

University of Alberta

**Mobile Phones and Health Communication for Young Adults:
An Exploratory Case Study about Incorporating Text Messaging
in Pregnancy Care Support in Edmonton**

by

Angela María Keller

A thesis submitted to the Faculty of Graduate Studies and Research
in partial fulfillment of the requirements for the degree of

Master of Arts

in

Communications and Technology

Faculty of Extension

©Angela Maria Keller

Spring 2013

Edmonton, Alberta

Permission is hereby granted to the University of Alberta Libraries to reproduce single copies of this thesis and to lend or sell such copies for private, scholarly or scientific research purposes only. Where the thesis is converted to, or otherwise made available in digital form, the University of Alberta will advise potential users of the thesis of these terms.

The author reserves all other publication and other rights in association with the copyright in the thesis and, except as herein before provided, neither the thesis nor any substantial portion thereof may be printed or otherwise reproduced in any material form whatsoever without the author's prior written permission.

Dedication

To God, my Jesus, who has given me everything that I am, have, and ever dreamed, and who has inspired in my heart a call to speak and write about life, and the family cause;

To my wonderful husband and best friend David, who has loved me, unbelievably supported, encouraged, believed, and walked with me, step by step, this journey called 'Masters' ... '*lo hicimos!!*';

To Ana Maria, my angel and reason to care about this cause, and

To my family in Colombia who always encouraged me. With special gratitude to mi mami (mom): Martha, and my auntie-mom in heaven: Tia Tulia; as well to mi papito (dad): Jorge, hermanos (siblings): Diana and Alex, and my favorite niece: Vale.

Abstract

Research shows that reproductive health initiatives for youth, using SMS (texting), are successful worldwide. The purpose of this qualitative case study was to explore and describe how introducing SMS in an agency supporting people facing unplanned pregnancies in Edmonton could enhance agency-client relationships. Six counselors and six young adult clients were individually interviewed. Findings exposed that adopting a technology in a non-profit agency is a complex process, where technological, social, economic, cultural, and personal factors all play a key role. The clients belong to the mobile phone culture and were open to receiving relevant SMS from the agency; however, the counselors did not adopt SMS because of their beliefs and behaviors towards this technology. This study reveals that introducing SMS to the agency did not improve the agency-client relationships, but it could if the service becomes useful for clients. Further research in this area is needed and would be valuable.

Acknowledgments

I would like to thank the PCC ladies, especially Casandra and Norah, and the counselors and clients who participated in this study. Thank you for believing that this study can add to your service and lives; for your time, support and prayers. I would not have a thesis if it were not for your intercession. Thanks as well to the Pregnancy Centre in Vancouver; to Norma Cody and Brian Norton for your valuable collaboration; to CAPSS for their support in this study; and to the FrontlineSMS Community. Your initiative and generosity is changing the way we support innovation and community in the PCC in Canada.

Also, I would like to thank to Dr. Marco Adria, Dr. Stanley Varnhagen, Dr. Solina Ritcher, and a special thanks to my supervisor, Dr. Gordon Gow, for helping me complete my thesis, teaching me about new technologies, social media, and its advantages and promises for social change in community. Thanks also to Dr. Sherry-Ann Chapman, Professor of the Faculty of Extension, for her amazing and valuable contributions. Her knowledge and teaching about community research were one of the most enjoyable experiences I had during my studies. Thank you all for all your support in completing this project.

I would like to thank to my loving in-laws: Andy and great 'mom editor' Maria Keller, our abuelita in heaven Natalia, Jenn, the Hausauser's & Pinchbeck, SBC community and with special gratitude to the Utz family for allowing their Shelley to walk beside me, guiding me to do a better job than I believed I could. Shelley, you are a great shepherd, teacher and friend!

Thanks to Eileen Crookes for her support in all my time in the MACT Program. You are a wizard! Thanks to Erika Fernandez, a friend and college from the MACT Program, for her generosity and support. Thanks also to the Faculty of Extension and the CUP Program, who shared their resources, cakes, and coffee with me. Finally, thanks to the MACT Program for believing in my research and supporting it academically and financially.

