The counselling needs of adolescents expressed through text messaging

Le-Vérne Wagner

OCTOBER 2014

THE COUNSELLING NEEDS OF ADOLESCENTS EXPRESSED THROUGH TEXT MESSAGING

by

Le-Vérne Wagner

Submitted in partial fulfilment of the requirements for the degree

MAGISTER EDUCATIONIS

(Educational Psychology)

Department of Educational Psychology

Faculty of Education

University of Pretoria

SUPERVISOR:

Dr Vanessa Scherman

PRETORIA

2014

Dedication

This dissertation is dedicated to my parents,

who have supported me from the beginning and have been the pillars of my strength. Their continued support and faith in me have made this study venture possible. Far or near, they were always on my mind and in my heart. Thank you for being the guiding light in my life: I am proud to be your daughter.

Acknowledgements

I would like to express my sincere thanks and respect to the following persons who helped make this study a reality:

UNIVERSITY OF PRETORIA

DECLARATION OF ORIGINALITY

This document must be signed and submitted with every
essay, report, project, assignment, dissertation and/or thesis.

Full names of student: *Le-Verne Wagner*

Student number: *22153064*

Declaration

1. I understand what plagiarism is and am aware of the University's policy in this regard.

2. I declare that this *mini-dissertation* (eg essay, report, project, assignment, dissertation, thesis, etc) is my own original work. Where other people's work has been used (either from a printed source, internet or any other source), this has been properly acknowledged and referenced in accordance with departmental requirements.

3. I have not used work previously produced by another student or any other person to hand in as my own.

4. I have not allowed, and will not allow, anyone to copy my work with the intention of passing it off as his or her own work.

SIGNATURE OF STUDENT: *Wager*

SIGNATURE OF SUPERVISOR: *Bchorman*

S 4722/09

v

Abstract

The advent of text messaging as a popular and cheaper form of communication has offered a new research perspective on adolescent development. Erikson's identity formation theory, the core tenets of existentialism, and the developmental factors of adolescence provided a conceptual framework for the present investigation, which was guided by two research questions: What are the needs of adolescents seeking assistance through text-based messaging? How do the needs expressed align with the stage of development that adolescents are in? Since the data set had already been established from text messaging between learners and tutors in the Dr Math online tutoring programme, secondary data analysis was employed. A qualitative approach, rooted in an interpretivist paradigm, was used. In total 143, of the 5284, messages were included based on the inclusion and exclusion criteria. Thematic network analysis served to enable coding and grouping of the data into thematic networks for analysis. A bottom-to-top hierarchy of codes, basic themes, and organising themes led to the formulation of the global themes of romantic curiosity, emotional expression, academic and career concerns, personal counselling, and social interactions as central to arriving at a better understanding of adolescents' psychosocial needs in an increasingly technological communication environment. Further research is recommended into ways in which training and development in technology can be used for aiding adolescents in South Africa, as well as into the role of technology in advancing practice and research for professionals.

Key words

Adolescence	Thematic network analysis
Development	Fundamental psychological needs
Text messaging	Dr Math
Technology	Tutors
Secondary data analysis	Adolescent milestones

Contents

List of tables

List of figures

Chapter 1:
Introduction

1.1   Introduction

The purpose of this research was to discover the psychosocial needs expressed by adolescents who make use of text messaging while seeking help with learning requirements in mathematics. A recent study conducted by UNICEF in South Africa has found that 72% of people aged between 15 and 24 have access to a cellphone. Since the rapid growth of technology in the 1990s, there has also been an increase in the ways that counselling has been brought to the public through the technological domain (Barak, 2007). Some of the ways in which technology has had an influence on counselling and intervention have involved the introduction of e-counselling (computer-based counselling) and counselling through texting via instant messaging (Drigas, Koukianakis, & Papagerasimou, 2010).

For the purpose of this research, the technological domain of instant messaging will be considered with a view to examining the needs of the adolescents who make use of it. Adolescence can be defined as the developmental life stage that children experience between the ages of 10 years and 19 years (World Health Organisation, 2014). Regarding the focal group in the present study, however, the participants could be considered as being in the late adolescence stage from the ages of 14 up to and including 19 years.

1.2   Background to the study

This research originated in a request of Dr Laurie Butgereit, founder of Dr Math, a learning programme in mathematics offered via mobile messaging. Dr Butgereit, a researcher at the Council for Scientific and Industrial Research (CSIR), contacted the University of Pretoria to discuss her concerns regarding the instant messages that tutors received from the adolescents making use of the programme. Instant messaging is the ability to communicate with another person, in real time, if both parties are connected to the programme and Internet at the same time. The founder's concerns arose from the fact that a significant number of the messages received were not related to the mathematics programme, but to personal issues in terms of seeking psychosocial guidance from the tutors.

1

1.2.1   What is Dr Math?

The Dr Math educational programme is a text-messaging service that is provided across the country to adolescents with access to a cellphone. This service is aimed at tutoring adolescents who are experiencing challenges with mathematics at school level (Butgereit, 2008), specifically for grades 10, 11 and 12. Dr Butgereit, the founder of Dr Math, first developed the idea of providing a text-based tutoring programme in Mathematics when her son needed tutorship and face-to-face tutorship appeared to result in frustration. Dr Butgereit succeeded in reducing such frustration by using text as a tutoring medium. According to Dr Butgereit, this was the start of the idea to provide a service that would allow adolescents the advantage of tutorship without being distracted by potential personal differences (personal communication, October 26, 2010).

1.2.2   For whom is Dr Math intended?

The Dr Math assistance service in Mathematics is provided through a cost-effective texting programme that is available to anyone with a cellphone with Internet access, and the tutorship is conducted by Mathematics and Engineering students from a university (the University of Pretoria). The target participants are learners of high (secondary) schools.

1.2.3   Ease and availability of Dr Math to participants

This text-based service on which Dr Math can be found is known as Mxit, which was chosen because Mxit already had up to five million users registered on the system (Butgereit, 2008). Mxit is a low-cost means of texting that operates through a general packet radio service (GPRS) system which connects clients' cellphones to the Internet and then to the tutors on the other end. Instant messaging is made possible through the GPRS system in that messages are sent and received immediately (Butgereit, 2008).

1.2.4   Regulations under which tutors operate within the Dr Math programme

The Mathematics and Engineering tutors selected to be part of the Dr Math tutoring programme are given codes of conduct to sign with regard to what may and what may not be discussed with participants texting them (Butgereit, 2008). The clients wishing to make use of the Dr Math programme are also required to sign an electronic contract before entering the tutoring site. The terms and conditions of using the tutoring programme

2

specify that conversations may be recorded and that conversations between the tutor and the client may not go beyond Mathematics tutoring.

1.2.5   Request submitted by the developers of the Dr Math programme

Over time, it was found that some of the participants, despite having agreed to the contract stipulations, discussed not only mathematical problems but also other matters. Participants sometimes entered into conversations or sought guidance from the tutors about personal matters outside of Mathematics tutoring: "There have also been many requests for anonymous counselling services" (Butgereit, 2008). It is this phenomenon that became the focus of the current research, namely to discover the nature of the counselling needs of adolescents making use of text-messaging services. This research may influence future academic subject tutoring programmes to take account of counselling for adolescents seeking assistance with personal life challenges.

1.3   Problem statement

Adolescents are at an age where they are seeking a stable sense of identity. This identity starts to form when they become able to set goals to be achieved and demonstrate that they are competent in functioning independently. In order for adolescents to achieve these goals and prove their competence, they require challenges that should ideally be monitored by guardians (Brooks 2008).

Brooks (2008) further notes that along with seeking identity stability, adolescents develop in other areas which shape their self-esteem and create a need for acknowledgement. These areas consist of new physical development, including body changes and hormone activation, which in turn affects adolescents' emotional development and, for example, leading to the creation of "highs and lows" (Brooks, 2008, p. 351).

Currently, South Africa lacks the resources to provide general psychological assistance services to adolescents within all of its different communities, many of which having to make do without even basic services because of remoteness in geographic location or straitened financial circumstances. This is a severe problem that may be alleviated, however, by taking advantage of the rapid strides in cyber communication developments in recent decades. Technological advancements have created many new communication forms

and opportunities of which the educational psychology community can avail itself in the development of outreach initiatives for indigent communities in distant geographic locations. A highly useful concept in this context is that of technopsychology as mentioned by Allan (2008), who defines it as the technological means by which psychologists are able to reach a part of the population that may not have the opportunities or wherewithal to gain access to psychological services.

Allan's (2008) reference is particularly relevant to the actual situation of many adolescents who may not know how or where to seek assistance, or may not have the means available to gain access to the resources that are potentially available through technological sources. Brooks (2008) notes that "school settings do not meet the psychological needs of their students" (p. 350), as became evident through the appeals addressed by adolescents to the Dr Math programme, which itself is not equipped to deal with any matters beyond mathematical education and tutorship. It is thus apparent that an important vacuum exists in the field of Psychology regarding outreach and assistance to a larger population.

1.4 Rationale

Technological growth and advancement in communication and cyber media have been accompanied by an expansion in psychological services provided by means of telephonic counselling and e-counselling (Allan, 2008). A further sphere of technological diversification has led to the establishment of a radically new and vastly influential communication platform, namely that of cellphones with Internet access. Such connectivity to the Internet via most cellphones (Butgereit, 2008) has provided a variety of pathways for users seeking information or help via the Internet. One of the myriad of types of assistance that may be given is that of e-counselling, and adolescents with Internet access frequent this medium to a large extent (Reid & Reid, 2007), often for the purpose of seeking help in one form or another.

In view of the extent of availability of cellphones to adolescents in South Africa, regardless of socio-economic and geographical location, technopsychology is a viable option for reaching the greatest number of individuals in need of psychological assistance. In a study conducted by Donner, Gitau, and Marsden (2011), they take into account that the cost-

4

effectiveness of communication was a definite determining factor for users' choice in communication medium, especially in less-developed socio-economic areas of South Africa.

The psychological service community has to develop a more comprehensive awareness of the communication medium preferences and psychosocial needs that adolescents reveal through communication media such as instant messaging, so that proper administration of counselling services can be provided. As the majority of adolescents prefer to use instant messaging, this medium can be seen as a gateway to encountering them in a neutral setting.

In addition to adolescents' growing within their own identity complexity and learning to understand the world's intricacies, they also have the World Wide Web as a means for exploring and discovering answers to questions that they may be uncomfortable asking someone face to face. Increasing access to cellphones and to Internet browsing in recent times has opened up many new avenues of communication and information gathering to the population in general (Ko, Cho, & Roberts, 2005). Included in this is the maturing population of adolescents, who now are in a situation where the Internet can be seen as both their ally and foe. As with most things in the world, if the Internet is not used wisely and carefully, it has the potential to either aid or hinder a person's progress (Rappoport, 2011).

Adolescents are at an age when they are seeking a stable sense of identity. Such sense of identity starts to form when they are able to set goals to be achieved and demonstrate that they are competent in functioning independently (Hardman, 2012; Hoare, 2012). In order to achieve these goals and prove their competence—as mentioned before—adolescents require challenges as ways of proving their development and ability to function independently (Brooks 2008). Brooks (2008) further notes that along with seeking identity stability, adolescents develop in other areas that shape their self-esteem and create a need for acknowledgement. Physical development is a crucially important area since it entails bodily changes and hormone activation that influence emotional development and bring about more "highs and lows" (Brooks, 2008; p. 351), as mentioned in the previous section. It is against this background that the need for proactive outreach by the psychological counselling service community becomes a critical issue.

1.5   Aims of the study

The present research was aimed at identifying the current psychological needs of adolescents who make use of text messaging as a source of help-seeking activities. Further to that, this investigation sought to discover whether a correlation existed between needs expressed by the participants and the conventional expectancies associated with the developmental stage of adolescence.

1.6   Research questions

Two research questions were used to guide the findings set out in Chapter 4 and commented on in Chapter 5. The questions were chiefly aimed at discovering how the South African adolescent youth were making use of technology as a means to obtain guidance in coping with psychosocial problems. The first question was formulated as a base-line one:

- What are the needs of adolescents seeking assistance through text-based messaging?

This question was intended to identity and explore the types of needs that were expressed through text messaging. Its main purpose was to discover whether any new needs had evolved in the current era of rapid technological advancement.

The second question was framed with a view to evaluating the connection between the types of needs expressed and the life phase of adolescence:

- How do the needs expressed align with the stage of development that adolescents are in?

As mentioned above, there are conventional expectancies associated with the developmental stage of adolescence. The present investigation also explored the various types of needs expressed by adolescents to discover any correlations or variances between "traditional" views on adolescence and current or perhaps "new" types of needs expressed by the participants. The methodology of secondary data analysis was employed to establish whether the psychosocial needs of adolescents in comparison to their stage of development might provide new insights into potential influences that new technological methods of communication might exert on the expression of such needs.

1.7 Research design and methodology

This research was approached from an interpretive stance (see Chapter 3, Section 3.3.1) that entailed an inductive, qualitative inquiry aimed at gaining a better understanding of the world of the adolescent. The interpretivist lens was used as a way to view the data from the participants' perspective. Since secondary data analysis was used in this research, none of the participants was directly approached for the data set. A pre-existing data set was used from another research venture.

In this study, thematic network analysis was utilised as a means to interpret and explain the data, which, as stated, had originated from a pre-existing research data set. Thus, secondary data analysis was incorporated into this study.

The data, which were collected from the archives of Dr Math at the CSIR, consisted of text messages exchanged between the Dr Math tutors and the participants over a period of 12 months in 2013 (January to December). This specific timespan was chosen as it would provide a large enough database and accommodate the research timeframe. The contents of the documents were screened for themes and coded accordingly.

Owing to the pre-existing anonymity of participants, the researcher could obtain no demographic information such as specific ages, population particulars, and geographic locations. Age cohort particulars for participants could be derived, however, since the Dr Math tutor site was aimed at high-school learners from the age of 14 up to and including 19 years.

As will be further discussed in Chapter 3, an inductive thematic analysis was used for analysing the data collection in order to extrapolate the needs indicated by the adolescents through their text-based messages. The themes thus uncovered were organised into thematic networks (Attride-Stirling, 2001), which were then subjected to inductive methods to arrive at interpretations. Babbie (2005) defines inductive reasoning as moving "from the particular to the general, from a set of specific observations to the discovery of a part that represents some degree of order among all the given events" (pp. 22–23). Terre Blanche, Durrheim, and Painter (2006) further note that the point of departure for the analysis is initially set with vague conjectures about the topic, but is then followed by a progression

towards extracting better-defined information about specific areas through observing the emergence and identification of common themes and patterns. Thematic analysis was conducted according to the psychological constructs derived from the data provided by the users of the Dr Math programme, in which any patterns or themes not mathematically related were identified.

According to Attride-Stirling (2001), thematic networks do not constitute the method by which researchers analyse the information, but are merely the structure by which the information obtained can be categorised for a more fluid analysis when the time comes. The steps for thematic network analysis are set out in Table 1.1. The process of coding within the thematic analysis begins with breaking the data down into individual parts, followed by labelling each identified part into its respective code. Each identified part is subsequently categorised into a group so as to establish themes (De Vos, Strydom, Fouché, & Delport, 2003). These themes or patterns will be identifiable through their pronounced repetition in the content, as illustrated in Table 1.1 (adapted from Attride-Stirling, 2001).

Table 1.1:   Summary of thematic network analysis

Analysis Stage A: Reduction or breakdown of text
Step 1. Code material
a. Devise a coding framework
b. Dissect text into text segments using the coding framework
Step 2. Identify themes
a. Abstract themes from coded texts
b. Refine themes
Step 3. Construct thematic networks
a. Arrange themes
b. Select basic themes
c. Rearrange into organising themes
d. Deduce global themes
e. Illustrate as thematic networks
f. Verify and refine the networks
Analysis Stage B: Exploration of text
Step 4. Describe and explore thematic networks
a. Describe the network
b. Explore the network
Step 5. Summarise thematic networks
Analysis Stage C: Integration of exploration
Step 6. Interpret patterns

Figure 1.2 (adapted from Attride-Stirling, 2001) represents the way in which the codes are processed into basic themes, refined and grouped into organising themes, and finally placed into an overarching global theme.
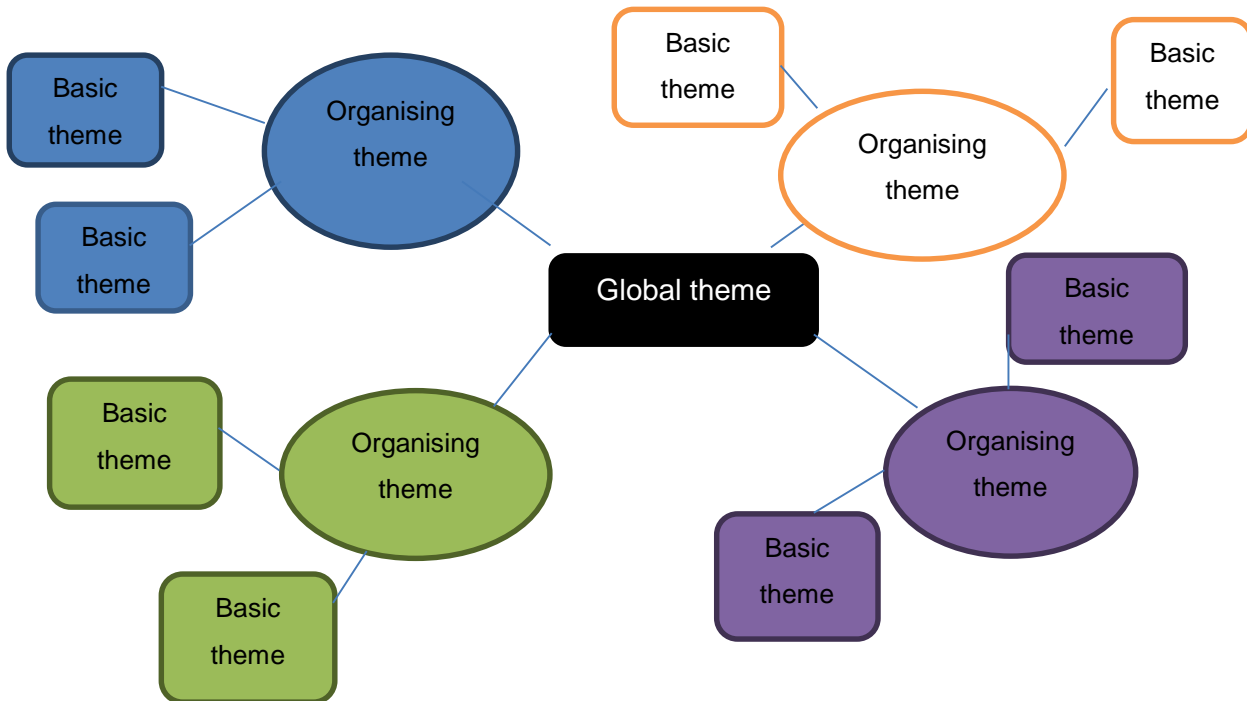
Figure 1.2:   **Illustration of thematic network analysis**

From the established global themes and investigation of the thematic network, a comparison can be made with the relevant literature and conclusions realised with a view to providing answers to the research questions in a comprehensive manner. Thus, as noted by De Vos et al. (2003), "[c]ategories of meaning emerge from this phase" (p. 354).

The trustworthiness of the research was ensured by implementing the four concepts suggested by Guba and Lincoln (1982), namely credibility, transferability, dependability, and conformability. These researchers provide the following guidelines on the manner in which the four concepts should be used:

- Credibility, entailing believability from the participants' point of view, is aimed at ensuring that the data source is in agreement with outcomes. This can be achieved through "peer debriefing".

- Transferability, which involves generalisability of findings to other contexts, is possible if used reasonably and with thick descriptions.

- Dependability, referring to the repeatability of results, is described as possible if stability can be achieved "after discounting conscious and unpredictive (but rational and logical) changes" (Guba & Lincoln, pp. 246–248). This may be realised through what Guba refers to as a dependability audit.

- Confirmability, or the corroboration of results by other researchers, is considered possible if reflexivity and a confirmability audit are employed.

The data gathered were compared with findings from research studies that had a similar focus to the present research topic. In addition to the validation methods mentioned above, all the messages were recorded exactly as the participants had provided them in text–based cellphone conversations. The transcripts were therefore intact as originally sent, which eliminated the possibility of introducing potential researcher bias. Since the commencement of the Dr Math programme, these conversations had been extracted and analysed in various studies by researchers also seeking to reanalyse the data from an alternative perspective.

For this investigation, a reflective diary was kept in order to keep an audit of progress and trail of findings. A peer analysis of the findings was conducted to ensure that bias would be limited to the minimum and that the findings themselves would approach accuracy as far as possible. According to Smith (2008), as well as Irwin, Bornat, and Winterton (2012), trustworthiness in secondary data analysis requires researchers to maintain ethical standards in data collection, respect the data, and use data wisely and correctly. Regarding the current investigation, and especially since the researcher was not the primary collector, it was important to remain aware that the original context might not be evident within the data and that data analysis had to be approached with greater judiciousness.

The reflective journal that was kept also aimed at ensuring that the participant data were processed and analysed with the least amount of personal interference and would authentically reflect the thought processes used during the investigation of the data.

The anonymity of the participants posed no problem for the present investigation, since the users of the Dr Math programme via Mxit had to provide aliases before being allowed

access to the programme. Identification of participants through biographical data was therefore not possible. In respect of granting permission for utilisation of the data, all participants in the Dr Math programme had agreed to allow their conversations to be recorded for quality control, research, and ethics purposes when they first registered electronically for signing into and participating in the Dr Math programme (L. Butgereit, personal communication, October 10, 2012). Great care was taken to adhere to the ethical commitments entailed by the original data gathering through the Dr Math project, and the data transcripts were treated with due respect in the present study. In addition to the foregoing ethical considerations, the Dr Math programme had applied for and received ethical clearance from the Tshwane University of Technology in 2008 for the administration of this programme (see Appendix E).

1.8   Outline of this research study

Chapter 1 provides an outline summary of this research regarding the background and purpose of this study, the problem statement and rationale, as well as a preliminary literature review and a broad overview of the research methodology. Lastly, the ethical considerations for this study were noted and a concept clarification was provided.

Chapter 2 guides the reader through the literature review. A conceptual framework serves to introduce the overview of the literature (Section 2.1). Explanations are provided of adolescent development (Section 2.2), developmental milestones (Section 2.1), and developmental changes in adolescents and the fundamental psychological needs that these changes involve (Section 2.3). The influence of communication technology on adolescents' psychosocial life is discussed (Section 2.4) and is correlated with Erikson's theory of adolescent identity formation and the role that existentialism plays in it (Section 2.5.2).

Chapter 3 examines the use of interpretive qualitative research in this study (Section 3.2.2). This is followed by an examination of secondary data analysis (Section 3.2.3), and a thorough review of thematic network analysis as a means for extracting the findings from the data (Section 3.4). Researcher reflexivity and trustworthiness are explained (Sections 3.5 and 3.6) in addition to the ethical considerations of this research (Section 3.7).

Chapter 4 deals with the results of the research. Illustrations depict the unification of the basic themes into organisational themes, and from organisational themes into global themes. Each global theme reflects examples from the data that informed the theme. A comparison is made between the literature and the findings. The researcher's reflections on each theme are also presented.

Chapter 5 discusses the main findings of the data, as well as a refined conceptual framework that correlates the findings with the pre-existing framework and research questions. Researcher reflexivity is considered again as the data are briefly reviewed and related to the literature review. The limitations of the present study and potential avenues for future studies are noted.

1.9   Conclusion

Against the background of such psychosocial complexities, the current research represented a striving to arrive at a deeper understanding of the needs that adolescents express in their journey of self-exploration and social investigation. This investigation involved analyses of data relating to psychological assistance-seeking via text messaging. The researcher remained continually aware of the ethical and moral obligations aligned with this study and strived for the most accurate account of the data possible. Through examination of the relevant literature, methodology, data, and presentation of findings, the study was aimed at answering the research questions and placing the results in a proper context.

Chapter 2:
Literature Review

2.1   Introduction

Adolescence is a unique stage of human development in which young individuals are, for the first time, required to confront the world and their sense of identity through a new lens (Hardman, 2012). This lens of pubescence provides new perspectives on a variety of changes that adolescents will need to negotiate in order to establish themselves as functional adults (Bray, Gooskens, Kahn, Moses, & Seekings, 2010).

The defining limits of adolescence not only differ among cultures but are also a debatable issue among researchers (World Health Organisation, n.d.). Most cultures equate the onset of adolescence with the commencement of puberty, whereas the majority of researchers use an age span from 10 to 19 years to delimit the onset and conclusion of adolescence (Atuyambe, Mirembe, Johansson, Kirumbira, & Faxelid, 2005; Bray et al., 2010; Chobokoane & Budlender, 2002; Shefer, 2004; WHO, 2014). Regarding the final limit of the continuum, it is also debatable when an adolescent can be defined as an adult because of the various changes and challenges that adolescence entails. A functional adult, however, can be characterised as a person who has been able to establish psychosocial and economic maturity and independence, has overcome the appropriate age-related and developmental task challenges, and is a contributing member of society according to the particular life context involved (Gouws, Kruger, & Burger, 2008; Roisman, Manstan, Coatsworth, & Tellegen, 2004; Sigelman & Rider, 2006).

Adolescents can experience the process of transitioning from childhood to adulthood as challenging, since at this age they start to mature physically, socially, emotionally, and cognitively out of their childhood phase into adulthood (Dahl, 2004; Finestone, 2004; Hardman, 2010; Henderson & Thompson, 2011; Spear, 2000). This transition is a process that requires them to start to question, explore, and reflect on themselves, particularly regarding who they are in relation to their world and how that world functions (Louw, Van Ede, & Louw, 1998). As with the milestone challenges that children in early childhood are

required to master, adolescents also have developmental tasks to confront. Havighurst (1956) and Hardman (2012) describe these developmental tasks as

- acquiring gender roles,

- accepting one's body,

- emotional independence and autonomy,

- selecting and preparing for an occupation,

- creating a value and ethics system.

- developing proper patterns of giving and/or receiving affection, and

- realising mature relations with both genders.

Against this background, the following four sections will deal with the development of the adolescent (Section 2.2), the psychological needs of the adolescent (Section 2.3), the impact that technology has on the adolescent (Section 2.4), and identity formation in the adolescent (Section 2.5). The explorations in this chapter will therefore focus on the evolutionary development of the adolescent from a physical, social, cognitive, and emotional standpoint, after which the basic psychological needs of the adolescent will be considered. Technological influences on adolescent progress and self-understanding will be investigated before Erikson's contribution to understanding the adolescent's inner life is taken into account. Lastly, the life-view of the adolescent in the twenty-first century will be considered through the lens of existentialism.

The manner in which the above sections are conceptually interlinked is depicted in Figure 2.1, which also serves to illustrate the interaction between the various components that influence adolescents' counselling needs. As indicated, a link exists between adolescents' development and the needs they experience during their development (which is further explained in Section 2.2). A radical new phenomenon that previous generations were not exposed to is that of cybertechnology, especially the Internet, which has opened up a new domain in which adolescents are able to explore their own development, express and retrieve information, and search for help with the needs they are experiencing. Thus, adolescents that have access to the Internet also have an additional source—and resource— for exploring their developmental needs (as discussed in Section 2.4). Erikson's theory on identity formation, considered together with insights that have been gained through the

14

philosophical theories of existentialism (with its connection to the adolescent and technology), is particularly useful in elucidating the way in which adolescents experience their developmental needs. Further clarity on these needs can be achieved by focusing on the manner in which adolescents develop and integrate identity formation, as well as the way in which they search for meaning and understanding (see Section 2.5).
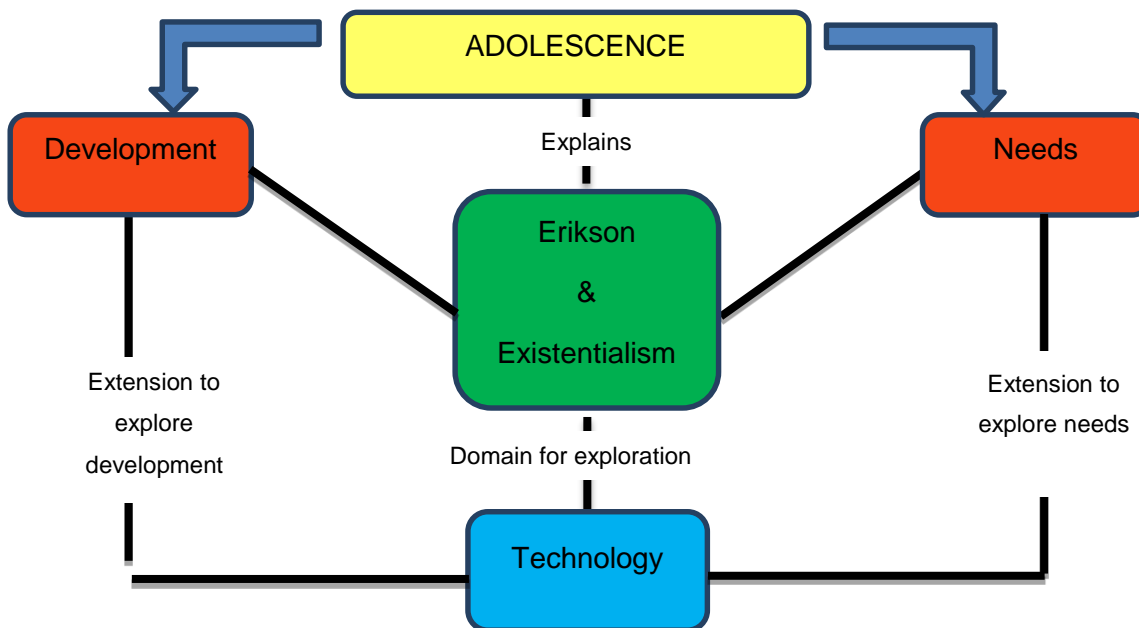
Figure 2.1: *Integrated understanding of adolescence*

As depicted in Figure 2.1, adolescents do not exist or function in isolation from society. They are in a state of self-exploration and adaption between society, technology, and themselves.

