Louw and Lynette Collair for their advice, guidance and patience.

My internship supervisor Gerhard Duraan for his mentoring and calm words.

My editors Hester Honey and Connie Park, for correcting that vast number of errors that I somehow missed, and for traversing the wilderness of APA formatting so that I did not have to.

The pupils and teachers who took part in the study, or assisted me in gathering my data. You know who you are.

Lastly to my wonderful girlfriend Christine for the bottomless well of caring and support without which I would never have finished this document.



TABLE OF CONTENTS

CHAPTER ONE

CONTEXTUALISATION, BACKGROUND AND RELEVANCE	1
1.1 INTRODUCTION	1
1.2 BACKGROUND AND CONTEXT	1
1.3 RESEARCH PROBLEM AND AIMS	2
1.4 RESEARCH QUESTIONS	3
1.5 RESEARCH PARADIGM	4
1.6 RESEARCH DESIGN	4
1.7 RESEARCH METHODOLOGY	5
1.7.1 Selection of Participants and Selection Criteria	5
1.7.2 Data Collection Instruments	5
1.7.3 Data Collection Methods	6
1.7.4 Data Analysis	6
1.7.5 Data Verification	6
1.8 ETHICAL CONCERNS	7
1.9 KEY TERMS	7
1.9.1 Computer-Mediated Communication (CMC)	8
1.9.2 Subtypes of CMC	8
1.9.2.1 <i>4chan</i>	9
1.9.2.2 <i>E-Mail</i>	9
1.9.2.3 <i>Instant Messaging (IM)</i>	9
1.9.2.4 <i>Internet Relay Chat (IRC)</i>	9
1.9.2.5 <i>MXit</i>	10
1.9.2.6 <i>Short Messaging Service (SMS) and Multimedia Messaging Service (MMS)</i>	10
1.9.2.7 <i>Social Networking Sites</i>	10
1.9.2.8 <i>Twitter</i>	10
1.9.2.9 <i>Voice Over Internet Protocol (VOIP) and Skype</i>	10
1.9.2.10 <i>Web Log (Blog)</i>	11
1.9.2.11 <i>YouTube</i>	11
1.9.3 Emoticons	11
1.9.4 Trolling	11
1.9.5 Conclusion	11
1.10 OVERVIEW OF CHAPTERS	12

CHAPTER TWO

LITERATURE REVIEW 13

2.1	INTRODUCTION	13
2.2	ADOLESCENCE.....	14
2.2.1	Biological Development	14
2.2.3	Cognitive Development.....	17
2.2.4	Social Changes.....	18
2.2.5	Conclusion.....	21
2.3	COMPUTER-MEDIATED COMMUNICATION	21
2.3.1	The Many Uses of Computer-Mediated Communication	21
2.3.2	The Educational and Social Impact of CMC.....	23
2.3.3	The Advantages of CMC use	25
2.3.4	The Dangers of CMC use	28
2.3.5	Conclusion.....	31
2.4.1	Adolescence and CMC	31
2.4.2	Conclusion.....	33
2.5	CONCLUSION.....	34

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY 35

3.1	INTRODUCTION	35
3.2	RESEARCH QUESTIONS.....	35
3.3	RESEARCH PARADIGM AND RESEARCH DESIGN	36
3.3.1	Research Paradigm	36
3.3.2	Research Design	38
3.4	RESEARCH METHODOLOGY.....	38
3.4.1	Selection of Participants and Selection Criteria.....	38
3.4.2	Research Context	39
3.4.3	Data Production Techniques.....	40
3.4.3.1	<i>Interview Schedule</i>	40
3.4.3.2	<i>Interviews</i>	41
3.4.3.3	<i>Focus Groups</i>	41
3.4.3.4	<i>The Semi-Structured Approach</i>	42
3.4.4	Data Analysis.....	42
3.4.4.1	<i>Content Analysis</i>	43
3.4.5	Data Verification	45
3.4.5.1	<i>Credibility</i>	45

3.4.5.2	<i>Transferability</i>	45
3.4.5.3	<i>Dependability</i>	46
3.4.5.4	<i>Confirmability</i>	46
3.4.6	Ethical Considerations	47
3.5	SUMMARY	49

CHAPTER FOUR

PRESENTATION OF FINDINGS 50

4.1	INTRODUCTION	50
4.2	PARTICIPANTS, SETTING AND PROCEDURE	50
4.3	PRESENTATION OF THEMES	51
4.3.1	Ease of CMC Use	51
4.3.1.1	<i>The Effect of Ease of Use on Popularity</i>	52
4.3.1.2	<i>Ease of Use and Relationships</i>	52
4.3.1.3	<i>Ease of Use and Language</i>	53
4.3.2	The Immediacy Effect of CMC Use	55
4.3.3	The Role of CMC use in Relationships.....	56
4.3.4	CMC as a Barrier	60
4.3.4.1	<i>Using a Barrier to Overcome Shyness</i>	61
4.3.4.2	<i>CMC Barrier and Clarity of Communication</i>	61
4.3.4.3	<i>Using a CMC to Lie or Hurt</i>	62
4.3.4	The CMC Barrier as an Aid to Free Expression	64
4.3.5	Dangers	64
4.3.5.1	<i>CMC Dangers in the Real World</i>	64
4.3.5.2	<i>The Danger of Harassment</i>	65
4.3.5.3	<i>The Danger of Viruses</i>	66
4.3.5.4	<i>The Very Different Danger of Addiction</i>	66
4.4	CONCLUSION.....	69

CHAPTER FIVE

DISCUSSION OF STUDY 71

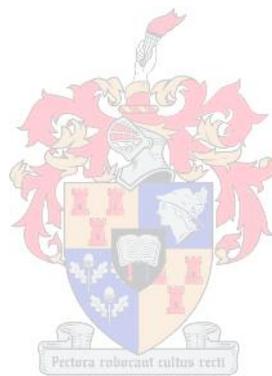
5.1	INTRODUCTION	71
5.2	DISCUSSION	71
5.3	STRENGTHS AND WEAKNESSES OF THE STUDY.....	78
5.4	RECOMMENDATIONS.....	79
5.5	REFLECTION	80
5.6	CONCLUSION.....	81

REFERENCES..... 83

Addendum A: Transcript Example..... 101

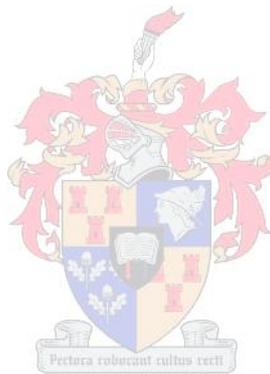
Addendum B: Coding Example 105

Addendum C: Ethical Clearance Form 111



LIST OF FIGURES

FIGURE 5.1: A Model of Adolescent CMC Use..... 75



CHAPTER ONE

CONTEXTUALISATION, BACKGROUND AND RELEVANCE

1.1 INTRODUCTION

The speed with which technology is advancing is astonishing. As recently as 2000 most South Africans did not even own a cell phone. But in the last nine years things have changed dramatically. These days it is unusual to find someone who does not own a cell phone and the use of other forms of technology has also increased greatly (Bosch, 2008). According to Czerniewicz (2004), there were roughly three million internet users in South Africa in 2002. More recent reports from Nation Master ("Internet Statistics", n.d.) indicate that this number had almost doubled to five million by 2007. This is merely one illustration of the speed at which technology is evolving, in South Africa, as well as globally.

These changes in technology bring with them many new forms of communication. These include Instant Messaging (IM), Short Message Service (SMS), Internet Relay Chat (IRC), MXit, e-mail, and the Internet, to name just a few. All of these new technologies can be placed under the same broad heading of Computer-Mediated Communication (CMC). These terms will be more fully explained in section 1.9. Research has shown that CMC usage can have a serious impact on a number of different areas of an individual's life, including relationships, language, education and many others (Adams, 2008; Isabella, 2007; Carrington, 2005). Some of these effects will be discussed in the next section.

1.2 BACKGROUND AND CONTEXT

There is very little research on how CMC is being used in South Africa, but, if our country follows international trends, it will be adolescents who lead the way (Lenhart, Lewis & Rainie, 2001). The ways in which adolescents use the Internet may sometimes bewilder adults. For example, one invention that has recently achieved great popularity is the 'web log' or 'blog'. This is basically a diary that is posted on the Internet so that others can see what you have been doing. It is a way for people to express opinions, and keep in touch with acquaintances all over the world. Blogs are a fairly recent invention and few adults maintain them (Pedersen & Macafee, 2007). But in the United States as many as 40% of all adolescents have their own blogs, and 80% state that they visit other people's blogs on a regular basis

(Brody, 2006). This is one piece of evidence that suggests that adolescents may be more comfortable with new technology than adults.

There is a global body of research that suggests that there are multiple ways in which CMC can affect its users. Larissa Hjorth found that female cell phone owners in Australia used their phones to “manage the display of their own identity” (Hjorth, 2003:29). Cortini, Mininni and Manuti (2004) claim that these new forms of communication are leading to the creation of relationships and social groupings that exist entirely in a virtual world. They further suggest that some individuals regard these new relationships and social groupings as just as important as interactions that take place in person. Such virtual relationships can sometimes even take the place of lost relationships in the real world. As Thatcher and Goolam (2005) put it: “people who are socially dysfunctional in face-to-face interactions may replace this with online interactions” (p. 767).

Another way in which CMC affects people’s relationships is discussed by Michael Brody (2006). He comments on how adolescents who are attending the same party may prefer to SMS each other, rather than speak to each other. This suggests that some CMC may not simply be augmenting traditional forms of communication; it may be replacing them entirely. This trend can also be seen in South Africa where adolescents meet people, flirt and even begin dating, entirely via MXit (Bosch, 2008).

It seems almost unnecessary to say that South Africa is different to the industrialised nations, and one of the largest differences, with regard to CMC, is the gap between our level of infrastructure and theirs. The disparity in technology between the developed world and our developing nation is quite elegantly expressed by Laura Czerniewicz (2004), who points out that “most middle-class US homes have more bandwidth than the entire UCT campus!” (p. 147). Comparisons like these are important because, in order to understand the effects of CMC in the South African context, one must be aware of the similarities and differences between South Africa and other countries. Unfortunately, accurate statistics on how our country’s infrastructure is developing are very difficult to come by (Czerniewicz, 2004). Research on how new forms of communication are affecting the South African population, particularly South African adolescents, is also difficult to find. But this lack of information allows us to say with certainty that more research is needed.

1.3 RESEARCH PROBLEM AND AIMS

Global research suggests that CMC effects may be wide-ranging and ongoing (De Gennaro, 2008; Juvonen & Gross, 2008), but very little research has been performed to investigate

these possibilities in South Africa. This study attempts to play a part in resolving this problem by exploring adolescents' views about CMC.

As was mentioned in section 1.2, research suggests that adolescents often lead the way in the acquisition and use of new communication technologies. If this is the case, the question must be asked: How are these new technologies impacting on these adolescents? The perception in the media and general public seems to be primarily negative. Prominent local politician Patricia De Lille has been quoted as saying that MXit is destroying marriages and providing sexual predators with access to unprotected children (Wolmarans, 2007). The South African Film and Publications Board also has a dim view of CMC. Their representative, Lyavar Chetty, has said that "these social networking groups are also breeding grounds for paedophiles and molesters" (Sokopo, 2008, para. 10).

There are negative views about CMC in other countries as well. Some fear that overuse of CMC may be one of the factors leading to the rise of obesity in many countries (Brody, 2006). There are also worries that CMC is damaging users' education (Adams, 2007). CMC, particularly IM and SMS, is typically characterised by a relaxed, informal writing style. This has led teachers and parents to worry that CMC is weakening its users' ability to learn writing conventions that they will need later in life (Baron, 2005). Many academics disagree with this view, and see the norms of CMC communication as merely another expression of language (Carrington, 2005). In light of the various debates, and the paucity of research specific to South Africa, it seems that more research on the opinions of South African adolescents about CMC could be very valuable.

The aim of the study was to gain a broad view of adolescent CMC use, and to explore diverse issues, including the effect of CMC on relationships, patterns of adolescent CMC use, the impact of CMC on language and the nature of bullying by means of CMC. The expectation was that this would lead to a thorough debate on all the issues relating to CMC. It was hoped that this study would contribute to a greater understanding of the effects of CMC and the patterns of CMC use among South African adolescents.

1.4 RESEARCH QUESTIONS

This study was intended to explore the views around CMC that are held by grade 11 learners, of middle to high socio-economic status (SES) who are attending a private school in Cape Town. The primary research question was formulated as follows:

“What views do adolescents hold about the impact of Computer-Mediated Communication on their lives?”

Several sub questions were included as well:

- Which CMC do the participants use?
- What uses does CMC have?
- What effect does CMC use have on language?
- Is CMC having an effect on school work?
- How are relationships being changed by CMC?
- What are the dangers of CMC use?
- What is the nature of bullying by means of CMC?
- Why is CMC so popular?

1.5 RESEARCH PARADIGM

According to Mouton (2008), the paradigm is central to research design. The paradigm directs the study and guides the researcher's approach in order to better answer the research questions. This study was conducted within a constructivist paradigm. The theory holds that people are actively involved in constructing their knowledge and that such knowledge is always constructed within a particular social and cultural context (Weber, 2004). Thus, knowledge is dependent on the context in which it is constructed and the primary focus of any research must be the interpretations of reality that are held by individuals in that context (Williamson, 2006). In other words, constructivist research is about exploring the subjective understandings of reality expressed by individuals (Cohen & Crabtree, 2008). This research paradigm will be elaborated on in section 3.3.1.

1.6 RESEARCH DESIGN

A research design describes the connection between one's paradigm, one's research methodology and one's methods of collecting data (Corbin & Strauss, 2008). This study uses a basic qualitative research design. The qualitative approach was selected for the study because it allows participants the freedom to express the uniqueness of their own

experience (Britten, 2005). For this research, qualitative methodology thus was most appropriate.

1.7 RESEARCH METHODOLOGY

O'Leary (2004) states that it is important to draw a distinction between research paradigm, research design, research methodology and research tools. 'Paradigm' refers to the theoretical assumptions that guide the research process as a whole. 'Design' refers to the plan of how the research is to be completed. 'Methodology' refers to the particular procedures used by the researcher to gather the data, and 'research tools', lastly, are the specific data gathering instruments that are used in the study. This section serves as a brief overview of the research methodology used in the study. All the issues discussed below are dealt with in greater detail in section 3.4.

1.7.1 Selection of Participants and Selection Criteria

The research participants were purposefully sampled learners from a private school in Cape Town. Purposeful sampling was used to ensure that certain criteria were fulfilled. The first of these was that the participants must be in grade eleven. Grade eleven learners were sought as participants because it was felt that they, as older students, were more likely to be able to clearly express their ideas (Marcovitch & Zelazo, 2009). A second selection criterion was that the participants had to be identifiable as frequent users of CMC. The school assisted with the research by informing the students of the nature of the research prior to the commencement of the project. This assisted the researcher because the learners were already aware that volunteers were needed before they were asked to take part.

1.7.2 Data Collection Instruments

All data was gathered using an interview schedule formulated by the researcher and informed by the research question and an examination of the literature. After a review process, the schedule was piloted by performing one semi-structured interview with a volunteer grade eleven learner who was a frequent CMC user. This pilot study indicated that the schedule was easy for the participants to understand and that it provided rich answers to the research questions. Thus, it was decided that the schedule was an adequate basis for research.

1.7.3 Data Collection Methods

This research study took the form of two focus group discussions, one with four learners and one with five learners. A second round of data gathering made use of three, semi-structured, individual interviews. Focus group discussions were chosen as the primary method of data collection because they are a valuable way of gathering information from a group of participants simultaneously (Hancock, 2002). Focus groups allow a researcher to examine a phenomenon by using the words and phrases of people closely related to that phenomenon, and to generate more responses from a group than one could ever get from the individual participants (Puchta & Potter, 2004).

Interviewing is one of the most commonly used qualitative techniques because “interviewing allows us to put behaviour in context and provides access to understanding action” (Seidman in Dille, 2004:128). Interviews give researchers the means to directly access the experiences of their participants, and, by providing encouragement and interest, elicit responses that are far richer than those of a less personal approach. Semi-structured interviews have the advantage of being as task-oriented as structured interviews and as adaptable as unstructured interviews (DiCicco-Bloom & Crabtree, 2006).

1.7.4 Data Analysis

The method of data analysis used in this study was content analysis. The first stage of the analysis process comprised the transcription of the audio recordings taken during the focus group discussions and interviews. These transcripts were then coded, using the NVivo 7 software for qualitative research. The software is designed to facilitate both a smoother and a more in-depth coding process (Basit, 2003). Coding provides researchers with a method for organising transcripts and deriving meaning from them (Hancock, 2002). Once coding has been completed, thematic analysis is used, both as a means of describing a text and as a way of investigating the underlying processes behind responses (Silverman, 2005). In this study, thematic analysis was used firstly to describe the trends in the text and then to draw those trends together into a rich description of adolescent CMC use.

1.7.5 Data Verification

In qualitative research, the various approaches used to improve the quality of a study are broadly placed under the heading of ‘trustworthiness’ (Given & Saumure, 2008). Trustworthiness, in turn, is made up of four other issues: credibility, transferability, dependability and confirmability.

Credibility is the degree to which a study has accurately depicted the phenomenon being investigated (Jensen, 2008). Triangulation has become one of the most commonly used methods of increasing the credibility of qualitative studies (Flick, 2004). Triangulation refers to the process of increasing the validity of research through the use of multiple methods of data gathering or analysis (Puchta & Potter, 2004). The second aspect of trustworthiness is transferability, which is the degree to which the context of a study has been described so that other researchers may know the extent to which the study can be applied to other contexts (Given & Saumure, 2008). Thirdly, there is dependability, which can broadly be described as the degree to which different researchers, when working on similar projects, will arrive at similar conclusions (Davies & Dodd, 2002). Lastly, there is confirmability, which is the degree to which the conclusions arrived at in a study are based upon the actual data that were obtained (Jensen, 2008). The ways in which each of these issues has been dealt with in the study will be discussed in depth in section 3.4.5.

1.8 ETHICAL CONCERNS

All research must operate within clear ethical guidelines because this protects both the participants and the researchers (Cohen & Crabtree, 2008). A number of important principles have to be observed in order for research to be ethical. Firstly, the participants' right to make decisions for themselves must be respected and they must be provided with sufficient information to offer informed consent (Preissle, 2008). This includes information about the nature of the study itself, the participants' rights and other relevant issues. In this study all participants were fully informed about the nature of the study and their rights.

Secondly, any potential risks from the research must be recognised and reduced. This includes the protection of the participants' physical and emotional wellbeing, their rights and their confidential information (DiCicco-Bloom & Crabtree, 2008). To ensure that the chance of unintended consequences was reduced, clearance for the research was sought from the Ethical Committee of the Division of Research Development of Stellenbosch University. Organisations such as these are able to offer a professional perspective on the possible risks of the research to the participants (Hennink, 2007). Ethical clearance was obtained and the study was given the clearance number 180/2009. A copy of the clearance form is included as Addendum C.

1.9 KEY TERMS

New technologies are emerging at such a speed that it is difficult to keep abreast of them. This section seeks to describe and explain what CMC is, what some of the more popular

forms of CMC are, and also to explain some of the jargon that was used by the participants in the study.

1.9.1 Computer-Mediated Communication (CMC)

According to Kahn and Brookshire (1991), the term “computer-mediated communication” initially meant only the methods of conveying messages between two computers, over a computer network. However, the term has recently been broadened to include e-mail, SMS, video conferencing via the Internet, discussion forums, instant messaging and, in fact, the Internet itself (Abbasi & Chen, 2008).

With technology changing so rapidly, it is little wonder that no generally accepted definition of CMC seems to exist. In fact, not even the Journal of Computer Mediated Communication has a standard definition. They have extended their mandate to involve all forms of technology that involve human communication, including Facebook, online support groups, Internet journals, newsgroups, cell phones, blogs, Wikipedia, YouTube and many others (“About JCMC”, N.D.). But for the purposes of this study, CMC can be defined as:

“Any form of communication that can *only* be achieved through the use of a computer.”

This definition may at first appear simplistic, but it covers several important issues. For example, the definition does not include telephone calls because these do not require a computer. But it does include services like Skype, which allow one to make telephone calls via an internet connection. Likewise, the definition includes e-mail, blogs and the SMS, but not letters, diaries or personal notes (Ehsan, Mirza & Ahmad, 2008). It should also be noted that, for the purposes of this definition, cell phones and their various applications, including MXit, fall under the heading of CMC (Bosch, 2008).

1.9.2 Subtypes of CMC

There are many different types of CMC and it is impractical to attempt to describe them all here. Instead, this section is intended as a brief explanation of the most popular forms of CMC, as well as those less popular forms that happened to be featured in this research. CMC can broadly be separated into two sections: synchronous and asynchronous. Synchronous CMC allows users to communicate in real-time, as if they were having a conversation. Asynchronous CMC break the communication up and allow the user to reply to a message when it best suits them (Abassi & Chen, 2008).

1.9.2.1 4chan

4chan is a highly controversial website where images can be posted, and commented on, by users. 4chan has few rules and most users remain thoroughly anonymous. This is one of the reasons why 4chan has become both popular and controversial. It is controversial due to the large quantities of offensive and hostile content on the site. But, it is popular because the sheer volume of content moving through the site creates a sort of popularity-based evolution. This leads to the most popular images migrating from 4chan to the rest of the Internet. 4chan has been identified as the site that began the trend of humorous animal-related pictures known collectively as 'lolcats' and a number of other popular Internet fads ('4chan', 2009; Schwartz, 2008).

1.9.2.2 E-Mail

E-mail (or 'email') is possibly the most widely used form of CMC. It is a way of sending messages of almost any length over the Internet to receivers whose e-mail addresses are known to the sender. E-mails can also carry attachments. These can be any type of computer file, but the most commonly used are documents, images, audio files and video files. E-mail is an example of an asynchronous CMC because messages that are sent are responded to at the participants' leisure (Abassi & Chen, 2008)

1.9.2.3 Instant Messaging (IM)

'Instant messaging' refers to any one of a number of programs that allow one to send and receive messages via the Internet. It is an example of a synchronous CMC because it is designed to allow users to respond immediately to each other's messages, as if they were having a conversation (Subrahmanyam & Greenfield, 2008). Some popular IM applications are Windows Live Messenger, Yahoo! Messenger, Google Talk, and Facebook Chat.

1.9.2.4 Internet Relay Chat (IRC)

IRC refers to one of the oldest forms of CMC, one that is used almost exclusively for text-based chatting. IRC consists of a number of online 'channels'. These essentially are virtual rooms where users can post messages and read the messages of others. IRC has existed since 1988 and since then has grown steadily in popularity. As of May 2009, the 100 most popular IRC networks were serving five hundred thousand users at any point in time ('Internet Relay Chat', 2009).

1.9.2.5 MXit

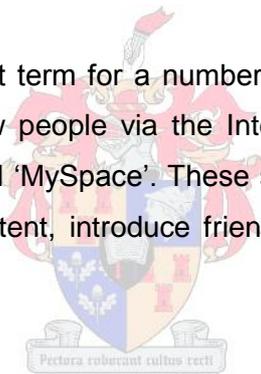
One uniquely South African form of CMC is MXit. MXit comprises software that allows one to send SMSs via the basic internet connection possessed by most cell phones. MXit has achieved great popularity in South Africa because the messages that are sent can cost as little as a few cents (Bosch, 2008).

1.9.2.6 Short Messaging Service (SMS) and Multimedia Messaging Service (MMS)

SMS is a cell phone application that allows one to send short messages to a receiver's cell phone. It has become highly popular the world over because it is easy to use, relatively cheap and avoids some of the annoying characteristics of cell phone calls. MMS is merely an SMS with additional media content, such as pictures or videos, attached (Underhill et al., 2001).

1.9.2.7 Social Networking Sites

"Social networking site" is a blanket term for a number of websites that allow members to contact and communicate with new people via the Internet. The two most popular social networking sites are 'Facebook' and 'MySpace'. These sites allow users to chat, send each other pictures, videos or other content, introduce friends to one another and many other activities (Rapacki, 2007).



1.9.2.8 Twitter

Twitter is what is known as a 'micro-blogging application'. It allows one to make a small statement, no more than a few dozen words, about what one is doing right at that moment. This message is then displayed to those of one's friends and contacts who are also members of Twitter. These friends can then comment on what you have said, and thus a dialogue develops. Compared to Facebook and other sites, Twitter is highly limited, but its ease of use and the fact that it functions well on cell phones have made it highly popular (Grossman, 2009).

1.9.2.9 Voice Over Internet Protocol (VOIP) and Skype

Put quite simply, 'VOIP' is a method of making telephone calls over the Internet. In South Africa, one of the methods for doing so is via a program called 'Skype'. This method of making calls has the advantage of having very low costs compared to regular phone calls. In

fact, a user can make a call to anywhere in the world using VOIP and it will cost them the same amount as a local call, or even less (Farrell, 2009)

1.9.2.10 Web Log (Blog)

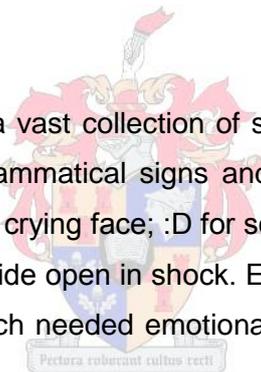
A blog is a personalised website on which a user posts their thoughts. Blogs began as a way for individuals to keep friends and family informed about their lives. They have since evolved into an important form of amateur journalism (Mullen & Wedwick, 2008).

1.9.2.11 YouTube

YouTube is a popular website that allows for the online posting of short video clips. It also allows users to comment on the videos posted by other users. It is one of the most popular sites on the Internet and has led to the brief fame of a number of individuals whose videos have become popular because of exposure on the site (Subrahmanyam & Greenfield, 2008).

1.9.3 Emoticons

'Emoticon' is an umbrella term for a vast collection of simulated facial expressions created through combinations of letters, grammatical signs and other symbols. Popular examples include :-) for a smiling face; :(for a crying face; :D for someone laughing out loud, and even O_O for someone who's eyes are wide open in shock. Emoticons are not a form of CMC but they provide many CMC with a much needed emotional context (Cortini, Mininni & Manuti, 2004).



1.9.4 Trolling

'Trolling' refers to the act of intentionally disrupting an online communication through the interjection of offensive, irrelevant, aggressive, insulting or otherwise inflammatory comments, with the deliberate aim of garnering attention from other users. Certain areas of the Internet are infamous for the amount of trolling that occurs there. 4chan is one example. Severe trolling can cause emotional harm, and has even been linked to certain cases of suicide (Calcanis, 2009).

1.9.5 Conclusion

Most of the CMC methods discussed above did not exist ten years ago and many of them have only become popular within the last five years. This makes remaining on top of

advances in communication technology very difficult, and predicting how these changes will affect people almost impossible.