Table of Contents

LIST OF FIGURES

LIST OF TABLES

LIST OF SYMBOLS, NOMENCLATURE, OR ABBREVIATIONS

1.1. Context of the Research	1
1.1.1. Agencies using technologies to support sexual health care for youth in Alberta	3
1.1.2. Who is CAPSS and how they are engaging their young adult clients	5
1.2. Statement of Research Interest	11
1.3. Purpose of the Research	12
1.4. Motivation for this Research	14
1.5. Significance of the Study	14
1.6. Outline of the Study	15
1.7. References	15
CHAPTER 2: LITERATURE REVIEW	21
2.1. Theoretical context	21
2.2. Mobile phones are supporting the transformation of our society	23
2.2.1. The mobile phone ended the technology divide	24
2.2.2. Institutions are changing through the uses of mobile phones	28
2.3. Mobile technologies in the Health Network	38
2.3.1. How the world has adopted mobile technologies on the health field	40
2.3.2. Why mHealth matters for the health initiatives of Canada	42
2.4. A Generation that has grown in the digital transformation	43
2.4.1. Youth and the technology phenomena	43

2.4.2. Youth, health and technology	52
2.5. References	60
CHAPTER 3. METHODOLOGY	88
3.1. Introduction	88
3.2. Research design: A qualitative case study	88
3.3. Contextual research	92
3.3.1. Background	92
3.3.2. Problem: the need for text	93
3.3.3. A practical solution: <i>We txt 2</i> , a community-university project	93
3.4. Participant sampling and recruitment	99
3.5. Data collection strategy	100
3.5.1. The physical artifacts	101
3.5.2. Semi-structured interviews	103
3.5.3. Directed observation & field notes	105
3.5.4. The researcher as a participant observer	106
3.6. Data analysis strategy	107
3.7. Rigour	109
3.8. Ethics considerations	111
3.9. Limitations	112
3.10. References	113
CHAPTER 4. RESULTS	117
4.1. Introduction	117
4.2. The pilot project: <i>We text 2</i>	118
4.2.1. Context of results	118

4.2.2. Staff counselors perspectives of text messaging at the PCC Edmonton	118
4.2.3. Young adult clients pre-conceptions of text messaging before the pilot	120
4.2.4. Young adult clients perspectives of text messaging at the PCC in Edmonton	122
4.3. Young adult client participants	126
4.3.1. Characteristics of the young adults	126
4.3.2. Perceptions of young adults in Edmonton, to mobile phones and sexual health care networks	128
4.3.3. Perceptions of young adult clients to text messaging at the PCC Edmonton	133
4.3.4. Young adults relating to the PCC Edmonton through texting	138
4.4. Staff Participants	145
4.4.1. Characteristics of the Staff Participants	145
4.4.2. Staff participant perceptions of how young adult clients are affected by their uses of mobile phones and how it affects their sexual health care networks	147
4.4.3. Staff participant perceptions of text messaging at the PCC Edmonton	152
4.4.4. Staff participants relating to young adult clients through texting	161
4.5. References	168
CHAPTER 5. DISCUSSION OF RESULTS	169
5.1. Post-adoption variables that describe some of the young adult clients uses of texting and why currently does not function at PCC	174
5.1.1. Users personal variables	174
5.1.2. Socio-cultural variables	176
5.2. Variables that describe the staff participant’s stage in the adoption of texting at the PCC	180
5.2.1. Personal variables	180
5.2.2 Cultural variables	184
5.2.3. Environmental variables	186
5. 3. Conclusions	187
5.4.References	188

CHAPTER 6. CONCLUSIONS & RECOMMENDATIONS	192
6.1. Conclusions	192
6.2. Unexpected findings	193
6.3. Recommendations	194
6.3.1. Recommendations for PCC Edmonton	194
6.3.2. Implications for the Pregnancy Care Centres in Canada	196
6.3.3. Implications for the Academia	198
6.4. Final Conclusion	200
6.5. References	201
APPENDICES	204
Appendix 1. Interview Consent Form	205
Appendix 2. Consent Form	207
Appendix 3. Demographic Questionnaire	209
Appendix 4. Semi-Structured Interview Questions for Young Adult Client Participants	212
Appendix 5. Semi-Structured Interview Questions for Staff Participants	214
Appendix 6. Informative sheet for Client Participants	217
Appendix 7. MARS Lab Pregnancy Care Centre Edmonton Pilot Program Campaign Plan	218
Appendix 8. Protocol for uses of texting at PCC	223
Appendix 9. Lexicon Developed for the Pilot	234
Appendix 10. Background Interview – PCC	247