2.2 Adolescence as a life stage

The onset and completion of adolescence as a life stage appear to be an area of debate among different cultures and researchers (Bray et al., 2010; Louw & Louw, 2007). However, one common thread in most academic literature is that adolescence begins not necessarily at a specific age and with certain societal rituals, but rather with the developmental changes concerned with the physical and psychological characteristics of the child's transition into adulthood (Louw & Louw, 2007; Sigelman & Rider, 2006). Gouws et al. (2010) note that the term "adolescence" is rooted in Latin and bears the meaning that the child is growing up into its adult self (p. 2). Uncomplicated as this basic definition appears to be, Louw and

15

Louw (2007) point out that the transition from adolescence to adulthood not only contains a myriad of changes but also involves a myriad of perspectives on the onset and the development of adolescence among various cultures—in particular between traditional and Western (or modernising) cultures. Hardman (2012) acknowledges that the changes which adolescents experience can be considered part of a normal developmental process, which, for the most part, does not cause any significant maladjustments. This statement should, however, be viewed in the context of Larson's (2006) view that although adolescents may not necessarily experience maladjustment during this life stage, it is nevertheless characterised by more stress than before the onset of puberty. Both Hardman and Larson also consider this transition period to be the time in a person's life in which the person is most susceptible to influences by external factors such as peer, media, and conformity pressures because of the adolescent's seeking and striving for social acceptance, independence, and autonomy. (The stress potential of pursuing acceptance/conformity on one hand and independence/autonomy on the other should be noted here.)

This transition period is characterised by developmental changes within the adolescent (Blakemore & Choudhury, 2006; Brown & Feiring, 1999; Roeser, 2000; Spear, 2000; Steinberg & Cauffman, 1996). The current research will focus on the following four spheres of developmental changes:

- physiological development,
- emotional development,
- cognitive development, and
- social development.

These areas in which development can take place are depicted in Figure 2.2. As each area develops, the adolescent is required to adapt not only to the changes that occur in one particular area itself, but also to mutual ripple effects occurring among the various domains. Thus, as one domain develops within itself, it will also bear an influence on the other areas (See Sections 2.2.1 to 2.2.4 for a detailed explanation).

2.2.1 Physiological development

Puberty is the most noticeable indicator that the child has moved into the adolescent development period (Spear, 2000). Physical development is characterised by hormonal changes; increase in body hair; accelerated growth in the arms, legs, and torso; maturation of the reproductive organs; and deepening of the voice, especially in male adolescents, but also noticeable in females (Gouws et al., 2010).
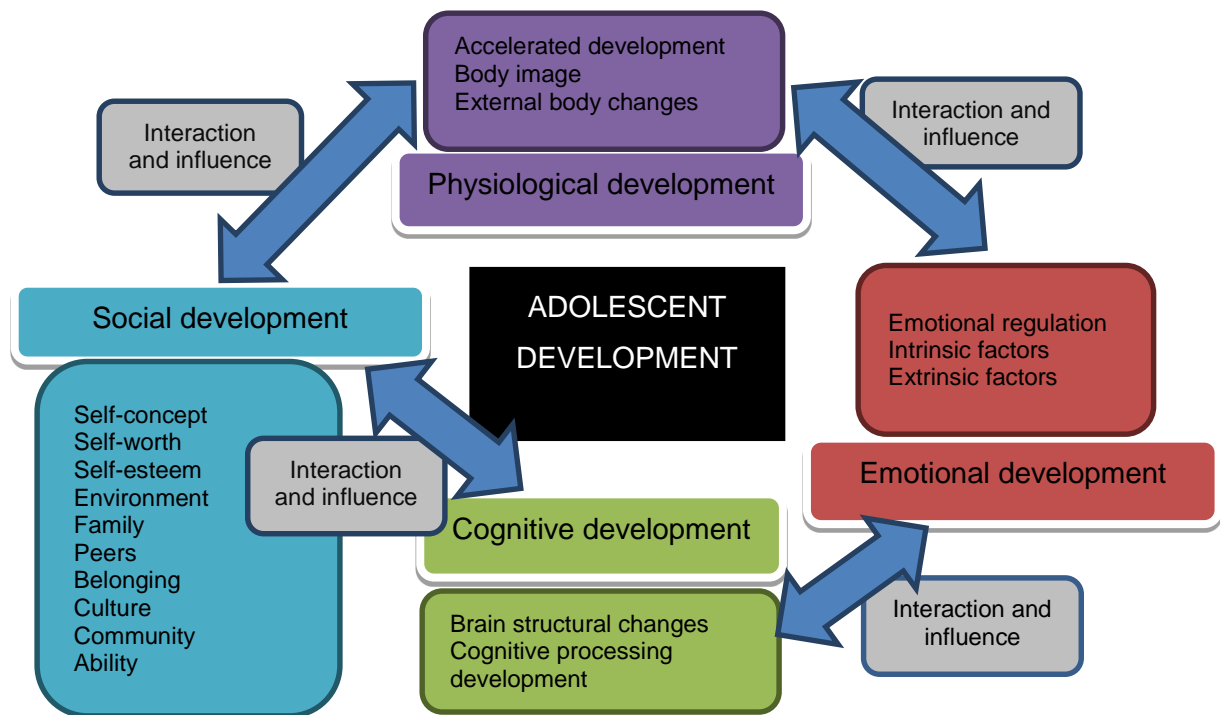
Figure 2.2: *Adolescent developmental changes*

Figure 2.3 illustrates the three dominant areas of development that are characteristic of the phase of physiological transition. During puberty, adolescents experience accelerated physical growth. The accompanying changes in hormonal functioning also entail a psychological shift in adolescents' body image and, consequently, personal connotations that they may attach to their body image.

The hormonal changes that occur within the brain of the adolescent create new challenges for the adolescent that were not experienced previously. These changes include not only

17

physiological transformations, but also an accompanying psychological shift. Swartz, De la Rey, and Duncan (2006) note that "each emotional response is manifested through characteristic action patterns, with various brain characteristics and psychological dimensions that reflect the dynamics of the associated feelings" (p. 126).
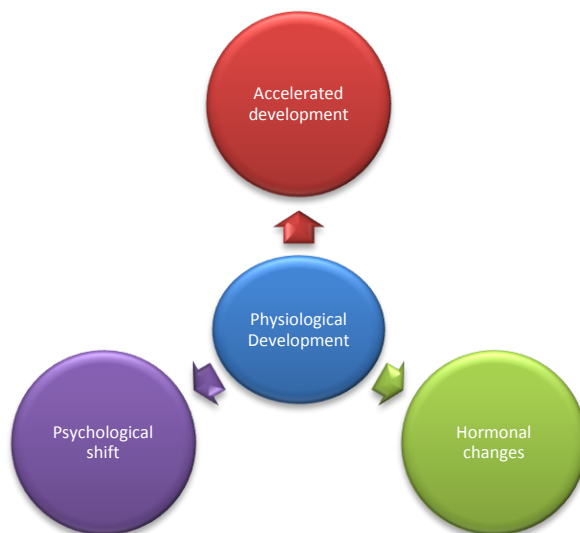
Figure 2.3: *The physiological triad*

These physical changes and psychological shifts give rise to increased self-awareness in adolescents to the point of developing a preoccupation with the external (body) and internal (psychological) transformations taking place in themselves. How adolescents perceive their bodily changes and the social aspects that are linked to these changes, coupled with the hormonal development, contributes to the creation of an "internal world" of the adolescent (Sigelman & Rider, 2006). To the extent that body image starts to become a concern for adolescents, it also becomes increasingly important for them how they perceive themselves and how they are perceived by others (Finch, 2008). These bodily changes may either assist adolescents in gaining self-confidence and peer acceptance, or they may create embarrassment and anxiousness if adolescents perceive themselves as being different from or unable to compete with their peer counterparts. As a result, adolescents may participate in behaviour that they would otherwise not have been inclined to do in the past in order to compensate for their perceived inadequacies (Finch, 2008; Steinberg & Cauffman, 1996; Swartz et al., 2006).

18

2.2.2   Brain and cognitive development

According to Finestone (2004), motivation can be defined as "[o]ur internal processes which serve to activate, guide and maintain our behaviour" (p. 71). Such processes are not static, especially in adolescents: as they develop, their cognition and consequently motivation also develop. Cognitive maturation gives rise to the development of gaps or grey areas in a once childlike view and understanding of the world, and adolescents start to notice subtleties in and gain an increased understanding of the complexity that is human nature (Louw et al., 1998).

Figure 2.4 delineates the progression of cognitive development through the physical structural changes that occur in the brain, thus influencing the cognitive processing expansion.
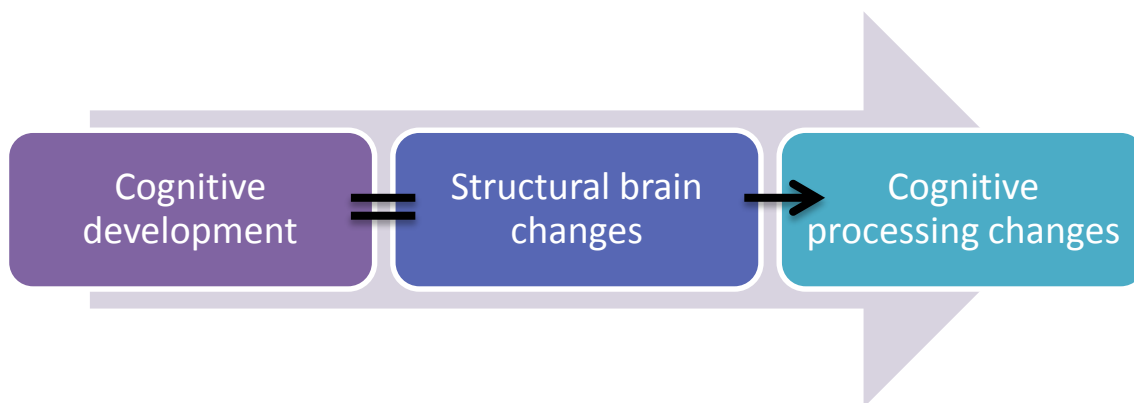
Figure 2.4:   *Development of adolescent cognitive functioning*

Henderson and Thompson (2011) note that the human brain undergoes structural and functional changes during the years of childhood through adulthood. These structural changes include the change in the ratio of grey to white matter in the brain (Sebastian, Viding, & Williams, 2010). It is in the adolescent stage of development that emotions, judgement, organising behaviour, and self-control come into full bloom. However, research suggests that during this developmental phase of structural change in the brain, the adolescent brain relies more on its instinctual part, known as the amygdala, which may account for many of the distinctive behaviour patterns observable in adolescents such as emotional outbursts, risk-taking behaviour, and the need to be in group settings (Casey, Giedd, & Thomas, 2000; Sebastian et al., 2010; Steinberg, 2007). Despite this phenomenon, Sebastian et al. (2010) note that with the formation of additional white matter, cognitive

19

functions relating to "social cognition, mentalising . . . and self-related processing" are also developed and augmented in adolescents' transition (p. 134). Tomas (2005) has suggested furthermore that adolescents in the later stages of development tend to make more use of the frontal lobes, which govern the executive functions of the brain such as planning, reasoning, judgement, emotional regulation, and impulse control.

The above developmental structural and functional changes involving the amygdala, frontal lobes, and white brain matter all exert some form of influence—appropriate to the physiological structures concerned—on adolescents' motivation in the behaviours and attitudes that they express externally from their internal development. Blakemore and Choudhury (2006) are of the contention that adolescents' cognitive processes allow them to "hold in mind more multidimensional concepts and [they] are thus able to think in a more strategic manner" (p. 296). Consequently, adolescents start to develop an interest in understanding not only their own psychology, but also that of people around them (Eccles, Wigfield, & Byrnes, 2003).

2.2.3   Emotional development

The development of emotions in adolescents is a process that evolves and matures over time and requires at least a measure of conscious regulation. Thompson (1994) defines emotional regulation as consisting in "the extrinsic and intrinsic processes responsible for monitoring, evaluating and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals" (pp. 27–28). Figure 2.5 represents the duality in emotional development, through intrinsic and extrinsic processes, that will create emotional regulation within the individual.

The emotional development of adolescents can be observed through their emotional expression (Henderson & Thompson, 2011). However, adolescent emotions also appear to fluctuate between highs and lows, and tend to spread across various types of emotion. Spear (2000) mentions that the most prominent of these emotional extremes include emotional volatility, anxiety, and self-consciousness. Sebastian et al. (2010) and Spear (2000) assert that adolescents tend to evince more emotional sensitivity than children and adults, especially with regard to negative social interactions. This may be due to the biological changes in the developing brain of adolescents, who, in order to regulate their

emotions, need to reach a platform where they are able to down-regulate negative emotions and up-regulate positive emotions (Silk, Steinberg, & Morris, 2003).
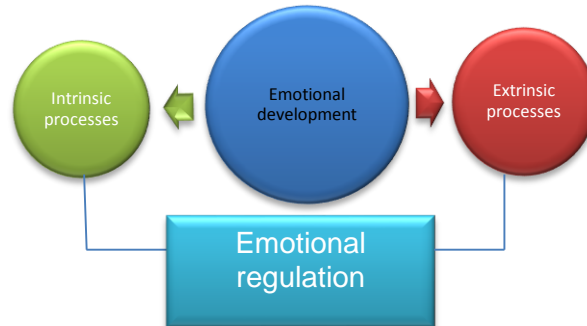
Figure 2.5: *Factors influencing emotional development*

Steinburg (2007) notes that emotional regulation is associated with the executive functions of the brain that continue to develop well into young adulthood, and that adolescent behaviour is often the result of a perceived emotional reward attached to a particular form of behaviour. Such behaviour may include participating in risk taking, sensation seeking, emotional outbursts, and peer-group identification. Galambos and Costigan (2003) acknowledge that daily stressors and challenges in adolescence that are considered to be surmountable can be seen as positive events, since they aid adolescents in learning to regulate themselves. Especially in view of the fact that "emotional experience is especially intense in adolescence" (Silk et al., 2003, p. 1869), successful self-regulation, which requires the individual to cultivate "strategic behavioural processes" (Thompson, 1994; p. 30), can lead to strong positive imprinting. On the other hand, adolescents can often experience such stressors and challenges as overwhelming, which may cause them to question their abilities and lose confidence. This, in turn, rather than major life events, has the potential of serving as inducement for negative adolescent behaviour. Spear (2000) notes that emotional irregularity or volatility in this life stage may exacerbate negative adolescent risk-taking behaviour such as substance abuse and sensation seeking.

Thompson (1994) maintains that regulation systems in the body begin with intrinsic development, but can be progressively influenced by extrinsic influences as the person develops. Extrinsic regulation can be seen as the actions imitated or copied from an external

21

entity in order to aid one's own internal emotional regulation (Gross & Thompson, 2003). The extrinsic factors that appear to play the most significant role in adolescent emotional development are the influences exerted by parents and friends. The emotional demands placed on adolescents in the various social contexts that they experience, allow them the opportunity for practising their emotional management skills and thus, through trial and error over time, to mature through engagement with their psychosocial environment. In this development, they begin to experience the ability to explore and understand the views of other people. They become more adept at identifying their own emotional states and deciphering the mental states of the people around them (Blakemore & Choudhury, 2006). In consequence of becoming more aware of intrinsic regulation, adolescents also become more susceptible to the influences of extrinsic regulation.

Adolescents have been characterised as being hypersensitive to peer evaluation, creating an emotional dysregulation in their self-worth. However, according to Sebastian et al. (2010), this phenomenon of dysregulation is found most commonly among girls and is of brief duration from approximately the ages of 13 to 15, after which its importance becomes drastically reduced. Thompson (1994) points out that when intrinsic and extrinsic regulation is mastered, all adolescents are able to retrieve emotionally meaningful information.

2.2.4   Social development

Social development becomes especially important in the adolescent years, which have "long been characterized as a time when individuals begin to explore and examine psychological characteristics of the self in order to discover who they really are, and how they fit in the social world in which they live" (Steinberg & Morris, 2001, p. 91). Figure 2.6 indicates the social fit of adolescents in their social world and illustrates the different areas of social life that influence their development. Each social area requires them to participate and adjust in order to be accepted. The areas mentioned are divided into two categories, intrinsic and extrinsic. Within the intrinsic category, the adolescents' goal is to establish a sense of belonging in the different areas of the extrinsic category. The external category of development is made up of the culture and community of the adolescent, family, and peer relations, as well as friendships and relationships.
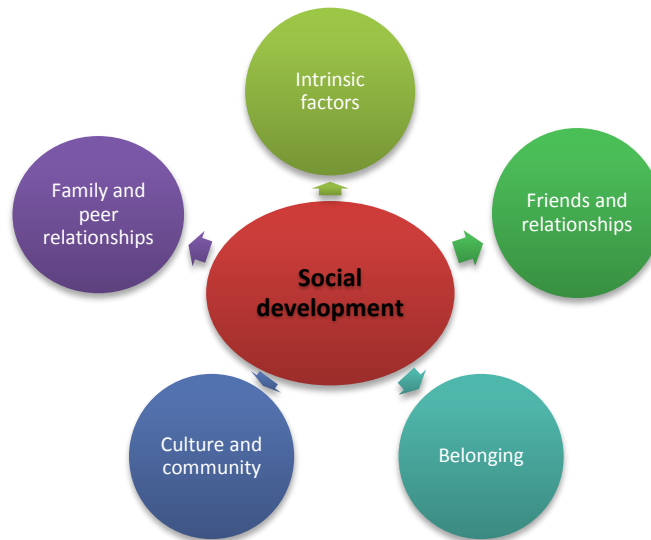
Figure 2.6: *Social influences on development*

Roeser (2000) suggests that one perspective of successful adolescent development is based on adolescents' social development. According to Steinberg and Morris (2001), adolescents perceive and compare themselves predominantly in the context of social activities, but they also take stock of their intrinsic selves through aspects such as self-concept and self-worth, moral conduct, and appearance. Social development, thus, forms an important part of the psychological needs that have to be met successfully: "Students require social contextual supports for all their basic psychological needs, which include not only autonomy but relatedness and competence" (Arnone, Reynolds, & Marshall, 2009, p. 130).

The most important aspects through which the social development of adolescents is established involve their intrinsic understanding of themselves in their environment and their relationships with their peers and family. Fulkerson, Story, Mellin, Leffert, Neumark-Sztainer, and French (2006) acknowledge that "healthy adolescent development is determined by a myriad of factors, including the social context of family, peers and schools, as well as personal attributes" (p. 337). Steinberg and Morris (2001) further note that there are factors that may affect adolescents' development in terms of their self-regard. These factors include academic success, parental style and support, cultural support, perceived appearance, financial aspects, sense of control, and ability for effective communication. Galambos and Costigan (2003) confirm the significance of communication in particular by noting that it is especially important in social situations in order to show an understanding

23

(intrinsically and extrinsically) of events, and to provide input to and receive appropriate interactions from social settings.

In such social interactions, it stands to reason that family, friends, and peers will exert an influence on the above factors of adolescents' self-regard. According to Brendt (2002), adolescents tend to imitate their friends' social behaviour. In this respect, it has also been found that high-quality friendships promote positive and socially acceptable behaviours, whereas low-quality friendships are associated with negative and less socially acceptable behaviours. In addition, adolescents create social groups for themselves, and these groups are often characterised by conformity with and commitment to the group. Such social groups aid adolescents in forming their identity, as well as in sharing their personal thoughts and opinions. The compliant loyalty that adolescents exhibit towards these social groups tends to be in contrast to the generalised rebelliousness that they might display towards authority figures, for example. The reason for this apparent incongruity is that these groups are often rigid in their expectations and will reject the adolescent who fails to conform to group expectations (Wenar & Kerig, 2005).

Hoare (2012) points out that adolescents are at a stage of maturity where they start asking ideological questions to which they can commit themselves in order to aid the development of their identity. This is usually done in the form of social interactions. The roles that adolescents assign to different social groups buttress their needs for social understanding in their environments. Steinberg and Cauffman (2006) indicate that adolescents will rely on their friends and peers for more specific adaptation challenges such as acceptable age-related social practices, whereas they will rely on their parents and family for more general directions with regard to larger life matters such as future planning and career preparation. Family and parental roles also play an important part in the social development of the adolescent, as this is where most adolescents learn how to socialise in their environments and communities. Adolescents' relationships with their families (the quality and time spent) have a strong connection to their positive and negative behaviours, as well as with psychological problems and emotional distress (Fulkerson et al., 2006). In addition, Sarre (2010) maintains that adolescence is a stage in which parents also attempt to encourage independence in adolescents through exploring the concept of managing own time (and space), for example with regard to time spent together and time spent apart, resulting in

24

increasing self-sufficiency in assessing independence and competence according to personal ability.

There appears to be a thin line between adolescents' emotional and social development. As Thompson (1994) has indicated, emotional regulation is integral to adolescents' social strategies as a means of achieving intrinsic regulation and gaining extrinsic rewards. According to Arnone et al. (2009), adolescents' sense of autonomy is derived in part from the feeling of relatedness that they achieve from being exposed to and accepted in different social settings. Identity formation through peers and family forms an intertwined web of understanding, not only of themselves from an extrinsic and intrinsic viewpoint, but also in gaining perspective on their environment and the motivations of the people in that environment.

2.3   Fundamental psychological needs in adolescence

Much research has been conducted on the psychological needs of adolescents over the past four decades, from which the following eleven major ones can be derived (Arnone et al., 2009; Roeser, 2000; Ryan & Deci, 2000; Sebastian et al., 2010):

- control,
- belonging,
- self-esteem,
- meaningful existence,
- competence,
- autonomy,
- relatedness,
- trusting and accepting relationships with adults and peers,
- self-expression and exploration,
- developing academic and social competencies, and
- social and romantic competencies.

The most important facets of these needs are described in the paragraphs to follow, but not necessarily in the order that they occur in this list.

Adolescents' sense of belonging is closely linked to identity formation and social development. They explore various relationships in order to ascertain a sense of belonging with groups that are similar to them. Such group relationships provide different platforms for them to investigate, and to formulate and express their own identity (Louw & Louw, 2007). This social sense of belonging aids adolescents in evolving aspects of themselves such as their ability for forming meaningful relationships, attachment, and moral development. In contrast to this, if they fail to achieve a healthy sense of belonging, factors such as anxiety and expression of negative behaviours may emerge (Van Tonder, 2006; Louw & Louw, 2007).

Control has been closely linked to a person's "coping mechanism, lifeskills, coherence, resilience and hardiness, all of which are essential for well-being" (Eloff & Ebersöhn, 2004, p. 51). Furthermore, the concept can be viewed in terms of its locus, which in turn can be bifurcated into an internal and external locus of control. The internal locus of control involves people's belief that positive events are due to the intrinsic abilities that they possess and that they are consequently able to minimise the effects of negative events. An external locus of control, on the other hand, refers to the conviction that positive and negative events arise from an external force (Baron, Byrne, & Branscombe, 2006), often with an accompanying persuasion that little can be done about them. Thus, in the first instance, control tends to lie within the power of the person, whereas in the second instance control tends be seen as outside of the person.

Geldard and Geldard (2002) define self-esteem in young people as "the extent to which a child values themselves" (p. 209). Finestone (2004) notes that when children experience the feeling of exclusion, trauma, or challenges, they may be inclined to re-evaluate themselves in terms of their self-esteem in general. However, should individuals learn to accept their strengths and limitations, they may well be enabled to sustain themselves in the development of their self-esteem (Geldard & Geldard, 2002). Louw & Louw (2007) maintain that self-esteem is established through the following three criteria:

- the degree to which individuals feel that they receive love, acceptance, support, and encouragement from others,
- the specific characteristics and skills that the individual possesses, and

26

- the degree to which individuals accept the various aspects of the self, especially when comparing the self to others.

Therefore, during the adolescent developmental period, self-esteem can either be nurtured or be questioned. As adolescents make their transition through this age, their self-esteem and experience ebb and flow with the new challenges they endure.

Adolescence is a time of exploration of the self and of the world in which one lives. However, as adolescents begin to think more abstractly about the world and are able to hold multiple cognitions, they also start to question the meaning of existence (Blakemore & Choudhury, 2006; Burnell, Beukes, & Esterhuyse, 2006; Fitzgerald, 2005). According to Hoare (2013), the primary need of adolescents is to establish "a self that is needed, committed and group-identified constituent" (p. 58). Should this primary need be fulfilled, the adolescent may experience a more well-formed identity. Thus, an association exists between perceiving a meaning in life and personal well-being (Burnell et al., 2006). A meaningful existence is closely associated with the existentialist curiosity of the adolescent (see 2.5.2 for a more detailed discussion).

Competence, autonomy, and relatedness are viewed as three separate yet interconnected psychological needs that are essential to well-being (Arnone et al., 2009). Ryan and Deci (2000) view competence as the ability to be effective, autonomy as the extent to which "people authentically or genuinely *concur* with the forces that do influence their behavior" (p. 328), and relatedness as the feeling of connectedness to others, and thus essential for intrinsic motivation. Moreover, they perceive the interrelatedness of these three needs as essential, since they have to function in harmony if well-being is to be achieved and established.

A trusting and caring relationship with adults and peers aids greatly with adolescents' social, emotional, and cognitive development. According to Sigelman and Rider (2006), adolescents who form secure attachments to their parents and peers also function better socially and emotionally, behave in a more socially acceptable manner, and display higher levels of self-esteem and sense of identity. Baron et al. (2006) explain that parents usually constitute the

first form of social relationships that the child experiences, and thus exert an influence on how the child will perceive and form future relationships.

As previously mentioned, adolescence is a time for self-expression and exploration. Kim and Drolet (2003) suggest that self-expression is the ability to act on choice; however, choice and uniqueness are not uniform across all cultures. Since self-expression and exploration can be viewed as a social engagement that requires communication and interaction, society and cultural norms exert an impact on the freedom of self-expression (Kim & Sherman, 2007).

Roeser (2000) indicates that the development of academic and social competencies usually equates to positive behaviours, peer relationships and achievement, whereas a failure to achieve these competencies could serve as a predictor of academic and social problems. Fulkerson et al. (2006) note that social competencies "include the ability to plan ahead and make decisions, and resistance skills for negative peer pressure" (p. 339). Roeser (2000) corroborates this view by noting the strong association between academic competence on the one hand and academic and social success on the other.

Furman, Brown, and Feiring (1999) argue that a link exists between social competence, positive self-esteem, and romantic competence. However, Sigelman and Rider (2006) point out three important features about adolescent romantic relationships, namely that

- most adolescent relationships do not last very long,
- adolescents with a pre-existing secure attachment to their parents tend to have positive dating experiences, and that
- "[d]ating at an early age tends to have more negative than positive effects on social and emotional adjustment" (p. 410).

2.4 Adolescents' relation to technology

The Internet is a communication medium that adolescents have embraced enthusiastically and positively. With access to information (from scholastic to general queries), games, and social interactions, the Internet has provided a new platform that can be accessed for personal or social reasons. According to Whitlock, Powers, and Eckenrode (2006), "adolescents use the Internet for the purpose of connecting with others at higher rates than

any other age group" (p. 1), which provides ample opportunities for research into the many-faceted contexts that adolescents encounter in society. The current study will focus on the counselling needs of adolescents as expressed through text messaging through Mxit on the platform of Dr Math.

As technology has become an essential part of present-day life, one also needs to explore its influence on the needs and development of adolescents. Ahn (2011) points out that the youth of today "are among the first to have grown up entirely surrounded by communication technologies" (p. 1435). As individuals are surrounded by and dependent on technology, it becomes important to investigate the impact that technology has on their physical, psychological, and social development and functioning. This influence is so crucial that Rappoport (2011) suggests that "for some, technology has become an essential extension of the self" (p. 220). Castells, Fernandez-Ardevol, Qiu, and Sey (2004) explain that technology and cellphones have not only changed the way that adolescents communicate, but also socialise with each other. Ahn (2011) acknowledges that adolescents in today's society face different challenges than before, due to the explosive growth of technology and the effects it has on shaping the way the world works.

Having noted that many adolescents enjoy frequenting the Internet at any given opportunity, the Internet can also be seen as a medium that can be used to either aid or hinder adolescents in developing a sense of identity and autonomy (Ahn, 2011; Ehrenberg, Juckes, White, & Walsh, 2008). Hoare (2012) confirms this influence of electronic communication on the growth of a sense of self by stating that "[c]omputers, the Internet, cell phones, and voice mail have infused our way of living, with technological advances requiring higher levels of literacy than those of verbal ability and mathematical skills alone" (p. 61).

As a medium for exploration, communication technology can be seen as both a positive and negative agent in development (Draucker & Martsolf, 2010). The most cited negative correlation with communication technology and adolescents is cyberbullying (Ahn, 2011). Research conducted by Ehrenberg et al. (2008) has also indicated that communicative technology, used to confirm social standing, can also be associated with different degrees of

self-esteem, extraversion, neuroticism, agreeableness, openness to experience, and conscientiousness.

According to Rappoport (2011), in the development of one's identity one is free to explore across the various social applications that technology has to offer, due to the variety and availability that technology provides. Subrahmanyan and Greenfield (2008) reveal that electronic communication has over the past decade become the preferred method of communication to establish and maintain relationships, with "teens" preferring instant messaging (p. 122). Since approximately five million South Africans have access to the Internet, whether through a computer or a cellphone, a wide market exists for services via synchronous messaging with an estimated 2,3 million South Africans being registered on Mxit, of which about 65% are aged between 12 and 25 years (Nitsckie & Parker, 2009). Donner, Gitau, and Marsden (2011) elaborate further on this by noting that adolescents make use of social networking sites via either their computers or cellphones (that have Internet availability). Gouws et al. (2010) explain the flexibility of the Internet by stating that "one does not have to be a citizen of a country . . . Geographic borders become irrelevant . . . [T]his situation can hold far-reaching implications for adolescents . . . where social development is paramount" (p. 237). In addition, adolescents may also favour this type of medium for help-seeking purposes in that it is quick, anonymous (at least relatively so), and comparatively inexpensive (Lavallee, 2006; Rappoport, 2011). Donner et al. (2011) state that communication technology such as Mxit holds the potential to aid adolescents with their developmental challenges by offering outreach programmes. A good example of such programmes is Dr Math, which is available on Mxit.

2.5   Identity formation

Identity formation occurs during a time when older children encounter puberty and are entering adolescence. Adolescents have to come to terms with the changes occurring within them, not only physically, but also at a cognitive, emotional, and social level. Adolescents' understanding of themselves, their relationships, and the world they live in comes into question during this phase (Hook, Watts, & Cockcroft, 2002). Erikson developed a theory of eight stages of psychosocial development in order to improve insight into the stages of life

that people go through. The stage on which the present research focused is that of *Identity formation vs. Role confusion.*

2.5.1 *Erikson's theory of identity formation*

The development of identity formation can be observed when adolescents encounter maturational challenges and start to work through these challenges (Hook et al., 2002). Schwartz (2001) reveals that choosing one's own identity is a distinction that is made between childhood and adulthood. According to Hoare (2012), "Erikson held that the genesis of the maturational ability to make self-determinations leading to an active, vital identity occurs in adolescence" (p. 53). On the opposite end of the identity formation spectrum lies identity confusion. Schwartz (2001) explains identity confusion as representing "conditions ranging from not knowing what university to attend to feeling as though one's life is completely lacking in purpose" (p. 9).