1.10 OVERVIEW OF CHAPTERS

This thesis is set out as follows:

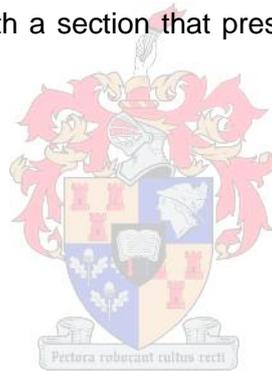
Chapter 1 serves as a broad introduction to the thesis.

Chapter 2 provides a review of the available literature on the topic of Computer-Mediated Communication and adolescence.

Chapter 3 presents a detailed discussion of the paradigm, research design, research methodology and research tools used during the study.

Chapter 4 contains a presentation of the findings of the research.

Chapter 5 concludes the thesis with a section that presents a discussion of the findings of the study.



CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter serves as a review of the relevant, most recent literature around the topics of CMC and adolescence. A literature review is an important part of any research project for a number of reasons. Firstly, a researcher must ensure that he or she does not merely replicate a previous study. While all research is built upon prior research it is important to be aware of similar research in one's field. One cannot merely replicate a prior study and claim that it is original research. Furthermore, all new research should be guided by prior research, so it is vital to familiarise oneself with the most current research in one's field. This assists the researcher by providing information of what instruments and methods have proven effective in the past and what definitions of key concepts are most widely accepted. Lastly, a review of the literature enables researchers to develop theoretical frameworks to inform and guide their own studies (Mouton, 2008).

This literature review attempts to investigate the state of research on various topics dealt with in the research study. As the goal of the study was to investigate the effects of CMC on adolescents, the literature review focuses on these two broad topics: Adolescence and CMC. The chapter begins with a section devoted to exploring the dynamics of adolescence; the aspects that make it an important stage of development biologically, psychologically, socially and cognitively. This section of the review is intended to provide a theoretical lens through which to understand adolescence, and to explore current trends in the research of adolescence itself.

The second section of the review presents an analysis of the literature around CMC. Four themes have been identified as being of key importance to the study. These themes involve the many uses of CMC, the educational and social impact of CMC, the advantages of CMC use and the dangers of CMC use. A third and final section will explore the impact that CMC is having on adolescents specifically and how being an adolescent can affect how one uses CMC.

2.2 ADOLESCENCE

Adolescence is often regarded as a turbulent period in an individual's life, a time during which hormonal changes trigger mood swings; the drive for independence fosters rebellion against parents and other figures of authority; and the need to experience life leads many to engage in risky, or even life-threatening behaviours (Patton et al., 2004). Many of these commonly held ideas appear to be supported by empirical research. Adolescence is indeed a period of rapid change. Rapid physical growth occurs (Lerner & Steinberg, 2004); the secondary sexual characteristics develop (Mantell et al., 2006); cognitive development enters its final stages (Shaw et al., 2006); body images are solidified (Halpern, King, Oslak & Udry, 2005); and social relationships with parents, peers and prospective sexual partners all experience development as well (Daddis, 2008; Hair, Moore, Garrett, Ling & Cleveland, 2008). These changes impact on adolescents biologically, cognitively, socially and psychologically, making adolescence a very difficult time for many children, their teachers and their parents (Christiansen, Copeland & Stapert, 2008).

This section is intended as an exploration of the current state of research on the nature of adolescence and an explanation of the theoretical basis for adolescence as used in this research.

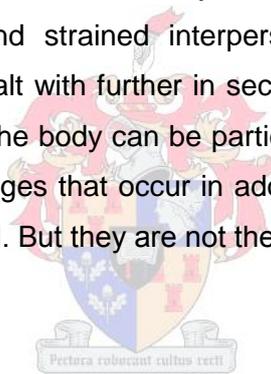
2.2.1 Biological Development

The changes that occur during adolescence are well known and well researched. In contrast the definition of what precise time period adolescence is made up of is far from easy to quantify. In general, adolescence is regarded as being a period that begins with the onset of puberty and ends with the legal definition of 'adulthood' (Omatseye, 2007). In South Africa 'adulthood' legally begins at 18 years of age, but that definition varies from country to country (Alstein & Simon, 2008).

Adolescence begins with the onset of puberty. However, there is a growing body of research that suggests that the age of the onset of puberty is growing progressively younger (Marvan, Vacio & Espinosa-Hernandez, 2002). In fact, it is not uncommon nowadays for girls to experience menarche as early as 10 years of age, and relatively rare cases of even younger onsets have also been recorded (Sherar, Baxter-Jones & Mirwald, 2007). Thus adolescence remains a time period that is difficult to pin down, with an uncertain start at one end and a purely abstract, legal definition at the other.

Puberty, both in boys and girls, is most visibly associated with the development of the primary and secondary sexual characteristics. These include an increase in bodily hair, alteration in the prominence and structure of the genitals and the development of breasts in girls and facial hair in boys (Lerner & Steinberg, 2004). But puberty leads to massive changes in other systems of the body as well. The circulatory and respiratory systems mature, as do the internal organs. One's height increases and one's bones enter epiphyses, the final stage of their development (Clarke-Stewart & Friedman, 1987). These changes are triggered by the release of pubertal hormones. The link between hormonal changes and changes in mood is well established in the literature (Accortt, Freeman & Allen, 2008; Patton et al., 2004). In adolescence, rapid changes in mood can be wide ranging and even potentially damaging to individuals and their relationships. Such mood changes are revealed in the form of greater irritability, anger and even depression (Morris, Ciesla & Garber, 2008). In fact, current research suggests that the rate of adolescent suicide is extremely high, compared to other age groups, and is rising (Everall, Bostik & Paulson, 2005). This emotional volatility is one of the main reasons why adolescence has garnered a reputation for being a time of instability and strained interpersonal relationships. The effect on adolescent relationships will be dealt with further in section 2.1.4. Change is often stressful and changes to the functioning of the body can be particularly so for the adolescent (Ellis & Garber, 2000). The biological changes that occur in adolescence mark the beginning of an individual's transition into adulthood. But they are not the only changes that occur.

2.2.2 Psychological Changes



The interplay between relationships and hormones is not the only instance where the overlap between the biological, the psychological and the social can be seen. The physical development of the body also facilitates the development of one's self-concept (Cook, 2008). Even before adolescence, children have a distinct view of themselves, of 'who they are', but during adolescence this psychological construct experiences development that is linked directly to the development of the body (Rhodes, 1994). Boys begin to tie their self-concept to perceived masculine ideals such as assertiveness, a muscular physique, penis size and physical attractiveness (Connell, 2005). Girls, in turn, relate their self-concept to perceived feminine ideals of physical beauty, slimness, breast size and genital shape (Kroger, 2003; Crerand, Infield & Sarwer, 2007). Concerns about being obese seem to dominate the minds of many adolescent girls (Halpern et al., 2005). These worries often lead to a negative self-concept, and in extreme cases can raise an adolescent's risk of developing an eating disorder (Halvorsen & Heyerdahl, 2006).

The growing importance of the self-concept can also be seen in adolescents' increasing focus on popular trends as a means for the adolescent to define themselves. An almost obsessive devotion to fashion is one of the most obvious forms of this change (Campbell, 2006). And fashion does not only take the form of clothes. In South Africa, the style of one's cell phone can be just as important as the clothes one wears (Bosch, 2008). Adolescent girls are particularly subject to this tendency (Anderson & Meyer, 2000). The importance of clothes for adolescents cannot be underestimated. For the adolescent girl, clothes are not merely covering. They determine whether one will be accepted by one's social group (Ling, 2008). Rejection from the in-group can mean loneliness, social isolation, or even bullying (Bright, 2005). Thus learning to respect peer-related norms can be a vitally important part of an adolescent's social survival.

Adolescence is also a time of growing psychological independence. Adolescents are far more likely to express their opinions and are more likely to have confidence in themselves than younger children and this trend becomes more pronounced the older they become (Omatseye, 2007). Adolescents are also far less likely to accept what authority figures tell them. They have a need to express their own ideas, and challenge those of others (Adams & Laursen, 2007). This mental independence links with two other facets of adolescence. The first is the development of the adolescent's cognitive capabilities. This will be discussed in greater detail in section 2.1.3. The second is the adolescent's need for increased social independence. This can be seen in the way adolescents battle against the control that their parents attempt to impose on them (Smetana, Metzger, Gettman & Campione-Barr, 2006).

Pietora roborant cultus recti

The trend towards autonomy was explored by Erik Erikson in his pioneering theory on the stages of psychosocial development. According to Erikson, there are eight stages of psychosocial development, beginning at birth and ending in old age (Thorne, 2004). Erikson's theory stressed the impact of culture and social factors on the development of the individual. In each of the eight stages, the individual is challenged in some way by a crisis. One might fail the challenge and then run the risk of developing feelings of insecurity, inadequacy, guilt and so on. But one may also rise to the challenge and emerge with a deeper, richer mind and personality (Erikson, 1968). Erikson's view of adolescence was that it presented the crisis of identity versus role confusion (Dunkel & Sefcek, 2009). In this stage, adolescents struggle to develop their own autonomous identity, and must decide for themselves what they believe in. Failure at this stage can leave one unsure about the direction one's life should take (Erikson, 1980).

Erikson's theory neatly sums up two of the psychological changes that have already been discussed in this section. The first is the need of adolescents to challenge the ideas of others

whilst defending their own. This is one way in which adolescents can affirm their identity (Adams & Laursen, 2007). Secondly, Erikson's theory explains the desire of adolescents to strive for an identity that is free from that of their parents. For an individual to have an identity that is truly their own, they must first free themselves from dependence on the identities of others. In the case of adolescents, the identities that dominate their lives can be those of any authority figures, but particularly those of parents and teachers and, in order to become true individuals, they may need to free themselves from the perceived control of these groups (Smetana & Asquith, 1994). Thus, adolescence is a key stage in the development of our self-concept, our awareness of peer norms and our adult identity.

2.2.3 Cognitive Development

Adolescence, as mentioned in the previous section, is a time when one's cognitive functioning experiences rapid development. Jean Piaget, in fact, regarded adolescence as the start of the final stage of human cognitive development (Kuhn, 2008). In Piaget's theory, an individual's cognitive functioning develops through four distinct stages: the sensorimotor stage, from birth to two years of age; the preoperational stage, from two years to seven years; the concrete operations stage, from seven years to eleven years; and the formal operational stage of eleven years and older (Inhelder & Piaget, 1958). Thus, according to Piaget, the period after 11 years of age can be regarded as the time when one's cognitive functioning enters the adult stage of development. Adolescents begin to develop the ability to think abstractly, to break free from dependence on the immediate situation and instead be able to work with possible future events (Roberge, 1976). According to Piaget this process begins in adolescence, but can continue into adulthood.

The idea that adolescents' minds are undergoing dramatic changes that shape them into adult minds is supported by medical science. Research has shown that the structure of adolescent brains does indeed change, and that these changes have far-reaching consequences (Shaw et al., 2006). One of the most notable changes consists of specific changes that occur in what is known as Broca's and Wernicke's areas, key areas for the production of speech (Paus et al., 1999). These findings reinforce the notion that was discussed in the previous section, namely that adolescents tend to be highly verbal.

Similar research has found that adolescence is also a period of intense development of the so-called 'executive function' of the brain (Marcovitch & Zelazo, 2009). The executive function is primarily the capacity to co-ordinate our thoughts with our behaviour. It includes the ability to focus attention, to use the working memory, to make rapid decisions and the ability to restrict certain responses (Blakemore & Choudhury, 2006). These abilities play a

vital role in higher cognitive functioning; they allow us to limit our attention and thus screen out extraneous information, they allow us to keep a plan of action in mind while we carry it out and they give us the ability to resist impulsive actions in favour of careful thought (Leon-Carrion, Garcia-Orza & Perez-Santamaria, 2004).

These aspects of cognitive functioning form the cornerstones of adult cognition (deBry & Tiffany, 2008). Additionally, there is some evidence to suggest that underdevelopment of these higher cognitive abilities may predispose individuals to certain psychopathologies (Leskin & White, 2007; Chapman & Mullis, 1999). It has also been demonstrated that one's ability to use cognitive strategies to cope with the stresses of daily life has a significant effect on one's psychological wellbeing (Christiansen et al., 2008). Furthermore, it has been shown that the specific cognitive coping strategies that develop during adolescence are particularly important for this purpose (Broderick & Korteland, 2002; Biederman et al., 2007).

Thus, the cognitive development that takes place during adolescence is of key importance to one's ongoing growth. The changes that take place in adolescence cement one's brain and mind into the mature form that will persist throughout adulthood. And in adolescence one first learns the thinking skills and coping strategies that are used until the end of one's life. But there is one final area in which adolescence is a time of change and growth: one's social relationships.

2.2.4 Social Changes

As briefly discussed above, adolescence is a time when an individual's social relationships change. One typically becomes less reliant on one's parents (Omatseye, 2007); one's relationships with one's peers develop far greater importance (Wang, Houshya & Prinstein, 2007); and one begins to seek sexual relationships for the first time (Impett & Tolman, 2006).

Many parents find their adolescent children difficult to cope with. Some of the reasons why this is so have been discussed above. Of key importance to this section are the changes that occur in the parent-child relationship. Typically, adolescence is a time when the parents' role as guides becomes less essential (Mounts, 2002). As discussed above, adolescents become more interested in making their own opinions known and less interested in following their parents' lead. They are also more likely to challenge their parents' authority (Adams & Laursen, 2007) and engage in more adult behaviours than their parents may deem appropriate (Yu et al., 2006; Patton et al., 2004). All of these factors can combine to put noticeable strain on the parent-child relationship (Smetana et al., 2006).

Family conflict can be destructive in a number of ways. Firstly, a breakdown in the parent-child relationship can put immense psychological strain on all concerned (Finkenauer, Engels & Meeus, 2002). Additionally, damage to this key relationship can have serious negative consequences for the adolescent's personal growth for and how well they deal with stress. Adolescence is a time of rapid change. Some of these changes can be quite traumatic, but research has shown that a strong parent-child relationship is an important factor in determining how well an adolescent will cope with these stresses (Christiansen et al., 2008). Furthermore, a strong parent-child relationship is also an important factor in maintaining positive relationships throughout the family; in lowering the chances of the adolescents engaging in high-risk or delinquent behaviours; and it is also a strong predictor of the quality of the adolescent's relationships with people outside the family (Hair, Moore, Garrett Ling & Cleveland, 2008; Field, Diego & Sanders, 2002). Thus it seems clear that, while an adolescent's relationship with parents is not as important as it was during childhood, it still serves a vital function in providing them with social and emotional support.

As the adolescent's relationship with parents decreases in importance, relationships with their peers become far more important than before (Daddis, 2008). Adolescence may be a time of growing independence but that independence tends to be constrained by the expectations of one's peer group (Hartnett, 2007). Links have been made between peer pressure and early experimentation with alcohol, drugs and sex (Boyce, Gallupe & Fergus, 2008). It is not difficult to see why the approval of one's peers is so important during adolescence. Social networks are a vital source of support for everyone. When an adolescent's relationship with their parents becomes more distant, their access to support decreases and new sources of support are needed (Lauterbach, Koch & Porter, 2007). Peers are an obvious choice to fill this role. This creates an interesting interplay between the need for autonomy and the need for acceptance (Wang et al., 2007). One way in which this interplay can be seen is in an adolescent's choice of clothes. Research suggests that clothes are particularly important as a means of expressing individuality, but that the choice of clothes is always mediated by perceived acceptance of one's peer group (Ling, 2008). In other words, adolescents seek to express their individuality through their choice of clothes, but they remain wary of straying too far from what their peers consider acceptable.

This increase in identification with one's peer group is often part of the adolescent's construction of their own identity. Certain peer groups and subcultures have identities all their own (Rutledge, Rimer & Scott, 2008). By joining one of these groups, adolescents can find expression for some aspects of their own personalities that are espoused by the group (Giles, 2006). In this way they can accept or reject characteristics of the group and thus flesh

out their own identity (Cook, 2008). Groups that have their own cultural practices also tend to be good support systems, particularly for individuals who feel that they 'don't fit in' with the identity that is projected by the exemplars of mainstream culture (Christopherson & Jordon-Marsh, 2004).

The support offered by one's peers can have both positive and negative effects. As was mentioned above, an adolescent's peer group can serve as a vital source of social and emotional support. However, peers can also increase maladaptive behaviours. One's peer group has been shown to have an effect on underage alcohol abuse, poor school attendance, increased emotional distress and poor school performance (Crosnoe & Needham, 2004; Hartnett, 2007). However, there is also evidence that peer groups can have the opposite effect. In addition to offering support peers can also encourage positive behaviours, including the offering of emotional support to others; an increase in healthy relationships; a decrease in abusive behaviour; and better school performance (Cook, 2008).

A third kind of relationship that springs to prominence during adolescence is, of course, the sexual relationship. According to Sigmund Freud, adolescence is the "genital stage" of development (Clarke-Stewart & Friedman, 1987). In this stage adolescents experience adult sexual desires and seek to satisfy them. This idea seems to be supported by research, performed in South Africa, which identifies the median age for one's first sexual intercourse as 17 (Mantell et al., 2006). But pregnancy and HIV/AIDS statistics powerfully illustrate that girls as young as 15 are also frequently sexually active (Boyce et al., 2008) and research specifically aimed at the Western Cape found that it is not unusual for individuals as young as 12 to engage in sexual activity (Szabo, 2006). Similar age ranges can be seen in many other countries as well (Maticka-Tyndale, 2008; Shittu et al., 2007; Ajayi et al., 1991). The predominant discourse about adolescent sexuality, which is that it is dangerous, immoral and illegal, implies that these behaviours are unusual or aberrant. However, this seems quite out of touch with the reality of what is occurring (Bay-Cheng, 2003; Jewkes, Vunduleb, Maforahc & Jordaan, 2001).

Questions about the moral and legal ramifications of this disagreement are beyond the scope of this thesis. However, what is important to understand is that this desire to explore sexual activity plays an important role in adolescent relationships and can affect one's interactions with one's peers, teachers and parents.

2.2.5 Conclusion

This section has explored some of the most important dynamics of adolescence. It has found that adolescence is a time of massive physical, psychological, cognitive and social change. The following section will explore the most up-to-date literature around Computer-Mediated Communication, and the final section will examine ways in which CMC impacts specifically on adolescents.

2.3 COMPUTER-MEDIATED COMMUNICATION

As discussed in section 1.9.1, CMC, for the purposes of this study, can be defined as: “Any form of communication that can *only* be achieved through the use of a computer.” There is much debate on the various benefits and dangers of CMC. The rapid expansion in the variety, applications and prevalence of CMC makes remaining up to date concerning the topic quite challenging for the researcher. This section seeks to investigate the uses, educational and social impacts, dangers and advantages of CMC.

2.3.1 The Many Uses of Computer-Mediated Communication

Central to the question of how CMC is impacting on the lives of adolescents is the secondary question of how these new technologies are being used. This section aims to explore some of the many uses of CMC, from the most popular such as e-mail, Instant Messaging (IM) and SMS (discussed in section 1.9) to the newer and more unusual such as online counselling.

E-mail has become a ubiquitous business tool that allows for communication between multiple individuals, anywhere in the world at relatively low cost (Hrastinski & Keller, 2007). E-mail is also used in a non-commercial capacity, as a way for families and friends to remain in touch (Cook, 2008). And more recently researchers have also begun using e-mail as a data gathering tool (Egan, Chenoweth & McAuliffe, 2006). IM is a method of communication that is similar to e-mail in some respects, but quite different in others. IM also allows for communication between multiple individuals, throughout the world, at very little cost. But, unlike e-mail, IM is a synchronous communication tool which allows participants to communicate in real time, as if they were having a conversation (Newman, 2007). This technology is growing in popularity and evidence suggests that it can serve as an important way of strengthening interpersonal relations both on and off the Internet (Lin, 2007). This effect will be discussed in more detail in section 2.2.3.

The SMS has taken the world by storm, and by surprise. According to William Underhill (Underhill et al., 2001) the ability to SMS was added to cell phones almost as an afterthought, because it was believed that the service had limited appeal. However SMS has gained in popularity for a number of reasons, the most important of these being that it is cheap, can allow for the transmission of messages to several individuals simultaneously, and, unlike phone calls that must be answered immediately, an SMS can be responded to whenever it suits the user (Goggin & Spurgeon, 2005). The number of total SMSs sent worldwide is difficult to calculate, but is estimated to be in the hundreds of billions per month (Underhill et al., 2001). This has caused SMS users to become an attractive market for advertisers who seek to use the SMS to sell their products, or seek to create products specifically for SMS users (Goggin & Spurgeon, 2005).

However, there are also a number of other uses for the SMS and many are specifically intended to improve quality of life for their users. One suggestion aimed at the public health care sector is to use the SMS to automate the process by which patients book appointments at clinics. The idea is that health care workers can SMS a list of available appointment times to prospective patients (Treweek, 2003). The patients will then respond via SMS, stating which times suit them. The responses will be received by a computer that will automatically register the appointments. This approach has numerous advantages over traditional methods. It gives the patient the leeway to decide when to reply to the message, which may not be during office hours. It saves time on the part of the healthcare worker because they do not need to call the patient back. Additionally, SMSs are often cheaper, both for the healthcare agency and the patient, than a traditional phone call. Lastly, when the time for the appointment arrives, the patient can receive an automatic reminder, so that the appointment is not missed (Treweek, 2003).

Medical applications for the SMS are not limited to alerts. Another innovative use of the technology involves using the SMS to provide emotional support for outpatients suffering from bulimia nervosa (Bauer, Percevic, Okon, Meermann & Kordy, 2003). In this approach, SMSs are used as a way of connecting therapists with clients who have completed a programme for the treatment of bulimia nervosa, and are in the process of adapting back into a life outside the clinical setting. The study found that SMSs provided an effective way for the clients to send weekly feedback on their own progress. They also offered a way for the therapists to send individual encouragement in a manner that was cost-effective and not time-consuming. For these reasons it was felt that SMSs “offer an attractive possibility to bridge the gap between inpatient and outpatient treatment” (Bauer et al., 2003:88).

The idea of offering psychological support via CMC can be seen in other approaches as well. One idea that has been growing in popularity is to offer therapy via Instant Messaging, or other electronic means (Chester & Glass, 2006). In one study it was found that this “online counselling” approach could help to make participants feel more comfortable in disclosing relevant, embarrassing information, particularly with clients who are more self-conscious or shy (Haberstroh, Duffey, Evans, Gee & Trepal, 2007). However, other clients reported that they missed the connection of face-to-face interaction, particularly auditory cues like tone and visual cues like body language. There were also some difficulties in getting used to using the IM technology, something that traditional therapy does not have to be concerned with. However, many of the participants stated that, when they became familiar with the technology, IM counselling proved to be more convenient than other forms of counselling (Barnett, 2005).

While such initiatives are still in their infancy, there is reason to believe that use of CMC in therapeutic interventions is likely to increase (Wangberg, Gammon & Spitznogle, 2007). This process will most likely be influenced by the advancement of technology itself. As the means to overcome the flaws in online counselling become more readily available (for example using Skype to allow therapist and client to hear one another and webcam technology to allow them to see one another as well) the arguments against online counselling will become less and less valid. In addition, technology has the potential to make psychological interventions available to those who have previously been unable to receive it (King et al., 2006). The theme of using technology to empower people is particularly relevant for the South African setting. Studies have shown that great opportunities exist for the use of CMC to promote small businesses and develop rural communities (Odendal, 2006). Unfortunately many of the attempts to use CMC to uplift the impoverished have thus far been unsuccessful (Van Rensburg, Veldsman & Jenkins, 2008).

One area in which CMC has gained a large amount of attention is in the field of education. Hrastinski and Keller (2007) reviewed over one hundred articles, written between 2000 and 2004, that were investigating ways in which CMC can be used to improve education. One of the more popular approaches has been to attempt to use CMC as an aid in distance education. This can be done through the use of the SMS to aid learners; by providing additional training for educators via the Internet; or by designing unique educational software (Belawati, Malik & Hoon, 2007). Some researchers even envision a new generation of computer games that are specifically designed to engage pupils in their learning and to teach complex topics in a comprehensive way (Amory, 2006).

The uses of CMC discussed above serve as an overview of the ways in which new technologies are serving to enhance old practices. The popularity of CMC is also having unexpected effects on education and the wider society as a whole.

2.3.2 The Educational and Social Impact of CMC

As discussed above, CMC allows people to interact with each other in a variety of new ways. This has led to many CMC tools becoming replacements for conventional means of communication. E-mail has replaced letters, the SMS has replaced phone calls and networking sites like Facebook have replaced social clubs. These may be exaggerations but they serve to emphasise the point that many traditional forms of communication are being supplanted or replaced by technology. This section seeks to investigate some of the possible consequences of these changes. A further exploration of some of the specific ways in which CMC can be used in education is contained within section 2.2.5.

Of primary interest to Educational Psychology is the question of how these new technologies are affecting today's learners. One theory is that new forms of technology require learners to be more involved in communication and learning (De Generro, 2008). This occurs because all of the new means of communication that learners use, whether the SMS, IM, discussion web sites or interactive computer games, expect the learners to be active participants. In order to utilise these technologies, learners must be fully engaged with them. Thus it is reasonable to expect that, when this new generation of learners reaches the classroom, they expect to be engaged and stimulated in the same way (Adams, 2007). This is a large shift from the traditional mode of teaching in which learners were expected to be passive receivers of knowledge. This change can be viewed in a negative way, as producing learners who lack the ability to focus on a single task for any extended period of time. But one must also take note of the valuable skills that have been acquired by learners who are comfortable with technology. They are more likely to be able to use a variety of media; they are skilled at understanding multiple forms of text (e.g. videos and pictures, as well as words); and they, of necessity, are skilled at multitasking (Mullen & Wedwick, 2008).

Technology may be changing learners in ways that may make traditional forms of teaching frustrating and ineffective, but new technologies can also change the way that teachers cope with these challenges. There is research, for example, that suggests that e-mail can be used by teachers to form small "communities of highly committed users" (Grunberg & Armellini, 2004: 587). These virtual communities allow teachers to provide emotional support for one another and to request aid in the form of advice or teaching resources. Grunberg and Armellini interestingly found that teachers involved in their study were more likely to use e-

mail as a way to offer help, than as a way of requesting help (2004: 602). The relationships developed through these virtual communities were seen to play an important role in coping with the challenges of their extremely demanding profession.

Social relationships are being affected by CMC in other ways as well. Larissa Hjorth found that cell phones have become crucial for maintaining social relations between women in Melbourne, Australia (Hjorth, 2003). A study conducted in Taiwan similarly suggested that junior high school students were primarily using CMC as a way of improving their relationships in the offline world (Lin, Sun, Lee & Wu, 2008).

However, other researchers have found a negative relationship between online and offline relationships. One study found evidence that “concern is growing that adolescents’ extensive use of electronic communication ... may impair their relations with their parents, siblings and other family members” (Subrahmanyam & Greenfield, 2008:134) and that “evidence is starting to accumulate that social networking sites such as MySpace are causing serious parent-child conflicts and loss of parental control” (Subrahmanyam & Greenfield, 2008:136).