Appendix 11. Results extracted from the Pilot's report	249
Appendix 12. Image of the Literature Review Frame of Logic	256
Appendix 13. Copy of the email contacting local agencies for secondary documents	257
Appendix 14. Research Ethics Approval	258
Appendix 15. Tables of coding and analysis	259

LIST OF FIGURES

<i>Figure 1-1.</i> Photo of the home page of the OnlineCare system in Canada.....	7
<i>Figure 1-2.</i> Photo of the "Find a local centre" page on the OnlineCare system.	9
<i>Figure 2-1.</i> Percent of American adults age 18+ who own each device (extracted from Purcell, 2012, p. 7).....	25
<i>Figure 2-2.</i> Use of Internet with mobile phones (extracted from the CWTA, 2011, p.24).....	27
<i>Figure 2-3.</i> Forecast of mobile phone's subscribers over the world (extracted from Portio Research Ltd., 2012, p.7)	28
<i>Figure 2-4.</i> TAM model. Figure extracted from Wixom& Todd (2005, p. 87).....	37
<i>Figure 2-5.</i> Proposed model. Figure extracted from van Biljon & Kotzé (2008, p. 2668).....	38
<i>Figure 2-6.</i> Volume of teen texting in U.S. (extracted from Purcell, 2012, p. 23).	46
<i>Figure 2-7.</i> Extracted from the CWTA reports. Figure A shows the increase of Smartphone ownership in Canada by age (CWTA, 2012). Figure B shows monthly and daily uses of text messaging in Canada from 2006 to 2011 (CWTA, 2011).	47
<i>Figure 2-8.</i> Behavioural theory of Text4baby project in the US and later replicated in Russia (Figure A extracted from Evans et al., 2012, p.24; Figure B extracted from Parker et al., 2012, p. 32).	59
<i>Figure 3-1.</i> Research design for the case study (adapted from Figure 17.1, Stake, 2005, p. 446).....	91
<i>Figure 3-2.</i> Picture of PCC laptop, running the FLSMS (Edmonton).	96
<i>Figure 3-3.</i> Poster distributed at PCC Edmonton after the launch of FLSMS.....	98

<i>Figure 3-4. Rigour design for the Mobile Sexual-Health Networks case study.</i>	110
<i>Figure 4-1. Content analysis graphic. Adapted from Mayan (2009, p. 96).</i>	117
<i>Figure 4-2. Themes identified from the Pilot’s evaluation.</i>	125
<i>Figure 4-3. Communication methods used by young adult client participants</i>	127
<i>Figure 4-4. Communication methods used by young adult client participants with the PCC Edmonton</i>	127
<i>Figure 4-5. Themes identified from the Young adult client participants</i>	144
<i>Figure 4-6. Communication services utilized by PCC Edmonton staff participants for every-day communication</i>	146
<i>Figure 4-7. Communication services utilized by PCC Edmonton staff participants for communication with clients</i>	147
<i>Figure 4-8. Themes identified from the staff participant results.</i>	167
<i>Figure 5-1. Findings of the case study</i>	170
<i>Figure 5-2. Categories exposed from the sources of information explored in this case study</i>	171
<i>Figure 5-3. Model of technology acceptance and the mediating factors influencing the adoption by van Biljon & Kotzé (2008, p. 2668)</i>	173
<i>Figure 5-4. How youth in the 21st century mediate their relationships (adapted from Literature review, see Chapter 2)</i>	177
<i>Figure 5-5. Communication mediums most valued by PCC staff for the purpose of establishing relationships with clients</i>	183

LIST OF TABLES

<i>Table 3-1. Folder layout for counsellors using FLSMS.....</i>	<i>97</i>
<i>Table A 15-1. Pilot results and the main research question: How could text messaging improve the relationship between young adults in Edmonton facing unplanned pregnancies and an agency that provides pregnancy health information support?</i>	<i>259</i>
<i>Table A 15-2. Pilot results and the research question: How is the introduction of text messaging at PCC in Edmonton perceived by it young adult clients?.....</i>	<i>259</i>
<i>Table A 15-3. Pilot results and the research question: How does the introduction of text messaging impact staff capacity and work practices at a pregnancy support agency? ...</i>	<i>260</i>
<i>Table A 15-4. Young adult client’s participants and the main research question: How could text messaging improve the relationship between young adults in Edmonton facing unplanned pregnancies and an agency that provides pregnancy health information support?.....</i>	<i>260</i>
<i>Table A 15-5. Young adult client’s participants and the research question: How is the introduction of text messaging at a pregnancy support agency in Edmonton perceived by its young adult clients?.....</i>	<i>261</i>
<i>Table A 15-6. Young adult client’s participants and the research question: How does the mobile phone affect perceptions and attitudes among young adults in Edmonton toward sexual health care networks?</i>	<i>262</i>
<i>Table A 15-7. Staff participants and the main research question: How could text messaging improve the relationship between young adults in Edmonton facing unplanned pregnancies and an agency that provides pregnancy health information support?</i>	<i>263</i>
<i>Table A 15-8. Staff participants and the research question: How does the introduction of text messaging impact staff capacity and work practices at a pregnancy support agency?</i>	<i>264</i>