However, Erikson elaborated further on the idea of identity to include three dimensions, namely the unconscious, negatives, and society (Hoare, 2012). The unconscious is seen as a continual state of development within identity development. According to this theory, an interplay exists between a person's predominantly unconscious quest for an own identity on the one hand, and partially conscious quest to be part of and understand society on the other (Hoare, 2012). Full consciousness in identity development is not possible, since Erikson (1962) observes that "ego identity is partially conscious and largely unconscious" (p. 15).

The term "negatives" refers to the perceptions that adolescents have of what they are allowed and not allowed to do in relation to the positive and negative ideas that they may have attached to their values (Hoare, 2012). This takes place in a tug-of-war like cognitive battles between identity and identity diffusion. In other words, this postulates that after adolescents have identified values, they then judge these values in terms of positive and negative ideas. These ideas, in turn, relate to how adolescents experience these values as bases for action or non-action into their personal sense of identity and society (Hoare, 2012).

31

Rappoport (2011) asserts that the manner in which people obtain knowledge and communicate with each other has been profoundly affected not only by the advancement of technology itself, but also by the level of importance that people assign to technology in their identities and lives. Sigelman and Rider (2006) note that achieving a mature sense of identity can be observed when individuals accomplish psychological well-being, attain high self-esteem, are able to perceive the world through other people's perspectives, are willing to accept the self and that of other people, and evince the capacity to work through moral complexities.

An additional factor is the potential or relative anonymity that adolescents experience while using the Internet. This anonymity forms part of Erikson's identity formation theory, as adolescents are able to explore and express various facets of their personality, thus starting to build a sense of identity, without (or with minimal) judgement from society (Gross, 2004; Hoare, 2012; Hook et al., 2006). Specifically regarding the extrinsic effects of societal mores and norms, Hoare (2012) postulates that because adolescents are brought up within a society according to its distinct culture, values, and regulations, the adolescent identity is also ineluctably shaped by that society. Erikson (1962) contends that society provides the accepted boundaries for the youth to look for meaning and truth. Thus, anonymity within the bounds of *socially acceptable* electronic or cyber society allows in considerable measure for protected exploration and expression of identity.

2.5.2 *Existentialism and the adolescent*

"Who am I?" This question, when unpacked and probed from various perspectives, becomes a lifelong journey, as human beings are ever-evolving entities who strive for growth and seek renewal of the sense of self, not only within that self but also within society and within a potential higher order of existence (Fitzgerald, 2005). The foregoing may serve as a broad indication of what existentialism involves in terms of human self-perception and striving, but it does not readily lend itself to being conclusively defined as it is not an "ism" (Kohn, 1984, p. 382).

According to Vaz (1995), Sartre's concept of the "Gaze" (of another) is of great importance when considering how human beings learn to understand who they are in relation to others, as it has the potential to affect the person's self-concept (p. 33). The Gaze is how we

perceive the manner in which other people perceive us, thus altering our sense of being and doing. Moreover, interaction with other people may often be accompanied by a sense of anxiety, which is less likely than when we are by ourselves. As noted earlier, adolescents are in a stage of life in which self-awareness and external perception are of great personal importance to them (Hook et al., 2006), and they are consequently more susceptible to strong feelings of anxiety in terms of the Sartrean existentialist Gaze.

Erikson's theory of identity formation and certain tenets of existentialism—such as the Gaze concept—can be seen as complementary in striving for a better understanding of the process that adolescents go through to establish a sense of being and identity. Adolescents begin to ponder points such as "How do people perceive me? Who am I? What is my role, skills and abilities in relation to the world? What is the purpose of everything?" These questions are in essence the types of "life" questions with which existentialism concerns itself.

Although many philosophers argue that most people will experience an existential crisis only in middle adulthood, it can also be argued that existential crises present themselves when the point is reached in cognitive development where thought becomes abstract, and abstract thoughts become questions about connections, origins, and prospects (Fitzgerald, 2005). Thus, the connections and origins aid adolescents in formulating answers and building their identity, a process that provides a sense of self-worth, self-confidence, and self-esteem as can be observed in both Erikson's identity formation theory and various insights articulated in existentialism. Rappoport (2011) states that "existentialism asserts that individuals must learn about their world, create their own meaning from experiences and promote responsibility" (p. 220). Fitzgerald (2005) notes that denying the possibility of existentialist thinking as a tool for aiding adolescents in identity formation is a real concern, since its potential should not be undervalued because of a misguided perception that adolescents are not mature enough to grasp the concepts involved.

2.6   Conclusion

Adolescence as a psychosocial developmental life stage is fraught with complexities. With changes ranging from the physical to the existential, adolescents experience a myriad of challenges in their everyday lives. How they address and accept the outcomes of these

challenges is the most influential factor in their advancement into adulthood (Sigelman & Rider, 2006). However, extrinsic elements such as family, technology, and the environment also exert a significant influence on their progress. By understanding the elements that affect adolescent development, and through the lens of existentialism, adolescence can be seen as a time of self-expression and, in particular, exploration—not only of the self but also of society as such. With the inclusion of cybertechnology, and the ease of communication access that it offers, the possibilities for adolescents' self-expression and exploration yield many benefits and challenges. Against this background, it is essential to gain a deeper understanding of what adolescents choose to explore and express via cybermedia, so that child-service professionals can also reach out to adolescents in a medium with which these adolescents feel comfortable.

Chapter 3:
Research Methodology

3.1 Introduction

This chapter deals with the research methodology employed for the investigation. The research included a qualitative non-experimental design and a thematic network analysis within secondary data analysis for the purpose of answering the research questions:

- What are the counselling needs of adolescents seeking assistance through text-based messaging?
- How do the needs expressed align with the stage of development that adolescents are in?

Each of the two research questions allowed for the data to be extracted and explored from the participants' perspective and then to be related to the literature. Thus, the research questions were addressed from an interpretivist paradigm. Each question was explored on its own before comparing the findings to the literature in order to ascertain whether the current research could be correlated with existing literature. Thus, by taking into account the subjective experiences and perceptions of participants and comparing them to the literature, this investigation sought to arrive at a better understanding of some aspects of the psychosocial needs of adolescents.

As delineated in Table 3.1, this research is based on the paradigmatic foundation of interpretivism, which is best suited to disclosing the subjective experience of participants. The unearthing of the subjective experience requires the implementation of a qualitative approach to obtain a proper perspective on the participants' perceptual world. In order to understand the worldview of participants, the research was approached from an interpretivist paradigm. Being based on a pre-existing data set, the investigation made use of secondary data analysis whose advantages and disadvantages are highlighted in a discussion. The manner in which the data were coded and analysed is presented in a detailed account of thematic network analysis, after which researcher's ethics, reflexivity, and trustworthiness with regard to this research are explained.

35

Table 3.1: *Chapter 3—delineation*

	Chapter 3		
3.1	Introduction		
3.2	Original purpose of the data		
3.3	Research design and methodology	3.3.1 Paradigmatic lens: Interpretivism	
		3.3.2 Qualitative research	
		3.3.3 Secondary data analysis	
		3.3.4 Advantages and disadvantages	
3.4	Thematic network analysis	3.4.1 Analysis Stage A: Reduction or breakdown of text	3.4.1.1 Step 1: Coding the material
			3.4.1.2 Step 2: Identifying themes
			3.4.1.3 Step 3: Constructing thematic networks
		3.4.2 Analysis Stage B: Exploring the text	3.4.2.1 Step 4: Describing and exploring thematic networks
			3.4.2.2 Step 5: Summarising the thematic network
		3.4.3 Analysis Stage C: Integration of exploration	3.4.3.1 Step 6: Interpreting patterns
3.10	Role and ethics of the researcher		
3.11	Researcher reflexivity		
3.12	Trustworthiness of study		
3.13	Conclusion		

3.2   The original purpose of the data

Dr Math was originally generated as a way to aid school-going adolescents in mathematics through tutoring. As the founder, Dr Laurie Butgereit, discovered through personal experience, it caused less friction to provide tutorship via text messaging than a face-to-face approach. When Dr Math originated, its recordings were intended for quality control and

further development of the programme itself. However, as the programme grew, the founder started to use the recorded data to further her own research into the experiences of adolescents being aided in mathematics. Thus, the recordings were taken exactly as provided by participants in typed text format and analysed to gain a better understanding of adolescents' learning-experience needs in mathematics (L. Butgereit, personal communication, October 2013). For the purposes of the present study, therefore, the data were provided in their original form directly from the participants and were not compromised by subjective interpretations at the point of origin.

3.3   Research design

Kothari (2004) characterises research design as a "conceptual structure" that is in essence a "blueprint for the collection, measurement and analysis of data" (p. 31). Maxwell (2013) elaborates on this view by noting that "a good design, one in which the components work harmoniously together, promotes efficient and successful functioning" (p. 2). The research design for the present investigation was chosen to gain greater insight into the nature of cyber communication as used by adolescents, who use text messaging as a gateway to meet their psychosocial reality needs (see Chapter 2). Wahyuni (2012) describes a research design as the link that brings together the research methods and methodology in order to investigate the social phenomenon. In the present study, secondary data analysis of the text of the messages, using thematic network analysis, opens a window into the world of adolescents' subjective reality, allowing the researcher to achieve a better understanding of the social phenomenon. In this investigative process, a research methodology needed to be employed, which Kothari (2004) defines as "a way to systematically solve the research problem" (p. 8).

3.3.1   *Paradigmatic lens: Interpretivism*

Epistemology provides the foundational roots for the research to be conducted. Braun and Clark (2006) state that epistemology serves as a channel for what the researcher discloses about the findings and meaning of the data. Eloff and Ebersöhn (2004) note that the epistemology is also a response to the question of what the nature of the knowledge is; that is to say, "the relationship between the knower (researcher) and the would-be known (participant)" (p. 356). Thus, in this research, the epistemological approach was employed to

uncover the meaning and purpose of the text messages under review. This was implemented from an interpretivist approach, so that the meaning could be derived from the participants' perspective on "reality".

A paradigm can be described as the lens that researchers choose for conducting the research (Babbie, 2005). Interpretivism is a specific lens through which researchers gain the advantage of having access not only to "objective" statistics-based investigative methods, but also to a more "subjective" insight into human experience and understanding of the phenomena being explored. Wahyuni (2012) states that it is the reality constructed by people's perceptions which constitutes interpretivism. Thus, it provides a space in which the person, as an entity, is recognised as having a background, a history, experiences, and own perceptions. However, as people are social beings, it is also recognised that multiple perspectives may exist simultaneously (Rolfe, 2006; Terre Blanche et al., 2006; Wahyuni, 2012). De Vos, Strydom, Fouché, and Delport (2011) remark that the interpretive approach is the process by which researchers actively attempt to embed themselves in the collected data in order to extract and establish not only the information provided, but also the underlying "subtext" of the messages.

It is apparent then that the relationship between the researcher and participant, as mentioned by Eloff and Ebersöhn (2004), refers to the type of analysis that is incorporated in the interpretivist approach, which can be verified through reflexivity practices. Taking this into account, if the framework of the research can be regarded as interpretivist, factors such as subjectivity and personal perspectives on human experiences need to be taken into account. This, in turn, entails giving careful consideration to the ontology and epistemology of the research (Terre Blanche, Durrheim, & Painter, 2006). Since the current research is focused on the counselling needs expressed by adolescents, the interpretivist approach is highly appropriate to allowing the researcher to gain an understanding of what these needs are through considering what was expressed. As mentioned before, each adolescent might perceive the world differently and thus experience different needs.

3.3.2 Discussion of qualitative research

The research for this study was informed by a qualitative approach employing the interpretivist paradigm. Qualitative research, however, can be carried out in a multitude of

ways in accordance with the researchers' chosen ontology, epistemology, participants, and intended audience (Richie & Lewis, 2003). Although qualitative research is consequently difficult to define, Richie and Lewis (2003) formulated a definition that sums up the main points of this type of research aptly: "[Q]ualitative research is a naturalistic, interpretive approach concerned with understanding the meaning which people attach to phenomena (actions, decisions, beliefs, values, etc.) within their [the participants'] social world" (p. 3).

Qualitative research holds many advantages and disadvantages for the researcher. The advantages include the fact that samples are generally smaller. This is due to saturation, as a sample size that is too large may eventually not add to the findings but involve mere repetition. Another advantage is that research of this nature seeks to find the human experience and is aimed at understanding social conditions (Richie & Lewis, 2003). Thick, rich descriptions of experiences can be explored in depth. A disadvantage of this approach is that qualitative data relate to specific, inductive research, which means that findings based on them are generalisable to specific groups but not populations of people (Babbie, 2005). Another contentious issue is that of the validity and reliability of the research. Since much of the research is conducted in the so-called grey area of human subjectivity, concerns are often raised about the reliability and validity of findings, which may, for example, be compromised by researcher bias (Morse, Barret, Mayan, Olson, & Spiers, 2002).

3.3.3 *Secondary data analysis from a qualitative perspective*

The reason for using secondary data analysis in this investigation was that the data had already been gathered by a primary data collector; in other words, the current study availed itself of a pre-established data sample. Leech and Onwuegbuzie (2008) concede that secondary data analysis, using pre-existing data as its data collection source, is a relatively new aspect of qualitative research. These researchers note further that since secondary data analysis is sourced from previous studies, such data should be considered non-naturalistic and artefactual. The practice of using pre-existing data entails a reconsideration of traditional aspects of research such as ethics, researcher bias, and subjectivity factors, which that may bear influence on the research. Despite these concerns, however, secondary data analysis can prove to be an invaluable research tool provided that a conscientious

methodological approach is adhered to (Irwin, Bornat, & Winterton, 2012; Smith, 2006; Vartanian, 2012).

As mentioned in Chapter 1, many definitions of secondary data analysis exist. Each definition varies slightly from the next, but all propose the same underlying notion of using pre-existing data, collected either by the same researcher or using another researcher's collected data, to be examined from a new perspective in order gain new information and attain new conclusions (Heaton, 2008; Leech & Onwuegbuzie, 2008; Smith, 2006; Vartanian, 2011).

Heaton (2008) points out that researchers commonly use three modes in qualitative secondary data analysis. The first mode is *formal data sharing*, which involves archived data collected from public or institutional sources. The second mode is *informal data sharing*, by which method researchers provide the data to other individual researchers, or collaborate with new researchers on the provided data, or pool data with other researchers. The third mode is called *self-collected data*, and, as the name suggests, in this case researchers reanalyse their own data with a view to generating new information. For the current research, formal data sharing was selected as method since the data set was shared by a cooperating research institute.

Content analysis was used for analysis of the data set. According to Strydom, Fouché, and Delport (2003), content analysis is a part of secondary data analysis and has the advantage of revealing topics from the gathered information. It is therefore advisable for researchers, when conducting secondary data analysis, to first achieve a clear problem formulation before familiarising themselves with the extracted data (Strydom et al., 2003).

3.3.4   *Advantages and disadvantages*

When secondary data analysis is used, three main advantages immediately come to the fore: (a) the ease of data collection, since the data have already been collected; (b) the time advantage, since data collection is no longer a concerning factor; and (c) the low cost involved in retrieving the data Creswell, 2008; Hofferth, 2005; Strydom et al., 2003). In addition to these advantages, the sample size can also be seen as a benefit. The latter had particular significance for the current study, since the Dr Math programme had a large

audience pool that made use of its services, thus allowing the researcher access to a multitude of participants who would otherwise have been time-consuming and expensive to reach. Because this research was to be conducted among adolescents who made use of Dr Math—which had been running for several years—the researcher was able to conduct research within a specifically chosen time period that would yield the greatest advantage with regard to qualitative richness and detail.

An important limitation to using secondary data analysis in the present research, however, was the uncertainty about the demographic data of participants in terms of population representation. The only defining criterion for participation in this research was that participants had to have access to a cellphone with Internet connectivity. Any biographical data were therefore excluded as all identities had been kept confidential—even from the programme administrator. The lack of specific participant information, moreover, also limited any possibilities for varied questions and background exploration about participants. Therefore, as remarked upon by Creswell (2008), potentially important information regarding the specificity of participants was beyond the researcher's reach.

The following table was adapted from Strydom et al. (2003, pp. 329–331) to indicate the advantages and limitation of using secondary data analysis.

Table 3.2: *Advantages and disadvantages of secondary data analysis*

Advantages	Disadvantages
Avoids data collection: The need to collect data is avoided; moreover, the researcher saves on costs and time.	*Complexity*: Depending of the purpose of the research, this method may appear deceptively simple.
Verifies data: Secondary analysis can be complementary to or contrasted with other research in order to confirm or reject previous findings.	*Reflection on human behaviour*: Secondary analysis does not allow the researcher first-hand observations of human aspects such as emotions, which have the potential to be misrepresented in the original study.
Avoids reactivity: This refers to the potentially unnatural behaviour of participants who are aware of themselves being observed.	*Obtaining sources:* The original sources of the data collected may not be traceable for further dissemination.
Independent procedure: Secondary analysis is an independent procedure and a total investigation can be undertaken utilising this procedure.	*Prejudices in documents:* All documents should be evaluated in terms of potential prejudices.

Advantages	Disadvantages
Avoids harmful effects on respondents: Direct harmful effects on respondents are avoided, and ethical dilemmas are therefore minimised.	*Validity and reliability:* The secondary data are collected in good faith that the original collection was accurately recorded.
Paradigms: Both qualitative and quantitative paradigms can be utilised under this approach.	*Confidentiality and anonymity:* May become a matter of concern when a secondary researcher comes into contact with the data set.
Multidisciplinary potential: The same data set can be analysed by different disciplines and viewed from different perspectives in order to obtain a multidisciplinary understanding of social issues.	*Copyright*: The ownership of the original data is a complex issue and could cause many copyright regulations to be invoked.
Utilises extended data sets: Secondary data sets are suitable in cases where a data set is available that is larger and more comprehensive than that which the researcher could have handled alone.	*Limited to using available data*: The researcher is limited to the data collected.
Sound scientific attitude: The researcher develops an in-depth understanding and scepticism of collected data, allowing a more accurate perception on the original circumstances of the data collected.	

As can be seen from Table 3.2, the considerations and advantages involved in the process of secondary data collection are considerable. Although the potential pitfalls of using secondary data sets are also indicated, they may serve a useful purpose in guiding researchers to avoid them. Consequently, all these considerations can be operationalised to produce sound research that is both credible and reliable.

3.4   Thematic network analysis

A distinction exists between thematic network analysis and thematic analysis. Braun and Clark (2006) define thematic analysis as a way to find and explore themes in the data in order to convey them in reports. According to Attride-Stirling (2001), thematic networks constitute a system in which to organise the qualitative data for interpretation. In sum, thematic network analysis can be seen as a system for organising and arranging collected data by identifying themes that can provide valuable detail for research from the data set (Braun & Clarke, 2006).

Strydom et al. (2003) observe that in order to tell someone else's story, we must first be able to listen so that we can understand it. From this statement it can be seen that the

purpose of analysis is to identify patterns and trends within the content, as this will provide the researcher with a valuable source of rich information.

Table 3.3 (adapted from Attride-Stirling, 2001), briefly identifies the steps for effective coding within thematic network analysis. The table is followed by an elucidation of the steps involved.

Table 3.3: *Thematic network analysis table*

Analysis Stage A: Reduction or breakdown of text

Step 1. Coding the material (codes established by identifying recurring patterns and themes)
    a. Devising a coding framework
    b. Dissecting text into text segments using the coding framework
Step 2. Identifying themes
    a. Abstracting themes from coded texts
    b. Refining themes
Step 3. Constructing thematic networks
    a. Arranging themes
    b. Selecting basic themes
    c. Rearranging into organising themes
    d. Deducing global themes
    e. Illustrating as thematic networks
    f. Verifying and refining the networks

Analysis Stage B: Exploring the text

Step 4. Describing and exploring thematic networks
    a. Describing the network
    b. Exploring the network
Step 5. Summarising thematic networks

Analysis Stage C: Integration of exploration
Step 6. Interpreting patterns

3.4.1 Analysis Stage A: Reduction or breakdown of text

3.4.1.1 Step 1: Coding the material

According to Saldana (2009), coding usually consists of a short word or phrase that contains attributes necessary for the research, which is an interpretative act. However, it is first important to establish what coding is. Coding can be seen as a form of identifying and "labelling" important data (Wahyuni, 2012, p. 76).

Step 1 involves two substeps, namely *devising a coding framework* and *dissecting text using the coding framework* (Attride-Stirling, 2006). When devising a code framework, Attride-Stirling (2006) suggests that the researcher may either establish pre-existing criteria to be identified, or identify patterns, or recurrences, within the text to be analysed carefully. With regard to the second substep of dissecting text using the coding framework*,* the researcher dissects the text into fragments for further analysis (Nieuwenhuis, 2007). However, Attride-Stirling (2006) further notes that it is important to set definite boundaries within the coding framework so as to avoid a coding oversaturation of the data, which may become redundant to the original research question.

When coding, Saldana (2009) recommends that *first-cycle coding methods* be employed. These are the initial coding practices used for deriving the code from the text. In the context of the present research, which made use of text messages, Saldana also suggests that in order for the researcher to attune to the research, initial coding (initial understanding of code) and *in vivo* coding (making use of the participants' wording) should be implemented. In addition to these two coding practices, this investigation availed itself of value coding, which Saldana defines as reflecting "the participant's values, attitudes, and beliefs" (p. 89), in order to reach saturation of data for the research questions.

3.4.1.2 Step 2: Identifying themes

In this step, the established codes are further grouped into categories and re-evaluated. This process takes place in a further two-step approach involving *abstracting themes from coded text segments* and *refining the themes* (Attride-Stirling, 2006; Cohen, Manion, & Morrison, 2007). By repeated examination of the full text, the researcher will be able to identify and extract the "salient, common or significant themes in the coded text" (Attride-Stirling, 2006,

44

p. 392). In the second substep, the researcher has to identify themes that are non-repetitive, as well as ones that are repetitive (Attride-Stirling, 2006). This process allows the researcher to summarise the data in detail for a richer experience and to extract appropriate data and codes for the interpretation process (Cohen et al., 2007). Essentially, this phase requires the researcher to identify "the story that each theme tells" (Braun & Clark, 2006; p. 12)

Saldana (2009) points out that by identifying codes, through common elements, and establishing patterns (or lack thereof) among the codes, the researcher is essentially building families of familiarity among the identified constructs. These "families" need to be established through careful consideration and cross-referencing with the other constructs in order to determine the correct placement for the purposes of the research.

3.4.1.3 Step 3: Constructing thematic networks

In step three, Attride-Stirling (2006) suggests a further six substeps to be taken to ensure proper construction of thematic networks. In this phase, themes are categorised into larger conceptual constructs (networks) by performing the following:

- Arranging the themes into larger groups based on the content, or where relevant, on a theoretical basis. This larger group will thus constitute a network. More than one network can be established, though, should more groups be determined from the amalgamated themes.
- Selecting basic themes from the data to form new groups. This measure is taken to create thematic networks.
- Rearranging the basic themes into organisational themes, thus creating clusters that will aid in identifying the overarching global themes.
- Deducing the global themes by establishing the central point of the network.
- Illustrating the basic, organisational, and global themes in an ordinal manner to establish the thematic network.
- Verifying and refining the networks to determine that the thematic network corresponds with the basic, organisational, and global themes.

45

3.4.2 Analysis Stage B: Exploring the text

3.4.2.1 Step 4: Describing and exploring the thematic networks.

This step is the initial point of analysis of the data created through thematic networking. At this stage, the networks created are used for analysing the original texts in order to describe the contents and explore the underlying patterns within the texts. Petty, Thomson, and Stew (2012) confirm that interpretation aids the researcher in gaining a better understanding of the results of the data being analysed. This is achieved through using the basic, organisational, and global themes as lenses (Attride-Stirling, 2006).

3.4.2.2 Step 5: Summarising the thematic network

This step entails providing a summary of the main themes and underlying patterns uncovered, which can be done in both illustrative and written form (Attride-Stirling, 2006).

3.4.3 Analysis Stage C: Integration of exploration

3.4.3.1 Step 6: Interpreting patterns

Although some of the patterns may have become evident already in Step 5, activities in Step 6 are aimed at exploring and interpreting the discovered codes in the networks and the key themes (Attride-Stirling, 2006).

3.5 Trustworthiness of the study

In this research, as previously discussed, secondary data analysis was used from a qualitative perspective. Cohen et al. (2007) distinguish between the quality assurance of qualitative research and quantitative research by pointing out that in qualitative research trustworthiness replaces the concepts of reliability and validity. In striving to ensure the trustworthiness of the current research, the guiding concepts of credibility, transferability, dependability, and conformability, as expounded by Guba and Lincoln (1982), were strictly adhered to.

Credibility is described as ensuring that the data source is in agreement with outcomes (Guba & Lincoln, 1982). Caeli and Mill (2003) note that the following key factors need to be addressed to ensure credibility:

- the theoretical position of the researcher,

- the congruence between methodology and methods,
- the strategies to establish rigour, and
- the analytic lens through which the data are examined.

This can be achieved through "peer debriefing", which in the current research was conducted by a fellow master's student and the study supervisor. Peer debriefing allows for a researcher to confirm the data coding and results with a peer in the same field who has an understanding of the research process. The rationale for peer debriefing is to confirm and guide the research process with a view to ensuring the accuracy of the results (Guba & Lincoln, 1982; Richie & Lewis, 2003; Seal, 1999). According to Shenton (2004), credibility is the ability to represent the nature and reality of the research phenomena most precisely. Regarding this study, credibility was supported through the supervisor's review and, after the peer and supervisory review, making the appropriate adjustments to ensure the accuracy of the findings. The supervisor and a fellow master's student were approached for the purpose of peer debriefing.

Dependability, which involves the repeatability of results, can be achieved through what Guba and Lincoln (1982) refer to as a dependability audit. According to Shenton (2004), this process requires the researcher to provide a "manual" on the method used to reach the outcomes of the data, which should enable other researchers to replicate the process of arriving at the same outcomes as the original research. For the present research, the process and method of data extraction and analysis have been provided in detail to ensure dependability and enable possible further future analysis. It is, moreover, essential to establish an audit trail, as noted by Petty, Thompson, and Stew (2012), so that the "way in which the researcher has made interpretations, implications and conclusions is made explicit" (p. 381). The audit trail is intended to be the source from which the actual process of the data analysis can be traced, where the deconstruction and re-establishment of the data can be seen in its formulation, instead of the romanticised version presented in planning (Rolfe, 2006). (See Appendix F for the audit trail of this study.)

Transferability, as explained by Terre Blanche et al. (2006), means that other researchers will be enabled to reproduce the results or findings of a study if thick, rich descriptions were used. In the case of the present research, participant information was unavailable and the

47

description for transferability was therefore reliant on the researcher's in-depth utilisation and description of the Dr Math programme, as well as on general research findings regarding adolescence.

Lastly, *confirmability*, which is defined by Shenton (2004) as "the qualitative investigator's comparable concern to objectivity . . . [in order] to reduce the effect of investigator bias" (p. 72), is possible if the researcher makes use of reflexivity and a confirmability audit (Guba & Lincoln, 1982). According to Strauss and Myburg (2001), *reflexivity* is a necessary component in order to enhance objectivity in the study and to ensure that the researcher is able to eliminate as much bias from the findings as possible. Ratele (2006) points out that researcher reflexivity takes place "when he [the researcher] is looking at himself . . . [I]t is not those he is studying looking at him" (p. 553). De Vos et al. (2002) remark on an important aspect of reflexivity, namely "the ability to formulate an integrated understanding of one's own perceptions and ideas" (p. 369).

In view of the above clarifications, it is researchers' ethical and moral responsibility to be reflective of their own values and attitudes in the research. They need to take account of their own past experiences with the topic and to separate personal understanding and judgement from the participants' experiences and explanations (De Vos et al., 2002; Seale, 1999; Terre Blanch et al., 2006). Finlay (2002) notes that "through the use of reflexivity, subjectivity . . . can be transformed from a problem to an opportunity" (p. 531). By successfully utilising reflexivity, the researcher will be able to foster self-awareness of personal biases and maintain a critical perspective on compromisingly subjective approaches to the data. This is referred to as bracketing (Creswell & Miller, 2000).

As Finlay's (2002) reference to subjectivity implies, an uncompromising, absolute objectivity is not desirable either. Walsh and Downe (2006) argue that it is essential that researchers contribute personal reflections in their research, for the use of other researchers to understand the motivation of the results. In order to achieve a balance between subjective bias and personalised insight, the researcher kept a journal reflecting the researcher's feelings and thoughts with regard to the themes established. Moreover, the researcher also recorded the themes uncovered from participants, as well as personal thoughts and feelings that arose during the extraction of the themes, while bearing in mind the possible effects

48

that these may have on the research findings. The journal consequently reflected the researcher's personal views and insights, but with due awareness of the need to exclude personal opinions from the research.

3.6 Participant selection

3.6.1 The gatekeeper concept

According to Creswell (2008), when conducting qualitative research, one often encounters a "gatekeeper" (p. 219). An initial problem in data retrieval can sometimes occur if access needs to be gained to participants in a community that the researcher wishes to explore, but it is found that such access is controlled by a person or entity in charge (officially or unofficially); in other words, a so-called gatekeeper. The gatekeeper to Dr Math in this research was the founder of the programme, Dr Laurie Butgereit. Through various personal communications between 2010 and 2014, Dr Butgereit granted permission for access to the data of her programme for the purposes of studying the psychological needs of adolescents making use of it. Since Dr Butgereit had originally first approached the Department of Educational Psychology at the University of Pretoria to seek assistance in this field, gaining access to this research and the data was achieved with relative ease. Creswell (2008) argues that in qualitative research it is essential to decide on and use the services of people who will benefit the researcher the most in understanding the phenomenon.

3.6.2 Participant criteria

Based on the data collected from the texts collected by Dr Math, the present study focused on discovering what needs were being expressed by adolescents availing themselves of the programme. This investigation entailed an analysis of text messages sent from January to December 2013. It needs to be noted, however, that because of the type of data being analysed, the participant criteria were subject to certain deficiencies. The main ones were firstly that only adolescents with access to the Internet—whether via computer or cellphone—could be included. Secondly, since no biographical details were included in the original texts, features such as age, gender, and population details were excluded from the study.