The idea that the construction of one’s identity nowadays is partially mediated by technology is an issue explored at length by Cortini et al. (2004). In a detailed study of almost 4000 SMSs they concluded that communication via SMS serves to strengthen one’s position as an individual within a group, and to thus affirm one’s own identity. However, other research has suggested that some individuals use the relative anonymity of online communication to lie about themselves, and thus construct a false identity (Masurate, 2008). The problematic nature of this anonymity has also received attention in the literature, with the biggest problem seeming to be the harassment and bullying that occurs when individuals use anonymity as a shield to facilitate victimisation (Brody, 2006).

2.3.3 The Advantages of CMC use

It must be acknowledged that the reason why Computer-Mediated Communication has grown in popularity in such a dramatic fashion is because it offers its users access to services that they want or need. Before cell phones were invented, finding a specific person in an emergency could take hours. Now it can take seconds, regardless of where in the world they are. Our ability to communicate has been the aspect of our lives that has been most changed by technology, and it is beyond the scope of this thesis to investigate all of the ways in which communication technology has advanced. Instead, this section seeks to explore some of the unexpected ways in which CMC is being used to benefit people and to react to some of the criticism of CMC levelled in the previous sections.

In the previous section it was noted that online message boards can sometimes provide a space for individuals who practice harmful behaviours to support each other in continuing these behaviours. This is a legitimate problem, and one that deserves serious investigation. However, there is another side to these messaging boards. One study found that, while the normalising of self-injurious behaviour was taking place on message boards, a far more common occurrence was exactly the opposite. Janis Whitlock and her colleagues found that online message boards provided a place “for the giving and receiving of informal support” (Whitlock, Powers & Eckenrode, 2006:415), to share “fears relating to disclosure” and “experiences with therapy” (Whitlock et al., 2006:415). They also provided a means to discuss “the addictive qualities of their practice” (Whitlock et al., 2006:415). In these cases the message boards provide an invaluable source of social support. This is particularly true with individuals who are also experiencing depression. For these posters, the relative anonymity of the Internet can create a safe space for them to disclose sensitive information. They can also receive recognition and acceptance from a peer group (Cook, 2008). This can be particularly valuable with adolescents for whom the need to establish meaningful relationships may be severely hampered by shyness, negative emotions and fear of rejection (Becker & Schmidt, 2005).

This use of CMC for emotional support was also mentioned above. Stephanie Bauer and colleagues conducted a study on the use of SMSs to provide emotional support and feedback for outpatients who had just completed a therapeutic program aimed at treating their bulimia nervosa. They found that the SMS offered a cost-effective way to offer low-intensity support for bulimia outpatients (Bauer, Percevic, Okon, Meerman & Kordy, 2003) and online support groups for other disorders have been functioning successfully for years (Seepersad, 2004). This is another example of a way in which CMC can be used to assist people in a way that may be superior to traditional forms of communication. Another study found that the use of ‘e-therapy’ (i.e. offering complete therapeutic interventions over the Internet) was likely to increase as technology becomes more accessible and more familiar (Silje, Gammon & Spitznogle, 2007).

The question of whether CMC can be used to improve learners’ schoolwork, rather than impede it, is also worth investigating. The most obvious educational use of CMC is the access that the Internet gives to a vast storehouse of knowledge. Another approach is to develop websites that are specifically designed to assist learners with certain courses. One study explored using such websites to assist an undergraduate psychology program at Wits University (Thatcher, 2007). It was found that there were numerous applications for new technologies to be used to assist learning.

Another study explored ways of incorporating a host of new technologies into a school curriculum (Adams, 2008). This particular study contains so many innovative ideas that it is worth examining it quite closely. The new curriculum used e-mail, personalised web pages, blogs and a number of other software applications as crucial parts of the learning process. Google was used as a way of teaching learners to be critical of the information they have access to and to assess the educational value of different websites. Gmail, Google's free e-mail service, was used by the teachers to organise the students' electronically submitted essays. This could be done because Gmail allows users to place tags on e-mails they receive. For example when a teacher receives an essay on 'XYZ' they attach an 'XYZ' tag to the essay. When that particular essay has been marked they simply remove the tag. This allowed the teachers to remain more in control of their work load. Additionally, since Gmail gives all of its users 7 gigabytes of free space, it serves as a valuable way to teach learners how to organise their filing. Next, online discussion groups were set up to allow their learners to debate school-related topics and improve their ability to argue a point. An online calendar was created that contained all the due dates for all the assignments the learners had to complete. The calendar even contained a facility to SMS reminder notices to learners, so that deadlines did not take them by surprise.

Lastly, Google Docs, which is a free, online alternative to Microsoft Office was used in two ways. Firstly, it allowed learners who did not have access to Office to write essays and create presentations from their school computers, or any other computer that had Internet access. Secondly, Docs has facilities that encourage peer evaluation and group work, and Google's three gigabytes of free storage space meant that it was impossible for learners to "lose their homework". This one study illustrates how much potential has been opened for the use of new technologies in classrooms, even though all of the software used in the study was absolutely free.

Similar processes have been attempted in South Africa with varying degrees of success (Amory, Mars & Mayerowitz, 1999). For example, one study investigated the use of the WebCT software in the teaching of first-year medical students at the Nelson R. Mandela School of Medicine and found that the students and staff both thought the software had been highly useful and practical (McLean & Murrel, 2002).

Some researchers also believe that the use of the SMS and IM need not weaken learners' ability to use language, but might in fact strengthen it. Jill Adams believes that the most important factor in deciding whether students develop adequate language skills is the level of comfort they feel in using the language (Adams, 2007). In other words, if learners are encouraged to express themselves through writing, any form of writing, then they will

develop confidence with the language and thus all aspects of their language use will improve. If this is indeed the case, then the large amount of time learners are spending on CMC may be strengthening their command of language by fostering greater familiarity and by giving them greater opportunities to write for a genuine audience (Baron, 2005).

Some researchers deny that there is actually any crisis in language at all (Carrington, 2005). In Carrington's view, crises in literacy are historically constructed and positioned more as a fear of change than as a legitimate concern about standards. Carrington sums up this idea by saying "literacy must be understood to extend beyond the ability to encode and decode print. Much of the meaning of contemporary text is embedded in the graphics, symbols, images and sounds that surround print" (Carrington, 2005:172). In other words, modern learners need to be more able to use technology and multiple sources of information because the way in which human beings communicate has changed, and they must change with it. So the fact that learners are using non-standard linguistic devices (such as the emoticons discussed in section 1.9.3, abbreviations and so on) should not be seen as a weakening of their abilities, but as a legitimate and valuable adaptation to the new forms of communication that technology is offering us (Jacobs, 2008).

A completely different approach to literacy involves using speech-recognition software. These programs are designed to take the spoken word and translate it into written text, or vice versa (MacArthur, Ferretti, Okolo & Cavalier, 2001). One particular application of this technology involved using the software to assist learners who had a barrier to learning that affected their writing ability. It was found that when the learners were given access to the software their writing improved in both length and quality (Quinlan, 2004).

2.3.4 The Dangers of CMC use

Playground bullying can have a devastating emotional effect on an individual, and it is a very difficult thing for parents and teachers to guard against (Raskauskas & Stoltz, 2008). With the rise in popularity of CMC among teens and adolescents it was inevitable that bullies would find ways of continuing the abuse of their victims using these new technologies. One study among 12 to 17-year olds found that 72% had experienced at least one incident of online bullying over the previous year (Juvonen & Gross, 2008). The lack of any kind of supervision, parental or otherwise, and the relative anonymity of the internet make it an ideal venue for bullying behaviours.

Bullying via CMC or "cyberbullying" (Juvonen & Gross, 2008:497) appears to contain a mix of bullying activities. On one level the most popular forms of CMC (SMS, instant messaging,

and e-mail) are perfectly suited to the most basic form of bullying: name calling (Tench, 2003). Yet, on the other hand, there are a number of new forms of bullying that only exist because of the changes in technology. One extremely embarrassing example is the taking of illicit photographs of individuals in embarrassing positions, and then posting them on the Internet for all to see (Aricak et al., 2008). Another example is the copying of a victim's embarrassing statements or information, and then reposting them somewhere else. This can include sensitive content such as poetry, private conversations or e-mail passwords (Ybarra, 2004). CMC also makes possible more elaborate forms of abuse such as the construction of entire websites devoted to ridiculing and mocking individuals (Dyrli, 2005). More disturbing are findings that suggest that many victims of cyberbullying are not being targeted by strangers they have encountered via the Internet, but by individuals that they already know (Strom & Strom, 2005). This means that bullying that occurs during the school day can continue without end when the victim gets home. One researcher summed up the problem by saying "before computers, children could generally feel safe from other bullies in their own bedrooms, but now a cyberbully can enter that sanctuary" (Aricak et al., 2008:253).

There are a number of facilities built into most forms of CMC to allow one to prevent abusive users from making contact. For example, if someone on MXit becomes abusive you can simply remove their number from your contact list and they will be unable to see, hear or speak to you. However, it is unclear whether or not adolescents are using these facilities to protect themselves. Juvonen and Gross (2008) found that as many as 25% of their participants who had been victims of cyberbullying had never attempted to block the bullies from contacting them again.

While bullying can have a serious, negative impact on the learning of individual students (Li, 2007) another aspect of CMC may affect all learners, to a greater or lesser degree. The question of how CMC impacts on learners' ability to use language has troubled parents and educators since the early 2000s. Despite many academics' reassurances that these new forms of expression do not necessarily mean that students' command of language will weaken, there is still great concern about the issue (Jacobs, 2008). The fear is a result of the fact that many school-going teens and adolescents spend far more time SMSing, using IM and other forms of CMC than they spend in school. CMC is characterised by far lower standards of grammar, non-standard language uses like emoticons and an almost total disregard for spelling conventions (Carrington, 2005). It is thought by many that the standard language use being taught in schools will be overwhelmed by the non-standard use being modelled by CMC users. This will weaken learners' ability to use formal language and reduce them to the level of "marginal literacy" (Baron, 2005:29). It is felt that the non-

standard usage of English is a “growing problem” that is “spreading like wildfire” (Carrington, 2005:166).

Another possible danger of the overuse of CMC lies in its possibly addictive nature. Dr Michael Brody sums up these fears when he says that “the words ‘addicting’ and ‘obsessive’ seem to describe much of the teen involvement in these electronic activities” (Brody, 2006:8). There are many reasons why the Internet, MXit or other forms of CMC might become addictive. Some forms of CMC provide their users with high degrees of social and emotional support (Becker & Schmidt, 2005). It is possible that CMC may be addictive because it offers a kind of instant gratification for one’s emotional needs (Ferraro, Caci, D’Amico & Di Blasi, 2007). The Internet also allows some individuals to gain virtual recognition or power through technical prowess, or by creating an assumed identity (Grohol, 1999). There is limited research on the prevalence of addiction to CMC in South Africa. However, one study found that the prevalence of Internet addiction in South Africa may be lower than in other countries (Thatcher & Goolam, 2005).

One last danger of CMC lies in the popularity of online message boards. These are websites that allow users to post their opinions on a given topic, and read the opinions of others. There are message boards for all topics, from the most widely known to the most obscure. One study investigated online message boards that were specifically aimed at individuals who engage in “self-injurious behaviour” (Whitlock et al., 2006:407). These behaviours include cutting, burning, hair pulling and a variety of other forms of self-harm. They found that there was a danger that these websites might increase the users’ knowledge of means to injure themselves, and in some cases serve to reinforce the behaviour.

Another prominent example of this phenomenon is the collection of “Pro Ana” (i.e. “Pro Anorexia”) groups on the internet. These groups provide a space for individuals suffering from Anorexia Nervosa to support each other, not in overcoming the disease, but in continuing to starve themselves (“Proanorexia,” 2009). Other forms include a small number of websites and chat rooms that passively support suicidal ideation by promoting frank discussions of methods and locations that can be used in suicide, even going so far as to give advice on how to write suicide notes (Becker & Schmidt, 2005). These two extreme examples will be dealt with in greater detail in section 2.3.

Technology has made it easy to attain amazing things. However, it is important to realise that the advancement of technology has been so fast that distortions and abuses of technology have also become commonplace.

2.3.5 Conclusion

Concern over the dangers of CMC use must be tempered with an understanding of how powerfully beneficial CMC can be. While there are risks associated with their overuse, they also have the potential to influence all aspects of human existence positively.

2.4.1 Adolescence and CMC

The impact of CMC on humanity as a whole has been discussed at length throughout this chapter. However there are numerous ways in which CMC impacts specifically on adolescents. This section is devoted to exploring the ways in which the characteristics of adolescence lead to unique interactions between adolescents and CMC.

In section 2.1.3, findings that suggested that adolescents' brains are structurally different from the brains of children were discussed. One of the most noticeable changes occurs in the Broca and Wernicke areas (Shaw et al., 2006). These are the key speech centres of the brain. Development in these areas helps to explain why adolescents' levels of verbal expression increase by such a large degree. Additionally, the development of adolescents' cognitive abilities also means that they have more to say than before (Blakemore & Choudhury, 2006). This change has specific relevance for the study of CMC. Many forms of CMC are primarily used as a means of expression or communication. For adolescents with a wish to express themselves, IM, discussion boards and blogs are all perfect media to assist them (Mullen & Wedwick, 2008). It is little wonder that the motto of YouTube (a popular video-sharing website discussed in section 1.9.2.11) is "broadcast yourself".

The rise in the popularity, among adolescents, of social networking sites such as Facebook can also be understood as an extension of the adolescent's desire to strengthen peer relations (Williams, 2006). Adolescent peer relations reveal a complex interplay between in-groups and out-groups, cultures and subcultures, acquaintances and friendships and relationships, both old and new. Social networking sites provide a format for an extension of these relationship dynamics. Facebook, for example, has applications that allow the creation of private groups and much can be expressed by who is invited, or excluded from these groups (Ellison, Steinfeld & Lampe, 2007). Thus social networking sites are not just a way of expressing individual identity, they can also be used to reinforce group identity.

Adolescents' identity can be affected by CMC in other ways as well. Many adolescents, particularly girls, use social networking sites to post revealing photographs of themselves, sometimes even photographs of an overtly sexual nature (Donath, 2007). The intention with these posts is to garner positive attention from those who visit their page. However, posts

like these can have unforeseen consequences. Nothing on the Internet ever disappears and recently many girls have been shocked to discover that photographs that they thought were safely hidden on their personal pages have been reposted on a variety of other websites (Keely, 2008). One of the most obvious reasons why an adolescent girl might post revealing pictures of herself is positive feedback. Those who view the images typically post positive comments about the girl's level of physical attractiveness. These comments boost the girl's self-confidence and encourage her to post more images (Donath, 2007).

This trend of seeking positive feedback through the posting of revealing images is only one side effect of adolescent girls' tendency towards poor physical self-image (Davison & McCabe, 2006). Another is the rise in popularity of Pro Anorexia websites (also simply called "pro-ana"). These websites claim to be support groups for girls with eating disorders, but in actual fact perpetrate an anti-recovery mentality that serves to reinforce existing anorexic or bulimic behaviours (Fox et al., 2005). Furthermore, Pro-Ana sites frequently coalesce into distinct, exclusionary social groups or cliques that offer support only to in-group members and who pile scorn upon others who attempt to join the group (Brotsky & Giles, 2007). Naturally, one's membership of the in-group is dependant on one being able to remain anorexic and reinforce the behaviours of other group members. Frequent 'attacks' on Pro-Ana groups from the media and the perception among group members that they are under attack from society as a whole serve to push such groups into a defensive position and, ironically, strengthen ties between group members (Giles, 2006).

Research suggests that the existence of these sites also poses a problem for those who do not have an eating disorder. Harper et al. (2008) conducted a study that compared the effects of a variety of websites on the bodily dissatisfaction and eating disturbance levels of those who visit them. They found that participants who frequented Pro-Ana websites experienced higher levels of bodily dissatisfaction and greater levels of eating disturbance. This suggests that Pro-Ana sites may actually serve to spread eating disorders by normalising them and arguing that they are a lifestyle choice, instead of a psychological illness (Masurate, 2008).

A far more extreme and bizarre counterpoint to the rise of Pro-Ana websites is the Internet chat rooms that seem to promote suicide. The most visible of these are so-called 'tribute sites' that contain photographs and favourable commentary about site members who have succeeded in killing themselves (Carlowe, 2008). Other methods that these sites use involve giving advice on painless ways to die, how to write a suicide note and so on. Some even facilitate meetings between members who wish to plan joint suicides (Becker, 2005). This

phenomenon is of particular importance for the study of adolescence because suicide is one of the three leading causes of adolescent death (Vargas, 2005).

Pro-Ana sites and suicide tribute sites are two examples of websites that have the ability to cause tangible harm to adolescents in the real world. Another possible example of this can be seen in the physical damage that can be caused to adolescents by repetitive use of computers in a way that is not ergonomic (Gillespie, 2002). Related medical complications from extended computer use include epilepsy, headache, nausea, fatigue, myopia, nerve compression, tendonitis and musculoskeletal injuries (Williams & Jacobs, 2002; Harris & Straker, 2000; Macgregor, 2000; DiFiori, 1999).

The link between adolescents' online and real-world experiences can also be seen in adolescents' sexual relationships. It is not unusual for real-world relationships between adolescents to start via SMS, IM or MXit (Bosch, 2008). In fact, there is evidence to suggest that online interactions are frequently used to strengthen existing relationships and that the quality of an adolescent's online relations relates directly to the quality of their offline relationships (Lin, Sun, Lee & Wu, 2008; Valkenburg & Peter, 2007). And CMC can also be used to strengthen family relationships as many parents use new forms of communication to remain in touch with their children despite their busy work schedules (Cook, 2007).

A final place where CMC and adolescence interact is in the area of CMC addiction. The term 'Internet addiction' is often used to describe a combination of addiction to websites, forms of CMC and online computer games (Van den Eijnden, Meerkerk, Vermulst, Spijkerman & Engels, 2008). The rise of adolescent Internet addiction is well documented (Jang, Hwan & Choi, 2008; Siomos, Dafouli, Braimiotis, Mouzas & Angelopoulos, 2008; Ferraro et al., 2007), but there are no studies of this phenomenon in South Africa as yet. This is yet another reason why more research on the interaction between adolescents and CMC in South Africa is badly needed.

2.4.2 Conclusion

Adolescents are particularly likely to make extensive use of CMC. However, they are also particularly vulnerable to the negative effects of CMC use. For these reasons, further research into the effects of CMC on adolescents is needed.

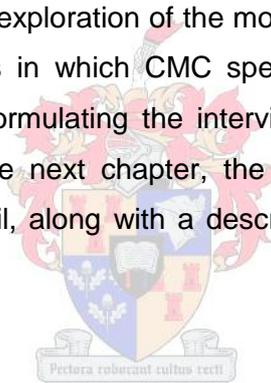
The most important issues around CMC that need to be investigated are:

1. The uses of CMC
2. The dangers of CMC use
3. Bullying
4. Command of language
5. School work
6. Social relationships

These six factors have directed the focus of the research, and have formed the basis of the interview schedule.

2.5 CONCLUSION

This literature review serves as an exploration of the most relevant research on the topics of adolescence, CMC, and the ways in which CMC specifically impacts on adolescents. It served as an informed guide to formulating the interview schedule and underpinned this research study theoretically. In the next chapter, the precise methodology used for the research will be presented in detail, along with a description of what was found when the interview schedule was piloted.



CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

This chapter serves as an exploration of the research design, the research paradigm and the research methodology used in this study. It is divided into three sections. Firstly, the research questions of the study are reviewed and discussed. Next, the theoretical paradigm that guided the study and the research design of the study is explored in detail. Lastly, there is a section on the precise research methodology that was used in the study. This section includes subsections on data production techniques, participant selection, the verification and analysis of data and the ethical issues that arose during the study.

3.2 RESEARCH QUESTIONS

As discussed in section 1.2, research in a number of countries suggests that adolescents often are the population group that most quickly adopts new technologies (Lenhart, Lewis & Rainie, 2001). Unfortunately, there has not been much research on the nature of CMC use among South African adolescents (Bosch, 2008). This study was intended to explore this important but under-researched area. The primary question that the study sought to answer was:

“What views do adolescents hold about the impact of Computer-Mediated Communication on their lives?”

This primary question implies a number of secondary questions. The first and most fundamental of these concerned which CMC the participants were using and how it was being used. With the huge variety of CMC available, and the speed with which CMC is changing, it would be remiss for any researcher to make broad assumptions about adolescents' technological habits. Since CMC is used primarily for communication between people it is also important to investigate how CMC use is affecting both relationships and communication itself. CMC often relies on language and means of expression that are distinctly different from those used in traditional forms of communication. Exploring how the

participants see their language use changing as a result of CMC use is another valuable area of investigation.

CMC also provides a place for two old dangers, bullying and addiction, to find new expression. Investigating how local adolescents have experienced these phenomena also formed an important part of the study. Lastly, a broad overview of how the participants felt about the general positives and negatives of CMC was sought. It was felt that it was important to include these broader questions because the participants' experiences of CMC use might be quite different from what international research would suggest.

With these issues in mind, the following sub questions were also included in the study:

- Which kinds of CMC do the participants use?
- What uses does CMC have?
- What effect does CMC use have on language?
- Is CMC having an effect on school work?
- How are relationships being changed by CMC?
- What are the dangers of CMC use?
- What is the nature of bullying on CMC?
- Why is CMC so popular?



3.3 RESEARCH PARADIGM AND RESEARCH DESIGN

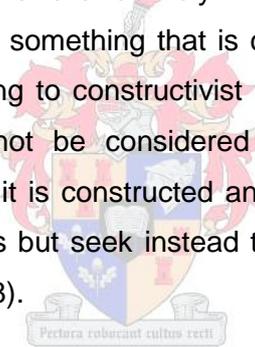
This section will cover the theoretical paradigm that underpins this study and the nature of the qualitative research design that was used.

3.3.1 Research Paradigm

It is impossible to perform research without having a theoretical framework or paradigm to work from. It is this paradigm that frames and guides the research. It also directs the researcher in deciding which methods and methodology are most appropriate for the research (Mouton, 2008). This section serves as a discussion of the constructivist paradigm that served as the theoretical framework for the researcher's epistemological viewpoint, and thus for this research.

Constructivism, as ontology, is often described as being the opposite of, or alternative to, positivism (Constantino, 2008). Thus, in order to understand constructivism one must first understand positivism. Ontologically, positivism holds that the most appropriate way to understand the world is by assuming that there is an objective reality that is being studied, and that knowledge is developed by examining this objective reality. Positivist epistemology thus holds that knowledge is obtained by examining small slices of reality that are first separated from external variables and then dissected via the positivist scientific method (Becker, 2005). Positivist researchers strive to be objective. It is vital to these approaches that any bias introduced by the researcher is removed. In order to maintain this objectivity the research situation must be tightly controlled and all external variables removed.

Constructivism differs from positivism in several fundamental ways. Constructivist ontology theorises that the world does not exist in a perfect form outside of human existence. Instead, the world is seen as something that is created by the actions of individuals, particularly through contact with other individuals (Wang, S. & Hsua, H., 2008). Constructivist epistemology presumes that people are actively involved in constructing knowledge. Furthermore, knowledge is seen as something that is constructed within a particular social and cultural context. Thus, according to constructivist epistemology, knowledge cannot be thought to be objective and cannot be considered objectively reliable. Knowledge is dependent on the context in which it is constructed and thus constructivist researchers do not seek to discover absolute truths but seek instead to understand what is occurring in a specific time and place (Poplin, 1988).



Constructivism was a particularly appropriate paradigm for this research study because the study was concerned with opinions. Viewed through a constructivist lens, what is being sought in this study is a description of how the adolescent participants are constructing their interactions with the new technologies of CMC. What is important to the study is not the objective nature of the participants' interactions, but rather the participants' subjective experiences of using CMC.

The study was designed to be an exploration of the participants' views of their own experience. Thus, an appreciation for the participants' ability to construct their own reality was of key importance. With this in mind, it was decided that qualitative methodology was most appropriate for this study. The following section will explain this decision in detail.

3.3.2 Research Design

Qualitative research arose out of an attempt to deal with the shortcomings of quantitative methodology, which was perceived as being rigid and dehumanising (Given, 2008). Qualitative designs can sometimes be altered during the research if it becomes necessary to do so. Qualitative research can also focus on intangibles like emotions, opinions, and subjective understandings. Most importantly, they can investigate how people experience their lives, within their own contexts, and it seeks to do so by using those people's own words and understandings (Corbin & Strauss, 2008).

Unlike quantitative research, which is intended to determine universal laws governing phenomena, qualitative research seeks to achieve a rich understanding of a specific situation (Hancock, 2002). It is interested in exploring how and why things happen in an eternally dynamic world (Jensen, 2008). The knowledge gained through this method is not objective and universal; it is subjective and situational (Silverman, 2005). Thus, a qualitative research design is ideally suited to investigating experiences and opinions and therefore it was the approach most appropriately suited to the aims of this study.

3.4 RESEARCH METHODOLOGY

As discussed in section 1.7, it is important to draw distinctions between the researcher's research paradigm, which is the theoretical assumptions that guide the research process as a whole; the research design, which is the plan of how the research should be conducted; the research methodology, which comprises the specific procedures used by the researcher to gather data; and research tools, which are the particular data gathering instruments that are used in the study (O'Leary, 2004). Simply put, a study's research methodology consists of the actions that were taken in a study and the reasons why those actions were taken (Schensul, 2008). The nature of the participants who take part in the data gathering process, the data production, analysis and verification techniques and the steps that have been taken to ensure that all ethical issues have been dealt with, are all important parts of research methodology.

3.4.1 Selection of Participants and Selection Criteria

In order to ensure that the participants in the study had a clear understanding of CMC and the uses of different kinds of CMC, it was decided that purposeful sampling was most appropriate. Purposeful sampling refers to a sampling technique whereby participants are not randomly selected but are instead selected to fulfil specific criteria (Graziano & Raulin,

2007). Purposeful sampling is generally used when a more focussed approach to data collection is needed. It ensures that the participants selected are those most likely to have insights relating to the research (Merken, 2004). There were several criteria that the participants in the study had to meet. The first of these was that they had to be in grade eleven. Grade eleven learners were chosen because it was felt that they, as older learners, were more likely to be comfortable with expressing their ideas (Marcovitch & Zelazo, 2009). The second criterion was that some of the participants had to have access to the more expensive methods of CMC, like Skype, webcams or other new technology. The participants' school was chosen because it, when compared to the many other South African schools, is relatively wealthy. Thus it was assumed that learners at the school would be more likely to have access to these technologies. During the research it became apparent that this assumption was correct.

It was also seen as an important criterion that participants had to be volunteers. There were several reasons for this. Firstly, to infringe on the time of participants who did not wish to take part in the research would have been simply unethical (Rubin & Babbie, 2007). Secondly, it was expected that willing participants would be more likely to offer rich responses. Lastly, participants who were willing to volunteer would be more likely to be confident enough to offer their opinions to a stranger (Basit, 2003).

The final criterion was that participants had to be frequent users of CMC. It seems self-evident that one cannot adequately express what it is like to be a CMC user if one has not had personal experience of CMC.



3.4.2 Research Context

'Research context' refers to the physical, cultural and social space in which research occurs (Bhattacharya, 2008). In some research, the precise nature of the setting forms part of the research because the intention of the research is the observation of participants in their natural setting. Thus, the boundaries that the setting presents must be respected, and not influenced, as manipulating them would affect the research itself. This was not an issue for this study, but an awareness of the context remains an important part of the research process.