3.7   Role and ethics of the researcher

Secondary data analysis requires the researcher to hold strong ethical principles. Strydom (2011) defines ethics "as a set of moral principles which is suggested by an individual or group, is subsequently widely accepted, and which offers rules and behavioural expectations about the most correct conduct towards experimental subjects and respondents, employers, sponsors, other researchers, assistants and students" (p. 114). Although secondary data analysis does allow researchers some measure of exemption from certain ethical considerations, these considerations cannot be waived entirely. Secondary data research entails that pre-collected data are pre-set with their own ethical considerations and responsibilities (Smith, 2006). Smith (2006) considers it a responsibility of researchers to respect the data and use them judiciously. The onus rests on researchers using secondary material to do a thorough examination of the original data collection to ensure that the data were collected in conformity with ethical standards (Smith, 2006).

Participant information is considered a vital point in any research. Aspects such as anonymity, confidentiality, and informed consent/assent require researchers to ensure that they were adhered to correctly in the primary research. With regard to the secondary analysis, researchers must ensure that that the participants' information continues to enjoy the same level of confidentiality and anonymity as in the primary research (Smith, 2006). According to Fouché and Delport (2011), any aspects experienced in the research that may bring the ethical nature of the research into the question, need to be acknowledged and addressed by researchers.

The current research was derived from text-based messages in an open forum that did not allow participants to enter unless they provided a pseudonym. Thus, not even the system recording the information had access to participants' biological details. In addition, the tutors were also provided with pseudonyms to protect their anonymity. Since privacy issues were a matter of concern for the Dr Math programme, its management applied and received ethical clearance from a tertiary education institution in 2008 (L. Butgereit, personal communication, 13 November 2013).

Voluntary participation is an issue that is addressed at the outset before participants can communicate with any of the tutors. As the Dr Math programme required every participant

to agree to terms and conditions before entering the site, every participant available in the present research had to acknowledge that they had read the terms and conditions, and understood that their responses were recorded for quality assurance and research purposes (L. Butgereit, personal communication, 13 November 2013).

3.8   Conclusion

Qualitative research has many research design avenues that can be followed. For this research chapter, secondary data analysis was selected, and its advantages and disadvantages were explored to ensure that it would offer the most suitable approach to the data. Interpretivism was investigated and chosen as the method for retrieving themes within the data, since it is important to understand the research also from the participants' perspective. This qualitative approach was furthermore decided upon as an ethically sound route to follow since it is credible, dependable, and bias free if implemented judiciously. Particular focus was placed on thematic network analysis as the guide for extracting the data, considering that this form of analysis provides a clear procedure for ensuring responsible handling of the data in order to attain the most accurate interpretation of the findings. Through proper engagement, and following the set-out protocol, accurate data retrieval is possible. Researcher reflexivity was also pivotal in this research design as ethical handling of the data entails guarding against own biases and potential misgivings about the topic. To warrant a trustworthy and transparent process, an audit trail, as well as a peer debriefing, served as a means for adhering to the objective of maintaining quality, accuracy, and openness.

In Chapter 4, a breakdown of the results of the data will be presented along with evidence of the audit trail.

Chapter 4:
Presentation of findings

4.1   Chapter overview

In Chapter 3, a descriptive discussion of the research methodology was provided (Section 3.2), detailing the purpose and use of secondary data analysis (Section 3.2.3), thematic network analysis, as well as the trustworthiness and ethics of this research (Sections 3.5 to 3.7). In the present chapter, the findings from the data are discussed under the guidance of thematic network analysis.

Thematic network analysis requires examination and rigorous re-examination of the data, from which codes are then established and grouped into basic themes. The basic themes are subsequently re-examined and classified into organising themes, which are cross-referenced with the original codes (to ensure accuracy) and reassembled into the final global themes (see Appendix F). Finally, an illustration of each thematic network is provided and clarified in a discussion.

This chapter is devoted to an identification and discussion of the codes, basic themes, organising themes, and global themes according to the guidelines stipulated in the literature explored in Chapter 2, as well as a formulation of answers to the following research questions set out in Chapter 1:

- What are the needs of adolescents seeking assistance through text-based messaging?
- How do the needs expressed align with the stage of development that adolescents are in?

The research findings will be presented first under the heading of the global theme, after which the thematic network will be unpacked and presented in an illustration (Figure 4.1) to show the progression from themes to findings. This visual illustration will aid in identifying the links in the network derived from the data. In addition to providing the global, organising, and basic themes, representative extracts from the original texts will be provided to substantiate and contextualise the findings.

The emerging themes are elaborated on in Section 4.2, a description is provided on the layout of each theme, and the codes derived from the conversations between the tutors and participants are enumerated. The global thematic networks are then discussed in Sections 4.3 to 4.7. Within each section an illustration of the theme is presented as seen in Figures 4.2 to 4.6, followed by examples of the conversations from which the codes were derived. Lastly, a discussion of each global theme is presented within the respective sections.

4.2 Emerging themes

The data set used was the instant messages received by the tutors of Dr Math for the duration of January to December 2013. The number of conversations that took place within this period was 5 284. Of these conversations, 143 deviated from the prescribed tutoring process. Table 4.1 provides the criteria used for inclusion and exclusion of text messages as data for this research.

Table 4.1: *Inclusion and exclusion criteria of the original data set*

Inclusion criteria	Exclusion criteria
1. Any conversation that deviated from mathematical tutoring.	1. All conversations that related only to mathematical tutoring.
2. Any interaction in which numbers were used as code for words in conversations that deviated from tutoring mathematics.	2. Acceptable expressions of gratitude to the tutor for assistance rendered; for example, "thank you very much".
3. Providing of personal details.	3. General politeness or civility towards the tutor.
4. Any part of the conversation that expressed personal emotions from the participant.	4. Spelling mistakes and wording errors during the texting.
5. Inappropriate language from the participant.	

In the first scrutiny of the data, it was imperative that every message be read clearly and carefully to ensure that no relevant conversations were overlooked, especially as the

language used in text messages were often abbreviated, or numbers were frequently substituted for letters to make up words (e.g., "n01" to mean "no-one"; see Appendix C).

After the 143 relevant conversations had been examined, a number of codes were generated and collapsed into five global themes. The five global themes established and formulated from the relevant data set (after examination, coding and placing into basic themes as mentioned above) were as follows:

- Adolescence is a time for natural romantic curiosity.
- Adolescence provides emotional expression.
- Academic and career considerations are concerns for adolescents.
- Adolescents will actively seek counselling on personal matters.
- Social interactions are important to adolescents.

It is important to note that in the examples of text messages provided below, only the most significant and representative texts were selected. Figure 4.1 illustrates how the thematic networks were established and represented in this research. Each thematic network presented in this investigation is accompanied by an illustration for ease of reference.
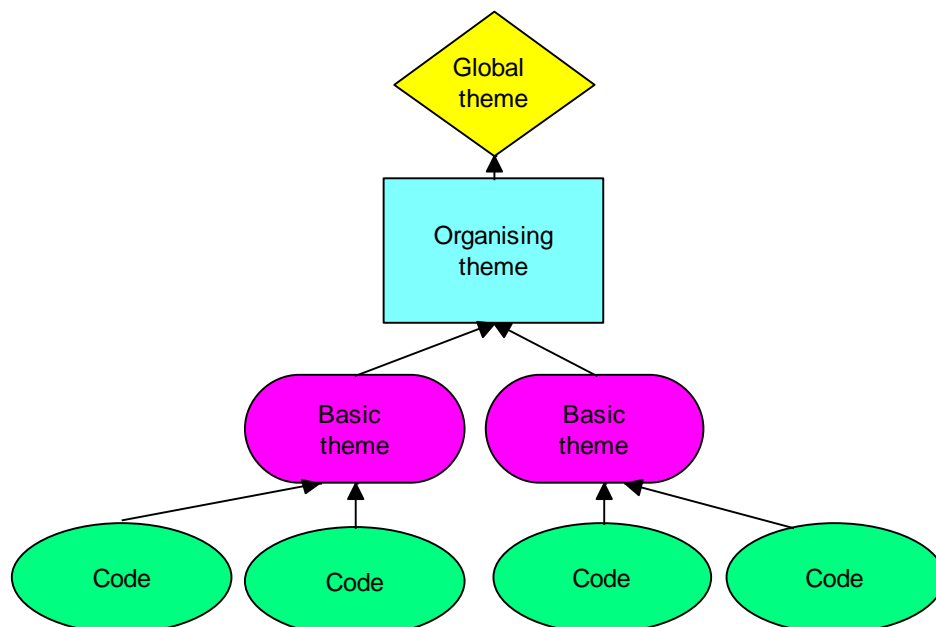
Figure 4.1: *Representation of the arrangement of findings*

In Figure 4.1, from a top-down approach, firstly, the global theme is represented in a yellow diamond. The global theme is then informed by the organising theme, a turquoise square, which is a culmination of the basic themes, the pink oblong circles. The basic theme is then seen as a representative culmination of the codes used in the research to inform the global theme. The codes for each global theme were derived from the conversations in text messages between tutors and participants. The codes (i.e., the items of data) formed the foundation for the thematic networks.

4.3 Global Theme Network 1: Adolescence as a time of natural romantic curiosity

Romantic curiosity in this theme refers to any interaction that implied a romantic interest either towards the tutor, or in reference to a romantic partner outside of the tutoring context. The adjective "romantic" as used in this study means "conducive to or characterized by the expression of love" (Oxford Dictionaries, 2014). Figure 4.2 illustrates the thematic network for the global theme *romantic curiosity.*
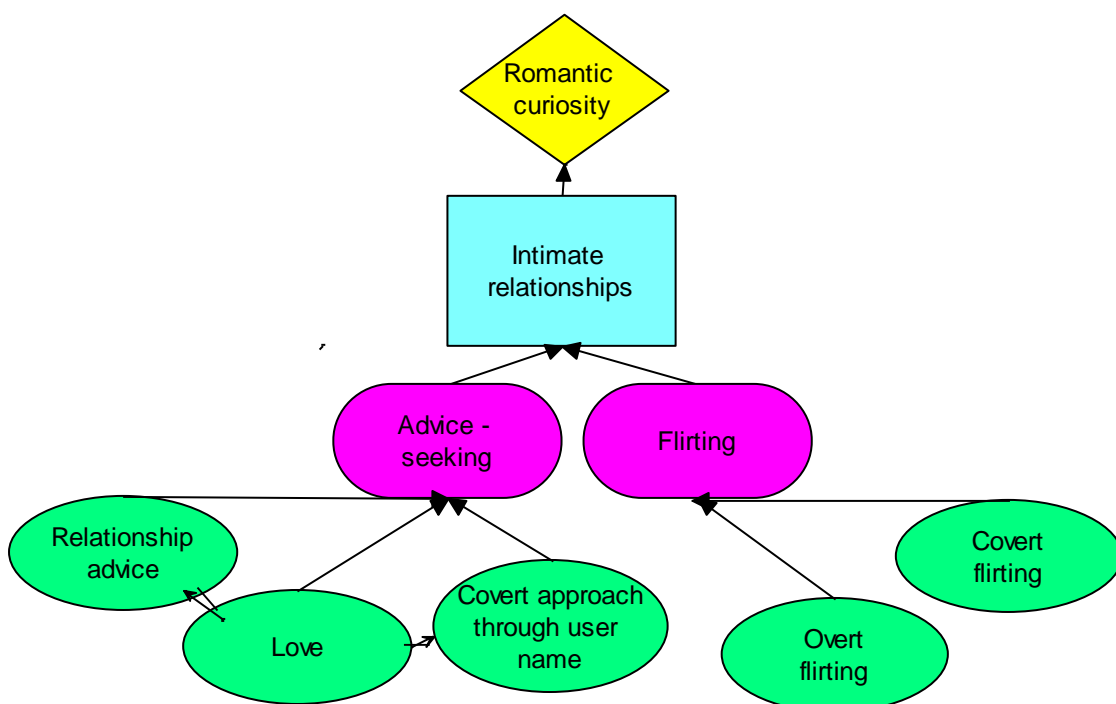
Figure 4.2: *Thematic network for romantic curiosity*

Romantic curiosity was significant enough to be considered a theme but was by no means the most expansive theme derived from the data set. Only four codes were used to inform the basic themes, having been derived from nine messages with romantic overtones.

The codes could be grouped together and divided into two basic themes, namely advice-seeking behaviour and flirting behaviour of adolescents. The advice-seeking basic theme encompasses attempts by participants to converse with tutors about a subject at heart, whereas the flirting theme involved various approaches to flirting that the adolescent participants pursued.

4.3.1 Organising theme: Intimate relationships

The basic theme of advice-giving is one of two basic themes under the organising theme intimate relationships. The first basic theme of *advice-seeking* was seen as significant due to the types of questions and conversations from the participants that reflected their desire to obtain information about the topic.

Within the romantic curiosity theme, the conversations were usually only participant oriented, as well as short and vague. It appeared that the participants highlighted only their main concerns about a particular challenge that they were experiencing, and when the tutors displayed no active response to the conversation, the participants ended the conversation. This is illustrated by the following example:

Participant: "wt is love?"[1]

The tutors were under strict instructions not to participate in conversations that did not relate to tutoring in mathematics (see Appendix E).

4.3.1.1 The theme of advice-seeking

The basic theme of advice-seeking is made up of three codes, namely relationship advice, love and covert approach through user name.

---

[1] This message was found twice in the data under different days. It should also be noted that text messages are reflected verbatim in this study.

CODE OF RELATIONSHIP ADVICE

In reference to the code of relationship advice, participants specifically requested advice about various aspects of romantic relationships. This was represented by the two different conversations below:

Participant: "crusly..wats da point on gettn into a relationship with sum1 u hardly cee"

and

Participant: " is condoms save
Tutor: ask a nurse.
Participant:
                you call yourself a dr

Tutor: you call yourself a dr?

                is condo0ms save

                i'm not a medical doctor. ask a doctor or nurse if you want info about condoms "

These conversations indicate the type of advice regarding romantic interests that participants required about. In the first, the participant enquired about how to make a relationship work if the couple were not able to see each other often. In the second, the participant was enquiring about safe sex practices in a relationship.

CODE OF LOVE

In the second code, under the basic theme of advice-seeking, the participants enquired about the nature of love. This can be seen in the following quotations:

Participant: " theres this girl am in love with but i dnt knw"
                and
Participant: " wt is love?"

These two examples indicate that the participants were trying to define not only what love is, but also, as seen in the first quotation, how to establish what love meant to them.

CODE OF COVERT APPROACH THROUGH A USER NAME

One participant did not openly approach the matter of relationships through direct conversation, but created a user name hinting at his/her perceptions or emotional needs:

Tutor: "good evening skeptical heart, how can i assist you?"

Although the participant did not engage in any untoward conversation with the tutor, the choice of a very specific user name might have been made to induce the tutor to enquire about it.

4.3.1.2 The theme of flirting

The basic theme of *flirting* presented itself in two different ways or codes, namely overtly and covertly.

CODE OF OVERT FLIRTING

With regard to the basic theme of *overt flirting*, participants would openly flirt and even blatantly entice the tutor, as in the following text message shows:

Participant: "damn dou u sound so cute"
Tutor: "lol"
Participant: "*********[2] col me.. it'l be our lil secret

                 i knw datz a lie... n01 has 2 knw"
Tutor: "anything else i can help you with?"
Participant: "mhmm i lyk it whn u're ol crus.. it kinda turnz me off.. jst hala at me nd i'l

                 make it up 2 u.. jst use dose numbrz i gv u yeah.. snd a msg o evn col

                 if my 4une z 0ff snd a msg k hun..mwaa toddles"

In this conversation, the adolescent openly and clearly expressed interest in the tutor, even after the tutor had given no indication of returning such interest and pointedly steered the conversation back to the appropriate topic. Even though only one example exists for this code under the global theme of social interaction (Section 4.7), it could be conjectured that the purpose of some messages was to establish a connection with the tutors, possibly for romantic purposes. The researcher's first impressions were expressed as follows in the reflective journal:

---

[2] The cellphone number has been removed to protect the participant's anonymity.

After reading, and re-reading this text message, I realise that this particular adolescent has neither hidden behind the anonymity of the platform, nor shied away from the tutor after providing his/her personal details. The idea that anonymity creates a platform for adolescents to explore possibilities of their identities and push social boundaries remains intact. However, it seems that some adolescents do not need anonymity to explore their potential selves, and may have enough confidence to approach situations with little concern of their ego being damaged.
Researcher's diary, 20 August 2014

CODE OF COVERT FLIRTING

Regarding conversations bracketed in the code of *covert flirting*, a more subtle approach to flirting with the tutor was evident than in comparison with overt flirting. The following was a good illustration:

Participant: "i jst wnt 2 b wth my bf 4 da rst of malyf n i hp dt no1 wil

intrupt us....."

In this example, the participant could be considered to flirt subtly with the tutor, which was reflected in the potentially suggestive ellipsis at the end. This ellipsis possibly indicated that the participant had deliberately left the purpose of this statement out, potentially with the intention of drawing the tutor into a conversation about the topic. According to Lenhart, Ling, Campbell, and Purcell (2010), adolescents often use text messaging as a buffer when communicating with someone that they consider a possible romantic partner. The researcher's thoughts on this were as follows:

I realised how complex the idea of love and romance is for adolescents. No longer are they limited to the platonic love they have for their parents and siblings, but the occurrence of romantic interest is a completely new state for them to master. Enmeshed with the physical changes taking place with their bodies and the upsurge of hormones, these adolescents, like all of us before, are each reliant on their cognitive schemas of love, through family and society.
Researcher's diary, 17 September 2014

4.3.2   Findings on the global theme of romantic curiosity

According to Collins (2003), adolescence is a time of awakening in terms of romantic relationships and experiences. As mentioned in Chapter 2, one of the researched psychological needs of adolescence is to become romantically competent.

The global theme of romantic curiosity speaks to the research question of the needs that adolescents have in seeking assistance, as well as the second research question of whether these expressed needs correlate with the stage of development in which the participants find themselves. Some of the participants in this investigation steered their conversations into the direction of romantic content. Wright (2014) acknowledges that adolescents experience a need for romantic interests (either to receive or give) as an essential part of their development.

In using Dr Math inappropriately as a means for expressing their psychosocial needs, the participants concerned chose it as a platform that provided them with anonymity while allowing them to convey an interest in intimate relationships, knowing that they could exit at any point without being identifiable. Dolev-Cohen and Barak (2013) support the opinion that the anonymity provided by instant messaging is an attractive feature that aids adolescents in opening up more easily or exploring avenues that face-to-face communication would hinder. By choosing to disclose personal information on a mathematics tutoring platform and talking about their romantic lives, the participants concerned may have done so intentionally. As Furman and Shaffer (2003) note, owing to the personal nature of adolescent romance, and the complexities of interference by family and friends in romantic relationships, seeking assistance from an anonymous person, while remaining anonymous oneself, is an alluring way to help one in making decisions.

The participants presented this topic from two sides. The one side was to explore their romantic curiosities through advice-seeking, and the other was to explore their curiosity through flirting. Both approaches were therefore used to explore various aspects of intimate relationships. As adolescents develop physically and as hormonal changes accordingly affect their psychosocial perceptions, romantic curiosity becomes a natural path of enquiry in their attempt to become romantically competent.

4.4   Global Theme Network 2: Emotional expression

The thematic network of emotional expression was derived from the participants' emotion-laden language. Emotional expression is an attribute that is associated with adolescence, as it forms part of adolescents' emotional maturation process towards independence and autonomy (Hardman, 2012). Two organising themes were established, namely *negative*

expression and *positive expression.* The participants expressed three distinct basic themes with regard to expressing emotions, namely *aggression*, *antagonism,* and *gratitude*. Figure 4.3 is an illustrative diagram of the thematic network for the global theme *emotional expression.*
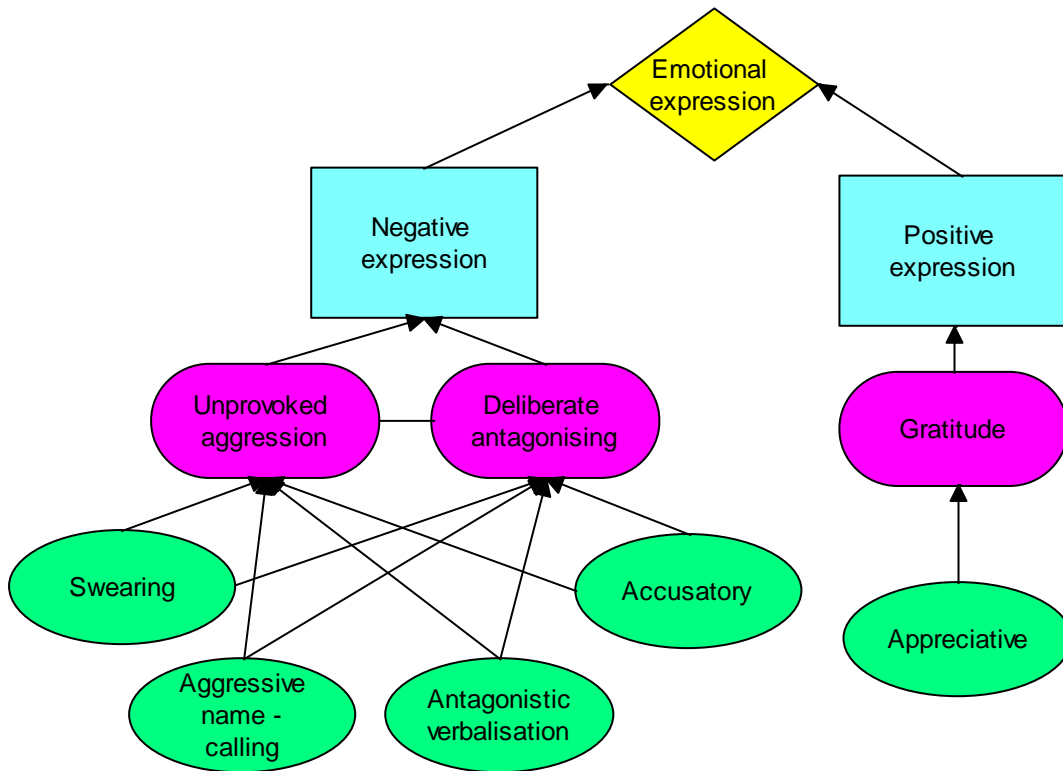
Figure 4.3: *Thematic network for emotional expression*

As can be seen in Figure 4.3, the global theme of emotional expression is made up of two organising themes, namely negative expression and positive expression. Each of these organising themes has been built up from the three basic themes as previously mentioned. Negative expression was derived from the basic themes of unprovoked aggression and deliberate antagonising, while the positive expression was derived from the single basic theme of gratitude. The six codes used to arrive at the basic themes of swearing, aggressive (abusive) name-calling, antagonistic verbalisation, accusatory verbalisation, and appreciative verbalisation, are further discussed below.

4.4.1 Organising theme: Negative expression

Negative expression was derived from examining verbalisations by the participants in the sense of any conversation that could be considered verbally rude or crude, aggressive or abusive, antagonistic, or accusatory.

The basic themes of unprovoked aggression and deliberate antagonising both involved the same four codes, namely swearing, aggressive name-calling, antagonistic verbalisation, and accusatory verbalisation. Since these themes were subtended by the same codes, they will not be presented separately in this subsection.

CODE OF SWEARING

Regarding the code of *swearing,* some participants appeared to be swearing for no apparent reason, which in the following case was succeeded by an accusatory statement:

Tutor:	"ask me your question"
Participant	"what the fuck"
Tutor:	"type in the problem you have"
Participant:	"you knw what neva mind"
Tutor:	"cheers then"
Participant:	"u think i wil beg u"
Tutor:	"no but i still don't see your actual math question"
Participant:	"aggg"

It appeared from the word "aggg" that the participant might have felt frustrated or annoyed with the tutor without having any justification for these feelings. Underwood, Rosen, More, Ehrenreich, and Gentsch (2012) note that obscene language in adolescent text messaging is an expected occurrence, as can be seen from the following instance in which swearing appeared to be used as a "signing off" phrase:

Participant:	"bye 2 the boys,g2g 2 the gals nd get a lyf to the haterz...im bending over kiss my ass bitches(x)"

The following comment was made in the researcher's diary:

It feels to me, when reading messages by adolescents, that the use of such profane language may be their inexperienced attempt at sounding adult and trying to gain respect. Trying to throw off the

perception that they are no longer children. The saying "practice makes perfect" comes to mind, so that with experience, this type of behaviour will become hopefully refined.

<div align="right">

Researcher's diary, 11 August 2014

</div>

CODE OF AGGRESSIVE NAME-CALLING

The second code under the basic theme of unprovoked aggression is *aggressive name-calling,* as indicated the example below:

Participant	"geomatry
	measurement
	ey
	bitch
	ey
	?
	i
	hi"
Tutor:	"hey"
Participant:	"ag fuck u"
Tutor:	"yes
	who r u"
Participant:	"u can reply yes but the rest u cant answer
	u being such a slut"
Tutor:	" i answer math questions"
Participant:	"lol i just asked a maths question but you never reply"
Tutor:	"re send it"
Participant:	"i need help with summary
	summary
	why you being so slow to reply?
	dude!
	hey!
	:e"
Tutor:	"summary of what? please ask your question"
Participant:	"slut
	stop advertising that you know math while you dont

ok

the actual area of south africa is 1 221 037 km2. by how many km2 did your estimate differ from the accurate figure?

ey man reply aggggg

ah u just useless u dont know maths"

It appeared that the participant was frustrated with the tutor for not replying fast enough. The resultant action of the participant was to call the tutor names. The participant might have thought that the tutor was female, as reflected in the abusive term "bitch". If, however, this term is used for males, it is usually considered particularly derogatory since it implies effeminacy, intended as an insult. In the study conducted by Underwood et al. (2013), it was found that 7% of all text messages by the participants contained obscene language.

In the above example, the participant continued by calling the tutor a *slut*, perhaps as an attention-seeking device or as a means to catch the tutor's attention through crude shock tactics. The participant followed up the verbal insults by stating that the tutor was not answering because he or she did not know the answer. This antagonistic behaviour can again be seen as issuing from a sense of frustration on the part of the participant, as well as an attempt to catch the tutor's attention and possibly elicit a reaction.

CODE OF ANTAGONISTIC VERBALISATION

The third code under the basic themes of unprovoked aggression and deliberate antagonising is that of antagonistic verbalisation. In the following extract, the behaviour of the participant can be seen as antagonistic in a possible attempt to provoke the tutor into a response to name-calling and insults:

Participant   " fuck y0u"[3]
Tutor: "why lol?"

In the full text of this message, it could be seen that the tutor and the participant had had a successful and lengthy tutoring session, but the participant decided to the end the conversation by swearing at the tutor. Since this abusive action was completely unprovoked,

---

[3] This message was part of a longer conversation, the rest of which bore no relevance to this study.

64

it is uncertain why the participant would choose to close the session in such a manner. After the tutor had questioned the participant for the reason for this aggressive response, the participant simply terminated the conversation, perhaps in an attempt to test the social boundary between himself/herself and the tutor, under the safeguard of his/her anonymity.

A similar instance of unprovoked aggressive behaviour can be seen in the following conversation:

Tutor: "yes, well done. that's right"

Participant   "fuck you!"[4]

Tutor: "cheers then. bye bye"

Participant: "1+1="

A study conducted by Berson and Berson (2005) found that adolescents are influenced by the technologies in their social context and have learned to create a "digital boundary" between themselves and other users of technology when engaged in contact. The adolescent users of online communications do not always receive the proper social cues for or experience the repercussions of their online behaviour, which makes it all the more important that they should be aware of aspects such as respect and tolerance for others to avoid undesirable actions in their communications.

CODE OF ACCUSATORY VERBALISATION

This is the fourth code under the basic themes of unprovoked aggression and deliberate antagonising. The following extract from a message indicates an example of a participant's engaging in accusatory behaviour. The participant seemed to make an unfounded assumption about the tutor's behaviour towards him/her:

Participant: "u think i wil beg u"

Tutor: "no but i still don't see your actual math question"

In this extract, the participant did not engage in any other conversation except for stating that he/she already felt judged by the tutor. This might have been due to the participant's entering into the conversation with preconceived ideas about either himself/herself or about the tutors. The initial hostility shown towards the tutor might have been a defence

_____

[4] This message was part of a longer conversation, the rest of which bore no relevance to this study.

65

mechanism employed by the participant to ensure that he/she would receive fair treatment from the tutor.

A related occurrence of this type of approach was evident in the following excerpt in which the participant initiated the conversation by accusing the tutor of judging him/her:

Tutor: "hi. What is your math question?"

Participant: " yeah u knw my nym bt u dnt knw ma story, so b4 judgng me mke sure u perfct …
                 >peace im out<"

In a study conducted by Erikson, Feldman, and Steiner (1994), it was found that the level of maturity that adolescents have been developing is correlated with their defence style. Thus, a low level of maturity can be associated with adolescents' pre-empting any imagined disapproval by oversensitive, hostile defensiveness.

4.4.2   Organising theme: Positive expression

Positive expression was derived from conversations that exhibited behaviour or verbalisation from participants in which they expressed gratitude towards the tutors. Only one basic theme was present for the code of *appreciative verbalisation.*

As can be seen in Figure 4.3 (p. 61), variation in positive expressions by participants was significantly smaller than in negative expressions. It appears from the data that the adolescent participants were able to express themselves negatively more easily and readily than they could positively. It is important to note that many participants did express their thanks for the tutors' assistance. However, for the purpose of this research, only messages in which participants made a point of thanking the tutors beyond the bounds of common courtesy were extracted.

The message below represents a participant's enthusiastic appreciation of the tutor's assistance:

Tutor: "so you understand now ? :)"

Participant: "yep,you are the best tutor

                 u were so patient until i understood

66

i wish you were tutoring the whole week,its a pity you dont"

Tutor: "thank you :) i'm just glad i could assist :)"

It was apparent from this message that the participant was highly satisfied with the tutoring session, but the expression of thanks went far beyond the expected level of appreciation. It is possible that the participant was trying to impress the tutor, or might have felt a connection to the tutor and thus praised the tutor's abilities so highly, noting that he/she would have liked to be tutored by the same person again.

The gratitude expressed by the participants varied in form and intensity, as illustrated by the following quotations:

Participant "thank you very much...#inspired"

and

Participant "thanx alot for yo time may god blessed u in everything u did to us as a learners, you help us into different difficult problems thank,may god keep you."

In the next example, the participant expressed not only appreciation for the assistance received from the tutor, but also surprise at the effectiveness of the tutoring:

Participant: "thx man.i use to undrmine you guys bt snc frm tdy i wil respect you"

Tutor: "Why did you undermine us"

Participant: "i thght myb you wr jst tryng to gt our attention"

Tutor: "i am"

Participant: "bt ur helpful mah"

Tutor: "gr8 tell our friends about me"

Participant: "i wil"

The participant furthermore acknowledged having had preconceived ideas about the nature of the service. These preconceptions involved an initial lack of interest in or suspicion towards the service, based on the assumption that it was some attention-catching ploy not directed at providing anything beneficial. The following ideas were developed in the researcher's diary:

I believe that all people have developed a level of suspicion, over time, about the motives of people and occurrences in their lives. I believe this helps us determine the value of the truth in every occurrence. Often I will find myself relieved or astonished at the outcome and truth in occurrences, which reminds me not to judge too quickly.

Researcher's diary, October 1, 2014

4.4.3   Findings on the global theme of emotional expression

The adolescent participants in this investigation presented a need to express themselves to the tutors as they chose fit. This was seen in not only in the organising themes, but also in negative and positive expression.

In the context of negative expression, the adolescents presented themselves as impatient and verbally aggressive. Nicol and Fleming (2010) refer to this aggression as mobile phone aggression (MPA) and found that should adolescents feel that aggressive behaviour would yield a positive outcome, they would more readily engage in such behaviour. As seen in the codes, the adolescents reverted to swearing, name-calling, and antagonistic and even accusatory verbalisation towards the tutors. This behaviour appears to be a common characteristic of adolescents, which is not restricted to new technology or the current decade. According to Gavin and Furman (1989), adolescents are known to display antagonistic inclinations, especially to people whom they do not consider part of their friendship group.

Benson (2004) argues that adolescents require adult guidance, especially concerning decision-making. This, however, may go against adolescents' attempts at reaching their developmental milestone of autonomy and independence from their families. Thus, adolescents may experience a quandary when making use of services that they feel they need, while feeling equally driven by a desire to establish themselves as independent and in no need of outside assistance. This may create a sense of loss of control—considering that control is a fundamental psychological need in adolescence. Moreover, adolescents live in an era of such technological advancement that those among them with access to the Internet are used to gaining information almost immediately (Dolev-Cohen & Barak, 2012). Frustration often results if informational needs are not met without delay.

68

Scharf, Mayseless, and Kivenson-Baron (2004) comment that adolescents who have established a positive identity are able to live balanced, autonomous lives in relation to their parents and peers. However, the opposite is also true should a negative identity be established. A negative identity will create distance from and distrust in other people. Some of the participants indicated frustration with the tutors, which resulted in negative expressions towards them. This temperamental attribute of impatience is another common attribute associated with adolescent development. Casey, Jones, and Hare (2008) acknowledge that "[a]dolescence is also a time of increased emotional reactivity" (p. 111) due to the physiological immaturity of adolescents' cognitive development.

The organising theme of *positive expression,* however, can also be seen as developmentally appropriate as it relates to adolescents' emotional reactivity remarked upon by Casey et al. (2008). As mentioned in Section 4.3.2, the positive form of emotional expression was in the minority in comparison with the negative expression, namely eight short positive messages as opposed to twelve negative ones

4.5   Global Theme Network 3: Academic and career concerns for adolescents

The academic and career thematic network came about as a response to the overwhelming concern, generated from the participants, about their academic and career challenges. For the purpose of this research, the academic and career considerations refer to any content relating to school subjects (not only mathematics), queries about universities, and conversations about potential careers.

Figure 4.4 illustrates the thematic network established for the global theme of academic and career concerns for adolescents.
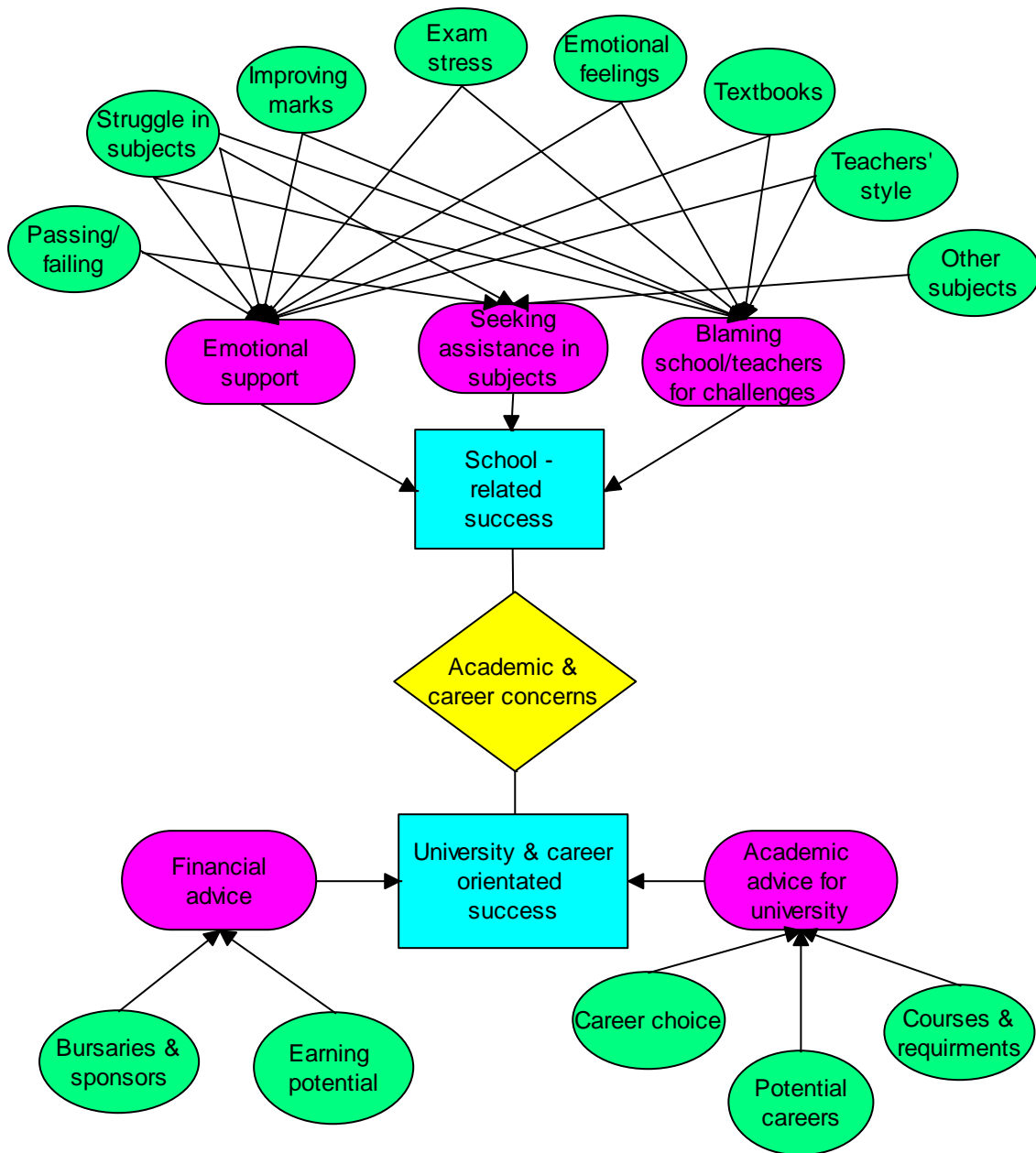
Figure 4.4: *Theme network for academic and career concerns for adolescents*

The 13 codes established in this global theme were categorised into five basic themes that fall under the two organising themes of *university and career–oriented success* (Section 4.5.1) and *school-related success* (Section 4.5.2).

4.5.1   Organising theme: School-related success

The organising theme of school-related success was derived from eight codes that were established in the data set. These codes were passing or failing challenges, struggling with subjects, improving marks, examination stress, emotional feelings related to school, textbook challenges, teachers' ability or style of teaching, and other subjects that required assistance. As illustrated in Figure 4.4, the eight codes were grouped into three basic themes, namely emotional support, blaming the school or teachers for challenges, and seeking assistance with subjects. The codes in this organising theme could often be related to the other two basic themes.

4.5.1.1 Basic theme of emotional support

The basic theme of emotional support is made up of five codes, namely passing/failing, struggling in subjects, improving marks, examination stress, and emotional feelings.

In the message below, two codes were evident: *passing/failing* and *struggling in subjects*. The participant's anxiety was obvious in the plea for help, even after the tutor had requested a direct question from the participant. The participant reinforced the importance of receiving help because of experiencing anxiety about potentially failing mathematics:

Participant   "i can't factorise....for example (x-3)(x+2)=x(x-4)

Tutor: "i understand. Do you have a term you need some help to factorize"
Participant: "yes i do cuz if i don't get help i'll fail please help me"

In the following message, the codes *emotional feelings, examination stress,* and *passing/failing* were evident. The sense of urgency was exacerbated by the participant's having an examination the following day, and his/her anxiousness found expression in impatience:

Participant: "can you please help me here? i need help. im writing my exam paper tomorrow"
                    "hello??"

In the participant's explicit textual expression of a need for academic assistance, there was also an implicit appeal for emotional support.

In the next message, the participant indicated concern in the long term for achieving a high mark in mathematics:

Participant: "how can i get a distinction in maths"

Tutor: "are gud in maths or ur jst a hard worker."

Participant: "i'm a hard worker but lately i find it hard to cope"

A similar desire was voiced by a different participant:

Participant: "uhm...today my question isn't exactly maths related but what can i do, to pass maths at the end of the year very good?"

In both messages the participants indicated that they were considering the outcome of their marks in mathematics beforehand. In the first message, the participant noted that he/she was a hard worker but was still struggling. In the second message, as in the first, it appeared that the participant was looking for an easy answer to solve challenges in mathematics. Each of the participants indicated an emotional dysregulation with regard to mathematics and requiring the support of the tutor to regain motivational control. The following reflections were recorded in the researcher's diary:

The need to accomplish a goal, and to do well with it, is something I believe every person has. The wish to feel successful and proud of oneself. With the advancements of technology today, adolescents have a greater opportunity to take advantage of help mediums that didn't exist before, to help them accomplish goals successfully.

Researcher's diary, October 1, 2014

The emotional support code is indicated in this particular text:

Participant: "how can i mastr maths? . . . how can i get a distintion n hw to balance my time? . . . hw can i set ma self for ma oda skul wrk n maths wrk?"

This participant was enquiring not only about seeking assistance in mathematics, but also about time management and achieving a balance between mathematics and other academic subjects. The enquiry could be seen as a form of seeking emotional support in school (academic) work as the participant indicated an awareness of an imbalance that needed to be addressed.

4.5.1.2 Basic theme of blaming school or teachers

The second basic theme under emotional support is that of blaming the school or teachers for academic challenges. The codes relating to this theme include *passing/failing, struggling in subjects, improving marks, examination stress, emotional feelings, textbooks,* and *teachers' style*.

The following examples depict the codes for the second basic theme. In the message below, the codes of *passing/failing* and *blaming teachers* for academic challenges are evident:

Participant   "what do i need to pass grade ten"

Tutor: "you hust have to study very hard and focus on your major subjects and master them."

Participant: "i cant cos my teacher hve favouritism"

In this example, the participant was asking how to pass the current grade at school, but also noted that he/she was worried because of experiencing the teacher as having favourites with the participant possibly not feeling part of the group.

In the following two messages, the codes for *textbooks* and *emotional feelings* can be identified. The participants blamed the teachers for their challenges with their academic work:

Participant: "eish i dr maths i dont love teacher who teaching me maths becous he teach me fast"

Tutor: "what is your math question for today?"

Participant: "i fail maths becous of my teacher if i dnt understand say your are silly"

The second message included the issue of textbooks:

Participant: "the thing is i was strugling wid math cos ther is no textbooks . is this fair? . . . we did hav textbooks bt they were outdated . . . math im gana b lost n that teachers ar so lazy they wnt even explain twice"

Both of these messages indicated that the participants were experiencing the teachers' style of teaching as incompatible with their style of learning. However, in the second message the participant included the lack of adequate textbooks as an additional concern. In these messages, the participants were referring to external forces negatively influencing their academic success and indicating an urgent need for assistance with their subjects. Knesting and Waldron (2006) determined that teacher interaction with students does have an influence on successful academic outcomes. The following was noted in the researcher's diary:

Looking at what the participants have said in this theme about placing blame on the teachers, makes me interested in further evaluating the participants' sense of locus of control. It seems that they are assigning blame outwardly about their scholastic challenges. In addition, it would be interesting to know if the experiences are only perceptions of the reality they are in, or if genuine merit exists in their complaints.

<div align="right">

Researcher's diary, 18 August, 2014

</div>

4.5.1.3 Basic theme of seeking assistance in subjects

The third basic theme, under the organising theme of *school–related success* is *seeking assistance in subjects.* The codes that made up this particular basic theme were not extensive, however, but they were found to be of value as they reflected the participants' expression of a need for support in not only mathematics, but also other subjects, as presented in the following five examples:

Participant: " what is a mitoisis "

Participant: "what is glamarization?"

Participant: "i dnt do maths lit cn u do physics"

Participant: "owk, where cn i fynd a physics teacher?

Participant: "can't i ask about something except math . . . life science"

Even though the participants were aware that the tutors were available only for mathematics, they still took a chance to enquire about other subjects. The various subjects mentioned ranged from Biology to English and Physics. From these messages it could be seen that the participants felt that they would benefit from a programme similar to Dr Math in other subjects as well.

4.5.2   Organising theme: University and career-related success

The organising theme of university and career-related success came strongly across in that adolescents expressed their concerns through two basic themes, namely *academic advice for university* and *finances* related to university enrolment.

4.5.2.1.   Basic theme of academic advice for university

The basic theme of academic advice comprised three codes, namely career choice, potential careers, and courses and requirements.

CODE OF CAREER CHOICE

A clear need emerged from the text messages for assistance about career choices and university-related advice. The participants were at a stage of nearing the end of their schooling career—they needed to start preparing for a career outside of school by either entering the work force immediately or enrolling at a tertiary education institution.

The code for career choice was derived from the following conversations:

Participant: "its not a math question. i cnt choose a career pls help"

and

Participant: "u c im going 2 gr10 this yr rite n i chose subjects that i like n i dnt no a career path
                  that im 4 sure gana take bt the list of careers i hav in mind all hav those subjects n if
                  i dnt take straight"

75

These two examples also illustrated the participants' need for career advice. The first message was a straightforward plea for help, whereas the second indicated that the student had given some thought to a particular field but had not yet chosen a definite career.

CODE OF POTENTIAL CAREERS

The following message indicated that the participant had realised that by selecting mathematics literacy, his/her career options were limited to those that did not require straight mathematics:

Participant: "which career options should i look up to when doing maths literacy "

This participant was unsure, however, which careers would accommodate mathematics literacy.

CODE OF COURSE REQUIREMENTS

This code revealed a stronger sense of focus among participants:

Participant: "so wht work oppotunities do i hav if i hav bachelors degree in maths . . . k so how long does it take? . . .
so wht mininum requirements does this course need?"

This particular participant clearly had a potential career already in mind and was enquiring about the possible (practical) preparatory measures required for embarking on this career.

4.5.2.2 Basic theme of financial advice

Career advice was only part of the concerns indicated by the participants. The second basic theme involved *financial advice* for tertiary education and possible earning potential. The codes for this basic theme were *bursaries and sponsors* and *earning potential.*

CODE OF BURSARIES AND SPONSORS

Many of the participants enquired about bursaries: some were concerned about the financial benefits of certain careers (see the second message below), whereas others were

76

aware of the financial burdens their families might incur in paying for tertiary education. The reflexivity component in the researcher's diary contained the following remarks:

I remember how difficult the decision about university and a career path was to make. And when the decision was made, the new challenge was how to achieve it. I feel that the adolescents in the data set have the same challenge, and are using all possible avenues to try to work out an answer. The responsibility of these decisions feels enormous.

Researcher's diary, October 2, 2014

The next messages were especially representative of concerns expressed under the code for *bursaries and sponsors*:

Participant: "hopefully , i have no money for further education so i am aiming for a sponsor . . . i think so but either that or when i get the 80percent mark then i may get a bursary"

and

Participant: "okay so can i get a bursary from you guys?"

The messages indicated that the participants had probably been researching the cost of attending a tertiary institution and realised the need for financial support. In the first example, the participant's reference to both a sponsor and a bursary might signify that he/she had already researched possible ways to finance future studies. From the question in the second conversation it could be inferred that the participant was still in the process of researching options for financial support, even asking the tutor about potential bursaries from Dr Math.

CODE OF EARNING POTENTIAL

The second code under financial advice is that of earning potential. The conversations below illustrate how the participants were also concerned about the possible financial gains in different careers:

Participant: "so how much does this work pays in figures?"

and

Participant: "what is your 'joba' as an individual . . . how did you get this job . . . ok. so how much do you earn . . . so. are you always online?"

In both the examples above, the participants enquired about the earning potential for a tutor working at Dr Math. This revealed their interest in finding out what different jobs pay, an element that could also be linked to the global theme of social interaction (see Section 4.7).

In general, the messages under the basic theme of financial advice demonstrated a concern among participants not only about attending university and preparing for careers, but also about the financial prospects of such careers. As mentioned in Chapter 2 (Section 2.1), this forms part of the milestones to be achieved by adolescents in selecting and preparing for a career.

4.5.3   Findings on the global theme of academic and career concerns

This theme predominated in the minds of participants, and appropriately so, since it represents one of most important milestones in adolescents' maturation. This aspect also relates to the psychological need of developing academic (and social) competencies (see Sections 2.2.4 and 2.3). Two organising themes were extracted from the text messages regarding academic and career concerns, namely school-related success, and university and career-oriented success.

In the first theme of school-related success it appeared that the participants experienced difficulty with assuming self-control over their academic activities and required assistance in gaining competence in this. Knesting and Waldron (2006) have found that as adolescents begin to see the value of school for their futures, their perceptions of teachers' behaviour towards them (as learners) also change. The adolescents consequently devote themselves to improving their academic work and stop assigning blame to their teachers. Educators could take special note of the finding of Reyes, Brackett, Rivers, White, and Salovey (2012) that the classroom environment does have an effect on the academic achievements of learners, and that adolescents in particular tend to start disengaging from the classroom "because of the disparity between students' developmental needs and the learning environment" (p. 708).

78

Adolescents' need for autonomy and control influences their emotional regulation (as mentioned in Section 2.5), where control is either experienced as intrinsic or extrinsic. The participants in this study appeared to be experiencing distress—both intrinsically and extrinsically motivated—in achieving academic competency and were consequently seeking assistance from any source within their reach. Garcia, Restubo, Toledan, Tolentino, and Rafferty (2011) argue that internal and external motivation with regard to learning can be affected by contextual factors. A study by Startica (2012) found that "locus of control, academic self-esteem and neuroticism were significant predictors of career indecision" (pp. 168)—that is to say, if these factors were negatively polarised. The need that the participants in this study felt to be in control of their academic studies was entirely consonant with the expectations for this stage of adolescent development as they were embracing the milestone of selecting and preparing for a career.

In the second organising theme, *university and career-oriented success*, the participants showed that they were starting to think of the future in a more conscious manner, taking aspects such as finances, earning potential, and career options into consideration. They appeared to be in the initial phases of planning their post-school futures, and it could therefore be expected that some of them would indicate that they did not have any idea about what careers would suit them. Fabio, Palazzeschi, Aasulin-Peretz, and Gati (2013) distinguish between career indecision and indecisiveness, explaining that career indecision is a normal life phase while indecisiveness relates to decision-making challenges within the person. As the participants were in a phase of exploration, it could be anticipated that they would be in the phase of career indecision as they were still considering various options and establishing their likes and dislikes. This relates to adolescents' still indistinct identity formation—by not having a clearly defined sense of self yet, the concept of a suitable career will in all likelihood also remain undefined.

Although some of the participants might have had a good idea about potential careers, they still displayed a need for guidance in exploring the best pathways (financial and tertiary education possibilities) leading to the desired career. Socially, adolescents tend to rely on their friends to help with life choices. However, as Furman and Shaffer (2003) observe, with increasing age, adolescents start to move in different directions in academic pursuits and career choices. This change in the social make-up may leave them without the support of

79

friends with whom they once had much in common, precisely when, as Fabio et al. (2013) point out, the need for perceived social support is important in career-decision making.

The participants enquiring about careers and university were establishing their developmental milestones and embracing their fundamental psychological need for preparing for a career. This can be a daunting experience for adolescents, who are still unsure about the options available to them at a time when they also have to cope with the challenges of establishing their identity.

4.6   Global Theme Network 4: Personal counselling

The *personal counselling* thematic network came to light from the considerable number of participants' conversations with tutors about the challenges that they were experiencing with their schoolwork, and on occasion, with family or social relations. Three codes were established for this theme, namely *assurance-seeking, negative self-talk* and *personal advice about family or social factors.* For the purpose of this research, personal counselling refers to any content in which the conversation deviated from tutoring and veered towards advice-seeking.

In Figure 4.5, which illustrates the thematic network for the global theme of *personal counselling,* it can be seen that the global theme comprises two organising themes, namely *scholastic challenges* and *romantic challenges.* These organising themes arose out of the two basic themes of *low academic self-confidence* and *relationships with family/friends,* which were in turn informed by three codes, namely *assurance-seeking, negative self-talk* and *personal advice regarding family and social relations.*
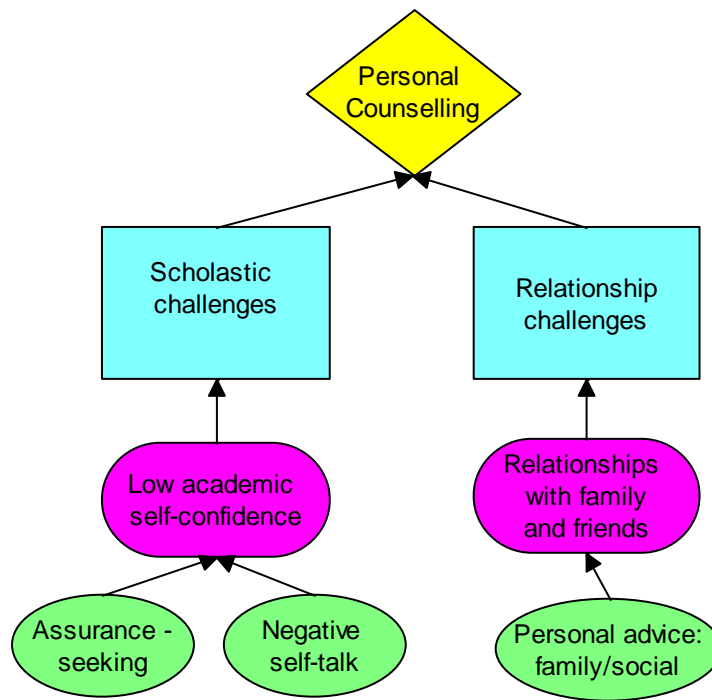
Figure 4.5:   *Thematic network for personal counselling*

4.6.1 Organising theme: Scholastic challenges

The basic theme of *low academic self-confidence* was placed in the *personal counselling* global theme as the participants in this theme indicated a need for counselling about themselves in order to manage their academic pursuits. The codes established under this basic theme were *assurance-seeking* and *negative self-talk.*

In the extracts below, examples are given of assurance-seeking by participants, which was often interwoven with negative-self talk:

Participant: "nah i cant even do a homework beacause im entirely clueless when it comes to maths . . . do you really think maths is easy"

And

Participant: "i feel i will never be able to do excelent in maths and really need some help and advice to give me confidence"

As can be seen, both the codes in this basic theme appeared to follow after each other in the conversation. As participants spoke about themselves negatively, they additionally sought reassurance from the tutor that their belief is false.

The participant in the first message posed a rhetorical question about maths being easy, with the implied meaning that if it were indeed as easy as it was for the tutor, then it would be possible for the participant to do maths with equal facility. The second participant displayed a more direct approach to seeking assurance, but still did not ask for it explicitly. The participant stated that he/she needed help to boost his/her confidence, perhaps with the expectation that the tutor would provide the desired reassurance about the participant's abilities. The following reflections were recorded in the researcher's diary:

The feelings these participants portray of seeking assurance and negative self-talk remind me of the need to have people to talk to and rely on when we feel we have exhausted our own positive self-talk, and that this is not limited to adolescence.

Researcher's diary, 5 October 2014

4.6.2   Organising theme: Relationship challenges

This theme under *personal counselling* relates to advice that participants sought about family issues in particular. Only a single code of *personal advice about family and social relations* could be distinguished here. Examples are the following:

Participant   "wht can we do to stop family problems"

and

Participant: "i am lonely"

Tutor: "this site is only for math tutoring. please ask me any math question."

Participant: "i am square"

                        "ok no one here"

                        "so keep 1/2 eye"

The first message indicated a direct approach from the participant to seek counselling about challenges experienced in the family. In the second message, the participant stated that

he/she was lonely, and even after the tutor's attempt to redirect the conversation to mathematics, the participant continued to talk to the tutor in a nonsensical manner.

4.6.3 Findings on the global theme of personal counselling

The basic themes above represent the participants' need for counselling, not only with regard to family and friends, but also academic self-confidence. As seen in Global Network Theme 3 (academic and career concerns for adolescents), self-confidence in academic performance affects adolescents in their career motivation (Startica, 2012). However, it could be seen in the text messages that although the participants were using negative language to describe themselves, they maintained an underlying hope in bettering themselves—but also required external reassurance. Autonomy, as a fundamental psychological need for adolescents (Section 2.3), along with self-perception, has a significant influence on the formation of independence in adolescents (Scharf et al., 2004). Thus, although the participants appeared to be placing trust in the perception of the adult tutors, they may also have been indicating a need for assistance in establishing a sense of autonomy. Since adolescents develop at different rates, it can be expected that some may require more assistance than others in different areas of their development.

In the second organising theme, the adolescents openly and directly ask for assistance from tutors with a more personal matter, namely *family challenges*. Adolescence is a time of change in familial relationships, particularly in view of adolescents' attempts to become more autonomous and independent (Furman & Shaffer, 2003). Macleod (2002) remarks that the family plays a pivotal role in a child's life as it is the most stable structure in the child's existence up to that point. Thus, it can be very upsetting for adolescents if turmoil occurs in family relationships.

The adolescents also presented a need for social interaction, which, as noted before, assumes increasing importance in adolescence. A study by Reid and Reid (2007) has found that a correlation exists between loneliness and interaction anxiety, and, in the present investigation, it appeared that text messaging could serve to buffer such effects of loneliness and anxiety. The fact that participants appeared daring enough to continue off-limits conversations even after tutors' attempts to steer them back to mathematics tutoring, also serves to underscore the importance of communication in this theme. A study

83

by Dolev-Cohen and Barak (2013) demonstrated that an elevation occurred in the mood and self-esteem of adolescents when using instant messaging, even if the conversation was with strangers.

4.7 Global Theme Network 5: Social interactions

This thematic network emerged from the interest that participants evinced in the tutors as people, and not only as tutors. For the purpose of this research, social interaction refers to any content that related to participants' intention to form a social relationship with tutors. Figure 4.6 illustrates the social interactions thematic network.

Seven codes were identifiable in the global theme of social interactions, namely *curiosity about Dr Math, computer or human, no specific reason for contact, profession of the tutor, earnings/location of the tutor, biographical details of the tutor,* and whether the tutor was at *school or university.* These codes were grouped into two basic themes, *need for human interaction* and *personal contact with tutor*, on which the organising theme of *importance of social interactions* was structured*.*
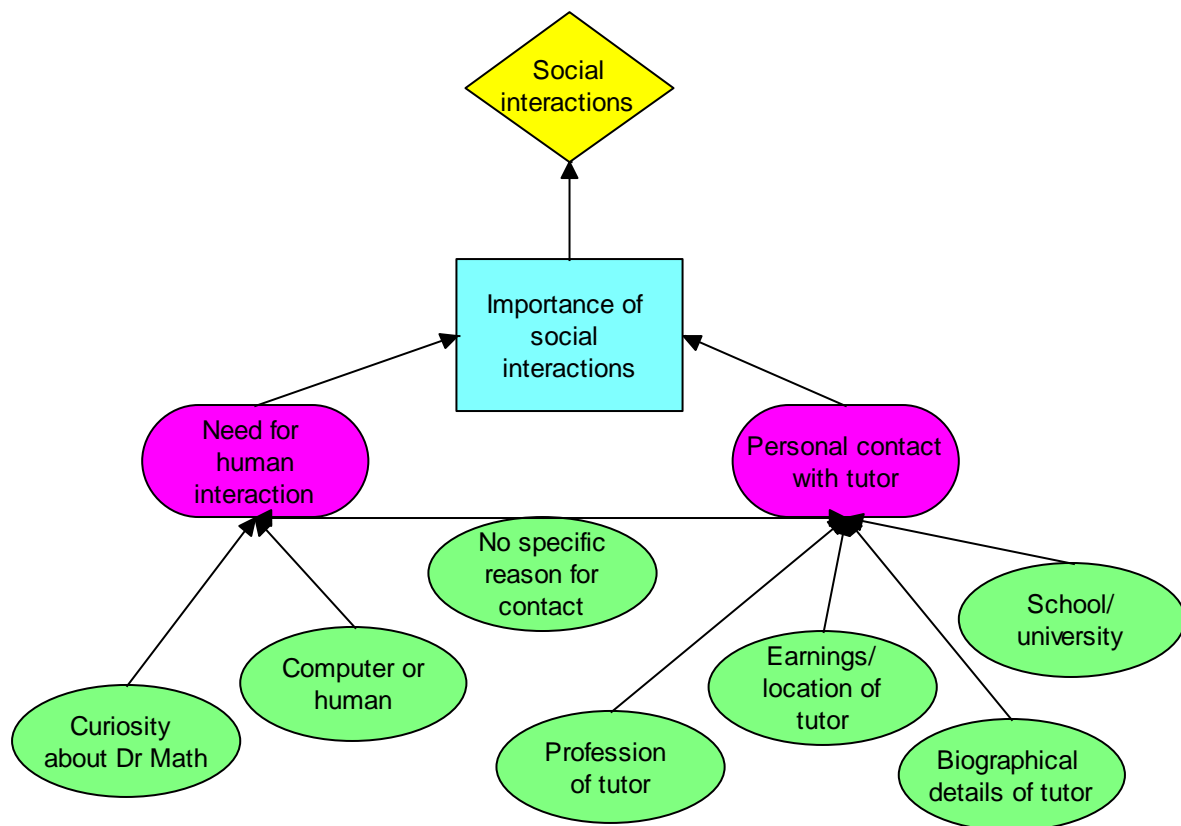

Figure 4.6:   *Thematic network for social interactions*

4.7.1 Basic theme of need for human interaction

The following two messages represent the code for *no specific reason for contact*,

Participant: "i am great... i dont have any questions right now because we havent started learning yet"

and

Participant: "anyone home?"