The physical context of the research was a small private school in the southern suburbs of Cape Town. The school has roughly 200 students and two dozen educators. This particular school was well known to the researcher as a place where learners were encouraged to

express their own views and seek new learning experiences. This ensured that students from the school were ideal participants for the study.

The research itself was carried out in an unused classroom at the school. The researcher felt that it was important that the setting be one in which the participants would be comfortable, and where their privacy would be respected. It was also necessary that the setting be easily accessible to the participants, and the researcher. An empty classroom at the participants' school fulfilled these needs.

3.4.3 Data Production Techniques

In this study, data gathering was performed using focus group discussions and semi-structured, individual interviews. Two separate approaches were used to aid triangulation. The issue of triangulation will be discussed in section 3.4.6. The two data gathering methods were guided by an interview schedule developed for the study. This subsection explores strengths and weaknesses of these data gathering techniques and explains why these approaches were chosen for the study.

3.4.3.1 Interview Schedule

The construction of a good interview schedule is a key stage in the research process because this is the way by which data is gathered (Hennink, 2007). This subsection will explain the process involved in the development of the interview schedule.

The first draft of the schedule was intended to be comprehensive and contained 35 questions derived from a detailed reading of the literature. After a systematic review, the questionnaire was simplified and reduced to nine questions. These nine questions were then reformulated to be as clear and productive as possible. The schedule was piloted by doing a single, semi-structured interview with one grade eleven learner. Key issues that were addressed in this pilot study were whether or not the schedule was easy for the participant to understand and whether or not the schedule provided comprehensive answers to the research questions. During the pilot study, the questions were easily understood by the participant. Furthermore, the answers obtained were judged to be sufficiently rich to provide ample data for the study. Thus, it was decided that the schedule provided an adequate basis for research.

3.4.3.2 Interviews

Interviews form a frequently used method of data gathering, particularly in qualitative research (Dilley, 2004). There are many reasons why interviews are sometimes seen as a more appropriate means of gathering data than other methods. In surveys, for example, participants can leave out questions that they do not want to answer, or simply not return their questionnaires at all. There is also the danger in a survey that a question may be misunderstood by the participant. In an interview the researcher is present to deal with any difficulties (Graziano & Raulin, 2007). By offering encouragement or showing interest, the researcher is also able to increase the quality of the responses being offered. This a key strength of interviews and focus groups alike. By entering into a discussion with a participant, a researcher can derive responses that are rich and comprehensive. Furthermore, participants are far more likely to flesh out their responses if there is an interested individual urging them on (DiCicco-Bloom & Crabtree, 2006). In addition, interviews are more appropriate when conducting research on complex issues, because formulating questionnaires that effectively deal with complicated issues is extremely challenging. Interviews also offer an opportunity to guide the investigation into areas that were not identified beforehand, but arose during the interview itself. Interviews also allow for responses to be clarified and fleshed out, if needed (O' Leary, 2004).

3.4.3.3 Focus Groups

In simple terms, a focus group involves a group discussion that is led by a researcher (Puchta & Potter, 2004). This method of gathering data has become increasingly popular for a number of reasons. Firstly, focus groups do not entail much in the way of resources. All that one requires is an interview schedule, a venue, a recording device and appropriate participants. Because of this simplicity, focus groups can be adapted to a wide variety of situations (Hennink, 2007). They also consume fewer resources than other approaches. Surveys, for example, require a large number of questionnaires to be printed and print costs can be quite substantial (Roth, 2005). Another point of flexibility in focus groups is that, like interviews, they can be managed to lie anywhere on a continuum from structured through semi-structured to unstructured, as the study requires. They can be closely managed by the researcher, or they can be allowed to flow from the participants. Focus groups also have an advantage over individual interviews because they mimic realistic social situations. This can make it more likely that participants will be at ease and contribute to the discussion (Puchta & Potter, 2004).

Group dynamics provide another reason why focus groups are effective; groups tend to generate greater responses than individuals. But group dynamics can also work in a negative way. This can occur when certain participants are more outgoing or enthusiastic and begin to dominate the discussion. Such participants can also be responsible for the discussion going off the topic (Patton, 2002). This is a difficulty that is encountered with semi-structured designs: the freedom to guide the discussion can be used to guide the discussion away from the topic at hand. Furthermore, there is the chance that peer pressure, embarrassment, or other social forces can come into play in group discussions and influence the result. In such cases it is common for participants to be unwilling to provide responses that they feel might be unpopular with the other members of the group (Corbin & Strauss, 2008).

3.4.3.4 *The Semi-Structured Approach*

In this study a semi-structured approach was adopted for both the interviews and the focus groups. The interview schedule was used as a guide, intended more to encourage discussion than to elicit simple responses. The schedule also served as a rough list of issues that needed to be covered before the session could be completed. This allowed the researcher to refer back to the schedule when new direction was needed.

The semi-structured approach was chosen because it was felt that it was an effective compromise between allowing the participants to lead the discussion into issues they felt were important, and being able to direct the discussion to cover the issues that had been raised by a review of the literature (O' Leary, 2004).

3.4.4 Data Analysis

The goal of data analysis is to analyse and thus extract meaning from the data that have been gathered, with the aim of addressing the research question (Britten, 2005). Thus, it is data analysis that provides the links between the data and the research question. This subsection discusses the theoretical basis of qualitative data analysis and the actual process that was used to analyse the data that was gathered during the study.

The importance of the role that the researcher plays in data analysis cannot be overemphasised. Many of the issues discussed in this section relate directly to the researcher's role in the research process. While all research involves multiple tools and methodologies in qualitative research it is the researcher who is the primary tool of research. It is the researcher who guides the process of data gathering, and it is the researcher who

serves as the instrument of data analysis (Davies & Dodd, 2002). Furthermore, it is the responsibility of the researcher to deal with any difficulties that arise during the research. The researcher must take care to put the quieter participants at ease and encourage them to contribute. The researcher must ensure that any disruptions caused by the more outgoing members of the group are minimised. But, this must be done in such a way as to not restrict the participants' ability to express what may be rich and interesting contributions (Seidman, 2006).

A further way in which the researcher plays a vital role in data analysis relates to the specific context of CMC, and the Internet. Meaning is embedded in context and it is only through a thorough knowledge of the context of the response that an accurate understanding can be created. A full understanding of the context thus guides the analysis and any conclusions made about the data must be linked to the context from which the data were gathered (Ruane, 2005). One way in which the researcher in this study was able to use his own knowledge of the context of the responses to assist the analysis was through his detailed knowledge of CMC and the conventions of the Internet. On several occasions during the data gathering stage, reference was made to web sites and software that are not well known outside of the Internet community. Without a comprehensive understanding of these issues, analysis of these responses would have been very difficult.

A second issue that relates directly to the analysis of the data in this study is the nature of the responses as communication. There are certain rules that govern such communication, such as syntax and grammar. These had a role to play in the initial communication and thus they also had a role to play in the analysis. Additional factors such as intonation, volume and emotional content also had to be considered if the responses were to be understood as the participants intended (Silverman, 2005). For this reason it was a valuable happenstance that the researcher conducted the data collection, the transcription and the analysis. The researcher was present at every stage of the research process and could ensure that meaning was maintained at each stage.

3.4.4.1 Content Analysis

The data gathered in this study were analysed using content analysis. In this process, data are grouped together into similar clusters. This is done in order to identify patterns and relationships between the data (Flick, 2004). The first step in the analysis involved transcribing the responses. These transcriptions were then coded to facilitate the thematic analysis that was to follow. Coding can generally be defined as a method of organising data by which key concepts are derived and developed from spoken or written records (Corbin &

Strauss, 2008). The specific coding approach that was used was 'open coding'. In this approach, codes are derived directly from the text itself. This is quite different from other approaches to coding which use codes that have been developed from a reading of the relevant literature. It was felt that open coding would be better suited to this study due to the fact that it creates codes that are specific to the responses received and are thus more closely bound to the particular context of the participants (Bohm, 2004).

The coding process began with an initial reading of the transcripts with a view to developing a list of viable codes. A second reading was then performed with the aim of starting the formal coding process. As is often the case, several readings of the transcripts were required before the coding process was completed (Patton, 2002). The coding process was assisted by the use of the NVivo 7 qualitative research software. This software has been shown to be an aid to the coding process, if used correctly (Basit, 2003). It allows for the rapid comparison and organisation of codes, it allows one to search for particular codes within the text and it also allows a researcher to view codes in the context of a transcript. However, software cannot replace the researcher; it can only provide tools to assist the researcher in the analysis (Hennink, 2007).

During the coding process, certain codes were revealed to be anomalous, or to occur so rarely that their relevance was questionable. These codes were discarded. However, other codes occurred repeatedly. These codes were decided to be most representative of the experiences of the participants and these were the codes that became the basis for the themes of the study. An example of a section of coded transcript can be found as Addendum B.

In thematic analysis, participants' utterances that share a common code are removed from their original context in the transcript and placed together. This method allows the researcher to explore the similarities between the utterances and determine what the commonalities are. These commonalities become the study's themes (Hancock, 2002). The process of analysing themes is always dynamic. Themes will be redefined and reclassified as alternate interpretations arise or contradictory evidence is uncovered. Themes are not simply lifted from the codes; they evolve as the researcher gains an ever deeper understanding of the data (Ruane, 2005).

The focus of thematic analysis is far broader than one might suppose. Thematic analysis is not simply the creation of a list that categorises the participants' responses. It is also an investigation of the underlying processes and experiences that lead to the responses. It does not simply classify the participants' statements; it also seeks to understand where those

responses come from, and what is affecting them. In other words, thematic analysis seeks to understand both the common threads between the participants' experiences, and the underlying patterns behind those similarities (Silverman, 2005). In this study, thematic analysis was successfully used as a means to investigate the various experiences that the participants had around CMC use and also to create a model of CMC use among adolescents.

3.4.5 Data Verification

The question of accuracy is of paramount importance in any research (Rubin & Babbie, 2007). Every research methodology has strengths and weaknesses and no single approach can ever fully capture a topic of study. In qualitative research, the various approaches used to improve the quality of a study are placed broadly under the heading of 'trustworthiness' (Given & Saumure, 2008). Trustworthiness, in turn, is made up of other issues that the research has to address: credibility, transferability, dependability and confirmability.

3.4.5.1 Credibility

Credibility refers to the degree to which a study has accurately depicted the phenomenon being investigated. In other words, it reflects the degree to which the study has measured what it was attempting to measure. Triangulation has become one of the most commonly used methods of increasing the credibility of qualitative studies (Flick, 2004). As the name implies, triangulation initially involved using three or more separate methods of data gathering which were then compared to ensure that the results of the study were consistent across all three. This agreement validated the results of the study. However, more recently the definition of triangulation has shifted to signify any approach that combines two or more techniques in order to increase validity (Rothbauer, 2008).

In this study, triangulation was performed by gathering data with the use of two separate methods: focus groups and individual interviews. The addition of the interviews allowed the research to target questions at specific areas of interest that had arisen during the focus group discussions. In this way, different perspectives on the same issues were gathered.

3.4.5.2 Transferability

Another important aspect of trustworthiness is transferability. This is the degree to which the context of a study has been described so that other researchers may know the extent to which the study can be applied to other contexts (Given & Saumure, 2008). It is, in a sense,

similar to the concept of generalisability in quantitative research. If a study is generalisable it means that its results can be applied across a wide range of environments. Similarly, transferability implies that the findings of a particular study can be transferred to populations and circumstances other than those of the study itself.

This issue was dealt with in this study by describing each step of the research process, both its scope and its limitations, with particular reference to the context of the study. This includes the nature of the participants, which has been discussed in detail. It is hoped that this will allow other researchers to decide whether other populations are similar enough to be comparable to this study's participants. One method of increasing transferability is by using purposeful sampling to ensure that the study's participants are representative examples of the population being studied (Jensen, 2008). In this study, this was done by purposefully sampling adolescents who were frequent users of various forms of CMC.

3.4.5.3 Dependability

Dependability is considered a parallel concept to the concept of reliability that is used in quantitative research. It can be described broadly as the degree to which different researchers, when working on similar projects, will arrive at similar conclusions. It also involves respect for the fact that every research context is constantly evolving, and no context can ever be completely understood. Of key importance to this is the idea that, if a study's researcher had been replaced with a different researcher, then that researcher would have come to similar conclusions. In other words: the researcher's findings are based upon the actual data received and were not unduly influenced in any way (Jensen, 2008).

A first step in aiding dependability is the existence of an 'audit trail', or complete collection of documents around the research. These documents allow other researchers to minutely examine the steps of the research process and explore whether the findings are indeed representative of the data (Davies & Dodd, 2002). This was performed in this study by describing each action taken during the research and by providing documentary evidence of the data received in the form of complete transcripts of the focus groups and interviews.

3.4.5.4 Confirmability

A further aspect of trustworthiness is confirmability. Confirmability refers to the degree to which the conclusions derived from a study are based on the actual data that were obtained (Jensen, 2008). Put another way, confirmability refers to the process of providing evidence

to support the notion that the researcher's understanding of the participants' experience is an accurate one.

To aid fellow researchers in assessing the credibility and confirmability of this study, each claim that has been made about the participants' experiences has been supported by quotations from the study's transcripts. These quotations are intended to give readers an easily accessible snapshot of the data as it relates to the results of the study. In this way confirmability will be enhanced because the readers will be able to see why the researcher has drawn particular conclusions, and where in the text the evidence can be found.

3.4.6 Ethical Considerations

Ethics form a crucial part of social science research. They serve to provide a framework that guides research into being non-harmful to participants and respectful of their status as human beings (O' Leary, 2004). This subsection will address the various principles of ethical research and will discuss the steps that were taken in this research to ensure that it was conducted in an ethical manner.

There are fundamental rules and attitudes that must be respected for research to be ethical. Firstly, participants must be recognised as the independent decision makers that they are and have to give informed consent for their participation in the study. For this to be achieved, the participants have to be volunteers and must be allowed to choose their level of participation in the research. This choice has to be informed by accurate, comprehensive and comprehensible information (Preissle, 2007). The principle of informed consent was respected in his study in three ways. Firstly, all of the participants were volunteers who were not coerced or forced into taking part. Secondly, the participants' right to remove themselves from the research at a later date, without penalty, was also respected. Thirdly, all of the participants were fully informed of the nature of the research, the time commitments it would require from them and what their rights were. This was done on two separate occasions, once at an initial presentation that explained the research to all potential participants and then a second time before each focus group discussion and interview. At that point each participant was also given a form to sign to indicate that they had been informed of their rights and that their participation was completely voluntary.

The second principle of ethical research is to anticipate the likely consequences of one's actions and to take care to protect the participants from any potential harm. The first area of potential harm relates to the protection of the participants' personal information. This can mean commercially valuable information such as e-mail addresses, phone numbers, account

numbers and so on. It can also mean the participants' right to remain anonymous and speak freely without fear of being identified or exposed to negative consequences of their responses (DiCicco-Bloom & Crabtree, 2006). The above issues were dealt with in this study by ensuring that both the participants and any other person who was mentioned by name in the research were all made entirely anonymous. In the transcripts, participants' names were all replaced with a numbered code, and the name of anyone else who was mentioned was changed into a form that was descriptive, but could not identify the person. For example, the name of a friend of one of the participants was simply changed to "friend". Furthermore the audio recordings of the focus groups and interviews were all kept secure, with access only available to the researcher and his supervisors.

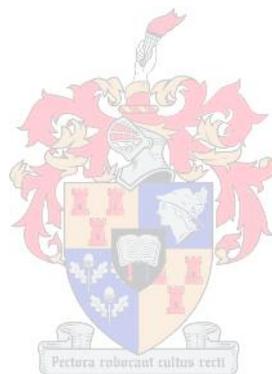
Great care was taken to ensure that all issues relating to the ethics of the study were dealt with. To assist in this process, clearance was sought from the Ethical Committee of the Division of Research Development of Stellenbosch University. Ethical clearance was obtained and the study was given the clearance number 180/2009. This was done to get a professional perspective on the research to reassure the researcher that harm was unlikely to befall the participants (Hennink, 2007). The ethical clearance form is attached as Addendum C.

Unfortunately, all researchers must acknowledge that one cannot foresee all consequences. Issues raised in the study, for instance, might prove to be emotionally sensitive to the participants in a way that the researcher could not anticipate. The addictive nature of MXit and the possibility of individuals being unfaithful to their partners via Facebook are two examples of issues that might cause a negative emotional reaction in participants. Care was taken to monitor the emotional state of the participants for any discomfort or negative reactions that might have required attention. Thankfully this did not occur.

A final aspect of research ethics relates to the genuineness of the research. All researchers are responsible for ensuring that their research is free of fabrication, falsification and plagiarism (O' Leary, 2004). For this reason, examples of the transcripts used in the study are attached as Addendum A. This is done to allow readers to explore the data for themselves. In addition, all non-original ideas contained within the study have been carefully referenced according to APA guidelines to give due credit to those whose work has contributed to this study.

3.5 SUMMARY

This chapter was intended as a detailed explanation of the research paradigm, research design and research methodology of the study. As stated above, transparency in design is vital in all research. This is particularly true in the area of data verification. Transferability, dependability, credibility and confirmability are all enhanced by a transparent research process. All of these facets of trustworthiness rely on the notion that a study's methodology is open to inspection by other researchers who will be able to judge for themselves whether a study's approach has been successful. With this in mind, the current chapter was conceived as a thorough and detailed description of the research process used in this study, with the intention of creating a study that is wholly transparent. The following chapter presents the findings of the study with direct reference to the data itself. The final chapter involves a discussion of the study's findings.



CHAPTER FOUR

PRESENTATION OF FINDINGS

4.1 INTRODUCTION

The purpose of this study was to explore the opinions of adolescent CMC users around the topic of CMC, in order to discover how they see CMC affecting their lives. In this chapter the findings of the study are presented and discussed according to the main themes that emerged during the study. The discussion of the themes of the study is followed by the conclusion to this chapter.

4.2 PARTICIPANTS, SETTING AND PROCEDURE

As mentioned in sections 1.7.1 and 3.4.1, the participants were learners from a South African private school. They were purposefully sampled in order to fulfil certain requirements. The first of these was that they be grade eleven learners. The second was that they be frequent users of CMC. Data gathering took the form of two focus group discussions and three individual, semi-structured interviews. This took place at the participants' school.

As discussed in section 3.4.6, the names of the participants have been replaced by a simple code to protect the participants' right to privacy and anonymity. In each transcript (contained within Addendum B) the Interviewer is always referred to as 'I'. In the focus groups, each participant's code comprises two separate parts. The first part consists of a two-letter code that indicates the focus group in which the participant was placed, this being either 'FA' for 'Focus group A' or 'FB' for 'Focus group B'. The second part of the code consists of an 'R' for 'participant' and a number determined by the order of seating in the group. For example, the second participant in the second focus group has been renamed 'FBR2' while the fourth participant in the first focus group has been renamed 'FAR4'. The codes for the participants in the interviews are composed of an 'R' for 'participant', followed by the number of the interview in which they took part. For example, the participant in the first individual interview has been renamed 'R1'. When the Interviewer is quoted, he is referred to according to the focus group or interview he is being quoted from. For example, if the interviewer is quoted from the first focus group he is referred to as 'FAI'. If he is quoted in the second individual interview he will be referred to as 'I2'. Additionally, any information that could possibly violate a participant's anonymity, such as the names of their friends and any other identifying

information, has been deleted from the transcripts and replaced with a generic term encased in square brackets. This can be seen in the example transcripts that have been included as Addendum A.

Due to the chaotic nature of human speech, some of the quotations from the transcripts initially contained utterances that were confusing or irrelevant. These unnecessary utterances have been deleted to ensure that the participants' meaning is clear to the reader. Naturally, the danger of this technique is that statements may lose their meaning, or have their meaning changed, when they are edited or removed from context. For this reason, great care was taken to ensure that all quotations have precisely the same meaning out of context, as within context. Specific line references have been included with all quotations so that, if necessary, readers can examine the quotations in context and decide for themselves whether or not the conclusions of this section are in line with the ideas expressed by the participants.

4.3 PRESENTATION OF THEMES

The data obtained in this study are presented through the most important themes that emerged from the study. These are the aspects of CMC use that the participants expressed most frequently during the analysis of the coded transcripts of the focus groups and interviews. These themes show how CMC use is being constructed by the participants. Of particular interest were the aspects of CMC use that related to ease of access; the immediacy of the enjoyment that CMC provides; the effects of CMC use on relationships; the dangers of CMC use; and the ways in which CMC can function as a semi-permeable barrier between a user and those with whom the user is communicating. In this section, each of these themes will be discussed in depth with particular reference to how the themes were expressed by the participants themselves. Quotations from the interview and focus group transcripts are used throughout this section to illustrate points and support findings.

4.3.1 Ease of CMC Use

One of the aspects of CMC that was regarded as highly important by the participants was the concept of 'ease of use'. Many of the participants repeatedly said that using CMC is attractive "because it's so easy" (FBR3, line 183, see Addendum B). Ease of use seems to feed into multiple other aspects of CMC use. These will be discussed in the following sections.

4.3.1.1 The Effect of Ease of Use on Popularity

The popularity of any particular type of CMC is linked to how easy it is to use and certain types of CMC seem to gain popularity over other types because one is easier to use. FBR1 said that he uses MSN Messenger most often but also stated:

“I use Skype if it’s a really long conversation, then it’s just easier to talk than to, to type through it all.” (FBR1, lines 65-67)

In other words the relative ease of use of different types of CMC determines which one he is likely to use. He will use MSN Messenger because it is easier than Skype. But if a conversation goes on for a certain length of time and Skype becomes easier to use, he will switch to it. The importance of ease of use can also be seen in the rise in the popularity of Facebook (Rapacki, 2007), which some participants said was due to Facebook becoming accessible from cell phones, and thus easier to access:

“I just find it so easy. Like for example I have Facebook on my phone and before I would like go on Facebook like once every week, once every two weeks and now it’s at least once a day.” (FBR3, lines 179-181)

4.3.1.2 Ease of Use and Relationships

Ease of use also seems to affect how CMC and relationships interact. One of the more obvious effects is the advent of ‘MXit relationships’. These occur when individuals meet and begin a romantic relationship via some type of CMC, like MXit or Facebook, without ever meeting offline (Bosch, 2008). Many of the participants expressed dismay at the proliferation of MXit relationships:

“I’m sorry but MXit boyfriends don’t exist ... what do you know about them? Their MXit name? Which is like ‘1XGastr’ ...” (FAR5, lines 291-299)

Others echoed this idea that relationships that exist entirely on CMC are not genuine:

“He might be fourteen years old or like twelve years old even. Most are twelve.” (FAR2, line 300)

With such disadvantages, one may wonder why MXit relationships exist at all. One of the reasons is that meeting people by means of CMC is simply easier. One can simply join a chat room and begin meeting people. In addition, many of the traditional barriers to adolescent romance are absent in this setting: physical attractiveness plays no part, one has

time to think of a response when in conversation and if the interaction goes badly one can simply sign off, and sign back in under a new name (Schmitt, Dayanim & Matthias, 2008). The ability to manufacture a 'disposable identity' in this way may seem unusual, but for many CMC users it is the only way to accomplish certain goals:

"I don't know how many fake accounts I've had deleted." (FBR1, line 623)

This will be discussed in greater detail in section 4.3.4.3

As mentioned in section 2.3.3, CMC also provides an easier way to maintain and organise social relationships (Hjorth, 2003). Many of the participants stated that they organised social gatherings through Mxit or Facebook:

"Getting the message out there a lot faster. Doing a good job, faster." (FBR4, lines 577)

The reason why this was done was made apparent by FBR1:

"Like if you are planning a party and you don't fee lie [sic] phoning each one then just making an event on Facebook is so much easier." (FBR1, lines 574-576)

In other words, some adolescents feel that even sending an SMS to a group of friends is wasted effort since there is a far easier way. This easier means of organising one's social life has grown increasingly popular (Keely, 2008). Some types of CMC are now regarded as the standard method of communication. Thus, if one does not use the same CMC as one's peer group, one can end up being unwittingly excluded from gatherings and distanced from one's friends:

"Like my friends we all go on a lot because we organise our whole social life on Facebook, like going out, it's actually really sad, like but like one friend who doesn't go on much and he's like 'What? Where?' and we say 'well you didn't go on Facebook, you didn't see'." (FAR4, lines 788-791)

The effects of CMC on relationships will be further discussed in section 4.3.3

4.3.1.3 Ease of Use and Language

Ease of use also translates into the use of language in CMC (Carrington, 2005). Several of the participants stated that the use of new, abbreviated forms of language used in CMC is done primarily because it makes the communication easier:

“I find it saves a lot of time.” (FAR3, line 277)

This includes several different ways of adapting language. Firstly, there are words that are simply slang:

“Obvious troll! Obvious troll is obvious.” (FBR1, line 612)

Secondly, there are abbreviations of frequently used words and phrases:

“Write ‘pls’, ‘plz’ or you know, something shortened.” (FAR2, line 270)

“And now it’s like ‘great’ is ‘gr8’.” (FAR3, line 245)

Lastly, there are certain CMC-specific practices such as leaving all of the vowels out of a word:

“People shorten, they take the vowels out of every single vowel and it’s unnecessary, when they’re typing, it’s a bit unnecessary, it’s a bit like, well, you’re crossing the line there.” (FBR1, lines 386-388)

There was some disagreement amongst the participants about the effect that these new conventions have on language. Some felt that using CMC was definitely having a negative impact on their ability to use language:

“No, I was just saying that sometimes spelling can be a thing. I find. You just get so used to writing using abbreviated words, and, you know, making it up as you go along and when you start writing normally you ... you were in that pattern ...” (FBR3, lines 400-402)

Others felt that they were able to differentiate between settings, for example MXit and school work, and use an appropriate style of writing:

“What I find is that typing doesn’t actually affect my writing because I never type except on my phone. So when I write with a pen I write properly, like I spell everything out.” (FAR1, lines 281-282)

A third group avowed that they did not use these new language conventions because they felt that these conventions simply are incorrect, and inappropriate for any genre:

“Because I’m a bit of a traditionalist, I like old-fashioned English. I like proper English with lots of vocabulary and so this sort of new stuff is irritating because it’s not

proper. Oh and also it's very in-jokey so if you don't have access to that sort of stuff you won't understand what people are talking about." (R2, lines 74-77)

In any event, it seems as if ease of use is one of the main driving forces behind both the popularity of CMC and the effect that CMC use is having on adolescents' lives.

The specific importance of communication to adolescents was discussed in section 2.2.2. It was suggested by the literature that the psychological and cognitive developments of adolescents make them likely to enjoy expressing their ideas (Adams & Laursen, 2007). This may also be linked to the growth in the language centres of the brain that is experienced during adolescence (Paus et al., 1999). The need to express, combined with the importance of social and romantic relationships, makes it clear why ease of communication would be of particular significance to adolescents.

4.3.2 The Immediacy Effect of CMC Use

In addition to being easy to use, CMC is popular because it has the ability to offer instant gratification of certain desires and, in some cases, even alleviation of anxiety (Park, Kim & Cho, 2008). These aspects of CMC use are changing adolescents' lives, and the way that CMC is used.

CMC offers access to many rewarding activities. These include constant contact with friends and loved ones:

"Oh. 'Cause I leave it on constantly even though I don't speak to them all the time."
(FAR3, line 651)

"I just think that it's popular because I know that like I'm in constant contact."
(FBR2, line 165)

CMC also offers almost instant satisfaction of certain needs. If one is in need of entertainment it can be found very easily, at any time and from any location:

"I guess it works because, also with MXit, it's portable. So you know if you've got nothing completely you can just go on MXit and talk to ... random people ... whatever." (FBR4, lines 50-52)

Additionally, CMC can be used to alleviate some forms of anxiety. One participant, for example, spoke of how he felt compelled to check Facebook because he was expecting an important message:

“I constantly need to go onto Facebook and you know just to check did she SMS, did she message, did she not send a message, just to check.” (FBR2, lines 504-506)

One user spoke of how some of his friends would continually reload a website they were viewing to see if anything new had happened:

“It’s not like I constantly am on Facebook and pressing F5, F5, F5 to see if I have any new messages.” (FBR1, 185-186)

Others spoke about using up their month’s supply of Internet bandwidth (or ‘cap’) by visiting Facebook so often, in order to keep updated on their friends’ activities:

“Ja. Like, like, sometimes we don’t cap, and we run out of cap and then I will go on my phone. It’s really bad.” (FAR4, lines 767-768)

Additionally, the portability of many types of CMC means that the need for access can be satisfied at any time. This may cause users to become more accustomed to constant access and thus more dependent upon it, leading to addiction. This will be discussed in greater depth in section 4.3.6.

Everything that CMC can provide can be acquired offline. However, what is unique about what CMC offers is instant gratification of one’s desires and constant contact to areas of interest. This impulsive need for constant contact may be related to the development of the executive function of the brain that was discussed in section 2.2.3 (Blakemore & Choudhury, 2006). One of the features of the executive function is the ability to ignore certain desires and resist impulse gratification. It is possible that adolescents would have a particularly difficult time dealing with the addictive qualities of CMC use simply because the executive function is not yet fully formed. CMC addiction will be discussed in greater depth in section 4.3.5.4.

4.3.3 The Role of CMC use in Relationships

The link between the ease of CMC use and relationships was discussed in section 4.3.1.2. However, CMC can also have other effects on relationships that do not relate to ease of use. As discussed in section 2.2.4, relationships can be of particular importance to adolescents. The impact of CMC use on romantic, familial and peer relationships is discussed in this section.

The first of these impacts is availability. Some of the participants stated that CMC can serve as a means of maintaining contact with a romantic partner when one is unable to meet them in person:

“When you couldn’t be with the girlfriend at the time and then you go online and she’s there and you can get so happy.” (FBR2, lines 168-70)

Another participant agreed, and added that CMC can be used strengthen existing relationships:

“My sister’s out of school and with a boyfriend and been living together for a year and their relationship is not based on MXit, they’ve got a solid relationship outside of MXit and they just use it as a way to extend their relationship.” (R1, lines 148- 150)

Another relationship-related use of CMC that was discussed involved using CMC to broadcast one’s affections. A popular way of accomplishing this is through the use of ‘status messages’. These are short statements about what a user is doing at a particular moment that are posted on Facebook or Twitter (Grossman, 2009). Putting a romantic note into a status message indicates that you are proud of your relationship, and informs your loved one that you are thinking of him or her:

“And then you have to make your status ‘oh my god I miss you so much!’” (FBR1, line 171)

“So it’s become this new, modern age way to romanticise and to, you know, back in the day people opened doors for them and these days you make up a profile status and stuff. “ (FBR2, line 174)

CMC can also assist a user in overcoming shyness and it can also provide a platform for developing a romantic relationship from an existing friendship. One participant spoke about how she had met someone at a party and had then used Facebook as a way of getting to know the person before committing to a relationship:

“We met up at a party and we didn’t have each other’s numbers or anything. And then afterwards we started speaking to each other on Facebook. So we got to know each other through that and then we’d decide to meet up ... And I’m quite a shy person so it really helped, to be, not with him. Oh, like speak a bit and get to know each other first and then to meet with him.” (FBR3, lines 309-322)

The feeling here seems to be that CMC provides a form of communication that is perceived by users as being safer than face-to-face communication. The idea that CMC can provide a vehicle of communication for individuals who have difficulty with face-to-face interaction is discussed in depth in section 4.3.4.

However, the participants also made it clear that CMC could have a negative effect on relationships. Firstly, constant use of CMC can put strain on a relationship because one partner may begin to neglect the other, or because one partner becomes concerned that the other is becoming addicted:

“It’s so bad that [her husband] has had to bribe her and say ‘sweety, you gotta cut down on Facebook, let’s have a Facebook diet.’” (R1, lines 237-238)

Another potential cause of relationship difficulty is the peculiar manner in which CMC encourages people to behave in ways that are out of character:

“I know this ‘used-to-be’ couple. And then like a picture was shown on Facebook and like they started bickering over Facebook and like they said things they would never actually say in person.” (FBR2, lines 341-345)

This idea is expanded upon in section 4.3.4.

The feeling amongst many participants was that, while CMC could be used to enhance an existing relationship, care should be taken to use it responsibly, and that it could never take the place of a relationship in the real world:

“Yeah you can’t really beat the real thing.” (FBR1, line 294)

“That can’t be all of it. People still need to feel something real.” (FBR3, line 296)

Thus, it was no surprise that the participants were, in general, highly critical of the phenomenon of ‘MXit relationships’:

“Like they’ll go ‘I’m dating this guy I find on MXit’.” (FAR5, line 296)

The overriding sentiment about MXit relationships amongst participants was distinctly negative:

“I just think it needs a bit of common sense. You know you can’t really form a connection over like a CMC.” (FBR2, lines 285-6)

“You do get fake MXit relationships.” (R1, line 64)

The feeling seemed to be that MXit relationships were something that only the immature or the unaware would become involved in:

“There are grade 8s I’ve spoken too who are starting to get MXit boyfriends and girlfriends ...” (FBR2, line 279)

“Most are twelve.” (FAR2, line 288)

CMC also seems to be impacting on familial relationships in a number of ways. The most common of these simply seems to be a greater level of CMC contact between members of a family:

“I quite enjoy it now. Because you know I used to only see my cousins like once, maybe twice a year, in June holidays, December holidays ... and now it’s like every day ‘Hey cuz. How you doin’?’” (FBR2, lines 196-210)

“Um, like, we only have family members on Skype.” (FAR2, line 609)

However, some of the ways in which CMC is being used in family communication may be quite unexpected. For example, several participants stated that they knew of individuals who sometimes used CMC to contact family members who were in the same house with them at the time:



“It’s the worst when you are like sleeping and then the phone goes ‘tring tring’, ‘hello?’, ‘hi, it’s <name>. Please make me some coffee and bring it upstairs.’ (FBR2, lines 248-9)

“No, my sister. She didn’t feel like calling my mom upstairs so she just phoned her, and she was downstairs.” (FBR3, lines 244-5)

Some might feel that this behaviour is maladaptive, and that may be the case. But, it may also be the case that these behaviours are symptomatic of a fundamental change in family relations:

“Then again I’m not even usually sure if my dad’s in the house.” (FBR1, line 246)

Recent studies have suggested that as families have become more fragmented, technology is being used as a means of keeping family ties strong (Cook, 2007). This suggests that

such novel uses of CMC as those described above may in fact be good for a family, if the alternative is to not communicate all.

Relationships with one's friends can also be affected by CMC. The greatest impact CMC seems to be having on friendships is that it is increasing the amount of communication people are having with one another:

“So we, you know, since, for like two years we've had about five different things, and each of them has about five thousand messages on them. So every day we just talk.”
(FAR4, lines 111-112)

The feeling seems to be that it is normal for one to be in almost constant contact with one's friends. This relates to the theme of immediacy that was discussed in section 4.3.2.

CMC also allows one to reconnect with friends from one's past. This application of the technology is particularly valid nowadays because of the nature of the global workplace. Many people are finding work overseas and being able to remain in contact with friends they have left behind can be of great value to them:

“Just the ability to communicate with so many people so far away as well. And staying in contact with old friends. Like people from primary school who you've never spoken to in years and now you just search for their names, and they are there, and you can just start speaking to them again. Even if they are overseas. It's just so much easier to find people that you know.” (FBR3, lines 568-572)

CMC provides ways to strengthen existing relationships, rekindle old ones or create new ones. Some of the effects of these interactions have been described in this section but what lasting consequences such new behaviours will have is unknown at this time. It may be that more relationships are moving online (Cortini et al., 2004). It may be that CMC provides a means to access relationships that are difficult to obtain offline (Becker & Schmidt, 2005). Or it may be that CMC provides a means of maintaining offline relationships (Cook, 2007). But it is also possible that traditional relationships are being damaged by CMC use (Subrahmanyam & Greenfield, 2008).

4.3.4 CMC as a Barrier

A theme that seems to be emerging from this research into CMC is the concept that CMC can serve as a semi-permeable barrier that allows one to express oneself without limitation,

but only receive from others what one wishes to receive. In other words it can be used as a means to control one's communication with others.

The idea that one's PC or cell phone may serve as a semi-permeable barrier between oneself and the online world may seem quite strange. Nonetheless, several of the participants mentioned ways in which a CMC served them as a means to protect them from some kind of unwanted interaction, or served as a means for them to express themselves in ways that could not occur when offline. Thus, CMC can be seen as a way of minimising risk and maximising expression. This section will focus on several issues that relate to such uses of CMC.

4.3.4.1 Using a Barrier to Overcome Shyness

One way in which CMC can be used to minimise risk involves individuals using CMC as a means of overcoming shyness. As discussed in section 4.3.3, CMC can provide a way of meeting prospective partners that one might not have encountered offline. Additionally, several of the participants mentioned how they themselves had used CMC as a way of beginning a romantic relationship or had personal experience of an acquaintance who had done so:

“Get... your...opinions and points across a lot easier if, than just in person, because you've got something to hide behind.” (R1, lines 71-2)

“Well I found it a lot easier and not scary. Like I could be more of myself in those messages and then when we started meeting that could come out, you know, face to face. But in the beginning it helped.” (FBR3, lines 329-331)

For these people, CMC served as a shield between them and interactions that might have been uncomfortable. Beginning a romantic relationship can be a daunting prospect, particularly for an adolescent (Bay-Cheng, 2003). CMC can become a barrier between the user and the embarrassment or anxiety that they might feel when approaching a prospective partner.

As discussed in section 2.2.1, adolescence can be an extremely stressful time for a number of reasons. This stress can affect an individual's self-concept negatively (Halpern et al., 2005), making any technology that reduces shyness extremely attractive to many adolescent CMC users.

4.3.4.2 CMC Barrier and Clarity of Communication

A disadvantage of using CMC is that CMC is often not as rich in meaning as face-to-face communication and misunderstandings can therefore occur:

“Like say you have an argument on MXit, you don’t really know. There’s this argument and things that would be considered joking in physical may be taken differently.” (R1, lines 27-29)

This is a danger that all users of CMC must contend with. In fact, I personally believe that this is one of the main reasons why emoticons (e.g. “:-)”) were developed and have become so popular; they provide a valuable emotional context for communication. In fact, Jason Calcanis (2009), a respected Internet entrepreneur and businessman, recently expressed the theory that the lack of certain communication cues as found in face-to-face communication can lead to a kind of ‘Internet Asperger’s Syndrome’. Calcanis believes that individuals are oblivious to the emotional harm they are causing others via CMC due to the lack of visual cues available. Thus, it seems that adaptive measures like emoticons cannot fully replace the richness of face-to-face interaction. Despite this shortcoming, CMC still provides an adequate means of communication between two parties who are shy, or nervous. It allows them to get to know one another before meeting offline or committing to a relationship.

4.3.4.3 Using a CMC to Lie or Hurt

As mentioned in section 4.3.1.2, CMC usage can also be a negative or even dangerous practice because some CMC patrons use the technology to lie about themselves:

“It seems a bit sad really, because you can have a persona on, behind, the screen ... you can make up a whole new person because you’re not having to relate to the other person you’re just having to type words, and that’s bad, because you don’t want to fall in love with someone who’s not actually real.” (R2, lines 48-52)

This ability to shield oneself from the emotions of the individual with whom one is communicating can be abused in a number of ways. One participant commented that she knew of individuals who had ended relationships via CMC, as a way of avoiding the responsibility:

“Like break ups on MXit I disagree with, I hate with a passion, oh my gosh, I don’t like it, um, I think it’s a cowardly thing” (R1, lines 152-3).

Thus, it is possible that CMC can be used to avoid the negative consequences of socially undesirable or uncomfortable behaviour.

Another, far more common, example of using CMC to escape negative consequences is the phenomenon of 'trolling'. As explained in section 1.9.4, trolling refers to the act of injecting into an online conversation a message that is inflammatory, insulting, irrelevant or otherwise disruptive, with the express purpose of provoking an emotional response from those engaged in the conversation (Schwartz, 2008):

“But going after those animal rights sites and talking about how funny you find it all, and they just freak out. It’s endless fun.” (FBR1, lines 619-623)

Trolling is an interesting phenomenon because it involves two groups whose responses to the interaction are completely different. First, the 'trolls' use CMC as a barrier to shield themselves from the negative consequences of their rude behaviour, and thus they are not affected by the responses of their victims, other than to enjoy the attention they get, and the power they feel they have. Secondly, there are the victims, who are typically offended by the trolls' behaviour and thus experience a negative emotional reaction, despite being involved with CMC. In other words, it seems that trolling involves one group who has learned how to use CMC as a shield, and another group who has not yet learned this skill (Schwartz, 2008).

Similar to trolling is the phenomenon of bullying via CMC. Internet bullying appears to be an extension of real world bullying (Juvonen & Gross, 2008). That is to say, Internet bullying usually involves individuals who know each other offline, and have already established a bully/bullied 'relationship':

“Well I know someone who was in a fight. One of my ex’s, exes. And the girl that she was in a fight with, all her friends started sending all these horrible messages to her, and writing mean things on her wall and stuff” (FBR3, lines 643-645).

The ability of trolls to use CMC as a shield was discussed above and bullies often do the same. One of the dangers of this technique is that trolls, or bullies, can lose perspective, and not realise how harmful their actions can be to those who are not as comfortable on CMC as they are:

“My brother was bullying this one kid. And he and some other guys ganged up on him. And he was banned from Facebook for about a, two months or something. And then he got almost this whole harassment thing from this guy’s mother. So it was

really bad. And you know because he thinks 'it's free' so he can just do what he wants." (FBR4, lines 633-638)

This may relate to Calcanis' theory of 'Internet Asperger's Syndrome' discussed in section 4.3.4.2.

4.3.4 The CMC Barrier as an Aid to Free Expression

A final use of a CMC barrier is that of allowing an individual to express ideas that are unpopular with a society, or even illegal:

"Go onto chat rooms, like the 'For Whites' chat rooms. And you go on and say 'Well I'm black' and they go 'ah no! Kaffir, kaffir!' and whatever." (FBR2, lines 662-663)

Thus, it seems that individuals who cannot express socially undesirable behaviour in their day-to-day lives may instead choose to do so via CMC. The negative effect of this facility is that it can provide support and reinforcement for maladaptive behaviours that a society is attempting to stamp out. However, even this is not necessarily a bad thing as CMC is also frequently used by oppressed groups to communicate secretly about what is happening in their country. The recent protests in Myanmar and Iran are two examples of this (Grossman, 2009).



4.3.5 Dangers

The participants mentioned a number of different ways in which CMC can lead people into real danger:

"There's the sort who like meet people on chat rooms and on MXit and then go and get raped and you know." (FAR4, lines 377-378)

This section will discuss these various dangers.

4.3.5.1 CMC Dangers in the Real World

In a way, the above quote is linked with the point made in section 4.3.1.2 about how people can use MXit and other CMC to mislead someone. MXit gives very little information about the person to whom one is speaking. All that is presented is a cell phone number and a nickname. Everything else that a user knows about who is being spoken to comes from what that person says:

“It’s not even see, it’s just like it’s what do you know about them? Their MXit name?”
(FAR5, line 298)

Messenger, GTalk, IRC and a number of other CMC facilities are much the same. The only information a user has to give out is the nickname that they have created. This means that there is no easy way to determine that the person you are speaking to is who they say they are:

FAR4: “But what if they’re a weirdo?”

FAR5: “Well, you don’t know.” (FAR4 & FAR5, lines 326-327)

One participant mentioned an actual incident in which a friend arranged to meet a MXit contact only to discover that she had been badly misled about him:

“And then they had a MXit relationship and they never met each other and then one day they decide to meet and then she’s like ‘oh my gosh you’re forty, I’m fourteen, this isn’t going to work’.” (R1, lines 35-37)

This event is similar to cases reported in the media concerning users of a CMC facility who were lured into a trap in the real world by someone. Another example would be of a sexual ‘predator’ who uses CMC to ‘groom’ prospective victims before meeting them in person (Bosch, 2008).



4.3.5.2 The Danger of Harassment

As discussed in section 2.3.4, there is also some scope for harassment via CMC. Some of this harassment occurs in ways one would not expect:

“And then they end up like sending you like fat people porn all over your wall!”
(FAR5, lines 209-210)

In order to understand what the participant is speaking about, one needs to know something about Facebook. As explained in section 1.9.2.7, contacts on Facebook can post messages, images, videos and other content. Such content appears on a personal message display system called a “wall”. Only one’s Facebook contacts can access this service, but once a user has accepted a contact that contact can post whatever they like, until the user deletes the contact from their contact list. Thus, if a contact is accepted under false pretences, they have an opportunity of hours or days to post offensive material on a person’s wall,

depending on how long it takes the person to respond, and delete the contact (Wardrop, 2009).

This form of harassment may come as a complete surprise to most users, but many of the participants in the study regarded it as relatively normal. The general attitude among several participants was that actions like these are simply a part of CMC use and it is the responsibility of users to protect themselves:

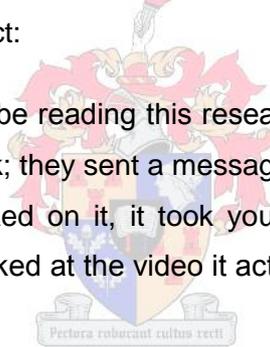
“But that’s your own fault ... because you want to accept them even though you don’t know who they were, etcetera.” (FAR3, lines 308-310)

“Deleting people is the most amazing tool in the world.” (FBR1, line 428)

4.3.5.3 *The Danger of Viruses*

It was mentioned above that some of the participants consider protecting oneself as simply part of CMC use. There are some dangers, however, like viruses or hackers, that can attack a user in ways they might not expect:

“So for the people who will be reading this research. Basically the virus infected one of the contacts on Facebook; they sent a message to you that looked like it had come from them. When you clicked on it, it took you to a fake website that looked like YouTube and when you looked at the video it actually gave you the virus.” (FAI, lines 571-573)



It therefore appears that the dangers of CMC are constantly evolving and that it is important to remain aware of new threats as they emerge.

4.3.5.4 *The Very Different Danger of Addiction*

In section 4.3.4 the nature of CMC as a barrier between a user and possible negative consequences of using the Internet was discussed in section 4.3.4. What all of the above dangers have in common, is that they all involve a hostile person somehow overcoming the CMC ‘barrier’ and causing harm to a user. Even if the ‘harm’ is merely disgust at unwanted pornography, it remains an example of a danger of CMC use that involves the protective barrier being overcome. When ‘trolling’, a user hides behind a CMC barrier and uses this safe position to provoke negative emotional reactions from other users. In this way they overcome the other users’ barrier in order to attack their feelings. Internet bullying operates in the same way. In cases of stalking or grooming, an individual will hide their true identity

behind a CMC barrier and then attempt to overcome their target's barrier by suggesting that they meet in the real world (Williams, 2006). Thus, all CMC dangers involve the CMC barrier somehow being overcome by another user.

However, there is another danger that arises from CMC use that has nothing to do with the CMC barrier at all, namely addiction:

“They literally can't help it. It's an addiction, just like anything else. It might not be the thing, like MXit. It's just an addiction like anything else.” (FBR1, lines 225-226)

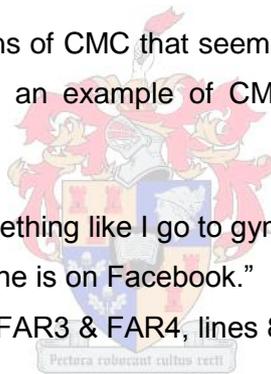
The participants were united in saying that CMC addiction is very real, and that MXit does seem to be the main 'drug' of choice:

“I dunno, you could say it affects in negatively. Because you find you are sitting amongst a group of people and then suddenly you get this impulse to just pull out MXit.” (FBR2, lines 215-216)

However, MXit is not the only means of CMC that seems to provoke this strong compulsion. Facebook was also mentioned as an example of CMC that some users need to check constantly:

FAR4: “I just thought of something like I go to gym and they have Internet there, and on all the computers everyone is on Facebook.”

FAR3: “Going for their fix.” (FAR3 & FAR4, lines 816-818)



Research on the increase in the number of online computer game addicts is conducted globally (Jang, Hwang & Choi, 2003) and one of the participants expressed that he may himself fall into this category:

FAR3: “Well yeah I guess I do get anxiety attacks, etcetera ...”

I: “Anxiety attacks because?”

FAR3: “Because I don't play enough. Like if I don't have enough or if I stop playing.”

I: “Well, tell us what that's like.”

FAR3: “Well it's totally awful. It's like if there was a grenade lying there and you were like 'aaaah!'”

I: “So it's that same level of anxiety?”

FAR3: “Yeah.” (FAI & FAR3, lines 668-676)

The exact nature of CMC addiction is not fully understood at present (Block, 2008). What is clear, is that CMC devices offer their users some sort of positive reinforcement, and that the

portability and availability of these devices, as discussed in section 4.3.2, may cause users to become accustomed to constant access.

The participants had their own theories about why someone might become addicted to CMC. One suggested that contacting loved ones via CMC may be pleasurable because of the emotional connection between the users:

“For example let’s say you have a girlfriend and you know, being in love with someone releases the same hormones as a drug and such, and then you go onto the internet, and when you couldn’t be with the girlfriend at the time and then you go online and she’s there and you can get so happy.” (FBR2, lines 165-170)

Another theory was that users experience a perceived reliance on the technology and that the addiction may be all in their heads:

“People will start feeling that all they really need is that, and it starts ruling them more over, they can’t, subsequently, they can’t ‘live’ without that piece of technology, that they can’t even probably go like one day without it.” (R3, lines 130-132)

One final theory, relating specifically to computer games, is that playing the game causes both emotional excitement and a rush of adrenalin that excites the body. This may create a similar affect to a stimulant drug:

FAR4: “I guess we’ve ... it’s kinda the same with me I used to play a lot of computer games and you know you get adrenalin rushes and you are all ‘ah!’ ... I remember playing COD4 and then going to a friend’s house and playing on the Internet was just so much better.”

FAR3: “It’s amazing.”

I: “So why is it so amazing?”

FAR3: “It feels good to kill someone! Especially if they are an opponent!” (FAR4, FAR3 & FAI, lines 677-688)

While the causes of CMC addiction are still unknown (Block, 2008), the participants were united in expressing their belief that the effects of CMC addiction could be wide-ranging and harmful:

“I’ve heard of cases that some kids get their MXit taking away and they actually get, or feel withdrawal symptoms.” (FBR2, lines 228-229)

“I was reading in the newspaper, on MXit actually, and how... this one student who failed his matric year, simply because he spent his time on MXit.” (R1, lines 212-216)

I: “Do you know people who actually experience anxiety when they can't get to MXit?”

FAR2: “Yes.”

FAR5: “Yes.”

FAR1: “Like ‘oh my god’ I can't get online.”

FAR2: “And scream and go on and stuff.” (FAI, FAR1, FAR2 & FAR5, lines 696-700)

“But also like I have friends at my last school whose parents took their MXit away because they were talking to strangers and that. And they committed acts of violence against them. And beat their own friends up to get their MXit back. Crazy stuff.” (FBR4, lines 554-557)

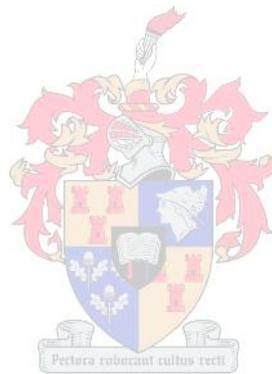
Thus, it appears that CMC addiction needs to be taken just as seriously as any other addiction. The danger of addiction to CMC is quite different from the other dangers described in this section. Those dangers all seemed to involve the CMC barrier being overcome by someone wishing to do harm to another user. Addiction involves users exploiting the benefits of CMC so well that it begins to have a negative impact on their lives.”

4.4 CONCLUSION

If the links between the dominant themes expressed by the participants are examined, one may begin to form a clear picture of how the participants have constructed their relationship with CMC. CMC can be seen to form a semi-permeable barrier between a user and the online world. This barrier allows one to freely express oneself, without restrictions, and also to shield one from most of the dangers of online activity. Furthermore, CMC gives one access to the benefits of social interactions that could traditionally only occur in an offline environment. This includes such aspects as romance, friendship, entertainment, information gathering and many more. Moreover, CMC also allows access to these benefits in a manner that is easy and immediate and it provides users with a large amount of control over their communications.

Problems with CMC use arise in two ways. The first is when the barrier is overcome by someone who wishes to do some harm to a user. This can include social, emotional or even physical damage. The second problem occurs when a user becomes so skilled at acquiring the benefits of CMC devices that they start to rely on them, and become addicted.

In the next chapter, a model of adolescent CMC use is presented, together with a discussion of the findings of the study, a reflection on the researcher's experience of the study and recommendations for further research.



CHAPTER FIVE

DISCUSSION OF STUDY

5.1 INTRODUCTION

This Chapter presents a discussion of the findings of the study and an explanation of a model that has emerged from this research to explain CMC use among adolescents. Following this, the strengths and weaknesses of the study are reviewed. Recommendations for future research and a reflection on the research process will be given. Lastly, there will be a brief conclusion to the thesis.

5.2 DISCUSSION

Section 3.2 presented the research questions of the study. The primary research question was:

“What views do adolescents hold about the impact of Computer-Mediated Communication on their lives?”

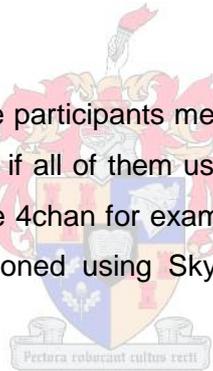
Multiple sub questions were also included in the study:

- Which CMC do the participants use?
- What uses does CMC have?
- What effect does CMC use have on language?
- Is CMC having an effect on school work?
- How are relationships being changed by CMC?
- What are the dangers of CMC use?
- What is the nature of bullying on CMC?
- Why is CMC so popular?

This section will explain how these questions have been answered through the data that were gathered.