Tutor: "how can i help with matht doay"

Participant: "ahh, was just checking out...you are too kind. thanks."

In the messages above, the participants started a conversation for seemingly no reason. This message was similar to the messages for the codes *computer or human* and *curiosity about Dr Math*. However, since the participants in the messages above did not express any specific emotion, it is possible that mere curiosity or a need for social interaction was the motivating factor for the attempt at contact.

Regarding the code *human or computer,* participants indicated curiosity about whom they were communicating with, as in the following instance:

Tutor: "hello, how can i help you?"

Participant: "are you a computer?"

Tutor: "no, i'm a person :)"

Participant: "oh wow, whats your name?"

                "ha ha ha you computer but i will let you know, when i have a problem"

Tutor: "okay, ask if you are struggling with something :)"

                "yes?"

Participant: "i have no problems for now?"

The participant in the above message seemingly had no specific reason for talking to the tutor other than a curiosity to establish whether the tutoring was done by a person or a computer. This curiosity about the way in which Dr Math operated was furthered when the participants established that they were communicating with a person, and they immediately wanted to know more about the tutor.

4.7.2 Basic theme of personal contact with the tutor

Interest in the tutor can be seen as more than mere curiosity when considering the next basic theme, *personal contact with the tutor.* This theme was formulated from apparent attempts by participants to establish a social relationship with tutors by extracting personal details, as illustrated in the following example:

Participant:	"how old r u"
	"?"
	"just joking"
	"cn i have your contcts"
	"plz"
	"hey"
Tutor:	"haha no"
Participant:	"y nt?"
	"here **********[5] invyt me on mxit."
Tutor:	"y"
	"Because you can ask me questions here?"

The codes that comprise this theme are no specific reason for contact, profession of tutor, earnings/location of tutor, biographical details of tutor and school/university, as demonstrated in the messages below:

Participant	"so wht is ur proffesion?" ... "so how old are u dr maths?" ... "so how much does this work pays in figures?"

As can be seen, this message also touched on two other codes, namely *earnings of tutor* and *biographical details of tutor*, in view of the participant's clear personal interest in the tutor. In the following message, the participant enquired about the tutor's academic standing:

Participant:	"lol so you matric ?"
Tutor:	"Phd"
Participant:	"meaning"
Tutor:	"i am not in matric i have a doctorate in mathematics"

---

[5] The cellphone number has been removed to protect the participant's anonymity.

86

The participant showed no interest in participating in tutoring but refocused the conversation to enquire about the tutor. The following messages depict the code for biographical details:

Participant: "oh. r u white or blck?"
Tutor: "does it matter"
Participant: "yep"
Tutor: "not for math"
Participant: "r u black or white?"
Tutor: "dr math does not give out personal information"
Participant: "ohk.hw old r u"

The participant in this message insisted on knowing the ethnicity of the tutor. When the tutor refused this information, the participant moved on to the tutor's age. One participant even asked about the tutor's gender:

 Participant: "ohk u male or female"

The participant's motivation was unclear, but it can be conjectured that he/she was attempting to establish common ground with the tutor or intended to engage in flirting. Personal information requested by participants in other cases may be considered attempts at forming a social relationship through discovering possible common denominators with tutors. In addition, it could also be seen as a way for adolescents to form a more concrete visualisation of the person with whom they were communicating, as in the next conversation:

Participant: "whts ur name"
Tutor: "dr math"
Participant: "oh ok snd a pic"
Tutor: "no, i just help with math"
Participant: "oh i c bt i mst adleast c who is helping me"
Tutor: "i'm just dr math"

Reflections on this desire for closer social contact were noted in the researcher's diary:

> *This global theme made me think of a quote by Albert Einstein: "It is a miracle that curiosity survives formal education." These participants show that curiosity is something that remains a factor. The need to know who and what you are dealing with.*
>
> *Researcher's diary, September 28, 2014*

4.7.3   Findings on the global theme of social interactions

In the basic themes above, it can be seen that the participants exhibited two socially related approaches with regard to tutors. The first was curiosity about the tutors—leading to contacting them for no particular purpose—and the second took the form of attempts to create a social bond with them.

Adolescents' need to achieve social competence and relatedness is usually embodied in the formation of friendship groups aimed at beginning an association of their own outside of their families in order to embrace their independence and autonomy (Steinberg & Morris, 2001). In the context of the "cyber" environment of Dr Math, contact with the tutors, in this theme, may reflect an attempt to search out and form new affiliations in different forms, with the added incentive of exploring communication technology. Such assumptions may find corroboration in a 2012 study by UNICEF in which it was found that 16% of users on Mxit used this communication tool to talk to strangers or new friends.

4.8   Conclusion

The data used for this investigation allowed for the identification of five global themes: Romantic curiosity (Section 4.3), emotional expression (Section 4.4), university and career concerns (Section 4.5), personal counselling (Section 4.6), and social interaction (Section 4.7). Each thematic network issued from specific codes that were unpacked to enable analysis for an overview of the global themes thematic network. In summary, 28 codes were derived from the original data set. These codes informed 14 basic themes, which in turn established 11 organising themes. The latter were then grouped to form the five global themes.

In Chapter 5, a description of the resulting themes and thematic network will be provided, which will be related to the literature in the field. A refined conceptual framework will also be presented, the limitations of the current study will be commented upon, and recommendations for possible future research will be provided.

Chapter 5:
Results and recommendations

5.1 Introduction

The purpose of this study was to establish the needs of adolescents expressed through text messaging via an online tutoring platform. The research design and methodology used are reviewed in Section 5.2, after which the results from the data are analysed according to each of the research questions (Section 5.3). The conceptual framework in Chapter 2 (Section 2.1) will then be re-evaluated and streamlined to the findings of the data (Section 5.4). The research methodology, its strengths, and limitations will be evaluated under Section 5.5. The current chapter culminates in the main conclusion as drawn from research (Section 5.6). Lastly, the limitations and recommendations of this study (Section 5.7), as well as recommendations for further research (Section 5.8) will be explored, before this investigation is concluded in Section 5.9.

5.2 Summary of research design and methodology

The research design for this investigation used an interpretive paradigm (Section 3.3.1) within the qualitative approach (Section 3.3.2). Secondary data analysis had to be employed since the data had been obtained from a secondary source (Section 3.3.3), which also meant that no interaction between the researcher and participants took place.

In this investigation, the data collected came from transcripts between the tutors and school-going adolescents for the duration of the 2013-year (January–December). These transcripts, provided by Prof L Butgereit from the Maraka Institute in Pretoria, were taken directly from the Dr Math programme. The transcripts consisted of 5 283 messages between tutors and participants, of which 143 deviated from prescribed tutoring in mathematics and were thus studied for the purpose of this research.

The use of an interpretivist qualitative design enabled the researcher to examine the data in such a way that the voices of participants stood out. The data were examined not only for quantity of information, but also for quality. By understanding the developmental phase of participants, the researcher was able to use the qualitative approach in attempting to

understand the meaning of the data, as well as the possible causes for the participants to interact in the manner they had chosen.

By utilising secondary data analysis, the researcher had both the advantages and disadvantages of being an outside observer, as mentioned in Chapter 3 (Section 3.3.4). The data were then analysed according to the thematic network approach, which allowed the researcher to undertake rigorous analysis of the data, while establishing networks that brought the main themes of the data together.

The thematic network was based on a hierarchical design, as illustrated in Figure 5.1. At the base of the design are the 28 *codes* that were derived from the data. These codes were then grouped into 15 *basic themes* according to commonalities between the codes. Each basic theme was established as a means to identity interrelated factors between the codes, as many of the codes would relate to a central theme, but had a different focus. The basic theme followed the same pattern as with codes, but establishing interrelated themes between the basic themes allowed for the *organising theme* to be created.
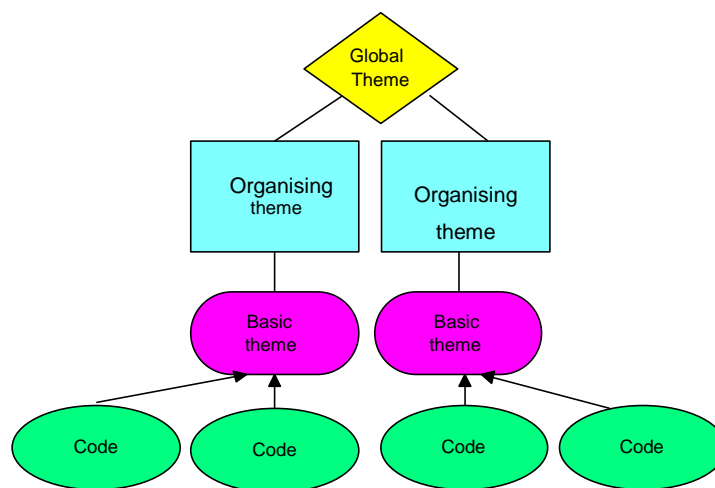
Figure 5.1: Illustrative representation of the thematic network analysis

Where relevant, the organising theme permitted different perspectives to be explored under a central global theme. In addition, to ensure the accuracy of the organising thematic network, the codes were compared once again in this step as a means to ensure that the establishing network had a logical flow. This led to the g*lobal theme*. The purpose of the

91

global theme was to encompass the established network under one umbrella term as a means to organise the data into understandable units of information that could be analysed and traced.

The process of the research analysis was underpinned by the ethics and role of the researcher (Section 3.7) by keeping in mind the integrity of the data through maintaining anonymity and confidentiality of the participants where necessary. Additionally, to preclude bias from the research, a reflexive journal was kept to ensure that the researcher strived for an awareness of potential biases and would maintain objectivity (Section 3.5). Lastly, the trustworthiness of the investigation was respected through subscribing to the credibility, dependability, transferability, and confirmability of the research and data (Section 3.5). Credibility was achieved through peer debriefing on the data performed by the study supervisor and a fellow master's student. The dependability of the study can be seen in the thematic network analysis described in Chapter 3 (Section 3.5), and additional proof of the manner in which the researcher arrived at the conclusions is provided in Appendix F Transferability was established through providing examples of the actual conversations and text messages, followed by descriptions of each example. Lastly, confirmability was achieved through a reflexive journal on the process.

5.3   Results according to research questions

In this study, two research questions were asked and explored, namely:

- What are the psychological needs of adolescents seeking assistance through text-based messaging?
- How do the needs expressed align with the stage of development that adolescents are in?

In Sections 5.3.1 and 5.3.2, each of the research questions is discussed in light of the results set out in Chapter 4. In Section 5.3.1, the research question will be unpacked to explain the needs expressed by the participants as reflected in the data. In Section 5.3.2, the established needs of the participants will be explored to establish whether a correlation exists between the expressed needs and stage of development.

5.3.1 First research question

"What are the needs of adolescents seeking assistance through text-based messaging?"

By means of secondary data analysis and thematic network analysis, it was possible to establish five global themes as the predominant areas in which participants required assistance. These themes were *romantic curiosity*, *emotional expression*, *academic and career concerns*, *personal counselling*, and *social interaction*.

General findings on the needs expressed by participants revealed that gender roles did not play a significant part in the global themes and were represented only in the global theme of *social interaction.* Social interaction in the data related to the way in which participants interacted with the tutors. Thus, it was found within the other four global themes that the participants did not show any curiosity about the tutor's gender unless they apparently wished to form a social connection. This may be attributed to the adolescent participants' need to form a relationship with a perceived adult, as indicated in Section 2.3. Moreover, it can also be seen as attempts undertaken by the adolescents to form social bonds beyond their current peer groups.

Emotional independence and autonomy, together with *creating a value system*, were in evidence across all five global themes. The participants expressed a need to become self-sufficient in different areas of their lives. This desire was especially noticeable in their academic and career concerns (Section 4.5). As could be seen in the text conversations, some of the participants presented a sense of immaturity in their approaches towards the tutor or in facing challenges that they were experiencing (Sections 4.3.1, 4.4.1, and 4.6.2). However, this also related to their exploring a value system according to which they could identify crucial issues and relate to possible significant matters in their lives.

The global theme of *emotional expression* could be discerned in all the global themes, which may imply that the participants had a need to express themselves about problematic areas of their lives or to obtain advice about such areas in order to cope with accompanying unpleasant emotions. Within each theme, the participants conveyed various types of emotional expression such as anger, sadness, hopelessness, gratitude, curiosity, and pleading. Particularly noticeable in the emotional expression global theme were

93

verbalisations of random aggression or antagonism through swearing or accusatory statements towards the tutors (Section 4.4.1). This may be associated with adolescents' need to express themselves, and as the platform of Dr Math ensures anonymity, the participants could express internal emotions, unrelated to the programme, without fear of repercussions. (See Table 5.1 for a summary of data as reflected in the thematic network analysis.)

Table 5.1: *Representative summary of data in Chapter 4*

Global Theme	Organising theme	Basic theme	Codes
Romantic curiosity	Intimate relationships	• Advice-seeking • Flirting	• Relationship advice • Love • Covert approach through user name • Overt flirting • Covert flirting
Emotional expression	Negative and positive expression	• Unprovoked aggression • Deliberate antagonism • Gratitude for assistance	• Swearing • Aggressive name-calling • Antagonistic language • Accusatory verbalisation • Appreciative verbalisation
Academic and career concerns	• School-oriented success • University–oriented success • Career–oriented success	• Fear of failing • Seeking assistance in subjects • Blaming school/teacher for challenges • Academic advice for university • Career advice	• Passing/failing • Struggling in subjects • Improving marks • Examination stress • Emotional feelings • Textbooks • Teachers' style • Other subjects
Personal counselling	• Relationship challenges • Scholastic challenges	• Relationship with friends • Relationship with family • Low academic self-confidence	• Assurance-seeking • Negative self-talk • Personal advice
Social interaction	Importance of personal communication	• Need for human interaction • Personal contact with tutor	• No specific reason for contact • Computer or human • Profession of tutor • Earnings/location of tutor • Biographical details • School/university • Curiosity about Dr Math

As noted in Chapter 1, the purpose of this research question was also to establish whether adolescents in present-day times presented any needs that were essentially different from similar needs of adolescents in the pre-electronic communication period. It appeared that even though adolescents were currently using rapidly advancing technological platforms, no extraordinary new needs presented themselves. By comparing the needs of the participants as represented by the five global themes (see Figure 5.1), these needs could be extrapolated and compared to the three developmental areas of adolescence.

Since the need for *control* as expressed by the participants was apparent in all five global themes, it can be regarded as a particularly important one. However, it was especially prominent in the emotional expression global theme (Section 4.4.1) in which the participants appeared to be manipulating the conversation to gain the desired reaction from the tutors. Weinberg and Klonsky (2009) contend that there is an association between impulsive behaviour and control; thus, when the feeling of lack of control emerges, impulsiveness may ensue. The need for control was again suggested in the global theme of social interaction (Section 4.7), in which the adolescents expressed a need to know more personal details about the tutor beyond the bounds of tutoring. Arnone, Reynolds, and Marshall (2009) argue that the need for control (the sense of autonomy) is integral to the establishment of adolescents' well-being, and it may accordingly be inferred that the participants were cognitively trying to gain a concrete understanding of the tutor.

Neither *meaningful existence* nor *belonging* was directly referred to in any of the global themes. Again, this might have been due to the communication platform being utilised. Therefore, these categories could not be identified as needs in the collected data. This finding was contrary to what was expected. Especially since adolescents are surrounded by technology and this stage of development is considered a time for exploration of the self, meaning, and the world (Ahn, 2011; Rappoport, 2011), it was surprising that these issues did not present themselves.

The need for *competence* as a general need was found particularly in the global theme of personal counselling, although it also occurred in the remaining four global themes. Leondari (2007) affirms that competence requires individuals to have belief in their ability to

95

achieve a goal in a satisfactory manner. Thus, when this statement is applied to the interactions in the data, it can be seen that many of the participants lacked faith in their ability to achieve their goals without assistance. In a more specific sense, the need for competence found expression particularly in relation to academic proficiencies (Sections 4.5.1 and 4.6.1). It seemed that participants were experiencing distress about their abilities in either mathematics or in another subject, which made them doubt their academic competencies (Section 4.6.1). Leondari (2007) acknowledges that teachers' attitudes towards learners have an impact on the learners' academic success, a phenomenon that was especially evident in this study in participants' comments about teachers' being the cause of their academic challenges (Section 4.5.1).

Lastly, within the global theme of romantic curiosity, the participants expressed a need for *counselling* regarding romantic relationships (Section 4.3). The needs expressed ranged from the abstract of relationship advice to the more concrete on how to put on a condom. This need relates not only to autonomy and romantic competence, but also to the developing ability to give and receive affection.

Thus, it can be concluded that all the needs represented by the participants in this investigation fell within the (conventionally) expected needs of adolescents, regardless of using text messaging. "Traditional" responses that would have been typical of a pre-electronic technological generation were still being provided by present-day participants about essentially unchanged psychosocial needs relating to autonomy, self-esteem, competency, and intense emotions. A highly significant difference, though, was the new opportunities that cyber-communication media could offer for forming social relationships. In using the mathematics-tutoring platform of Dr Math, some participants indeed veered in this direction in spite of such behaviour not being appropriate to the site. As remarked by Powers and Eckenrode (2006), social interaction with known and unknown people is one of the main uses of the Internet for adolescents. Regarding the present study, the use of text messaging did not appear to elucidate any unexpected "new" needs of adolescents, but it did appear to have an effect on what needs adolescents were more willing to talk about.

5.3.2 Second research question

"How do the needs expressed align with the stage of development that adolescence are in?"

In order to answer this question, a brief re-exploration of the literature review in Chapter 2 is required. Chapter 2 describes three main areas of adolescent development defined in the professional literature, namely adolescent milestones, the stage of developmental changes, and the fundamental psychological needs of adolescence. These areas will be referred to as the three focus areas of adolescent development, as illustrated in Figure 5.2.

Figure 5.2:   *The three areas of adolescent development*

The term "milestones" refers to the points of development that adolescents should reach and learn to master (Section 2.1). The aspect of developmental change refers to the intrinsic and extrinsic changes that adolescents experience (Section 2.2), and the domain of fundamental psychological needs refers to forms of intrinsic fulfilment that adolescents need to experience in passing through the phase of adolescence (Section 2.3). Together, the individual components of the three areas of development can be seen as a balance in adolescent development, with development taking place in each area separately, but uniformly.

When the data set is examined and compared with the literature discussed in Chapter 2, it can be seen that the needs expressed by the participants do align with the three areas of focus in adolescent development. Each theme can be related to a separate area of development within the three focus areas.

In the discussion on *romantic curiosity* (Section 4.3.1) it was noted that adolescents were in the process of discovering and exploring not only romantic relationships, but also the ways

97

in which they presented themselves to potential partners. The participants indicated a need for counselling regarding different aspects of relationships, such as insufficient contact with a partner, and even what love means. In the second part, one of the participants flirted with the tutor. This can be seen as part of identity formation in that the participants are trying to uncover who they are in romantic relationships, which is different from platonic friendships (Brown, Feiring, & Furman, 1999). In addition, the continued flirting with the tutor, even after being discouraged, is something that Fisher (2006) refers to as "frustration attraction" (p. 13), which involves increased desire for another person after being rejected.

The need for *emotional expression* (Section 4.4) was a predominant feature in the expected milestones of adolescents. It was evident from the data that the participants identified in this global theme were still in the process of achieving these milestones through testing the social boundaries of the communication platform, as well as asking for assistance with challenges. This, again, can be associated with adolescents' using an anonymous technological platform as a basis to explore different sides of their identity (Rappoport, 2011). In addition, Turner, Love, and Howell (2006) note that the use of cellphones often accompanies the need to test social boundaries, as the physicality of communication has been removed. The impatience and rudeness of some of the participants (Section 4.4.1) also relate to the fundamental psychological need for control and self-esteem. Turner et al. remark further that low self-esteem is often associated with problem behaviours.

The developmental stage associated with the milestone of *selecting and preparing for a career* can be seen as relating directly to the fundamental need to develop academic and social competencies. This is especially significant as it also links to the global theme of personal counselling in academic work (Section 4.6.1) as well as general academic concerns (Section 4.5.1). From participants' responses it could be inferred that they had reached the adolescent stage where they were concerned about their future prospects and their ability to fulfil these prospects. This preoccupation can be affected by how they perceive themselves, identify themselves, and imagine their potential future selves (Leondari, 2007). Many adolescents do not know themselves well enough or do not possess sufficient knowledge about university and career prospects to make informed decisions. This may create anxiety and stimulate the need to seek advice (Starica, 2012). Such behaviour is entirely normal and can be expected in adolescent development.

98

The types of *personal counselling* that participants enquired about related to two distinct areas of life, namely academic self-confidence, and their relationships with family. Interestingly, no advice was directly requested about friends or peers. As adolescence is a time of social exploration, and friendship groups are very important to adolescents (Steinberg & Morris, 2001), it was expected that some conversation would take place around this topic. The fact that it did not, may perhaps be attributed to the nature of the Dr Math tutoring platform exerting an inhibitory influence on casual thinking about friends. However, both of the first-mentioned themes were within the expectancies of adolescence. As adolescents are expected to develop autonomy and become academically competent, the need for positive affirmation about or assistance in their academic abilities is not unusual, especially if these two areas are not fully developed. Starica (2012) found that the confidence of adolescents in their abilities is increased when their academic self-esteem is higher.

Although the global theme of *social interaction* (Section 4.7) was an expected one to emerge from the data set, the type of social interaction reflected in the participants' messages was not completely expected as it related mostly to romantic and family relationships. Before the data analysis, it was assumed that the participants would show interest in the tutors, but not that they would focus on them only in a social interaction and rather reserve their true concerns for their romantic or family relations. This may relate to the participants' need to identify, or relate, to a perceived adult figure. Many of the conversations in this theme indicated curiosity about the Dr Math programme, which could be considered a natural response in needing to understand the Dr Math programme and gain a sense of relatedness or even control in the interactions. Curiosity about the tutors' lives could equally be considered natural on account of the tutors being an anonymous factor to participants who might have liked to know more about whom they were dealing with.

5.4   Reflections on conceptual framework

The original conceptual framework mentioned in Chapter 2 served as an explanation of an interlinking system between the needs and development of adolescents, and the stage of

development and changes that adolescents experience (see Figure 5.3, repeated from Section 2.1).
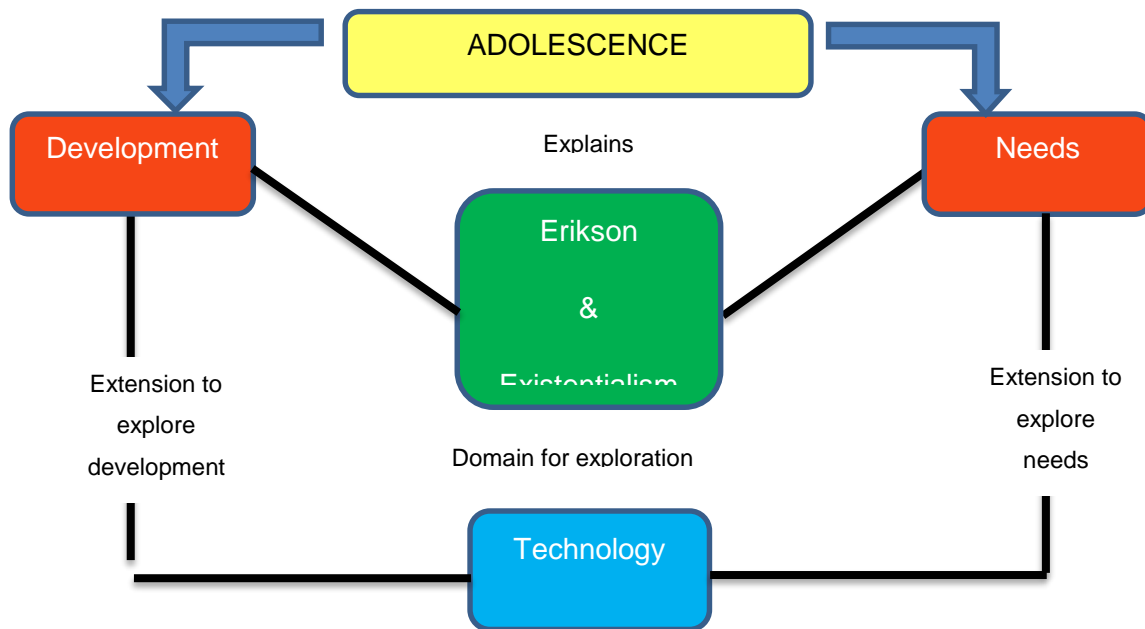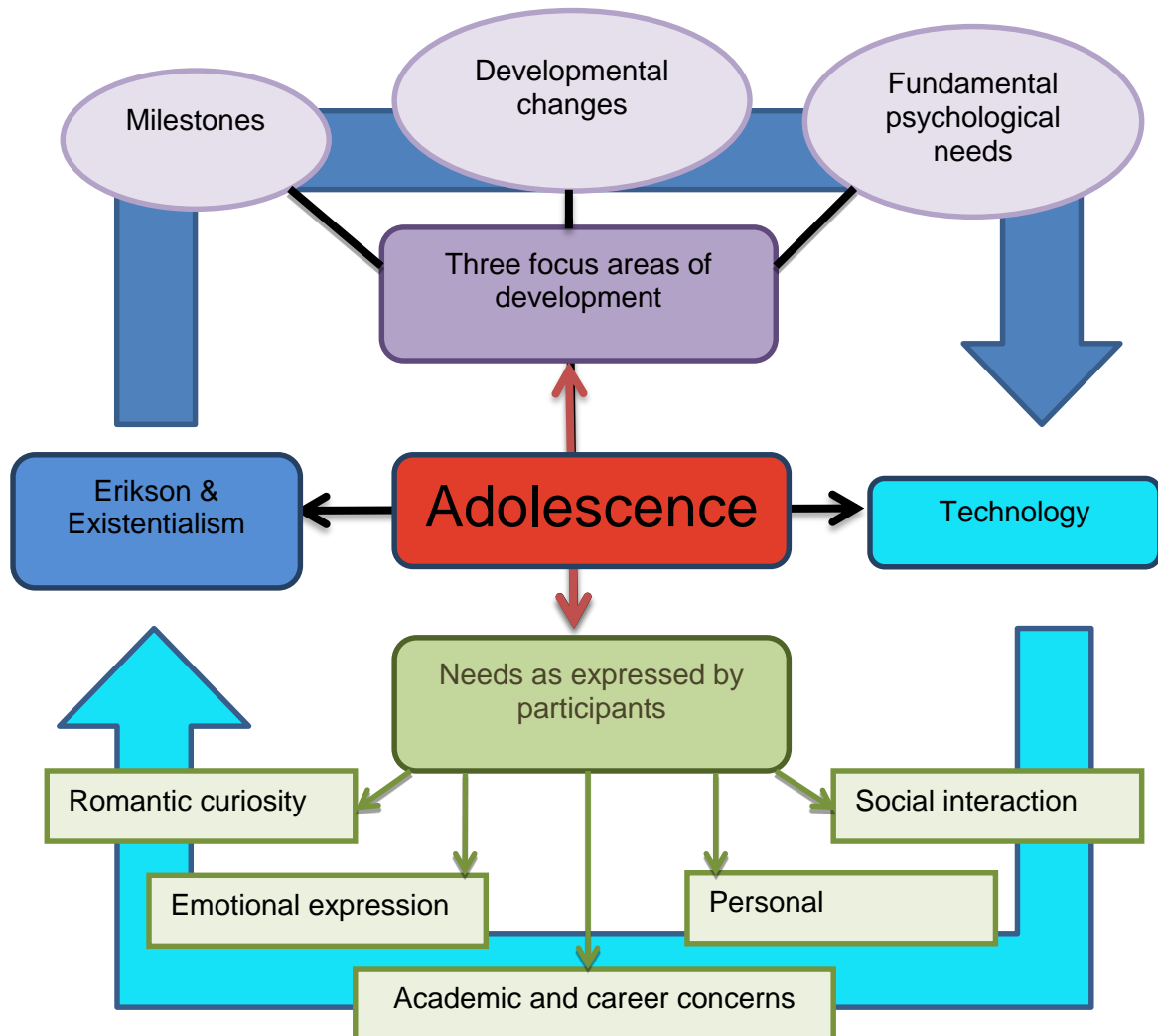

Figure 5.3: *Original conceptual framework*

This framework illustrated that adolescents experience both developmental changes and needs, which could be explained when examining Erikson's identity formation and the ways in which adolescents establish meaning through existentialism. The influence of technology, too, needed to be explored in relation to the development and needs of adolescents. However, examination of the data revealed that the conceptual framework could be redesigned to improve the explanation of the developmental changes and needs as expressed by the participants. Figure 5.4 illustrates the changes to the original conceptual framework that culminated in the final conceptual framework. In Figure 5.3, the central focus on the adolescent was through the theories of Erikson and existentialism, and the manner in which these theories related to the different domains of adolescence. This was essential to gaining an understanding of the adolescent through the insights provided by academic literature and research into the behaviours and motivations characteristic of adolescence as a life stage. However, after the analysis of the data, it became evident that some reconceptualisation of the academic understanding of the stage of adolescence was

100

required in order to achieve a truer reflection of the findings from the data in the present study. This is illustrated in Figure 5.4.

Figure 5.4:   *Revised conceptual framework*

Figure 5.4 therefore illustrates how the conceptual framework in Figure 5.3 can be streamlined to accommodate the findings in the data, with the essential structures remaining in place but being enhanced by the addition of some of the nuances as evidenced in the data. As seen in Figure 5.4, this illustrative approach centres on the adolescent (participants) as the central concept. How the adolescent interacts with and relates to the various other aspects, such as technology and the theories, has become the focus in this illustration. Moreover, a circular interaction has been posited between the theories and

101

technology. The theories were informed by the literature on technology and adolescents, and led to the five global themes formulated in the study. The five global themes can then be compared with the literature with a view to enriching it. The adolescents (participants) can now be perceived through their developmental changes and expressed needs. As stated earlier, the needs expressed by the participants can be aligned with the literature about their areas of development. Technology can be considered as a crucial component that enhances the informational "streaming" in the circular dynamic of personal, psychosocial and existential needs in this life stage of adolescence.

5.5   Reflections on research methodology

The research methodology chosen for this study proved to be an effective form for determining the needs of adolescents using text messaging. A qualitative approach allowed the researcher to examine and interpret the data from a comparative stance to the literature, rather than establishing only a quantitative understanding of the data.

The use of secondary data analysis was useful as it allowed the researcher to cover not only an extended period of time (one year), but also a large number of participants. However, some limitations were experienced that could be noted for potential future research in this area. These limitations included a lack of biological information, lack of geographical information, and limited depth in specific topics. This is discussed further in Section 5.7.

The advantages of using this methodology, however, were that the researcher was able to evaluate a wide scope of participants and establish universal developmental needs themes. This allowed for a broad understanding of adolescents and how they currently perceive their needs. Moreover, as no questions were asked to the participants, the answers were in no way coerced.

The use of thematic network analysis provided a solid foundation for examination and cross-examination of the data. This rigorous examination ensured that the results would be the closest, most accurate representation of the answers to the research questions.

By keeping a reflexive journal and noting the emerging thoughts and emotions regarding the conversations, the researcher was able to identify and evade potential biases. Finlay (2002) defines reflexivity as "thoughtful, conscious self-awareness" (p. 532). This aided the

researcher in reflecting on gaining an objective view of the data—which was especially helpful as some of the conversations could be considered distracting in content—but also on the other hand without losing touch with important affective or "connotative" elements.

5.6   Main conclusions drawn from the research

As mentioned in Sections 5.3.1. and 5.3.2, all the needs uncovered within this investigation represented the needs expected to be identifiable in adolescents, as well as the expectancies appropriate to their developmental stage. In order to analyse the data, *thematic network analysis* was employed as a means to extract the meaning of the data by following the carefully laid out steps in the analysis process (Section 3.4). Table 5.2 summarises the findings for this investigation in relation the literature discussed in Chapter 2.

Table 5.2:   *Comparison of the three areas of adolescent development and the expressed needs of adolescents*

Three areas of adolescent development	Expressed needs in data				
	Romantic curiosity	Emotional expression	Academic & career concerns	Personal counselling	Social interaction
Milestones					
Gender roles					✓
Accepting one's body					
Emotional independence and autonomy	✓	✓	✓	✓	
Selecting and preparing for an occupation			✓	✓	
Creating a value and ethics system	✓	✓	✓		✓
Giving and receiving affection	✓	✓			
Mature relationships with both genders		✓			✓
Developmental changes					
Social development	✓	✓		✓	✓
Emotional development	✓	✓	✓	✓	
Cognitive development	✓	✓	✓	✓	✓

103

Three areas of adolescent development	Expressed needs in data				
	Romantic curiosity	Emotional expression	Academic & career concerns	Personal counselling	Social interaction
Physiological development	✓	✓			
Fundamental psychological needs					
Control	✓	✓	✓	✓	✓
Belonging					
Self-esteem	✓	✓	✓	✓	
Meaningful existence					
Competence				✓	
Autonomy	✓	✓	✓	✓	✓
Relatedness					✓
Trust and accepting relation-ship with adults and peers		✓	✓	✓	✓
Self-expression and exploration	✓	✓			
Development of academic and social competencies			✓	✓	✓
Social and romantic competencies	✓	✓			✓

As can be seen in Table 5.2, the fundamental psychological need for control, competency, and autonomy can be associated with the developmental changes that adolescents are experiencing, which the participants presented strongly in the data. Moreover, the global theme of personal counselling was strongly represented within the focus area of fundamental psychological needs, but the least evident within the developmental milestones. In contrast, the global theme of academic and career concerns represented the lowest need for fundamental psychological needs and indicated the least evidence for developmental changes.

The global theme of emotional expression represented as requiring the most attention for the participants with regard to reaching their expected milestones. Although academic and career concerns constituted the least represented global theme in Table 5.2, they were the

global theme with the highest intensity of participant interaction. This was in contrast to the global theme of social interaction, which represented the least participant interaction.

As previously mentioned, no part of the five thematic networks indicated a misalignment to the developmental phase of adolescence, but the networks did, at the same time, highlight the counselling needs expected of adolescence. The three focus areas of development (represented in Table 5.2) indicated that the participants were still in the throes of mastering the milestones of adolescence, the developmental changes, and the fundamental psychological needs that could be identified in the context of the conversations.

5.7   Strengths and limitations of the study

One of the strengths of this study was that the participants were not involved in a direct interview with the researcher. Thus, the data collected represented the adolescents naturally, with no need on their part to impress the researcher or downscale their emotions and language. Conversely, this lack of personal contact limited the researcher to the information provided without the opportunity to further examine statements that could benefit from further explanation.

Another strength can be seen in the duration of the data-collection period. The researcher was able to capture information from across the time span of a year, and consequently factors such as examination stress and career preparation concerns were reflected and could be captured within the same study.

The absence of biographical details, which prevented certain inferences from being drawn, held the advantage of precluding bias about the participants and their motives. On the other hand, as biographical information was inaccessible, it was not possible to determine what specific needs might have existed between the different age, gender, and population categories in adolescents.

The use of the educational tutoring platform of Dr Math involved both a limitation and an advantage for the researcher. The limitation consisted in the possibility that this platform would potentially influence the adolescents to convey certain needs more than others. The advantage of using the platform was that the needs expressed by the adolescents were still able to come through in spite of being voiced in a mathematics-tutoring context.

Another potential flaw to consider is that the type of technological platform (instant messaging educational tutoring), as the data source, may have caused the needs which were uncovered not be a true reflection of the average adolescent's perceptions. In other words, the data can rather be considered more a reflection of the needs of adolescents present within this specific type of communication platform. Furthermore, many of the participants were directed back by the tutors to mathematics-related questions, which may be considered an impediment to free-flow communication and unearthing of further personal matters that the participants might have wished to discuss.

5.8 Recommendations for further research

On reflection on the investigation, the following recommendations for training and development, practice, and research may be put forward:

5.8.1 Training and development recommendations

- **Further research into and development of electronic platforms.** As seen in the data, many of the participants joined Dr Math in the hope of also gaining tutoring in other subjects such as English, Biology, and Physics. Research into the challenges that adolescents experience in school subjects could aid in the development of tutoring platforms similar to Dr Math.

- **Basic training for tutors on how to work with and counsel adolescents effectively.** As seen in the research, some of the participants required assistance with personal and family challenges. Possible training should be provided to tutors in how to handle such situations along with available resources to which they can refer such students. In addition, training in working with aggressive learners should be considered for the tutors.

- **Platform for basic counselling services in association with (but separate from) academic standing.** A platform, similar to Dr Math, which acts as a basic counselling and referral source for adolescents, should be considered. Similar platforms such as *Angel* and *Life line* already exist on the Mxit social network. However, under the auspices of a university, the training of interns (supervised student social workers and student psychologists) in working with the needs of adolescents can be greatly beneficial not only to the university and students in experiential training, but also to

106

the entire psychological counselling community as an online resource for referral services and further research opportunities.

5.8.2 *Practice and research recommendations*

- **Further research on how adolescents perceive assisting services, with special reference to electronic services.** As one of the participants mentioned, he/she did not use the system before because of feeling that Dr Math was only there as an attention-catching ploy of no actual tutoring use. Thus, recognising how adolescents perceive assistive services, gaining insight into their perceptions of people who are trying to assist them, and promoting the true purpose of the services, can add value to the understanding of and actions needed for appropriately helping adolescents in achieving the outcomes that they desire.

- **Assistance to adolescents in fulfilling their needs for autonomy, competence, and control**. Since these elements featured strongly in the present investigation, it is apparent that further research into them should be explored, specifically in a South African context and with reference to implications for adulthood.

- **Adolescents' experience of assistive services in academic and career concerns.** The way in which adolescents experience academic- and career-related counselling services appears to be a relatively unexplored topic. Research in a South African context may aid professionals in establishing better rapport with adolescents and thus improve the quality of assistance to them in their decision-making processes.

5.9 Conclusion

The development and course of adolescents' lives are continually changing as they transition into adulthood, and the decisions of their today will have a determining effect on their tomorrow. The aim of this investigation was to establish the counselling needs of adolescents making use of text messaging as a form of communication, as well as to establish whether those needs align with the developmental changes that adolescents are experiencing. The data for this investigation were taken from an educational tutoring programme, originally established to aid school-going learners with mathematical challenges, who used the platform to obtain counselling in other areas of their lives. An investigation of this nature can reveal just how much psychosocial "subtext" may be present

107

in adolescents' use of cyber communication in the Internet environment. This offers rich opportunities for further investigations into smoothing the way for adolescents in an increasingly complex technologically affected existence.

"There is in every child at every stage a new miracle of vigorous unfolding, which constitutes a new hope and a new responsibility for all."

E.H. Erikson

1963 (p. 255)

References

Ahn, J. (2011). The effect of social network sites on adolescents' social and academic development: Current theories and controversies. *Journal of the American Society for Information Science and Technology*, *68* (8), 1435-1445.

Allan, A. (2008). *Law and ethics: An international perspective.* Somerset West, SA: Inter-Ed Publishers.

Arnone, M.P., Reynolds, T., & Marshall, T. (2009). The effect of early adolescents' psychological needs satisfaction upon their perceived competence in information skills and intrinsic motivation. *School Libraries Worldwide, 15* (2), 115-164.

Attride-Stirling, J. (2001). Thematic networks: An analytic tool for qualitative researchers. *Qualitative Research, 1* (3), 385-405.

Atuyambe, L., Mirembe, F., Johansson, A., Kirumbira, E.K., & Faxelid, E. (2005). Experiences of pregnant adolescence – voices from Wakiso district, Uganda. *African Health Sciences, 5*(4), 304-309.

Babbie, E. (2005). *The basics of social research* (3rd ed). Canada: Wadsworth.

Barak, A. (2007). Emotional support and suicide prevention through the internet: A field project report. *Computers in Human Behaviour, 23,* 971-984

Baron, R.A., Byrne, D., & Branscombe, N.R. (2006). *Social psychology* (11th ed). Boston: Pearson.

Benson, M. J. (2004). After the adolescent pregnancy: Parents, teens, and families. *Child and Adolescent Social Work Journal*, *21*(5), 435-455.

Berson, I.R. & Berson, M.J. (2005). Challenging online behaviors of youth: Findings from a comparative analysis of young people in the United States and New Zealand. *Social Science Computer Review, 23*(1), 29-38.

Blakemore, S. J., & 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.

Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*, 77-101.

Bray, R., Gooskens, I., Kahn, L., Moses, S., & Seekings, J. (2010). *Growing up in the new South Africa: Childhood and adolescence in Post-Apartheid Cape Town*. Cape Town: HSRC Press.

Brendt, T.J. (2002). Friendship quality and social development. *Current Direction in Psychological Science, 11*(1), 7-10.

Brooks, J. (2008). *The process of parenting* (7th ed). New York: Mc Graw-Hill.

Brown, B.B., Feiring, C., & Furman, W. (1999). Missing the love boat: Why researchers have shied away from adolescent romance. In W. Furman, B.B. Brown & C. Feiring (Eds.), *The development of romantic relationships in adolescence* (pp. 1-18)*. Cambridge: Cambridge University Press.

Burnell, B., Beukes, P., & Esterhuyse, K.G.F. (2006). The relationship between spiritual well-being and a sense of meaning in life. *Practical Theology in South Africa, 24(*1), *1-31.*

Butgeruit, L. (2008). "Dr Math Rocks!: Using Instant Messaging to Help Pupils with Mathematics Homework". Researchspace.csir.co.za. IST-Africa Conference.

Caeli, K., Ray, L., & Mill, J. (2003). "Clear as mud": Toward greater clarity in generic qualitative research. *International Journal of Qualitative Methods, 2*(2), 1-13.

Casey, B.J., Giedd, J.N., & Thomas, K.M. (2000). Structural and functional brain development and its relation to cognitive development. *Biological Psychology, 54,* 241-257.

Casey, B. J., Jones, R. M., & Hare, T. A. (2008). The adolescent brain. *Annals of the New York Academy of Sciences*, *1124*(1), 111-126.

Castells, M., Fernandez-Ardevol, M., Qiu, J.L., & Sey, A. (2004). Cross-cultural analysis of available evidence on the social uses of wireless communication technology. A research report prepared for the International Workshop on Wireless Communication Policies and Prospects: A Global Perspective, held at the Annenberg School for Communication, University of Southern California, Los Angeles, 8-9 October 2004 (pp. 1-321). California: University of Southern California.

Chobokoane, N., & Budlender, D. (2002). A day in the life of a South African teenager. *Statistics South Africa: Occasional paper.* (2002/02).

Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education* (6th ed.) London, UK: Routledge.

Collins, W.A. (2003). More than myth: The developmental significance of romantic relationhships during adolescence. *Journal of Research on Adolescence, 13*(1), 1-24.

Creswell, J.W. (2008). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (3rd ed.)*.* USA: Pearson International.

Dahl, R.E. (2004). Adolescent brain development: A period of vulnerabilities and opportunities. Keynote Address. Annual New York Academy of Science. 1-22.

De Vos, A.S., Strydom, H., Fouché, C.B., & Delport, C.S.L. (2003). *Research at grassroots: For the social sciences and human service professions* (2nd ed.). Hatfield, Pretoria: Van Schaik.

Di Fabio, A., Palazzeschi, L., Asulin-Peretz, L., & Gati, I. (2013). Career indecision versus indecisiveness: Associations with personality traits and emotional intelligence. *Journal of Career Assessment*, *21*(1), 42-56.

Dolev-Cohen, M., & Barak, A. (2013). Adolescents' use of Instant Messaging as a means of emotional relief. *Computers in Human Behavior*, *29*(1), 58-63.

Donner, J., Gitau, S., & Marsden, G. (2011). Exploring mobile-only Internet use: Results of a study in urban South Africa. *International Journal of Communication, 5*, 574-597.

Draucker, C.B., & Martsolf, D.S. (2010). The role of electronic communication technology in adolescent dating violence. *Journal of Child and Adolescent Psychiatric Nursing, 23*(3), 133-142.

Drigas, A., Koukianakis, L., & Papagerasimou, Y. (2010). Towards an ICT-based psychology: E-psychology. *Computers in Human Behaviour, 27*, 1416-1423.

Eccles, J.S., Wigfield, A., & Byrnes, J. (2003). Cognitive development in adolescence. In I.B. Weiner (Editor-in-Chief), R.M. Lerner, M.A. Easterbrooks & J. Mistry (Volume Editors). *Handbook of psychology: Developmental psychology* (6 Vols), *Psychology* (pp. 325-349). New Jersey: John Wiley.

Ehrenberg, A.L., Juckes, S.C.W.K.M., & Walsh, S.P. (2008). Personality and self-esteem as predictors of young people's technology use. *CyberPsychology and Behavior, 11*(6), 739-741.

Erickson, S. J., Feldman, S. S., & Steiner, H. (1996). Defense mechanisms and adjustment in normal adolescents. *American Journal of Psychiatry*, *153*(6), 826-828.

Erikson, E. (1963). *Childhood and Society.* (2nd Ed.). New York: W.W. Norton.

Finestone, M. (2004). Behaviour. In I. Eloff & L. Ebersohn, *Keys to Educatioanal Psychology* (pp. 64-82). Cape Town: UCT Press.

Finch, S.M. (2008). *A qualitative phenomenological analysis of modern communication: Instant messaging's importance for adolescents and young adults*. (Unpublished doctoral dissertation). University of Phoenix, Tempe, Arizona.

Finlay, L. (2002). "Outing" the researcher: The provenances, process, and practice of reflexivity. *Qualitative Health Research, 12*(4), 531-545.

Fisher, H.E. (2006). Broken hearts: The nature and risks of romantic rejection. In A.C. Crouter & A. Booth (Eds.), *Romance and sex in adolescence and emerging adulthood: Risks and opportunities* (pp. 3-28). Mahwah, NJ: Lawrence Erlbaum Associates.

Fitzgerald, B. (2005). An existential view of adolescent development. *Adolescence, 40*(160), 793-799.

Fouché, C.D., & Delport, C.S.L. (2011). Writing the research proposal. In A.S. de Vos, H. Strydom, C.B. Fouché & C.S.L. Delport (Eds). *Research at grassroots: For the social sciences and human service professions* (4th ed.), (pp. 101-112). Hatfield, Pretoria: Van Schaik.

Fulkerson, J.A., Story, M., Mellin, A., Leffert, N., Neumark-Sztainer, D., & French, A.S. (2006). Family dinner meal frequency and adolescent development: Relationships with developmental assets and high-risk behaviors. *Journal of Adolescent Health, 39,* 337-345.

Furman, W., Brown, B.B., & Feiring, C. (1999). *Development of romantic relationships in adolescence.* Cambridge: Cambridge University Press.

Furman, W. & Shaffer, L. (2003). The Role of Romantic Relationships in Adolescent Development: Adolescent romantic relations and sexual behavior. *Theory, Research, and Practical Implications*, 3-22.

Galambos, N.L., & Costigan, C.L. (2003). Emotional and Personality Development in Adolescence*.* In I.B. Weiner (Ed.), *Handbook of psychology*: *Developmental psychology* (6 Vols.) (pp. 325-349). Hoboken, NJ: John Wiley.

Garcia, P. R. J. M., Restubog, S. L. D., Toledano, L. S., Tolentino, L. R., & Rafferty, A. E. (2011). Differential moderating effects of student- and parent-rated support in the relationship between learning goal orientation and career decision-making self-efficacy. *Journal of Career Assessment*, 00, 1-12.

Gavin, L.A., & Furman, W. (1989). Age differences in adolescents' perceptions of their peer groups. *Developmental Psychology, 25*(5), 827-834.

Geldard, K., & Geldard, D. (2002). *Counseling children: A practical introduction* (2nd Ed.). London: Sage Publications.

Gouws, E., Kruger, N., & Burger, S. (2008). *The adolescent.* Sandton: Heineman.

Gross, E.F. (2004). Adolescent Internet use: What we expect, what teens report. *Applied Developmental Psychology, 25*, 633-649.

Gross, J.J., & Thompson, R.A. (2003). Emotion regulation: Conceptual foundations. In J.J. Gross (2003). *Handbook of emotion regulation* (pp. 1-49). New York: Guilford Press.

Guba, E.G., & Lincoln, Y.S. (1982). Epistemology and methodological bases of naturalistic inquiry. *Education Communication and Technology, 30(*4), 233-252.

Guimond-Plourde, R. (2009). A hermeneutic phenomenological approach to understanding stress-coping as an existential phenomenon lived by healthy adolescents. *Indo-pacific Journal of Phenomenology, 9*(2), 1-13.

Hardman, J. (Ed.). (2012). *Child and adolescent development.* Cape Town: Oxford University Press.

Havinghurst, R.J. (1956). Research on the developmental-task concept. *Chicago Journals, 64*(5), 215-223.

Heaton, J. (2008). Secondary analysis of qualitative data: An overview. *Historical Social Research, 33*(3), 33-45.

Henderson, D.A., & Thompson, C.L. (2011). *Counseling children* (8th Ed.). Belmont, CA: Brooks/Cole Cengage Learning.

Hoare, C. (2012). Three missing dimensions in contemporary studies of identity: The unconscious, negative attributes, and society. *Journal of Theoretical and Philosophical Psychology*, *33*(1), 51–67.

Hofferth, S.L. (2005). Secondary analysis in family research. *Journal of Marriage and Family, 67*(4), 897-907.

Hook, D,. Watts, J, & Cockcroft, K. (2002). *Developmental psychology.* Cape Town: UCT Press.

Irwin, S., Bornat, J., & Winterton, M. (2012). Timescapes secondary analysis: Comparison, context and working across data sets. *Qualitative Research, 12*(1), 66-80.

Kim, H. S., & Drolet, A. (2003). Choice and self-expression: A cultural analysis of variety-seeking. *Journal of Personality and Social Psychology, 85*(2), 373-382.

Kim, H.S., & Sherman, D.K. (2007). "Express yourself": Culture and the effect of self-expression on choice. *Journal of Personality and Psychology, 92*(1), 1-11.

Knesting, K. & Waldron, N. (2006). Willing to play the game: How at-risk students persist in school. *Psychology in Schools*, *43*(5), 599-611.

Ko, H., Cho, C.H., & Roberts, M.S. (2005). Internet uses and gratifications: A structural equation model of interactive advertising. *Journal of Advertising, 34*(2), 57-70.

Kohn, A. (1984). Existentialism here and now. *The Georgia Review, 38*(2), 381-397.

Kothari, C.R. (2004). *Research methodology: Methods and techniques* (2nd Ed.). Daryaganj, New Delhi: New Age International.

Larson, R. (2006). Positive youth development, willful adolescents, and mentoring. *Journal of Community Psychology, 34*(6), 677-689.

Lavallee, .A. (2006). E-therapy: More people are turning to instant messaging and online therapy for a range of mental health issues because they're fast and anonymous. *Wall Street Journal.* CRC Health Group 2006 Press Releases. Retrieved from http://www.crchealth.com/press-releases-2006/060425-e-therapy.php

Leech, N.L., & Onwuegbuzie, A.J. (2008). Qualitative data analysis: A Compendium of Techniques and a Framework for Selection for School Psychology Research and Beyond. *School Psychology Quarterly, 23*(4), 587-604.

Lenhart, A., Ling, R., Campbell, S., & Purcell, K. (2010). Teens and mobile phones: Text messaging explodes as teens embrace it as the centerpiece of their communication strategies with friends. *Pew Internet & American Life Project*. Retrieved from http://www.pewinternet.org/2010/04/20/teens-and-mobile-phones/

Leondari, A. (2007). Future time perspective, possible selves, and academic achievement. *New Directions for Adult and Continuing Education, 114*, 17-26.

Louw, D., & Louw, L. (2007). *Child and adolescent development*. Bloemfontein: University of the Free State.

Louw, D., Van Ede, D.M., & Louw, A.E. (1998). *Human development* (2nd Ed). Cape Town: Kagiso Publishers.

Macleod, C. (2002). Theory and South African developmental psychology research and literature. In D. Hooks, J. Watts, & K. Cockcroft (Eds.). *Developmental psychology* (pp. 379-398). Cape Town: UCT Press.

Maxwell, J.A. (2013). *Qualitative research design: An interactive approach* (3rd Ed). California: Sage.

Morse, J.M., Barret, M., Mayan, M., Olson, K. & Spiers, J. (2002). Verification Strategies for Establishing Reliability and Validity in Qualitative Research. *International Journal of Qualitative Methods, 1*(2), 13-22

Nieuwenhuis, J. (2007). Analysing qualitative data. In K. M. Maree (Ed.), *First Steps in Research* (p.99-107)*. Pretoria: Van Schaik.

Nicol, A., & Fleming, M.J. (2010). "I h8 u": The influence of normative beliefs and hostile response selection in predicting adolescents' mobile phone aggression – A pilot study. *Journal of School Violence, 9,* 212-231.

116

Nitsckie, W.B., & Parker, M.B. (2009). Mobile instant messaging: "Help at the fingertips of

addicts". *11ᵗʰ Annual Conference of World Wide Web Applications*. 2-4 September

2009 (pp. 1-18). Port Elizabeth, South Africa: Cape Peninsula University of

Technology.

Oxford Dictionaries online. (2014). Retrieved from:
http://www.oxforddictionaries.com/definition/english/romantic

Petty, N.J., Thompson, O.P., & Stew, G. (2012). Ready for a paradigm shift? Part 2:
Introducing methodologies and methods. *Manual Therapy, 17*(5), 278-384.

Rappoport, J. (2011). The implication for losing the "filters" we learn in life to emerging
technologies: A professional's insight into working with clients in the age of
technology. *Society for Existential Analysis Annual Conference.* Presentation 19,
November 2011.

Ratele, K. (2006), Postcolonial African methods and interpretation. In M. Terre Blanch, K.
Durrheim & D. Painter. *Research in practice: Applied methods for the social science*s
(2ⁿᵈ Ed), (pp.534-556). Cape Town: University of Cape Town Press.

Reyes, M.R., Brackett, M.A., Rivers, S.E., White, M., & Salovey, P. (2012). Classroom
emotional climate, student engagement, and academic achievement. *Journal of
Educational Psychology, 3,* 700-712.

Ried, D.J., & Reid, F.J.M. (2007). Text or talk? Social anxiety, loneliness, and divergent
preferences for cell phone use. *CyberPsychology & Behavior, 10*(3), 414–435.

Roeser, R. (2000). School as a context of early adolescents' academic and social-emotional
development: A summary of research findings. *Chicago Journals, 100*(5), 433-471.

Roisman, G.I., Mastan, A.S., Coatsworth, D., & Tellegen, A. (2004). Salient and emerging developmental tasks in the transition to adulthood. *Child Development*, *75*(1), 123-133.

Rolfe, G. (2006). Validity, trustworthiness and rigour: Quality and the idea of qualitative research. *Journal of Advanced Nursing, 53*(3), 304–310.

Richie, J., & Lewis, J. (2003). *Qualitative research practice: A guide for social science students and researchers*. London: Sage.

Ryan, R.M. & Deci, E.L. (2000). The Darker and Brighter Sides of Human Existence: Basic Psychological Needs as a Unifying Concept. *Psychological Inquiry, 11*(4), 319-338

Saldana, J. (2009). *The coding manual for qualitative researchers.* London: Sage.

Sarre, S. (2010). Parental regulation of teenagers' time: Processes and meanings. *Childhood, 17*(1), 61-75.

Seale, C. (1999). Quality in qualitative research. *Qualitative Inquiry, 5(*4), 465-478.

Sebastian, C., Viding, K., Williams, K.D., & Blakemore, S.J. (2010). Social brain development and the affective consequences of ostracism in adolescence. *Brain and Cognition, 72,* 134-145.

Scharf, M., Mayseless, O., & Kivenson-Baron, I. (2004). Adolescents' attachment representations and developmental tasks in emerging adulthood. *Developmental Psychology, 40*(3), 430-444.

Schwartz, S.J. (2001). The evolution of Eriksonian and neo-Eriksonian identity theory and research: A review and integration. *Identity: An International Journal of Theory and Research, 1*(1), 7-58.

Shefer, T. (2004). *Adolescence*. In L. Swartz, C. de la Rey & N. Duncan (Eds). *Psychology: An introduction* (pp. 73-85). Cape Town: Oxford University Press.

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information, 22*, 63-75.

Silk, J.S., Steinberg, L., & Morris, A.S. (2003). Adolescents' emotion regulation in daily life: Links to depressive symptoms and problem behavior. *Child Development, 74*(6), 1869-1880.

Smith, E. (2006). *Using secondary data in education and social research* (1st ed). New York: McGraw Hill.

Smith, E. (2008). Pitfalls and promises: The use of secondary data analysis in educational research. *Journal of Educational Studies, 56*(3), 323-339.

Spear, L.P. (2000). The adolescent brain and age-related behavioral manifestations. *Neuroscience and Biobehavioral Reviews, 24*, 417-463.

Starica, E.C. (2012). Predictors for career indecision in adolescence. *Social and Behavioural Sciences, 33*, 168–172.

Steinberg, L., & Cauffman, E. (1996). Maturity of judgement in adolescence: Psychosocial factors in adolescent decision making. *Law and Human Behaviour, 20*(3), 249-272.

Steinberg, L., & Morris, A. S. (2001). Adolescent development. *Annual Review of Psychology, 52,* 83-110.

Strauss, J., & Myburg, C. P. H. (Eds). (2001). *Center for Distance Education. Faculty of Education and Nursing. B.Ed. Education, Training and development research. Methodology study guide 81416.* Johannesburg: Rand Afrikaans University.

Strydom, H. (2011). Ethical aspects of research in the social sciences and human service profession. In A.S. de Vos, H. Strydom, C.B. Fouché & C.S.L. Delport (Eds.). *Research at grassroots: For the social sciences and human service professions* (4th ed.), (pp. 113-130). Pretoria: Van Schaik.

Subrahmanyam, K., & Greenfield, P. (2008). Online communication and adolescent relationships. Children and electronic media. *The Future of Children*, *18(*1), 119-146.

Schwartz, S.J. (2001). The Evolution of Eriksonian and Neo-Eriksonian Identity Theory and Research: A Review and Integration. Identity: An International Journal of Theory and Research, 1(1), 7-58

Terre Blanche, M., Durrheim, K., & Painter, D. (2006). *Research in practice: Applied methods for the social sciences* (2nd ed). Cape Town: UCT Press.

Thompson, R. (1994). Emotion regulation: A theme in search of definition. The development of emotional regulation: Biological and behavioral considerations. *Monographs of the Society for Research in Child Development. 59*(2/3), 25-52.

Tomas, P. (2005). Mapping brain maturation and cognitive development during adolescence. *Trends in Cognitive Sciences, 9*(2), 60-68.

Turner, M., Love, S., & Howell, M. (2008). Understanding emotions experienced when using a mobile phone in public: The social usability of mobile (cellular) telephones. *Telematics and Informatics, 25*, 201-215.

Underwood, M.K., Rosen, L.H., More, D., Ehrenreich, S.E., & Gentsch, J.K. (2012). The BlackBerry project: Capturing the content of adolescents' text messaging. *Developmental Psychology, 48*(2), 295-302.

UNICEF. (2012). South African mobile generation: Study of South African young people on mobiles. Retrieved from http://www.voicesofyouth.org/pdf/citizens/SAF_resources_mobilegeneration.pdf

Vartanian, T.P. (2011). *Pocket guides to social work research methods.* New York: Oxford University Press.

van Tonder, C.L. (2006). Exploring the Identity and 'Sense of Identity' of Organisations. *South African Journal of Industrial Psychology, 32*(3), 12-25

Vas, A. (1995). Who's got the look? Sartre's gaze and Foucault's panopticism. *Dalhousie French Studies, 32*, 33-45.

Wahyuni, D. (2012). The research design maze: Understanding paradigms, cases, methods and methodologies*. Journal of Applied Management Accounting Research, 10*(1), 69-80.

Walsh, D., & Downe, S. (2006). Appraising the quality of qualitative research. *Midwifery, 22*(2), 108-119.

Weinberg, A., & Klonsky, E.D. (2009). Measurement of emotion dysregulation in adolescents. *Psychological Assessment, 21*(4), 616-621.

Wenar, C., & Kerig, P. (2005). *Developmental psychopathology: From infancy through adolescents* (5th ed.). New York: MacGraw-Hill.

Whitlock, J.L., Powers, J.L., & Eckenrode, J. (2006). The virtual cutting edge: The Internet and adolescent self-injury. *Developmental Psychology, 42*(3), 1-11.

World Health Organisation. (2014). *Maternal, newborn, child and adolescent health.* Retrieved from http://www.who.int/maternal_child_adolescent/topics/adolescence/development/en/

World Health Organisation. (n.d). *Adolescent development.* Retrieved from http://www.who.int/maternal_child_adolescent/topics/adolescence/development/en/#

Appendices

Appendix A: Ethical Clearance Certificate

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Education

RESEARCH ETHICS COMMITTEE

CLEARANCE CERTIFICATE	CLEARANCE NUMBER :	EP 14/04/01
DEGREE AND PROJECT	MEd The counselling needs of adolescents expressed through text messaging	
INVESTIGATOR(S)	Le-Vérne Wagner	
DEPARTMENT	Educational Psychology	
DATE CONSIDERED	23 October 2014	
DECISION OF THE COMMITTEE	APPROVED	

Please note:

For Masters applications, ethical clearance is valid for 2 years
For PhD applications, ethical clearance is valid for 3 years.