The two forms of CMC that were mentioned most often were Facebook and MXit. They seem to be the most popular by far. This may simply signify that they are the two most fashionable means of CMC for adolescents. But it may also relate to several key factors that are specific to the participants' own context. Firstly, both Facebook and MXit are relatively inexpensive. If you are an adolescent with a limited income, this alone would make them quite appealing. Secondly, both MXit and Facebook are easily accessible from most cell phones, to which all of the participants had access. Many other means of CMC require access to a PC, which may be less convenient. Cell phones also are fully portable. This would make the use of any form of CMC not available on a cell phone less likely. Lastly, it seems as if the popularity of MXit and Facebook is itself related to popularity. One can only use MXit and Facebook to communicate with other users who are members of the service. IRC is capable of doing everything that MXit can do, but it is not popular, therefore those adolescents who are looking for a new way to communicate with their friends are unlikely to choose IRC because they would, initially, have no one to talk to. The huge popularity of MXit and Facebook means that they attract additional users who wish to communicate with those who have already signed up.

In addition to Facebook and MXit, the participants mentioned a large range of types of CMC that they use regularly. It seemed as if all of them used the SMS, but not as often as MXit. They also used various websites, like 4chan for example, but none that were as popular as Facebook. A few participants mentioned using Skype and one or two mentioned MSN Messenger, IRC or Google Talk.



The overwhelming sense gained from the participants was that these types of CMC were used primarily as a means to remain in contact with friends and loved ones. It sounded as if the various means of CMC all blended together to form a single massive conversation. In a sense, it comprises a virtual cocktail party. People form into pairs or small groups to have private discussions (as with private Facebook groups), or stay in large groups for more general chatting (as with MXit or 4chan). People meet prospective partners, flirt, start a relationship and even break up, all within the same huge dialogue.

The secondary uses of the technology were highly varied. They allow for the gathering or sharing of information about school work. They allow for the maintenance or creation of various relationships. They provide abundant sources of entertainment or social interaction and they can even provide a short-term escape from the pressures of one's day-to-day existence.

The participants were united in saying that the kind of language used on CMC is quite different from that used in school. However, they disagreed on what the long-term effect of such language use might be. Some of the participants felt that the ungrammatical and abbreviated language used on CMC might lead to adolescents losing their mastery of accepted language conventions. A few of the participants recalled instances in which they, or an acquaintance, had used CMC slang in their school work and had been penalised for it. Some of the other participants disagreed. They felt that if one was mindful of one's language use then one could ignore the effect of CMC slang, and maintain one's mastery of language. Others felt that CMC language conventions simply represented an evolution of language and that these non-standard practices would in time become accepted. Some of the participants even expressed dismay at their own inability to keep up with the ever-shifting trends of CMC language conventions.

If CMC use is altering adolescents' command of language, this might lead to a negative impact on their school work. The participants also mentioned other potential effects of CMC on school work. Many of these were positive. The most common positive impact of CMC on school work was that CMC allows users to share information about assignments, tests and so on. One participant mentioned that he frequently forgot some of the guidelines for his assignments and that his results would definitely have suffered without an easy means of communicating with his classmates. Several participants also mentioned that the Internet was their most frequently used source of research material for assignments. Lastly, the participants stated that some of their teachers had, in the past, used CMC as a way of providing additional information to their students about assignments and the exams, and that some of their teachers frequently used e-mail to answer their students' questions.

The effect of CMC use on relationships was also seen by the participants as both positive and negative. On the one hand, misunderstandings were said to be fairly common in using CMC, and more than one participant said they knew of a relationship that had ended due to a CMC-related miscommunication. Furthermore, one participant spoke of the strain on the marriage of a friend of hers, due to a partner being seemingly addicted to Facebook. Lastly, some participants stated that CMC was being used to replace face-to-face communication with family members, in a way that they felt was lazy and negative. However, other participants spoke of how they were using CMC to rekindle old relationships and strengthen new ones. Some of them mentioned how they were using CMC to stay in touch with members of their family and some spoke of how Facebook, in particular, had reunited them with lost friends.

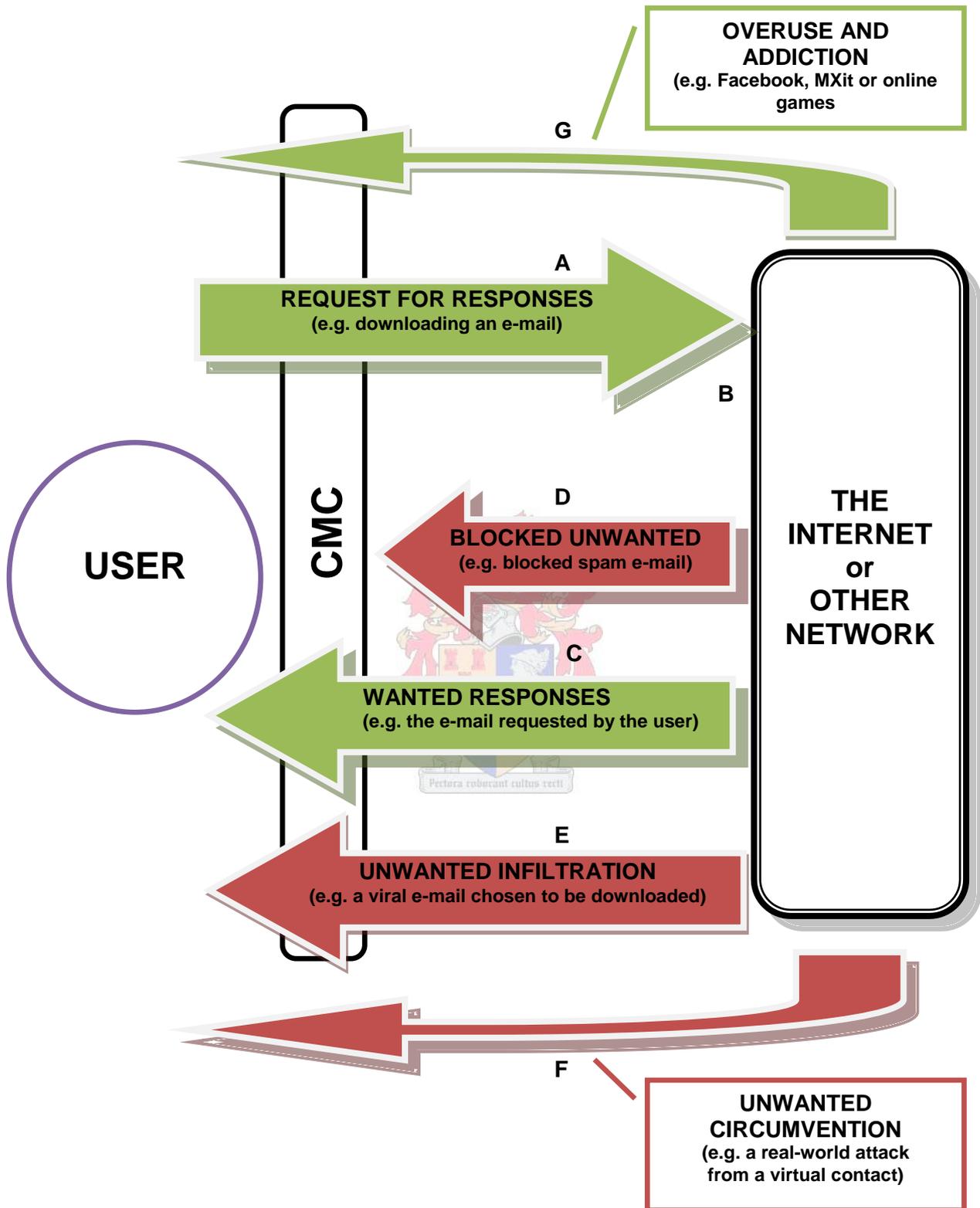
The participants were quite candid about the dangers of CMC use, which were said to be many. They include harassment and bullying, both by individuals known to them and by complete strangers. Then there is the ever-present danger of trolls who attack users verbally in order to garner attention. The Internet is also infested with viruses and many means of using CMC provide users with access to unprotected PCs or cell phones. The fear that a dangerous person may use CMC to mislead users and lure them traps in the real world can also not be ignored. Lastly, the popularity, portability and ease of use that are characteristic of many CMC devices combine to create the danger of addiction. Some of the participants openly stated that they regarded themselves as addicted to one or more types of CMC. Others were more cautious and spoke of their fear that their friends may become addicted. In either case there was no doubt amongst the participants that CMC addiction is very real, and poses a legitimate danger to users.

The question of why CMC is so popular is multifaceted and many common threads were revealed by what was mentioned by the participants. The portability, ease of use and immediacy of CMC were all key factors that were openly discussed by the participants. But, there was another, more complex theme that lay beneath the participants' responses. This concerned the fact that CMC provides users with the means to control their interactions with others by using a CMC as a barrier between them and the person with whom they communicate. In order to explain how this might work, a visual representation, in the form of a model, has been created to illustrate the patterns of CMC use described by the participants in the study (see Figure 5.1, overleaf).



In the model, green arrows represent content and interactions that the user wishes to have, while red arrows represent content or interactions that the user does not want. The starting point of the model, on the left, is with the User. This refers to any person who is using CMC. The User sends a request to the Internet or cell phone network for whatever it is they are looking for, be it an e-mail, a movie or the answer to a question. This request is labelled on the model as 'A'. The request is passed on via the CMC barrier, represented by the rectangular figure, and reaches the Internet or network (B). The request is processed and returns via the CMC to the User (C). This basic exchange is the model for how most CMC functions.

FIGURE 5.1: A Model of Adolescent CMC Use



However, complications arise in the form of unwanted responses (D, E and F). The majority of these unwanted responses (D) are prevented from reaching the User by means of the CMC barrier. This is done through the use of antivirus software, passwords, the blocking of other users and so on, and is the primary means by which a CMC device acts as a barrier between the User and the unwanted effects of CMC use. Unfortunately, some of these unwanted responses will get through the CMC barrier. Sometimes the User is at fault, allowing unwanted responses in through negligence, ignorance, or laziness.

These unwanted responses that could be screened by the User are labelled 'E', 'Unwanted Infiltration'. Other unwanted responses (F) go *around* the CMC barrier in some way. This includes spam messages, phishing scams and viruses that somehow bypass screening software and techniques. It can also include negative consequences of online activity that play out in the real world, for example, if an individual that a user met online were to track them down in the real world and assault them. These negative effects have been labelled 'Unwanted Circumvention' because they go around the CMC barrier, rather than through it.

One final difficulty with CMC use is included in the model. Sometimes a User becomes so adept at getting what they want through CMC that they become accustomed to constant online activity, and addicted to it (G). This problem is quite different to the other problems because it does not involve a problem with the CMC barrier, but rather with Users themselves.

The purpose of the model is to illustrate how CMC use is being constructed by the study's participants. They were completely open about how CMC use comes with various dangers that must be managed if one is to remain safe. But, there is another meaning behind the model that relates to why CMC has become so popular. In this study, it emerged that CMC allows a user to exercise great control over their interactions with others. When using CMC, one can express oneself in whatever fashion one wishes. One can even create a completely false persona specifically for the purpose of controlling one's communications. If there is something a user wishes to say to another, and they lack the opportunity or will to do so face-to-face, they can use a CMC and then simply ignore what the other person has to say. One example of this would be users who break up with their boyfriends or girlfriends via CMC, in order to avoid the unpleasantness of the experience. Trolling is another example of this trend. Trolls create anonymous profiles so that they can send hostile messages to other users and then use their anonymity to escape that user's response. The study's findings suggest that some forms of CMC become popular because they allow greater control for their users. The participants mentioned that Facebook, for example, allowed the creation of

private groups or events, thus giving the users complete control over who may join, and who is excluded. This echoes the findings of prior research discussed in section 2.4.1.

In sections 2.2 and 2.4.1, the nature of adolescence and the interaction between adolescence and technology were discussed. If one explores the literature on these phenomena one finds numerous explanations of why adolescents might choose to use CMC as a means of controlling their communication with others. The first is the need for self-expression that develops during adolescence (Omatseye, 2007). IM, discussion sites and Facebook all provide a place for adolescents to articulate their ideas without anyone being able to restrict their expression. Blogs are the ultimate example of this phenomenon because one can delete comments from other users on one's own blog, or prevent anyone from posting any in the first place. This gives one complete control over the content of the blog (Pedersen & Macafee, 2007).

Insecurity and emotional turmoil are also common aspects of adolescence (Ellis & Garber, 2000) and thus it is easy to see why a greater degree of control over their communication might be appealing to an adolescent CMC user. After all, if one is in a fragile emotional state, the last thing one wants is to be ambushed by a troll. Additionally, adolescence is a time for the development of one's first romantic relationships (Mantell et al., 2006). Inexperience with relationships, combined with the existing emotional turmoil that adolescence often brings with it, might explain why some adolescents choose to end relationships by CMC, rather than face-to-face. A CMC can allow them to say their piece, and prevent them from having to listen to what their partner has to say. Thus, they can avoid the emotional fallout from their partner.

Insecurity is another common facet of adolescence (Morris, Ciesla & Garber, 2008) and insecurity in oneself may also be one of the causes behind the desire to develop false personas via CMC. If one believes oneself to be inferior, the opportunity to create a 'new self' online may appear highly tempting. So, in a sense, using CMC may give adolescents the opportunity to control both the expression of their own identity and how others perceive them. However, as was discussed in section 2.2.2, relying on a disingenuous identity may have negative consequences. According to Erickson's theory of psychosocial development, failing to develop one's own identity during adolescence places one in danger of never being able to develop a healthy identity (Dunkel & Sefcek, 2009). Thus, it may be that using a false identity online is psychologically harmful to one, despite the attraction of being able to assert one's self online. Bullying is another harmful way in which individuals can assert themselves and the ability to control communication also fits the current research on bullying. Bullying is primarily a search for power and popularity among one's peers (Raskauskas & Stoltz, 2008).

If someone who is being bullied has not yet learned how to block a bully from contacting them, then a CMC may be a perfect way for the bully to control their communication with the victim. So it appears that there are many reasons why using a CMC as a means of controlling communication might be attractive to adolescents.

In summary: the question of how CMC is impacting on adolescents' lives is a complex one, and it does not have a simple answer. CMC use affects its users' lives in multiple ways and many of these effects are not yet fully understood. It seems that the ability to control one's interaction with others is a key facet of CMC use, but numerous other aspects play a role as well.

5.3 STRENGTHS AND WEAKNESSES OF THE STUDY

There were several areas in which the study could be considered highly successful. However, there were also aspects of the study that could be improved upon. This section deals with both the strengths and the weaknesses of the study.

The first of the possible weaknesses of the study is its size. The study was a small one, with a total of only twelve participants. While the researcher is confident that the study has accurately and richly portrayed the opinions of the participants, the possibility exists that the participants in the study did not accurately represent the population of adolescent CMC users as a whole. The participants were all chosen from a single school, and a relatively wealthy one at that. While the participants represented both genders, and a variety of cultural backgrounds, all of the participants were English first language speakers, from middle to high socio-economic environments. It is possible that the experience of other South African language or cultural groups is quite different and this is an issue that the study was unable to address. While qualitative studies do not need a large number of participants in order to be credible, the small number of participants may affect the issue of transferability that was discussed section 3.4.5.2. It is for this reason that the context of the study and the nature of the participants have been described in detail. This should allow other researchers to decide whether or not the findings of this study are applicable to contexts that they are studying.

Relationships between various facets of CMC use are discussed in the study. These include, among others, a possible link between frequent CMC use and addiction and a possible link between CMC language conventions and a weakening of a user's ability to maintain academic language standards. These possible links reflect the opinions of the participants and thus it is appropriate for them to be discussed in the study. However, proving causal

links between phenomena requires far more methodological rigour than this small study is able to provide. This may affect the credibility of the study and it will require further research to investigate whether the links discussed in the study truly exist.

Further complications may occur due to the rapid evolution of CMC itself. While the study was being conducted, older forms of CMC were becoming less popular, new methods of CMC were being released and the trends in CMC use were shifting and changing. The danger of research into a field that changes so rapidly is that the research may soon become obsolete, inaccurate or irrelevant. However, this is not necessarily a weakness in the study; it is more a caution on the nature of CMC research as a whole.

The greatest strength of this study lay in the openness of the participants. All of the participants who took part in the study freely expressed their ideas in an open and accessible way. Many of them were also comfortable sharing private experiences on a variety of highly personal issues. These included relationships, the impact of CMC use on their school work and the possibility of addiction. Without this openness, it is unlikely that the study would have been as successful as it has been.

Another strength of the study is the model of adolescent CMC use that emerged from the findings. The researcher believes that this model can serve to explain some aspects of the dynamic and complex way in which CMC functions to either facilitate communication or restrict it, depending on the needs of the user. The model also serves to explain many of the ways in which CMC use can become problematic for a user, and illustrates some of the differences between these problems, and their relationship to CMC.

A final strength of the study is its transparency. All of the focus groups and interviews were recorded and fully transcribed. Examples of the transcription are included in the study to allow any reader to examine them, and draw their own conclusions about whether the transcription methods were appropriate. These conclusions can serve as a check on the reliability of the study.

All in all the study has achieved its objective of investigating the opinions on CMC use that are held by adolescent CMC users.

5.4 RECOMMENDATIONS

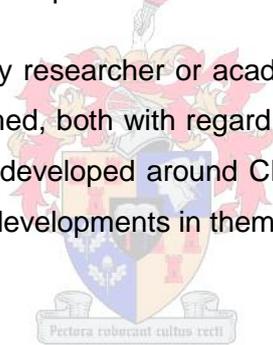
The most important recommendation that this researcher can make is for more research into the issues tackled by this study, and other issues in this field, particularly as they relate to South Africa. CMC use is constantly evolving and new trends must be studied as they

develop in order to be understood. This study has raised many questions about the effects of CMC on its users. The participants' opinions on many possible effects have been discussed in this study. However, the study's findings are far from conclusive. Much more research is needed in all of the areas touched on by the study. Of particular interest is the nature of CMC use among other socio-economic groups in South Africa. The participants in this study represented a fair mix of genders and cultural backgrounds. Nevertheless, they were, for the most part, from middle to high socio-economic environments. It is quite possible that the experience of CMC use among other sections of the South African population would be quite different.

This issue does not simply relate to socio-economic status but also to age range and language preferences. All the participants were in grade 11 and spoke English as their first language. This was necessary for the study, because it is the only language in which the researcher is proficient, but it does mean that very little of South Africa's linguistic diversity has been included in the study. Further research is needed to explore the ways in which these other sectors of the population experience CMC use.

A final recommendation is for every researcher or academic with an interest in CMC to do whatever they can to remain informed, both with regard to the trends on the Internet and of the body of research that is being developed around CMC. Both of these fields are rapidly evolving and remaining abreast of developments in them requires constant effort.

5.5 REFLECTION



The research process has been both difficult and rewarding and now that it is almost complete, the thing I am most concerned about is an issue that confronted me during the data collection stage. I am very active on the Internet. I take part in online debates; I am an active member of a number of websites and for a time I even maintained a blog. Despite my personal experience there were a number of things about the study that surprised me. This raised the question: if I can be surprised by the online activities of adolescents then how will individuals without my experience react?

It is unnecessary at this point to repeat that CMC users often have their own language. But, they also have their own jokes, rules, interests and even forms of humour. It is my belief that a cultural divide is developing between those who are a part of the *zeitgeist* of the Internet, and those are not. I feel as if I could speak for hours with my online friends without ever touching on a topic that could be understood by someone who is not privy to the same in-jokes and cultural memes that we know. This idea troubles me for, as we have seen, CMC

use can change those who use it, and how are CMC users to be understood if their very language is incomprehensible to outsiders? And what effect will it have on those in living in poverty when CMC becomes the standard form of communication and every important decision in the world can only be accessed with technology that is only available to the wealthy?

Whatever the Internet is doing to humanity, what cannot be denied is that its effects are wide-ranging, ongoing, and, to a large degree, unpredictable. It is my belief that all those who are able to do so should explore those parts of the Internet that they find interesting and take full advantage of them. This is one way to become a part of this important social development and to witness its uses and effects first hand.

5.6 CONCLUSION

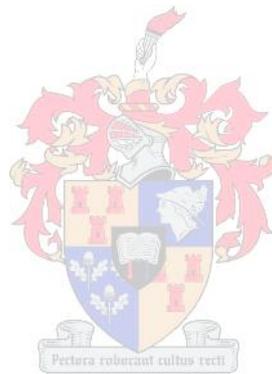
This study was intended as an exploration of the opinions of adolescent CMC users about the impact that their use of CMC was having on their lives. This question is a complex one and it has been answered in many ways. The first concerns the changes it has caused in the participants' needs. The most visible of these is that they demand greater ease in their lives. This trend seems to start with their CMC use and then extend to other communications, language use and even their relationships. Furthermore, they require their needs to be met with an immediacy that can only be found via CMC. As illustrated in the model, they also prefer much of their interactions with others to be within their own control, to a degree that has never been seen before. In this way CMC can be thought of as a kind of semi-permeable barrier between a user and other users. A further impact relates to the dangers of CMC use. All the participants seemed to agree that that use of CMC contains hazards that can put a user at risk of harm, both via CMC and offline as well. This includes the danger of addiction to CMC that can negatively impact on a user's life in a number of ways.

Thus, it seems that problems with CMC use arise in two ways. The first occurs when the CMC barrier is overcome by someone who wishes to do some harm to a user. This can include social, emotional or even physical damage. It can also include viruses or phishing scams. A different problem occurs when a user becomes so skilled at acquiring the benefits of CMC that they start to rely on it, and become addicted.

The interaction between means of CMC and their users is complex and multi-faceted and there is large scope for future research, particularly into the negative effects of CMC. The nature of CMC addiction is also far from fully understood. The long-term effects of CMC use on education, language ability, relationships and many other issues has not been fully

explored. The attraction that some users feel for 'trolling' is not yet understood either and the prevalence and nature of the so-called CMC 'predators' are not known. Lastly, there is very little research on CMC use within the South African context.

By far the greatest effects of CMC use have been said to be positive. CMC is described as increasing the quality of communication, relationships, social life, entertainment and even school work. The overwhelming impression given by the participants was that CMC provides ways to improve a wide range of activities, and that the good far outweighs the bad.



REFERENCES

- “4chan” (2009). *Wikipedia*. Retrieved July 11, 2009, from <http://en.wikipedia.org/wiki/4chan>
- Abbasi, A. & Chen, H. (2008). CyberGate: A Design Framework and System for Text Analysis of Computer-Mediated Communication. *MIS Quarterly*, 32(4), 811-837.
- “About JCMC” (n.d.). *Journal of Computer Mediated Communication*. Retrieved February 10, 2009 from: <http://jcmc.indiana.edu/>
- Accortt, E.E., Freeman, M.P. & Allen, J.J.B. (2008). Women and Major Depressive Disorder: Clinical Perspectives on Causal Pathways. *Journal of Women’s Health*, 17(10), 1583-1590.
- Adams, D.C. (2008). Gaga for Google in the Twenty-First Century. Advanced Placement Language Classroom. *The Clearing House*, 82(2), 96-100.
- Adams, J. (2007). Student Perceptions of the Impact of Instant Messaging on Academic Writing. *Literacy Learning: the Middle years*, 15(2), 37-39.
- Adams, R.E. & Laursen, B.L. (2007). The Correlates of Conflict: Disagreement Is Not Necessarily Detrimental. *Journal of Family Psychology*, 21(3), 445-458.
- Ajayi, A.A., Marangu, L.T., Miller, J., Paxman, J.M., Boohene, E., Tsodzai, J., Hardee-Cleaveland, K., Weir, S. & Janowitz, B. (1991). Adolescent Sexuality and Fertility in Kenya: a Survey of Knowledge, Perceptions, and Practices. *Studies in Family Planning*; 22(4), 205-216.
- Alstein, H. & Simon, R.J. (2008). Coming of Age: The World Over. *Gender Issues*, 24, 1-69.
- Amory A., Mars M. & Mayerowitz J. (1999). Evaluation of efficacy of multimedia learning: project development and strategies. *South African Journal of Education*, 19, 1-8.
- Amory, A. (2007). Game object model version II: A Theoretical Framework For Educational Game Development. *Educational Technology Research and Development*, 55(1), 51-77.

- Anderson, H.C. & Meyer, D.C. (2000). Pre-Adolescent Consumer Conformity: A study of Motivation for Purchasing Apparel. *Journal of Fashion Marketing and Management*, 4(2), 173-181.
- Anderson, T. & Sturm B. (2007). Cyberbullying From Playground to Computer. *Young Adult Library Services*, 5, 24-7.
- Aricak, T., Siyahhan, S., Uzunhasanoglu, A., Saribeyoglu, S., Ciplak, S., Yilmaz, N. & Memmedov, C. (2008). Cyberbullying Among Turkish Adolescents. *CyberPsychology & Behavior*, 11(3), 253-261.
- Barnett, J.E. (2005). Online counselling: New entity, New Challenges. *The Counseling Psychologist*, 33, 872-880.
- Baron, N.S. (2005). Instant Messaging and the Future of Language. *Communications of the ACM*, 48(7), 29-31.
- Basit, T.N. (2003). Manual or Electronic? The Role of Coding in Qualitative Data Analysis. *Educational Research*, 45(2), 143-154.
- Bauer, S., Percevic, R., Okon, E., Meermann, R. & Kordy H. (2003). Use of Text Messaging in the Aftercare of Patients with Bulimia Nervosa. *European Eating Disorders Review*, 11, 279-290.
- Bay-Cheng, L.Y. (2003). The Trouble of Teen Sex: the Construction of Adolescent Sexuality Through school-based sexuality education. *Sex Education*, 3(1), 61-74.
- Becker, J. (2005). Conceptualizing Mind and Consciousness: Using Constructivist Ideas to Transcend the Physical Bind. *Human Development*, 51, 165-189.
- Becker, K. & Schmidt, M.H. (2005). When Kids Seek Help On-Line: Internet Chat Rooms and Suicide. *Reclaiming Children and Youth*, 13(4), 229-230.
- Belawait, T., Maillk, N. & Hoon, M.N.L. (2007). The PANdora Model of Collaborative Distance Education Research. *Distance Education*, 28(2), 245-252.
- Bhattacharya, H. (2008). *The Sage Encyclopaedia of Qualitative Research Methods* (L.S. Given, Ed.). London: Sage Publications.
- Biederman, J., Petty, C.R., Fried, R., Doyle, A.E., Spencer, T., Seidman, L.J., Gross, L., Poetzi, K. & Faraone, S.V. (2007). Stability of executive function deficits into young

adult years: a prospective longitudinal follow-up study of grown up males with ADHD. *Acta Psychiatrica Scandinavica*, 116, 129-136.

Blakemore, S. & Choudhury, S. (2006). Development of the Adolescent Brain: Implications For Executive Function and Social Cognition. *Journal of Child Psychology and Psychiatry*, 47(3/4), 296-312.

Block, J.J. (2008). Issues for DSM -V: Internet Addiction. *American Journal of Psychiatry*, 163(3), 306-307.

“Blog”. (2009). Retrieved February 16, 2009 from: <http://en.wikipedia.org/wiki/Blog>

Bohm, A. (2004). *A Companion to Qualitative Research* (U. Flick, E. Von Kardoff & I. Steinke, Ed.). London: Sage Publications.

Bosch, T.E. (2008). Wots ur ASLR? Adolescent Girls' Use of MXit in Cape Town. Retrieved January 12, 2009, from: <http://emerge2008.net/access/content/group/emerge2008/PresentationFiles/Bosch/MXit-%20Bosch.pdf>

Boyce, W.F., Gallupe, O. & Fergus, S. (2008). Characteristics of Canadian Youth Reporting a Very Early Age of First Sexual Intercourse. *The Canadian Journal of Human Sexuality*, 17(3), 97-108.

Bright, R.M. (2005). It's Just a Grade 8 Girl Thing: Aggression in Teenage Girls. *Gender and Education*, 17(1), 93-101.

Britten, N. (2005). Making sense of qualitative research: a new series. *Medical Education*, 39, 2-6.

Broderick, P.C. & Korteland, C. (2002). Coping Style and Depression in Early Adolescence: Relationships to gender, gender role, and implicit beliefs. *Sex Roles*, 46(7-8), 201-213.

Brody, M. (2006) Understanding Teens in this Age of Digital Technology. *The Brown University Child and Adolescent Behaviour Letter*.

Brotsky, S.R. & Giles, D. (2007). Inside the “Pro-Ana” Community: A Covert Online Participant Observation. *Eating Disorders*, 15, 93-109.

- Buffardi, L.E. & Campbell, W.K. (2008). Narcissism and social networking Web sites. *Personality And Social Psychology Bulletin*, 34(10), 1303-1314.
- Calcanis, J.M. (2009). *We Live in Public (and the end of Empathy)*. Retrieved 18 July, 2009, from: <http://calacanis.com/2009/01/29/we-live-in-public-and-the-end-of-empathy/>
- Campbell, R. (2006). Teenage Girls and Cellular Phones: Discourses of Independence, Safety and 'Rebellion'. *Journal of Youth Studies*, 9(2), 195-212.
- Caplan, S.E. (2003). Preference for online social interaction: A theory of problematic Internet use and psychosocial well-being. *Communication Research*, 30, 625-648.
- Carlowe, J. (2008). The Final Log off for Suicide Sites. *Nursing Standard*, 22(32), 21-22.
- Carrington, V. (2005). Txting: The End of Civilisation (Again)? *Cambridge Journal of Education*, 35(2), 161-175.
- Chapman, P.L. & Mullis, R.L. (1999). Adolescent coping strategies and self-esteem. *Child Study Journal*, 29(1), 69-78.
- Chester, A. & Glass, C. (2006). Online counselling: a descriptive analysis of therapy services on the internet. *British Journal of Guidance & Counselling*, 34, 145-160.
- Christiansen, L.M., Copeland, E.P. & Stapert, E.B. (2008). Predictors of Somatic Symptoms in Younger Rural Adolescents. *Adolescence*, 43(172), 791-806.
- Christopherson, T.M. & Jordon-Marsh, M. (2004). Culture & Risk Taking in Adolescents' Behavior. *Maternal Child Nursing*, 29(2), 100-105.
- Clarke-Stewart, A. & Friedman, S. (1987). *Child Development: Infancy Through Adolescence*. John Wiley & Sons Inc.: New York.
- Cohen, D.J. & Crabtree B.F. (2008). Evaluative Criteria for Qualitative Research in Health Care: Controversies and Recommendations. *Annals of Family Medicine*, 6(4), 331-339.
- Connell, R.W. (2005). Growing up Masculine: Rethinking the Significance of Adolescence in the Making of Masculinities. *Irish Journal of Sociology*, 14(2), 11-28.
- Constantino, T.E. (2008). *The Sage Encyclopedia of Qualitative Research Methods* (L.S. Given, Ed.). London: Sage Publications.

- Cook, E. (2008). Residential Wilderness Programs: The Role of Social Support in Influencing Self-Evaluations of Male Adolescents. *Adolescence*, 43(172), 751-774.
- Cook, G. (2007). Families Using Technology to Remain Close, Study Says. *American School Board Journal*, 195(12), 7-7.
- Corbin, J. & Strauss, A. (2008). *Basics of Qualitative Research* (3rd ed.). London: Sage Publications Ltd.
- Cortini, M., Mininni, M. & Manuti, A. (2004). The Diatextual Construction of the Self in Short Message Systems. *Identity, an International Journal of Theory and Research*, 4(4), 355-370.
- Crerand, C.E., Infeld, A.L. & Sarwer, D.B. (2007). Psychological Considerations in Cosmetic Breast Augmentation. *Plastic Surgical Nursing*, 27(3), 146-154.
- Crosnoe, R. & Needham, B. (2004). Holism, Contextual Variability, and the Study of Friendships in Adolescent Development. *Child Development*, 75(1), 264-279.
- Czerniewicz, L. (2004). Cape of Storms or Cape of Good Hope? Educational Technology in a Changing Environment. *British Journal of Educational Technology*, 35(2), 145-158.
- Daddis, C. (2008). Influence of Close Friends on the Boundaries of Adolescent Personal Authority. *Journal of Research on Adolescence*, 18(1), 75-98.
- Davies, D. & Dodd, J. (2002). Qualitative Research and the Question of Rigor. *Qualitative Health Research*, 12(2), 279-289.
- Davison, T.E. & McCabe, M.P. (2006). Adolescent Body Image and Psychosocial Functioning. *The Journal of Social Psychology*, 2006, 146(1), 15-30.
- deBry, S.C. & Tiffany, S.T. (2008). Tobacco-Induced Neurotoxicity of Adolescent Cognitive Development (TINACD): A Proposed Model for the Development of Impulsivity in Nicotine Dependence. *Nicotine & Tobacco Research*, 10(1), 11-25.
- De Gennaro, D. (2008). Learning Designs: An Analysis of Youth-Initiated Technology Use. *Journal of Research on Technology in Education*, 41(1), 1-20.
- DiCicco-Bloom, B. & Crabtree, B.F. (2006). The Qualitative Research Interview. *Medical Education*, 40, 314-321.

- Dilley, P. (2004). Interviews and the Philosophy of Qualitative Research. *The Journal of Higher Education*, 75(1), 127-132.
- DiFiori, J.O. (1999). Overuse injuries in children and adolescence. *The Physician and Sports Medicine* 27, 75-85.
- Donath, J. (2007). Signals in Social Supernets. *Journal of Computer-Mediated Communication*, 13(1), Retrieved 5 March, 2009, from: <http://jcmc.indiana.edu/vol13/issue1/donath.html>
- Dunkel, C.S. & Sefcek, J.A. (2009). Eriksonian Lifespan Theory and Life History Theory: An Integration Using the Example of Identity Formation. *Review of General Psychology*, 13(1), 13-23.
- Dyrli, O.E. (2005). Cyberbullying. *District Administration*, 41, 63-63.
- Egan, J., Chenoweth, L. & McAuliffe, D. (2006). Email-facilitated qualitative Interviews with Traumatic Brain Injury survivors: A New and Accessible Method. *Brain Injury*, 20(12), 1283-1294.
- Ehsan, N., Mirza, E. & Ahmad, M. (2008). Impact of Computer-Mediated Communication on Virtual Teams' Performance: An Empirical Study. *Proceedings of World Academy of Science, Engineering and Technology*, 32, 833-842.
- Ellis, B.J. & Garber, J. (2000). Psychosocial Antecedents of Variation in Girls' Pubertal Timing: Maternal Depression, Stepfather Presence and Family Stress. *Child Development*, 71(2), 485-501.
- Ellison, N.B., Steinfield, C. & Lampe, C. (2007). The Benefits of Facebook "Friends:" Social Capital and College Students' use of Online Social Network Sites. *Journal of Computer-Mediated Communication*, 12(4), article 1. Retrieved March 10, 2009, from: <http://jcmc.indiana.edu/vol12/issue4/ellison.html>
- Erikson, E.H. (1950). *Childhood and Society*. London: Imago.
- Erikson, E.H. (1968). *Identity: Youth and Crisis*. New York: Norton.
- Erikson, E.H. (1980). *Identity and the Life Cycle: A Reissue*. New York: Norton.
- Everall, R.D., Bostik, K.E. & Paulson, B.L. (2005). I'm Sick of Being Me: Developmental Themes in A Suicidal Adolescent. *Adolescence*, 40(160), 693-708.

- Farrell, N. (2009). Skype is a threat to Russian national security. *The Inquirer*. Retrieved July 25, 2009 from: <http://www.theinquirer.net/inquirer/news/1495309/skype-threat-russian-national-security>
- Ferraro, G., Caci, B., D'Amico, A. & Di Blasi, M. (2007). Internet Addiction Disorder: An Italian Study. *CyberPsychology & Behavior*, 10(2), 170-175.
- Field, T., Diego, M. & Sanders, C. (2002). Adolescents' Parent and Peer Relationships. *Adolescence*, 37(145), 121-130.
- Finkenauer, C., Engels, R.C.M.E. & Meeus, W. (2002). Keeping Secrets From Parents: Advantages and Disadvantages of Secrecy in Adolescence. *Journal of Youth and Adolescence*, 2, 123-136.
- Flick, U. (2004). *A Companion to Qualitative Research* (U. Flick, E. Von Kardoff & I. Steinke, Ed.). London: Sage Publications.
- Fox, N., Ward, K. & O'Rourke, A. (2005). Pro-Anorexia, Weight-Loss Drugs and the Internet: an 'Anti-Recovery' Explanatory Model of Anorexia. *Sociology of Health & Illness*, 944-947.
- Giles, D. (2006). Constructing Identities in Cyberspace: The Case of Eating Disorders. *The British Journal of Social Psychology*, 45, 463-477.
- Gillespie, R.M. (2002). The Physical Impact of Computers and Electronic Game use on Children and Adolescents, a Review of Current Literature. *IOS Press*, 18, 249-259.
- Given, L.M. (2008). *Sage Encyclopedia of Qualitative Research Methods* (L.S. Given, Ed.). London: Sage Publications Inc.
- Given, L.M. & Saumure, K. (2008). *The Sage Encyclopaedia of Qualitative Research Methods* (L.S. Given, Ed.). London: Sage Publications.
- Goggin, G. & Spurgeon, C. (2005). Mobile Message Services and Communications Policy. *Prometheus*, 23(2), 181-193.
- Gordon, M. (2009). Toward A Pragmatic Discourse of Constructivism: Reflections on Lessons From Practice. *Educational Studies*, 45, 39-58.
- Graziano, A. & Raulin, M. (2007). *Research Methods: A Process of Inquiry* (5th ed.) Needham Heights: Allyn and Bacon.

- Grohol, J.M. (1999). Internet addiction guide. Retrieved March 18, 2009, from <http://psychcentral.com/netaddiction/>.
- Grossman, L. (2009). Iran Protests: Twitter, the Medium of the Movement. *Time Magazine*. Retrieved 16 July, 2009 from: <http://www.time.com/time/world/article/0,8599,1905125,00.html>
- Grunberg, J. & Amerllini, A. (2004). Teacher Collegiality and Electronic Communication: A Study of the Collaborative Uses of Email by Secondary School Teachers in Uruguay. *British Journal of Educational Technology*, 35(5), 597-606.
- Haberstroh, S., Duffey, T., Evans M., Gee R. & Trepal H. (2007). The Experience of Online Counseling. *Journal of Mental Health Counseling*, 29(3), 269-282.
- Hair, E.C., Moore, K.A., Garrett, S.B., Ling, T. & Cleveland, K. (2008). The Continued Importance of Quality Parent-Adolescent Relationships During Late Adolescence. *Journal of Research on Adolescence*, 18(1), 187-200.
- Halpern, C.T., King, R.B., Oslak, S.G. & Udry, J.R. (2005). Body Mass Index, Dieting, Romance, and Sexual Activity in Adolescent Girls: Relationships Over Time. *Journal of Research on Adolescence*, 15(4), 535-559.
- Halvorsen, I. & Heyerdahl, S. (2006). Girls with Anorexia Nervosa as Young Adults: Personality, Self-Esteem, and Life Satisfaction. *International Journal of Eating Disorders*, 39(4), 285-293.
- Hancock, B. (2002). *Trent Focus Group: An introduction to qualitative research*. Nottingham: University of Nottingham.
- Harper, K., Sperry, S. & Thompson, J.K. (2008). Viewership of Pro-Eating Disorder Websites: Association with Body Image and Eating Disturbances. *International Journal of Eating Disorders*, 41(1), 92-95.
- Harris, C. & Straker, L. (2000). Survey of Physical Ergonomics Issues Associated With School Children's Use of Laptop Computers. *International Journal of Industrial Ergonomics*, 26, 337-346.
- Hartnett, S. (2007). Does Peer Group Identity Influence Absenteeism in High School Students? *The High School Journal*, 91(2), 35-44.

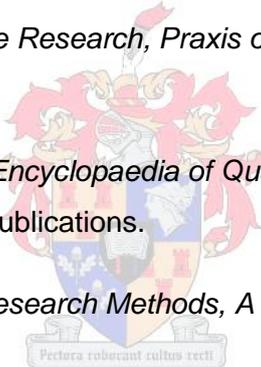
- Hennink, M.M. (2007). *International Focus group research*. New York: Cambridge University Press.
- Hjorth, L. (2003). Postal Presence: A Case Study of Mobile Customisation and Gender in Melbourne. *Knowledge, Technology & Policy*, 19(2), 29-40.
- Hrastinski, S. & Keller, C. (2007). Computer-mediated Communication in Education: A review of recent research. *Educational Media International*, 44(1), 61-77.
- Impett, E.A. & Tolman, D.L. (2006). Late adolescent girls' sexual experiences and sexual satisfaction. *Journal of Adolescent Research*, 21, 628-644.
- Inhelder, B. & Piaget, J. (1958). *The Growth of Logical Thinking From Childhood to Adolescence*. New York: Basic books.
- Impett, E.A. & Tolman, D.L. (2006). Late Adolescent Girls' Sexual Experiences and Sexual Satisfaction. *Journal of Adolescent Research*, 21, 628-644.
- Internet Relay Chat*. (2009). *Wikipedia*. Retrieved January 5, 2009, from http://en.wikipedia.org/wiki/Internet_Relay_Chat
- Internet Statistics*. (n.d.) Retrieved January 5, 2009, from http://www.nationmaster.com/graph/int_use-internet-users
- Isabella, S. (2007). Ethnography of Online Role-Playing Games: The Role of Virtual and Real Contest in the Construction of the Field. *Forum: Qualitative Social Research*, 8(3). Retrieved 04 April, 2008 from <http://www.qualitative-research.net/fqs/>
- Jacobs, G.E. (2008). We Learn What We Do. *Journal of Adolescent and Adult Literacy*, 52(3), 203-211.
- Jang, K.S., Hwang, S.Y. & Choi, J.Y. (2008). Internet Addiction and Psychiatric Symptoms Among Korean Adolescents. *Journal of School Health*, 78(3), 165-171.
- Jensen, D. (2008). *The Sage Encyclopaedia of Qualitative Research Methods* (L.S. Given, Ed.). London: Sage Publications.
- Jewkes, R., Vunduleb, C., Maforahc, F. & Jordaan, E. (2001). Relationship dynamics and teenage pregnancy in South Africa. *Social Science and Medicine* 52, 733-744.

- Julien, H. (2008). *The Sage Encyclopaedia of Qualitative Research Methods* (L.S. Given, Ed.). London: Sage Publications.
- Juvonen, J. & Gross, E.F. (2008). Extending the School Grounds? - Bullying Experiences in Cyberspace. *Journal of School Health, 78*(9), 496-505.
- Kahn, A.S. & Brookshire, R.G. (1991). Using a Computer Buletin Board in a Social Psychology Course. *Computers in Teaching, 18*(4), 245-249.
- Keely, H. (2008, March 20). Facebook Photos Gone Wild: Web Sites Lift Images of 'Hottest Girls'. *The Washington Times*.
- Kim, E.K. (2008). Psychological Adjustment in Young Korean American Adolescents and Parental Warmth. *Journal of Child and Adolescent Psychiatric Nursing, Volume 21*(4), 195-201.
- King, R., Bambling, M., Lloyd, C., Gomurra, R., Smith, S., Reid, W. & Wegner, K. (2006). Online counselling: The Motives and Experiences of Young People Who Choose the Internet Instead of Face to Face or Telephone Counselling. *Counselling and Psychotherapy Research, 6*(3), 169-174.
- Kroger, J. (2003). Identity development during adolescence. In G. Adams & M. Berzonsky (Eds.), *Blackwell Handbook of Adolescence* (pp. 205-225). Malden, MA: Blackwell.
- Kuhn, D. (2008). Formal Operations From a Twenty-First Century Perspective. *Human Development, 51*, 48-55.
- Kvale, S. (1996). *InterViews: An Introduction to Qualitative Research Interviewing*. Thousand Oaks, CA: Sage Publications Ltd.
- Lauterbach, D. Koch, E.I. & Porter, K. (2007). The Relationship Between Childhood Support and Later Emergence of PTSD. *Journal of Traumatic Stress, 20*(5), 857-867
- Lenhart, A., Lewis, O. & Rainie, L. (2001). *Teenage Life Online: The Rise of the Instant-Message Generation and the Internet's Impact on Friendships and Family Relationships*. Washington DC: Pew Internet & American Life Project.
- Leon-Carrion, J., Garcia-Orza, J. & Perez-Santamaria, F.J. (2004). The Development of the Inhibitory Component of the Executvie Functions in Children and Adolescents. *International Journal of Neuroscience, 114*, 1291-1311.

- Lerner, R.M. & Steinberg, L. (2004). *The Handbook of Adolescent Psychology*. John Wiley & Sons Inc.: Hoboken, New Jersey.
- Leskin, P.L. & White, P.M. (2007). Attentional Networks Reveal Executive Function Deficits in Posttraumatic Stress Disorder. *Neuropsychology*, 21(3), 275-284.
- Li, Q. (2007). New Bottle but old Wine: a Research of Cyberbullying in Schools. *Computers in Human Behavior*, 23, 1777-1791.
- Lin, C.H., Sun, Y.C., Lee, Y.C. & Wu, S.C. (2008). How Instant Messaging Affects the Satisfaction of Virtual Interpersonal Behaviour of Taiwan Junior High School Students. *Adolescents*, 42(166), 417-430.
- Ling, R. & Yttri, B. (2002). 'Hyper-coordination via mobile phones in Norway', in J.E. Katz & M. Aakhus (Eds.) *Perpetual Contact: Mobile Communication, Private Talk, Public Performance*, (pp. 139-169). Cambridge University Press, Cambridge.
- Ling, I. (2008). Counterconformity: An Attribution Model of Adolescents' Uniqueness-Seeking Behaviors in Dressing. *Adolescence*, 43(172), 882-893.
- MacArthur, C.A., Ferretti, R.P., Okolo, C.M. & Cavalier, A.R. (2001). Technology applications for students with literacy problems: A critical review. *Elementary School Journal*, 101, 273-301.
- Macgregor, D.M. (2000). Nintendonitis? A Case Report of Repetitive Strain Injury in a Child as a Result of Playing Computer Games. *Scottish Medical Journal*, 45(5), 150.
- Mantell, J.E., Harrison, A., Hoffman, S., Smit, J.A., Stein, Z.A. & Exner, T.M. (2006). The Mpondombili Project: Preventing HIV/AIDS and Unintended Pregnancy among Rural South African School-Going Adolescents. *Reproductive Health Matters*, 14(28), 113-122.
- Marcovitch, S. & Zelazo, P.D. (2009). A Hierarchical Competing Systems Model of the Emergence and Early Development of Executive Function. *Developmental Science*, 12(1), 1-18.
- Marvan, M.L., Vacio, A. & Spinosa-Hernandez, G. (2002). A Comparison of Menstrual Changes Expected by Pre-Menarcheal Adolescents and Changes Actually Experienced by Post-Menarcheal Adolescents in Mexico. *Journal of School Health*, 71(9), 458-461.

- Masurate, A. (2008). Emaciated Online: Should Pro-Eating Disorder Groups be Banned? *Bitch: Feminist Response to Popular Culture*, 38, 43-44.
- Maticka-Tyndale, E. (2008). Sexuality and sexual health of Canadian adolescents: Yesterday, today and tomorrow. *The Canadian Journal of Human Sexuality*, 17(3), 85-95.
- Mayring, P. (2004). *A Companion to Qualitative Research* (U. Flick, E. Von Kardoff & I. Steinke, Ed.). London: Sage Publications.
- Merkins, H. (2004). *A Companion to Qualitative Research* (U. Flick, E. Von Kardoff & I. Steinke, Ed.). London: Sage Publications.
- McLean, M. & Murrell, K. (2002). WebCT: Integrating Computer-Mediated Communication and Resource Delivery into a new Problem-Based Curriculum. *Journal of Audiovisual Media in Medicine*, 25(1) 8-15.
- Mouton, J. (2008). *How to succeed in your Master's or Doctoral Studies*. Pretoria: Van Schaik.
- Morris, M.C., Ciesla, J.A. & Garber, J. (2008). A Prospective Study of the Cognitive-Stress Model of Depressive Symptoms in Adolescents. *Journal of Abnormal Psychology*, 117(4), 719-734.
- Mullen, R. & Wedwick, L. (2008). Avoiding the Digital Abyss: Getting Started in the Classroom with YouTube, Digital Stories and Blogs. *The Clearing House*, 82(2), 66-69.
- Mounts, N.S. (2002). Parental Management of Adolescent Peer Relationships in Context: The Role of Parenting Style. *Journal of Family Psychology*, 16, 58-69.
- Newman, A. (2007). Real-Time Computer-Mediated Communication: Email and Instant Messaging Simulation. *Business Communication Quarterly*, 2007: December, 466-470.
- O' Leary, (2004). *The Essential Guide to Doing Research*. London: Sage Publications Ltd.
- Odendaal, N. (2006). Towards the Digital City in South Africa: Issues and Constraints. *Journal of Urban Technology*, 13(3), 29-48.

- Omatseye, B.O.J. (2007), The Adolescent Quest for Autonomy: Renegotiating a Cordial Relationship. *College Student Journal*, 41(3), 623-630.
- Park, S.K., Kim J.Y. & Cho C.B. (2008). Prevalence of Internet Addiction and Correlations with Family Factors Among South Korean Adolescents. *Adolescence*, 43(172), 895-909.
- Patton, G.C., McMorris, B.J., Toumbourou, J.W., Hemphill, S.A., Donath, S. & Catalano, R.F. (2004). Puberty and the Onset of Substance Use and Abuse. *Pediatrics*, 114(3), 300-306.
- Patton, M.Q. (2002). *Qualitative Research and Evaluation Methods* (3rd ed.) London: Sage Publications Ltd.
- Paus, T., Zijdenbos, A., Worsley, K., Collins, D.L., Blumenthal, J., Giedd, J.N., Rapoport, J.L. & Evans, A.C. (1999). Structural Maturation of Neural Pathways in Children and Adolescents: In Vivo Study. *Science*, 283, 1908-1911.
- Pedersen, S. & Macafee, C. (2007). Gender differences in British blogging. *Journal of Computer-Mediated Communication*, 12(4), article 16. Retrieved August 2, 2009 from: <http://jcmc.indiana.edu/vol12/issue4/pedersen.html>
- Preissle, J. (2008). *The Sage Encyclopedia of Qualitative Research Methods* (L.S. Given, Ed.). London: Sage Publications.
- Phillips, D.C. (1997). How, Why, What, When and Where: Perspectives on Constructivism in Psychology and Education. *Issues in Education*, 3(2), 151-194.
- Poplin, M.S. (1988). Holistic/Constructivistic Principles of the Teaching/Learning Process: Implications for the Field of Learning Disabilities. *Journal of Learning Disabilities*, 21(7), 401-416.
- "Proanorexia". (2009). World's Largest Pro Anorexia Site. Retrieved January 26, 2009 from: <http://community.livejournal.com/proanorexia/>
- Puchta, C. & Potter, J. (2004). *Focus Group Practice*. London: Sage Publications Ltd.
- Quinlan, T. (2004) Speech Recognition Technology and Students With Writing Difficulties: Improving Fluency. *Journal of Educational Psychology*, 96(2), 337-346.

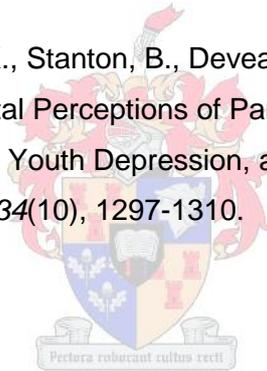
- Rapacki, S. (2007). Why Teens Need Places Like MySpace. *Young Adult Library Services*, 2007: Winter, 28-30.
- Raskauskas, J. & Stoltz, A.D. (2008). Involvement in Traditional and Electronic Bullying Among Adolescents. *Developmental Psychology*, 43(3), 564-575.
- Rhodes, M. (1994). Adolescent boys' perceptions of masculinity: a study of group stories constructed by Years 8, 9 and 10 boys. *Interpretations*, 27(2), 58-73.
- Roberge, J.J. (1976). Developmental Analyses of Two Formal Operational Structures: Combinatorial Thinking and Conditional Reasoning. *Developmental Psychology*, 12(6), 563-564.
- Rolls, L. & Relf, M. (2006). Bracketing Interviews: Addressing Methodological Challenges in Qualitative Interviewing in Bereavement and Palliative Care. *Mortality*, 11(3), 286-305.
- Roth, W.M. (2005). *Doing Qualitative Research, Praxis of Method*. Rotterdam Sense Publishers.
- Rothbauer, P.M. (2008). *The Sage Encyclopaedia of Qualitative Research Methods* (L.S. Given, Ed.). London: Sage Publications.
- Ruane, J.M. (2005). *Essentials of Research Methods, A Guide to Social Science Research*. Oxford: Blackwell publishing. 
- Rubin, A. & Babbie, E. (2007). *Essential Research Methods for Social Work*. Belmont: Thomson Higher Education.
- Rutledge, C.M., Rimer, D. & Scott, M. (2008). Vulnerable Goth Teens: The Role of Schools in This Psychosocial High-Risk Culture. *Journal of School Health*, 78(9), 459-464.
- Schensul, J.J. (2008). *The Sage Encyclopaedia of Qualitative Research Methods* (L.S. Given, Ed.). London: Sage Publications.
- Schmitt, K.L., Dayanim, S. & Matthias, S. (2008). Personal Homepage Construction as an Expression of Social Development. *Developmental Psychology*, 44(2), 496-506.
- Schwartz, M. (2008). The Trolls Among Us. *The New York Times Magazine*. Retrieved 17 July, 2009, from: http://www.nytimes.com/2008/08/03/magazine/03trolls-t.html?_r=1

- Seepersad, S. (2004). Coping with Loneliness: Adolescent Online and Offline Behavior. *CyberPsychology and Behavior*, 7(1), 35-39.
- Seidman, I. (2006). *Interviewing as Qualitative Research: A Guide for Researchers in Education and the Social Sciences* (2nd ed.). New York: Teachers College Press.
- Shaw, P., Greenstein, D., Lerch, J., Clasen, L., Lenroot, R., Gogtay, N., Evans, A., Rapoport, J. & Giedd, J. (2006). Intellectual Ability and Cortical Development in Children and Adolescents. *Nature*, 440(30), 676-679.
- Sherar, L.B., Baxter-Jones, A.D.G. & Mirwald, R.L. (2007). The Relationship Between Body Composition and Onset of Menarche. *Annals of Human Biology*, 24(6), 673-677.
- Shittu, L.A.J., Zachariah, M.P., Ajayi, G., Oguntola, J.A., Izegbu, M.C., Ashiru, A.O. (2007). The negative impacts of adolescent sexuality problems among secondary school students in Oworonshoki Lagos. *Scientific Research and Essays*, 2(1), 23-28.
- Silje, C., Gammon, D. & Spitznogle, K. (2007). In The Eyes of the Beholder: Exploring Psychologists' Attitudes towards and Use of e-Therapy in Norway. *CyberPsychology & Behaviour*, 10(3), 418-423.
- Silverman, D. (2005). *Doing Qualitative Research* (2nd ed.). London: Sage Publications Ltd.
- Siomos, K.E., Dafouli, E.D., Braimiotis, D.A., Mouzas, O.D. & Angelopoulos, N.V. (2008). Internet addiction among Greek adolescent students. *CyberPsychology & Behavior*, 11(6), 653-657.
- Smetana, J.G. & Asquith, P. (1994). Adolescents' and parents' conceptions of parental authority and adolescent autonomy. *Child Development*, 65, 1147-1162.
- Smetana, J.G., Metzger, A., Gettman, D.C. & Campione-Barr, N. (2006). Disclosure and Secrecy in Adolescent-Parent Relationships. *Child Development*, 77(1), 201-217.
- Sokopo, A. (2008) Mind You Don't Mix With the Wrong Sort. *Cape Argus*. Retrieved January 6, 2009 from <http://www.capeargus.co.za/index.php?fArticleId=4560866>
- Steinke, I. (2004). *A Companion to Qualitative Research* (U. Flick, E. Von Kardoff & I. Steinke, Ed.). London: Sage Publications.
- Strom, P.S. & Strom, R.D. (2005). When Teens Turn Cyberbullies. *The Educational Forum*, 70, 21-36.