CHAIRPERSON OF ETHICS COMMITTEE	Prof Liesel Ebersöhn
DATE	23 October 2014
CC	Jeannie Beukes Liesel Ebersöhn Dr V Scherman

This ethical clearance certificate is issued subject to the following condition:

1. It remains the students' responsibility to ensure that all the necessary forms for informed consent are kept for future queries.

Please quote the clearance number in all enquiries.

122

Appendix B: Ethical Clearance Certificate for Dr. Math

(from Tshwane University of Technology (TUT))

Tshwane University of Technology

25 February 2008

Dear Laurie Butgereit (CSIR)

RE: Ethical clearance for your CSIR projects under Meraka institute: (Math on Mixit and Arithmetic competitions on Mixit)

This is to confirm that the Faculty of ICT's Research and innovation committee has decided to grant you ethical status on the above projects. All evidence provided was sufficient and therefore the ethical reference numbers allocated to these projects from this committee are as follows:
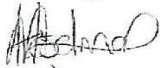
- Math on Mixit – ethical reference number is: **2008/02/mathmixit/ethics/csir**
- Arithmetic competitions on Mixit – ethical reference number is: **2008/02/aritmixitethics/csir**

In order to comply to ethical requirements please ensure that you allow all tutors to complete the attached ethical consent form. Also please protect yourself from any criticism or problems in future by adding the following disclosure on your website:

Please indicate what each of these projects are all about (its scope and requirements from participants) and that confidentiality of personal information of participants is coded and that it will stay confidential. Participation is voluntarily and refusal to participate will not involve any penalty or loss of benefits and that participants can withdraw from participation at any point during the duration of the project. The benefits of the project is to …. (complete). The persons to contact for questions on this project is … (complete).

This will be enough to cover you from any ethical harm or risks. Also please keep a record of any ethical problems in order to protect yourself. I hope you find this in order and we wish you every success with these projects.
Kind regards

Prof ME Herselman
Chairperson: Faculty Research and Innovation committee
Faculty of Information and Communication Technology
Tshwane University of Technology
(012) 382 5758
(012)382 4839 (fax); herselmanme@tut.ac.za

We empower people

Appendix C: Explanation of text language used by participants

participants words	Meaning	participants words	Meaning
2	To	mst	Must
4	For	mwa / mwaa / mwah	Kisses
4rm	From	n01	No one
4une	Phone	nd	And
Abt	About	neva	Never
Alrdy	Already	nid	Need
B	Be	npe	Nope
b /w	Black or white	nt	Not
bf /b.f.	Boyfriend	numbrz /numba	Numbers
Bt	But	nw	Now
Bttr	Better	nym	Name
c/cee	See	o	Or
Cn	Can	owk	Okay
Cnt	Cant	perfct	Perfect
Col	Call	pls / plz	Please
cos / cus	Because	r	Are
Crusly	Seriously	rgt/rite	Right
Da	The	rst	Rest
datz / dat / dt	That (s)	skwl/skul	School
Dis	This	snc	Since
Dnt	Don't	snd	Send
Dose	Those	stl	Still
Dun	Done	strtd	Started
Eix	Eish	sum1	Someone
Enemz	Enemies	thght	Thought
Evn	Even	thngs	Things
Fam	Family	thnx / tnx / thx	Thanks
Frnds	Friends	tld	Told
g2g	Got to go/get	tort	Taught
Gettn	Getting	tryd	Tried

gf/gfs	Girlfriend/girlfriends	**turnz**	Turns
Gonna	Going to	**tym**	Time
gr8	Great or grade 8	**u**	You
Gt	Get	**u're**	You're
Gud	Good	**wana / wanna**	Want to
Gv	Gave	**wats / wts**	What's
h2g	Have to go	**whn**	When
Hala	Holler (call/contact)	**wit / wth**	With
Hlp	Help	**wnt**	Want
Hp	Hope	**wr**	Were
Hv	Have	**wryt**	Write
Hw	How	**wsh**	Wish
Imma	I am	**y**	Why
it'l	It'll	**yr**	Year
Jst	Just		
K	Ok		
Kinda	Kind of		
Knw	Know		
Lil	Little		
Lng	Long		
Lyf	Life		
Lyk	Like		
m / f	Male or female		
Ma	My		
Malyf	My life		
Mastr	Master		
Mi	Me		
Msg	Message		

Appendix D: Extracts from Research Diary

	Researchers Diary
	Romantic Curiosity
18 August 2014	*There appears to be some interest in relationship advice – romantic, love, health. I wonder why the participants would choose this platform to ask about such matters. One participant is openly flirting with the tutor and has provided his/her name and number. This lack of shyness is both refreshing and worrying as the interaction with the tutor seems almost forceful and, what I would consider disrespectful.*
20 August 2014	*After reading, and re-reading this text message, I realise that this particular adolescent has neither hidden behind the anonymity of the platform, nor shied away from the tutor after providing his/her personal details. The idea that anonymity creates a platform for adolescents to explore possibilities of their identities and push social boundaries remains intact. However, it seems that some adolescents do not need anonymity to explore their potential selves, and may have enough confidence to approach situations with little concern of their ego being damaged.*
17 September 2014	*I realised how complex the idea of love and romance is for adolescents. No longer are they limited to the plutonic love they have for their parents and siblings, but the occurrence of romantic interest is a completely new state for them to master. Enmeshed with the physical changes taking place with their bodies and the up rise of hormones, these adolescents, like all of us before, are each reliant on their cognitive schemas of love, through family and society.*
	Emotional Expression
21 July 2014	I am shocked by some of the language and statements made by the participants. I can't remember ever speaking to someone I thought was older than me in that way. On the other hand, i also never had a the luxury of being anonymous and therefore the freedom to try speaking to a perceived adult in that way. Maybe I would also have tested to see what reaction I would get. But cant

126

	be sure this was the aim of the participants
11 August 2014	*It feels to me, when reading messages by adolescents, that the use such profane language, may be their inexperienced attempt at sounding adult and trying to gain respect. Trying to throw off the perception that they are no longer children. The saying 'practice makes perfect' comes to mind, so that with experience, this type of behaviour will become hopefully refined.*
1 October 2014	I am not sure why the some of the participants are accusing the tutors of being judgemental. From the text messages, I personally cannot see cause for this. Maybe it is insecurity? attention seeking? Misplaced frustration and aggression?
	I believe that all people have developed a level of suspicion, over time, about the motives of people and occurrences in their lives. I believe this helps us determine the value of the truth in every occurrence. Often I will find myself relieved or astonished at the outcome and truth in occurrences, which reminds me not to judge too quickly.
	It is nice to see that some students also show gratitude towards the tutors for their service. However, the messages do seem a bit overly grateful. Maybe its the sense of relief from being helped, or the ability to talk to someone and not be judged. It could be another way to gain attention for themselves – but providing the type of attention, that they may want to receive?
Academic and Career concerns
18 August 2014	*Looking at what the participants have said, in this theme, about placing blame on the teachers, makes me interested in further evaluating the participants sense of locus of control. As it seems that they are assigning blame outwardly, about their scholastic challenges. In addition, it would be interesting to know if the experiences are only perceptions of the reality they are in, or if genuine merit exists in their complaints.*
	It's very easy to blame someone else for your misgivings, it makes you feel better about your own abilities. But that doesn't make what you feel or say true. However, if it is true. How does one correct it?

1 October 2014	The need to accomplish a goal, and to do well with it, is something I believe every person has. The want to feel successful and proud of oneself. With the advancements of technology today, adolescents have a greater opportunity to take advantage of help mediums that didn't exist before, to help them accomplish goals successfully.
2 October 2014	Deciding on a University course and career. I remember this as being a very anxious period in my own life. Unsure of who I am, and what my strengths and weaknesses were, and just wishing someone had the answer.

I remember how difficult the decision about university and a career path was to make. And when the decision was made, the new challenge was how to achieve it. I feel that the adolescents in the data set have the same challenge, and are using all possible avenues to try to work out an answer. The responsibility of these decisions feels enormous. |
Personal Counselling	
18 August 2014	The participants seem to indicate very low academic self-confidence. However, they seem to lack it internally, indicating an internal need for confidence to improve their abilities and not just the improvements of their marks.
28 September 2014	Having struggled with math at school myself, I can relate to wanting a confidence boost. I suppose getting a boost by someone whose name is 'Dr. Math' will help you feel better, Dr. Math is supposed have all the answers, so if he/she thinks you are doing well it would be a nice affirmation of your competence.
5 October 2014	The feelings these participants portray of seeking assurance and negative self-talk reminds me of the need to have people to talk to and rely on when we feel we have exhausted our own positive self-talk, and that this is not limited to adolescence.
Social Interaction	
17 September 2014	I am realising that the messages are mostly focused on the tutors and about Dr. Math. The participants seem to have a curiosity about the programme and the people that are helping them. They don't appear to be solely satisfied being helped, they actually want to know about the people and the programme as well. Maybe this is a way to try to extend their social circle or

128

	possibly just curiosity, a need to connect, especially to someone they may perceive as an adult?
28 September 2014	*This global theme made me think of a quote by Albert Einstein: "It is a miracle that curiosity survives formal education." These participants show that curiosity is something that remains a factor. The need to know who and what you are dealing with.*
	With all the technological opportunities out there that have minimal human interaction (e.g.: games, websites), i am surprised there was such interest shown in the tutors. However, I suppose this is also a platform for the participants to find out how these platforms work from 'behind the scenes'.

Appendix E: Example of tutors' contract for working with Dr Math

"Code of Conduct" Agreement for "Dr Math" Tutors

I, _____, agree to the following
code of conduct while acting as a "Dr Math" tutor:

- I will not contact any learner who joins the "Dr Math" program outside of the "Dr Math" program.
- I will not give any of the cell phone numbers which I have access to to anybody outside of the "Dr Math" program.
- I will not answer any personal questions of any of the particpants of "Dr Math".
- I will limit my conversations to school topics.
- I will not discuss sex, drugs, or any illegal activities with any of the participants of "Dr Math".
- I will refer participants to reputable counselling services if they need assistance with personal problems.
- I will encourage participants to further study any subjects in which mathematics is important including science, geography, accounting, and computer studies.
- I will encourage participants to use their cell phone as a research tool (and not just a convenience) by informing them about cell phone browsers and cell phone based calculators.
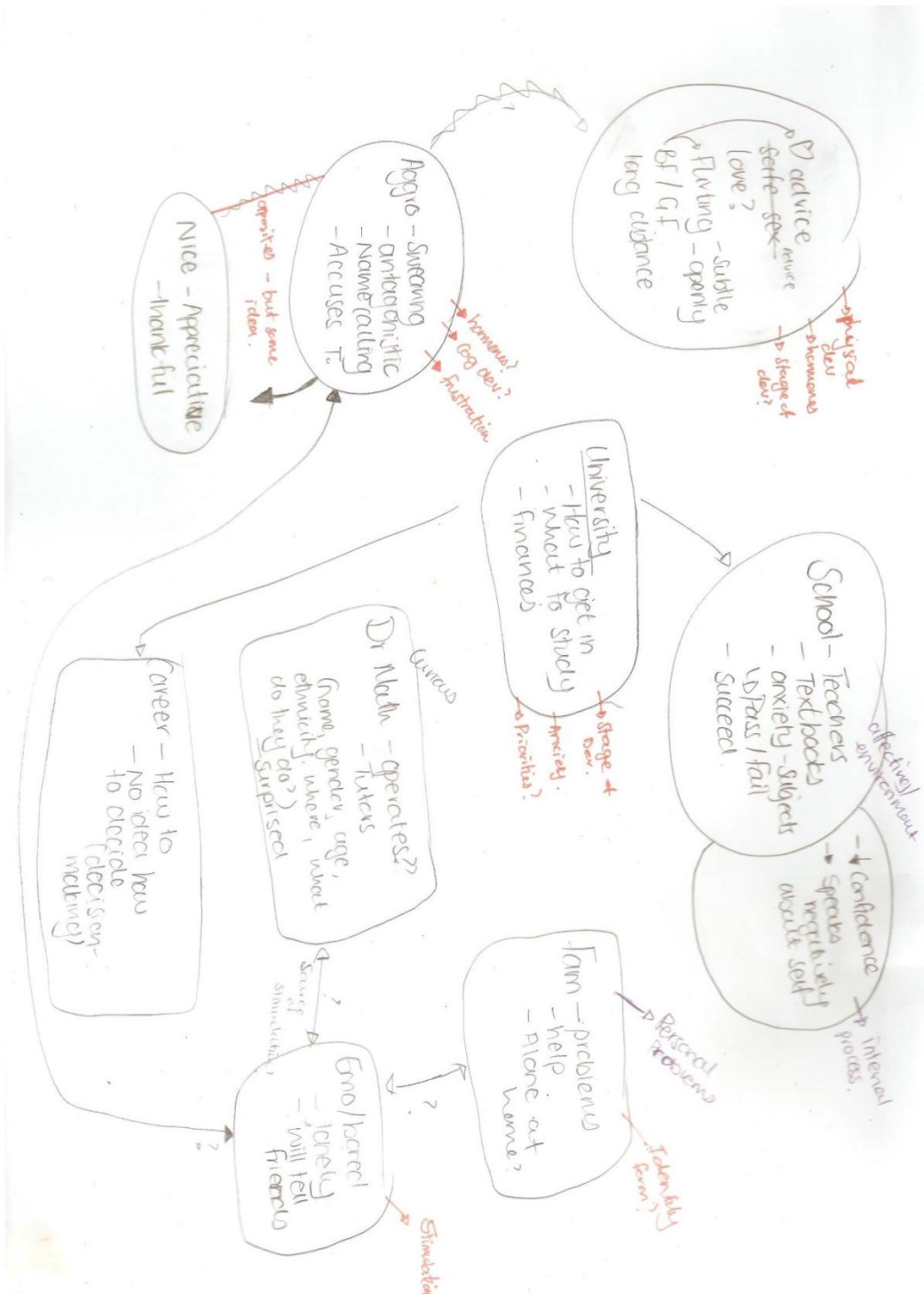
Date: _____

Name Printed: _____

Signed: _____

22

130

Appendix F: Thematic Network Analysis: process of developing thematic networks

First attempt at establishing codes

Third attempt at establishing codes

Unrefined themes for thematic network analysis

Table 1: Code material (Step 1) and Identify themes (step 2)		
Codes (Step 1) **Recurrent issues**	**Issues discussed**	**Themes identified (Step 2)**
Advice – Boyfriend/girlfriend Love Physical advice	Intimate expression	1. Adolescent romantic curiosity
Anger antagonistic swearing thankful appreciative	Emotional staging	2. Emotional expression 3. Unprovoked aggression towards tutors 4. Deliberate antagonising of tutors 5. Gratitude for assistance
academic support career University finances academic stress Teachers/textbooks Failure/success	Academics and career orientation	6. Fear of failing 7. Seeking assistance in more subjects 8. Seeking career advice 9. Blaming school and/or teacher for failures 10. Seeking advice for university entrance and/or fees (bursaries etc…)
Family School – confidence/help	personal counselling	11. Fear of financial hindrances to future plans and the possible implications for family 12. Low academic self-confidence
personal contact curiosity reassurance	Interaction	13. Reaching out to tutors for human interaction 14. Ascertaining if tutors are real or computer generations 15. Seeking reassurance about their academics and capabilities.
Table 2: Basic themes, Organising themes and Global themes (Step 3)		
Themes as basic themes	Organising themes	Global themes
1. Adolescent romantic curiosity	Natural physical curiosity	Adolescence is a time of natural romantic curiosity
2. Emotional expression 3. Unprovoked aggression towards tutors 4. Deliberate antagonising of tutors 5. Gratitude for assistance	Ability to express emotional perceptions	Emotional expression
6. Fear of failing 7. Seeking assistance in more subjects 8. Seeking career advice 9. Blaming school and/or teacher for failures 10. Seeking advice for university entrance and/or fees (bursaries etc…)	Present and future orientated success is important	Academics and career considerations are concerns for adolescents
11. Fear of financial hindrances to future plans and the	Capacity for acknowledging possible challenges and seeking	Adolescents actively seek counselling on personal

133

|		
possible implications for family 12. Reliance on friends and impact of friends on academics 13. Low academic self-confidence	assistance for those challenges.	matters
14. Reaching out to tutors for human interaction 15. Ascertaining if tutors are real or computer generations 16. Seeking reassurance about their academics and capabilities.	Recognition of importance of social interaction for well-being.	Social interactions are important for adolescents

Final Thematic Network Analysis
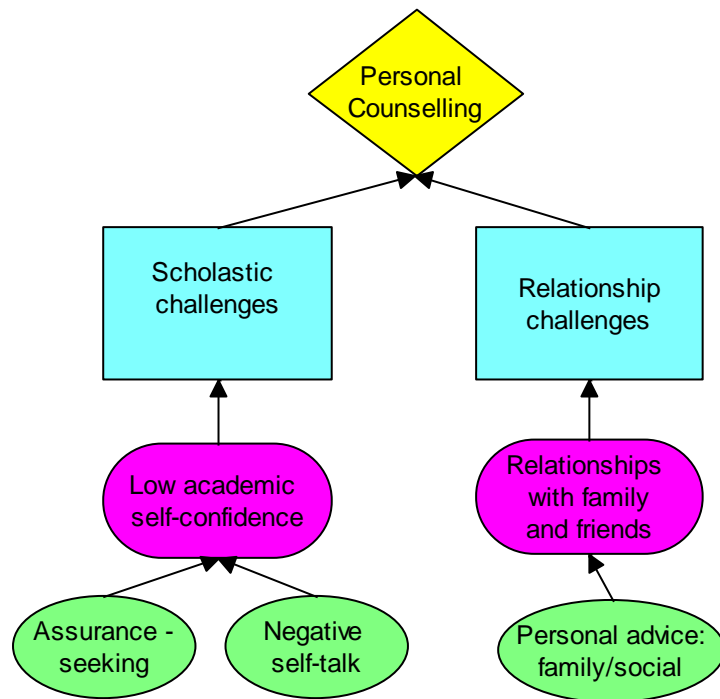
Global thematic network : Romantic Curiosity
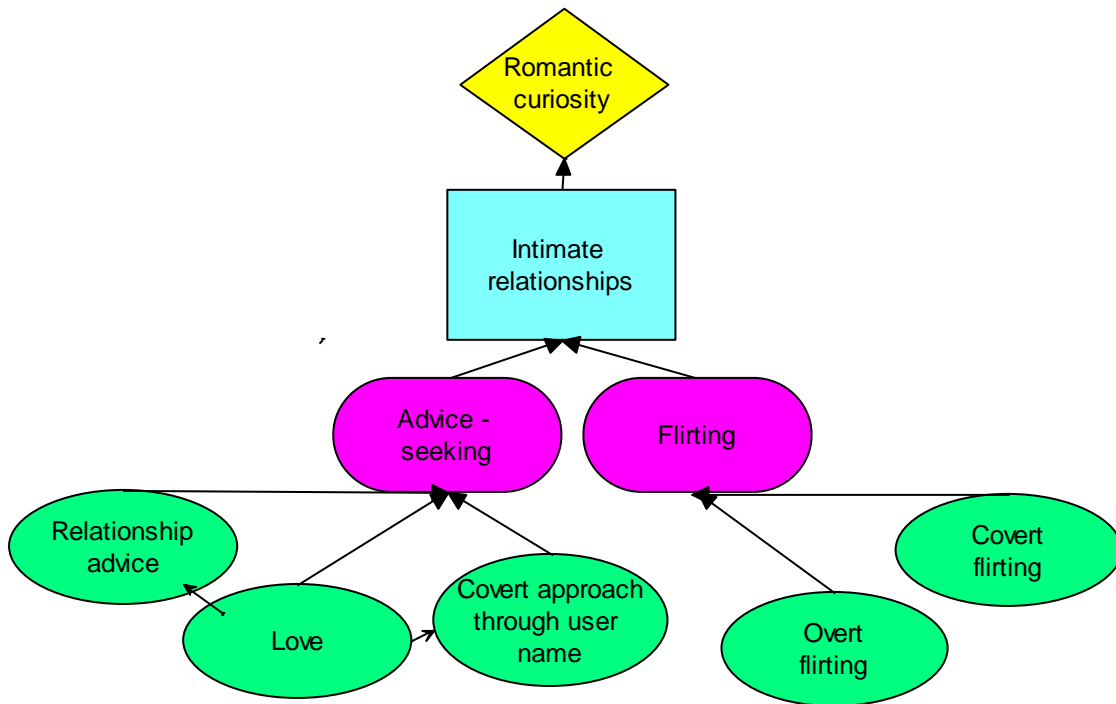
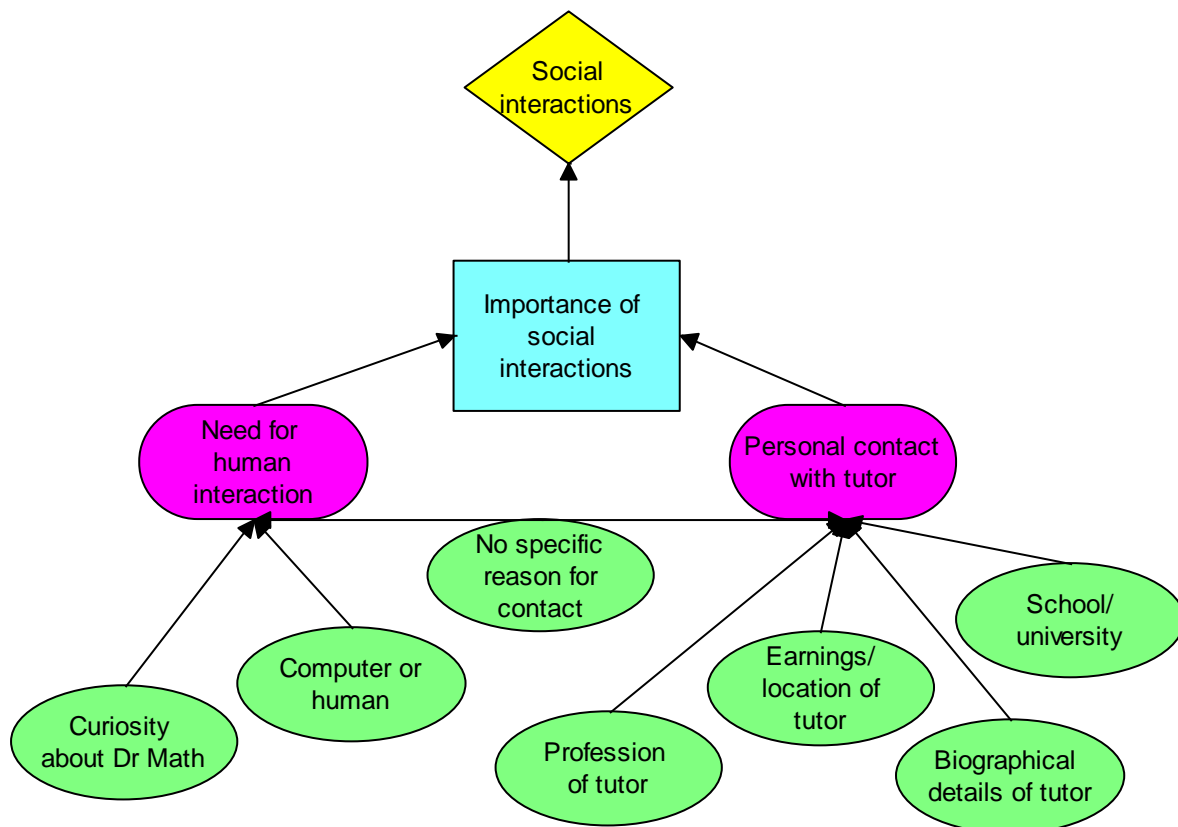**Global thematic network: Emotional expression**
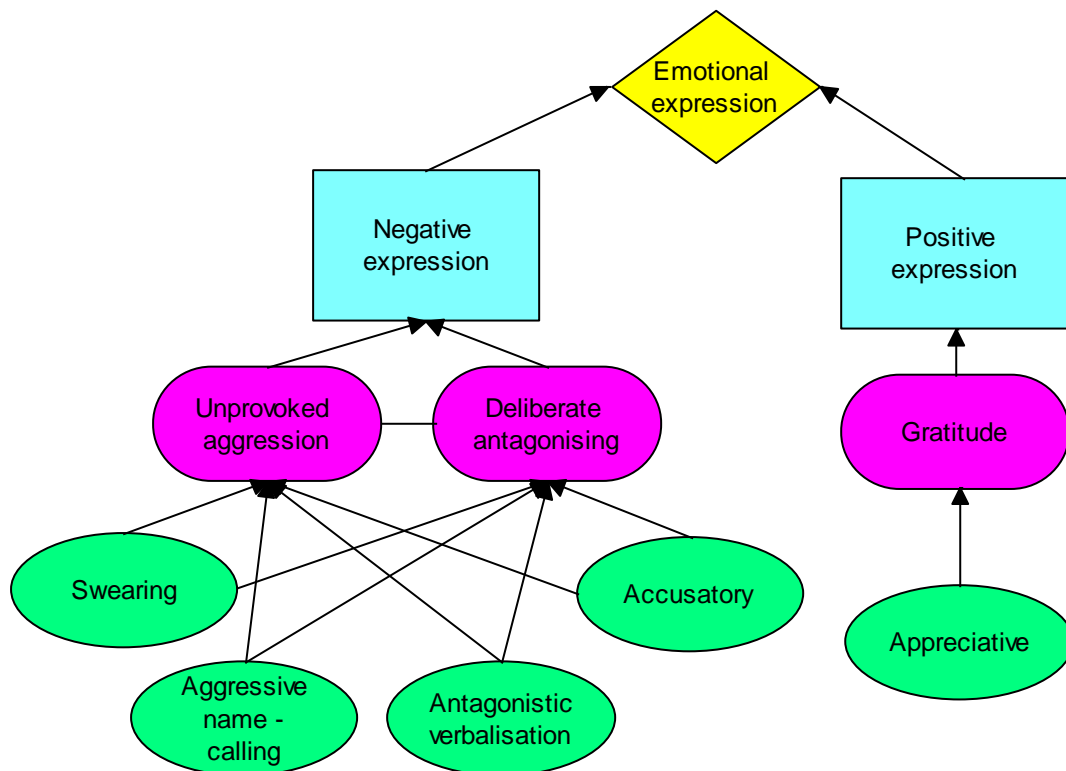
Global thematic network: Academic and career concerns
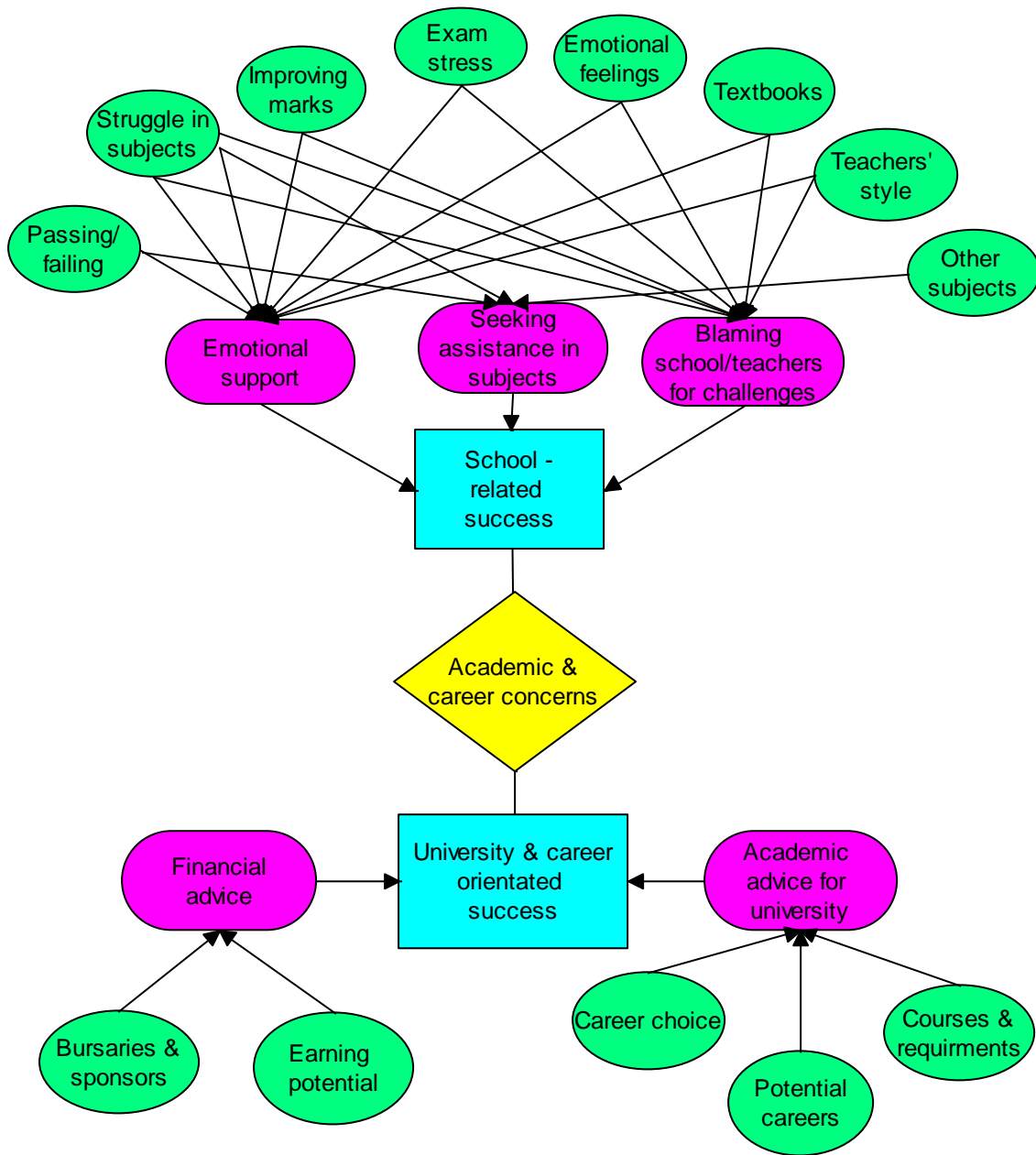
Global thematic network: Personal counselling

Global thematic network: Social interactions

137

Appendix G: CD files

Data collection - 2013, Extracted messages, Grouped messages