- Subrahmanyam, K. & Greenfield, P. (2008). Online Communication and Adolescent Relationships. *The Future of Children*, 18(1), 119-146.
- Sung, K., Puskar, K.R. & Sereika, S. (2006). Psychosocial factors and coping strategies of adolescents in a rural Pennsylvania high school. *Public Health Nursing*, 23(6), 523-530.
- Szabo, C.P. (2006). Adolescent Sexuality: Beyond Controversy. *Journal of Child and Adolescent Mental Health*, 18(1), iii-iv.
- Tench, M. (2003, January 21). Schools Struggling to Stop Tech-Savvy Bullies Who Have Taken Their Taunting to Cyberspace. *Boston Globe*, pp B1.
- Thatcher, A. (2007). Using the World Wide Web to Support Classroom Lectures in a Psychology Course. *South African Journal of Psychology*, 37(2), 348-353.
- Thorne, A. (2004). Putting the Person Into Social Identity. *Human Development*, 47, 361-365.
- Thatcher, A. & Goolam, S. (2005). Defining the South African Internet 'Addict': Prevalence and Biographical Profiling of Problematic Internet Users in South Africa. *South African Journal of Psychology*, 35(4), 766-792.
- Treweek, S. (2003). Joining the Mobile Revolution. *Scandinavian Journal of Primary Health Care*, 21, 75-76.
- Underhill, W., Thel, S., Chiou, F., Itoi, K., Nadeua, B., Ferro, C. & Vitug, M. (2001). The Text Generation. *Newsweek*, 137(14), Retrieved January 5, 2009 from: http://findarticles.com/p/articles/mi_kmnew/is_200104/ai_kepm313546
- Valkenburg, P.M. & Peter, J. (2007). Preadolescents' and Adolescents' Online Communication and Their Closeness to Friends. *Developmental Psychology*, 34(2), 267-277.
- Van Rensburg, J., Veldsman, A. & Jenkins, M. (2008). From Technologists to Social Enterprise Developers: Our Journey as "ICT for Development" Practitioners in Southern Africa. *Information Technology for Development*, 14(1), 76-89.
- Van den Eijnden, R.J.J.M., Meerkerk, G., Vermulst, A.A., Spijkerman, R. & Engels, R.C.M.E, (2008). Online Communication, Compulsive Internet Use, and Psychosocial Well-

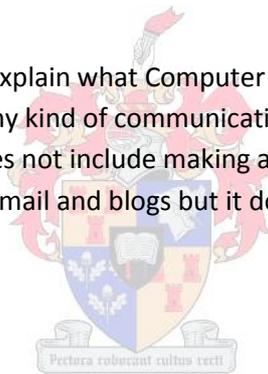
- Being Among Adolescents: A Longitudinal Study. *Developmental Psychology* 44(3), 655-665.
- Vargas, K. (2005). Teenagers, Health, and the Internet: How Information Professionals Can Reach out to Teens and Their Health Information Needs. *Journal of Consumer Health on the Internet*, 9(3), 15-23.
- Wang, S., Houshyar, S. & Prinstein, M.J. (2007). Adolescent Girls' and Boys' Weight-Related Health Behaviors and Cognitions: Associations With Reputation and Preference-Based Peer Status. *Health Psychology*, 25(5), 658-663.
- Wang, S. & Hsua, H. (2008). Reflections on Using Blogs to Expand In-class Discussion. *TechTrends*, 52(3), 81-85
- Wangberg, S.C., Gammon, D. & Spitznogle, K. (2007). In the Eyes of the Beholder: Exploring Psychologists' Attitudes towards and Use of e-Therapy in Norway. *CyberPsychology & Behaviour*, 10(3), 418-423.
- Wardrop, M. (2009). Schoolgirls Suspended over Facebook 'Abuse'. *Telegraph.co.uk*. Retrieved July 17, 2009 from: <http://www.telegraph.co.uk/scienceandtechnology/technology/facebook/4210285/Schoolgirls-suspended-over-Facebook-abuse.html>
- Weber, R. (2004). The Rhetoric of Positivism Versus Interpretivism: A Personal View. *MIS Quarterly*, 28(1), iii-xii.
- Whitlock, J.L., Powers, J.L. & Eckenrode, J. (2006). "The Virtual Cutting Edge: The Internet and Adolescent Self-Injury." *Developmental Psychology* 42(3), 407-417.
- Williams, C.D. & Jacobs, K. (2002). The Effectiveness of a Home-Based Ergonomics Intervention on the Proper Use of Computers by Middle School Children. *IOS Press*, 18, 261-268.
- Williams, D. (2006). On and off the 'net: Scales for Social Capital in an Online Era. *Journal of Computer-Mediated Communication*, 11(2), article 11. Retrieved March 12, 2009 from <http://jcmc.indiana.edu/vol11/issue2/williams.html>
- Williams, P. (2006). MySpace, Facebook Attract Online Predators. *NBC News*. Retrieved July 14, 2009 from: <http://www.msnbc.msn.com/id/11165576/>

- Williamson, K. (2006). Research in Constructivist Frameworks Using Ethnographic Techniques. *Library Trends*, 55(1), 83-101.
- Wilson, T.D. (2002). Alfred Schutz, Phenomenology and Research Methodology for Information Behaviour Research. Paper delivered at *ISIC4 - Fourth International Conference on Information Seeking in Context*, Universidade Lusiana, Lisbon, Portugal, September 11 to 13, 2002. Retrieved March 30, 2008 from: <http://informationr.net/tdw/publ/papers/schutz02.html>
- Wolmarans, R. (2007). MXit Angered by De Lille's 'Call for Censorship'. *Mail and Guardian Online*. Retrieved 08 January 2009 from: <http://www.mg.co.za/article/2007-05-23-mxit-angered-by-de-lilles-call-for-censorship>
- Ybarra, M.L. (2004). Linkages Between Depressive Symptomatology and Internet Harassment Among Young Regular Internet Users. *CyberPsychology and Behavior*, 7, 247-257.
- Yu, S., Clemens, R., Yang, H., Li, X., Stanton, B., Deveaux, L., Lunn, S., Cottrell, L. & Harris, C. (2006). Youth and Parental Perceptions of Parental Monitoring and Parent-Adolescent Communication, Youth Depression, and Youth Risk Behaviours. *Social Behaviour and Personality*, 34(10), 1297-1310.



Addendum A: Transcript Example

- 1 Transcript - Focus Group A
- 2 Interviewer: Ok, focus group one, the date today was the ...
- 3 FAR5: <date>
- 4 I: thank you. As we go around the circle in clockwise order please state your name.
- 5 FAR1: <name>
- 6 FAR2: <name>
- 7 FAR3: <name>
- 8 FAR4: <name>
- 9 FAR5: <name>
- 10 I: Thank you. Ok. Firstly I am going to explain what Computer Mediated Communication is. Computer
 11 mediated Communication or CMC is any kind of communication that can only be achieved with a
 12 computer. This includes SMS but it does not include making a call with a phone because you can do
 13 that without a computer. It includes e-mail and blogs but it doesn't include snail mail and a personal
 14 diary. It's ... any questions?
- 15 FAR4: What's snail mail?
- 16 I: It's just regular mail.
- 17 FAR2: Like post.
- 18 <Laughing>
- 19 I: Yes exactly. You may not have heard of that. Some people still use it.
- 20 FAR3: Woops.
- 21 I: Does anyone have any questions about the focus group?
- 22 FAR2: No.
- 23 FAR4 No, you can start.
- 24 FAR3: So this is ... MySpace, Facebook ...
- 25 FAR2: Mxit
- 26 FAR3: ... Mxit Image boards, forums etcetera



27 I: Yup, discussion forums, IRC, Skype ...

28 FAR2: Skype.

29 I: Anything else you can think of. Ok. So there are a lot of different kinds of CMCs, like we were
30 talking about, and they are used in lots of different ways. Which CMCs are you guys most familiar
31 with?

32 FAR1: Facebook.

33 FAR3: Facebook, IRC and ... Skype and MSN.

34 I: Facebook, IRC, Skype and what?

35 FAR3: MSN.

36 I: Oh right.

37 FAR3: That's what I'm doing on my PC, like, every day.

38 FAR2: Google messenger.

39 I: Yeah, messenger. You were saying?

40 FAR5: Um ... Mig33.

41 I: What's Mig33?

42 FAR5: It's like MXit, but it's national.

43 I: Oh really?

44 FAR2: So you can talk to anybody.

45 FAR5: It's also international.

46 I: That's cool. I hadn't actually heard of that.

47 FAR4: But you have to have it set up on computer.

48 FAR1:

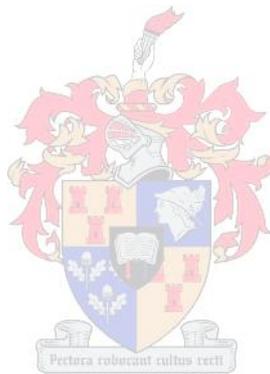
49

1 Transcript - Focus Group B

2 Interviewer: Ok, focus group two, I'd like to go around the circle if you could please say your name.
3 The reason why we do that is so when I'm typing up the transcripts I know who is speaking by the
4 sound of your voice. But the name won't appear in the final transcript itself.

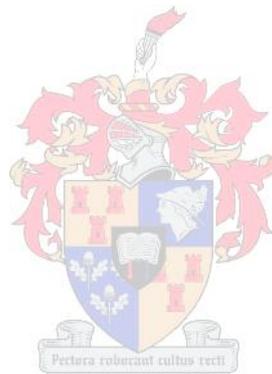
5 FBR1: I am <name>

6 FBR2: <name



- 7 FBR3: <name>
- 8 FBR4: <name>
- 9 I: Ok. There are a lot of different kinds of CMCs, as we've just been discussing, and they are used in
10 lots of different ways. Which CMCs are you guys most familiar with?
- 11 FBR4: Facebook.
- 12 FBR2: Facebook, MXit.
- 13 I: Facebook, MXit ...
- 14 FBR3: Facebook.
- 15 FBR1: CMC?
- 16 I: Computer Mediated Communication.
- 17 <Laughing>
- 18 FBR1: Oh right. I just didn't make the connection. Facebook, Skype, MSN.
- 19 I: Any others.
- 20 FBR1: 4Chan and MXit I guess. But I don't really use MXit.
- 21 I: Ok
- 22 FBR2: Just Facebook and MXit. Everyone uses them because they so popular, or whatever. And it's
23 easy like.
- 24 I: Do you think that's why it's so popular?
- 25 FBR1: 'Cause it's free, it's easy. I think it's quite well ... umm advertised.
- 26 I: Mm?
- 27 FBR2: Ja.
- 28 I: You mean advertised by people you know or ...?
- 29 FBR2: like advertising like in general. Like in newspapers, and like your friends who get it. Then you
30 do get and it's like a cell phone. You get it and then you think whoa, how did I live without it before?
- 31 FBR3: <laughs>
- 32 I: Mmm.
- 33 FBR1: MXit never really worked for me the whole typing stuff out on a cell phone especially if you
34 want to have a serious conversation it just does not work. There's no application to tell you when
35 someone is typing a message to you, and it takes so long. With MSN or Skype or those things umm it

- 36 takes a couple of seconds and the message came. So I just found MXit to be a bit of a waste of time.
- 37 And people who instead of sending a message send a message on MXit and you don't necessarily



Addendum B: Coding Example

Coding Summary Report

Project: CMC

Generated: 2009/08/13 08:54 PM

Thesis - Transcript - Interview 1

Document

Total References **133**

Node Coding Free Nodes\Addiction **References** 6 **Coverage** 10.29%

Reference 1 *Character Range 13 542 - 13 924*

R1: Yes. If they don't have one they need a MXit like AA if I can put it like that. I don't think it's so bad now, but especially when MXit came out oh my word, my word, people uh I was reading in the newspaper, on MXit actually, and how... this one student who failed his matric year, simply because he spent his time on MXit because he was so obsessed and it's like that's not good.

Reference 2 *Character Range 13 925 - 14 299*

And I think... like everything else you got to limitation, you got to limit yourself and have... I mean there's room for like over excessive who're bored on the weekend and got nothing to do then that's perfect, but if you know yourself I think the important thing if you want to use these things to organise some things before that, you gotta understand yourself and say ok

Reference 3 *Character Range 14 301 - 14 623*

like for me sometimes I may get on Facebook especially, I love Facebook, and like I've got a project but I've got Facebook like weigh up the two what do I do, so I'll say ok I've got to finish my schoolwork and then do Facebook or I might spent five hours on Facebook and get none of my work done and that's a bad thing.

Reference 4 *Character Range 14 624 - 15 018*

And we might get into that habit because it's so... I mean people, teenagers especially would much rather be talking to their friends or being with their friends than doing any homework or and that is an addiction and people can and people find... comfort in that in that... how can I put it... in that groupie y'know? And... I think definitely it can be, it is, actually, for some people a new addiction

Reference 5 *Character Range 15 167 - 15 469*

R1: No... not names, but, how do I explain this... young lady who's been married for a couple of years, and I know her through church... she is plastered to Facebook, she will go to sleep on Facebook, she will wake up on Facebook, she will, if she could, she would shower on Facebook...yes I think, definitely.

Reference 6 *Character Range 15 527 - 15 841*

R1: It's so bad that he has had to bribe her and say, sweetie, you gotta cut down on Facebook, let's have a Facebook diet. They have Facebook diets, I mean... seriously they've got Facebook diets and it's helping now, but like it got to the stage where she had to be on Facebook diet so it got really bad, definitely.

Node Coding Free Nodes\Barrier **References** 9 **Coverage** 6.87%

Reference 1 Character Range 3 460 - 3 572

Because of the..the contact bridge on a cell phone, you are able to... express yourself in a way that's different

Reference 2 Character Range 4 132 - 4 250

get... your...opinions and points across a lot easier if than just in person, because you've got something to hide behind

Reference 3 Character Range 5 450 - 5 575

I dunno because it's such a... masking thing, like you don't need a backbone if you're going to communicate on MXit or Facebook

Reference 4 Character Range 6 281 - 6 390

for those who can't communicate necessarily with people, they hide behind that so they can never break that.

Reference 5 Character Range 7 358 - 7 551

R1: And then they had a MXit relationship and they never met each other and then one day they decide to meet and then she's like oh my gosh you're forty, I'm fourteen, this isn't going to work

Reference 6 Character Range 7 564 - 7 854

And also I feel like maybe sometimes people maybe maybe in that context people may be subject to conversations or... or things that they aren't ok with, but because they feel aw you know whatever, I don't know what people think, um they do something that they not necessarily comfortable with

Reference 7 Character Range 9 232 - 9 446

Whereas you still see, like I've said before, a relationship on MXit, that's not good or like break ups on MXit I disagree with, I hate with a passion, oh my gosh I don't like it um I think it's a cowardly thing

Reference 8 Character Range 17 431 - 17 594

R1: Computer communication it... depending on where you are on the scale it gives you a stage, at least, to become more extroverted if you're an introverted person

Reference 9 Character Range 18 410 - 18 481

it hides the emotion part of people and I think that's really important

Node Coding Free Nodes\Communicate **References** 16 **Coverage** 15.33%

Reference 1 Character Range 366 - 416

To communicate with my friends, specially Facebook

Reference 2 Character Range 430 - 491

Um to, to, to, increase communication, oh I try to avoid MXit

Reference 3 Character Range 1 110 - 1 553

R1: Definitely, because like MXit you get so many mixed relationships, you never see that person or anything, but they're in a relationship and it's just on on on a cell phone whereas they may have relationships in the physical, but not asking about it or...what else...Like say you have an argument on MXit, you don't really know. There's this argument and things that would be considered joking in physical may be taken differently so there's...

Reference 4 Character Range 1 562 - 1 667

R1: A limitation on communication.

I: Ok, so there's the danger of being misunderstood.

R1: Definitely.

Reference 5 Character Range 2 437 - 2 903

R1: Um..it's...like I said before it it stops communication with people um and the physical aspect of relationships, not just boyfriend girlfriend relationships, all relationships which I think is really important in growing in a relationship and I think it's very personal at times...or too personal and I think that's something that should be be reserved for a conversation like this, one on one, because then you know my true intentions and you can judge for yourself

Reference 6 Character Range 3 347 - 3 415

I: You said that sometimes people are too personal on MXit

R1: Yes.

Reference 7 Character Range 3 439 - 3 605

R1: In that...you may... Because of the..the contact bridge on a cell phone, you are able to... express yourself in a way that's different, like maybe you'll be more open.

Reference 8 Character Range 3 719 - 3 922

you may not be able to communicate with someone in person, say, how you feel about them, then they use MXit or Facebook or other to express yourself and say ok I like you or I don't like you, or you can...

Reference 9 Character Range 4 998 - 5 235

d they got into an argument and um, on MXit, and he made a comment that... if he'd said in person it would not have blown up the way it did, but because they didn't have, they didn't have that aspect it was blown out, blown way overboard a

Reference 10 Character Range 5 984 - 6 100

How do you think CMC's are affecting communication?

R1: Depending where you stand, in a negative and positive way.

Reference 11 Character Range 6 281 - 6 390

for those who can't communicate necessarily with people, they hide behind that so they can never break that.

Reference 12 Character Range 6 400 - 6 609

R1: However, in a positive way, for those people who are... introverted people they have an opportunity to express themselves. So it's a two-way thing in that. Positively as well,... it does increase communication

Reference 13 Character Range 6 660 - 6 776

it joins a wider group of people together in a shorter space of time or however long you decide for that time to be.

Reference 14 Character Range 9 629 - 9 831

However, if you're using it to just extend your expression of how you feel for someone of just communication if you're in a relationship then that's good. So it depends how you use it in a relationship.

Reference 15 Character Range 14 624 - 15 018

And we might get into that habit because it's so... I mean people, teenagers especially would much rather be talking to their friends or being with their friends than doing any homework or and that is an addiction and people can and people find... comfort in that in that... how can I put it... in that groupie y'know? And... I think definitely it can be, it is, actually, for some people a new addiction

Reference 16 Character Range 17 431 - 17 594

R1: Computer communication it... depending on where you are on the scale it gives you a stage, at least, to become more extroverted if you're an introverted person

Node Coding Free Nodes\Cost **References** 5 **Coverage** 5.13%

Reference 1 Character Range 1 823 - 2 377

R1: And more convenient. Instead of spending money and hours on telephone, you can speak to loads of people in one chat room, you can speak on a cell phone, you don't need a computer and um it's new, it's technology and people that even if they doesn't necessarily, like, do technology can use on into them. Like some of them are very scared so you don't see them anymore um. With technology it's efficient, it's easy and it's something that because so many people have technology it will become popular because it makes their life easier.

I: Ok um you

Reference 2 Character Range 2 938 - 3 160

MXit is...I don't know, I think if for me as a person... I think I'm worth more than two cents to communicate with me, that's all. That's that's how I feel about it like... like are you that cheap, that's how I feel, personally.

Reference 3 Character Range 3 162 - 3 345

I: If the person really want's to talk to you they should make the effort?

R1: That's what I think, either call me or wait until you see me face to face. I feel that's more valuable.

Reference 4 Character Range 6 578 - 6 649

it does increase communication and makes things easier um and cheaper

Reference 5 Character Range 17 882 - 17 894

it's cheaper

Node Coding Free Nodes\Danger **References** 8 **Coverage** 6.97%

Reference 1 Character Range 6 777 - 6 917

In a negative way you open...because you don't always know who you adding on because of the nicknames so that opens doors to... weird characters

Reference 2 Character Range 6 966 - 7 089

I: Um have you had any experience with weird characters or do you know anything like that?

R1: I know of people like that

Reference 3 Character Range 7 146 - 7 348

in grade eight and nine and a friend of mine, she she added a person who was it turned out to be like forty and she was, like, a very young girl, like grade nine so she was about fourteen at that stage.

Reference 4 Character Range 7 358 - 7 551

R1: And then they had a MXit relationship and they never met each other and then one day they decide to meet and then she's like oh my gosh you're forty, I'm fourteen, this isn't going to work

Reference 5 Character Range 7 564 - 7 854

And also I feel like maybe sometimes people maybe maybe in that context people may be subject to conversations or... or things that they aren't ok with, but because they feel aw you know whatever, I don't know what people think, um they do something that they not necessarily comfortable with

Reference 6 Character Range 8 248 - 8 503

R1: And teenagers are... I mean some people are ok with that and you know if it's your boyfriend girlfriend or your husband or wife maybe then that's ok for different people, but then like if it's a fourteen year old and a forty year old like that's not ok.

Reference 7 Character Range 8 504 - 8 665

And once you start a relationship it's really hard to break because you know maybe the forty year old is over-powering you and you feel like you're stuck in this

Reference 8 Character Range 17 640 - 17 688

obviously there's a chance of meeting bad people

Node Coding Free Nodes\Defence **References** 1 **Coverage** 3.32%

Reference 1 Character Range 16 648 - 17 321

R1: I think they would, but I'm not familiar with this, I'm not a bullied student but there are things I wonder... are many of them aware of that? I mean, I know it's there but I wonder if they do know of that, but I'm sure if they were then they would be. Unless... it depends how the bullying takes place I mean, it gets to a point where some people feel they get... subconsciously they feel they get... identified by their bullying and so sort of where although they don't want it they succumb to it because that's what they feel they are, sort of, and so sometimes I think maybe they'll prevent that from happening or they will use that depending on how bad the situation is.

Node Coding Free Nodes\Ease **References** 4 **Coverage** 2.56%

Reference 1 Character Range 1 669 - 1 775

I: Ok. Um CMC's are enjoying a huge growth in popularity, why do you, you think they've become so popular?

Reference 2 Character Range 1 777 - 1 813

R1: Because it's making life easier.

Reference 3 Character Range 1 823 - 2 130

R1: And more convenient. Instead of spending money and hours on telephone, you can speak to loads of people in one chat room, you can speak on a cell phone, you don't need a computer and um it's new, it's technology and people that even if they doesn't necessarily, like, do technology can use on into them

Reference 4 Character Range 6 578 - 6 649

it does increase communication and makes things easier um and cheaper

Node Coding Free Nodes\Education **References** 8 **Coverage** 9.13%

Reference 1 Character Range 11 527 - 11 651

This has bridged the gap between education that's boring and education that's effective for teenagers and getting teenagers.

Reference 2Character Range 11 652 - 12 124

I think before, when it there wasn't technology and it was just textbook English and textbook work teaching students may have found it boring, but now that we have technology, like even TVs. I mean English last year/term we were studying American History X and because we have the film to relate to it's not just... foreign work to us but now it's put in a practical way, in away that we as teens can understand using technology, I think it's very effective and it works.

Reference 3Character Range 12 240 - 12 581

R1: Oh...oh... I'm going to offer you a scenario thing/quickly because a group of friends of mine... like the academic students will use MXit and Facebook for education.

I: Ok

R1: Whereas then obviously my other pair of friends who aren't, not that they not academic, just they aren't so set in their academics, they won't use it for education

Reference 4Character Range 12 629 - 12 814

R1: Ok for example, like, whenever there's a project that needs to be done amongst a group and travelling is an issue then they'll come together on chat rooms and discuss their projects

Reference 5Character Range 12 987 - 13 127

if you're absent then you don't miss out on the schoolwork then you can use Facebook, MXit and those things to get your information across.

Reference 6Character Range 13 128 - 13 356

What else... and say you're busy, like, working on a maths problem and we're all sitting on MXit together or on Facebook, we can discuss where our problem is and then maybe find a, type in, the solution or how to solve the problem

Reference 7Character Range 14 301 - 14 623

like for me sometimes I may get on Facebook especially, I love Facebook, and like I've got a project but I've got Facebook like weigh up the two what do I do, so I'll say ok I've got to finish my schoolwork and then do Facebook or I might spent five hours on Facebook and get none of my work done and that's a bad thing.

Addendum C: Ethical Clearance Form



UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvenoot • your knowledge partner

12 June 2009

Tel.: 021 - 808-2687
Enquiries: Sidney Engelbrecht
Email: sidney@sun.ac.za

Reference No. 180/2009

Mr A Verrijdt
Department of Educational Psychology
University of Stellenbosch
STELLENBOSCH
7602

Mr A Verrijdt

APPLICATION FOR ETHICAL CLEARANCE

With regards to your application, I would like to inform you that the project, *Exploring adolescents' views of the impact of computer mediated communication (CMC) on their lives*, has been approved on condition that:

1. The researcher/s remain within the procedures and protocols indicated in the proposal;
2. The researcher/s stay within the boundaries of applicable national legislation, institutional guidelines, and applicable standards of scientific rigor that are followed within this field of study and that
3. Any substantive changes to this research project should be brought to the attention of the Ethics Committee with a view to obtain ethical clearance for it.

We wish you success with your research activities.

Best regards




.....
MS. M. HUNTER-HÜSELMANN
Co-ordinator: Research (Human and Social Sciences)

Afdeling Navorsingsontwikkeling • Division of Research Development

Privaat Sak/Private Bag X1 • 7602 Stellenbosch • Suid-Afrika/South Africa
Tel +27 21 808 9111 • Faks/Fax: +27 21 808 4537