Table A 15-9. Staff participants and the research question: How does the introduction of text messaging impact staff capacity and work practices at a pregnancy support agency? (CONT. Table A 15-8)..... 266

Table A 15-10. Staff participants and the research question: How does the mobile phone affect perceptions and attitudes among young adults in Edmonton toward sexual health care networks? 268

LIST OF SYMBOLS, NOMENCLATURE, OR ABBREVIATIONS

(See references, Chapter 2, p. 75)

ALIES: acronym for Alberta Life Issues Educational Society.

Bell mobility: is one of the Canada's largest telecommunications companies, providing telephone services, wireless communications, high-speed and wireless Internet, and satellite ([http:// www.bell.ca](http://www.bell.ca)).

BMHC: acronym for Boyle McCauley Health Centre.

CAPSS: acronym for Canadian Association of Pregnancy Support Services

CCL: acronym for Canadian Council on Learning.

CPCs: acronym for Crisis Pregnancy Centres

CR: abbreviated for Communication Revolution

CWTA: acronym for Canadian Wireless Telecommunications Association.

ERA: acronym for Educational and Research Archive

EWYL: acronym for Earn What You Learn, pre-natal program at PCC Edmonton.

FAO: acronym for Food and Agriculture Organization of the United Nations.

FGSR: acronym for Faculty of Graduate Studies and Research, University of Alberta.

Fido Solutions: is a Canadian cellular telephone service provider of Personal Communications Services (PCS) and wireless data services in major centres across Canada. They have been a subsidiary of Rogers Wireless Inc. since November 2004 (<http://www.fido.ca>).

FLSMS: abbreviated for FrontlineSMS

FrontlineSMS: is a free, open-source software platform that enables large-scale, organized SMS communication. Users equipped with a cell phone can send and receive messages to and from the console, which is linked to a specific phone number with a SIM card. The software manages contacts, allows for mass-messaging, auto-forwarding and auto-reply, special actions based on keywords, and other functionalities (Mahmud, 2010, p.138).

HSSA: acronym for HIV Society of South-eastern Alberta.

IT: acronym for Information Technology

ICTs: acronym for Information and Communication Technologies

MARS Lab: acronym for Mobile Application for Research Support Laboratory, University of Alberta.

mBanking: : abbreviated for mobile banking uses of cell phone.

MCBH: acronym for Multicultural Health Brokers Co-operative.

mHealth: abbreviated for mobile health uses of cell phone, such as campaigns and treatments. Istepanian et al., 2006, defined mHealth as the “emerging mobile communications and network technologies for healthcare” (p.3).

MMS : acronym for Multimedia Messaging Services .

Mobile phone: a cellphone, mobile, or mobile device.

OCA: acronym for Office of Consumer Affairs.

PCC: acronym for Pregnancy Care Centre

QR codes: abbreviated for Quick Response Code.

Rogers: Rogers Communications Inc. is one provider of wireless, digital cable TV, Internet and home phone services to consumers and businesses in Canada
(<http://www.rogers.com>)

Sexting: texting sexually explicit messages, including images and videos, from a cellphone to another.

SIM: abbreviated for Subscriber Identity Module.

SMS: abbreviated for Short Message Service, used in mobile phones, which do not exceed 160 characters per message.

Staff at PCC: in the particular context of this study, staff at PCC are cataloged as volunteers as well as hired positions

STD: abbreviated for Sexually Transmitted Diseases.

STI: abbreviated for Sexually Transmitted Infections.

TAM: acronym for the Technology Acceptance Model

Texting: sending text-messages

Textese: is a term used to describe the abbreviated language and slang used when sending text messages (traditionally text only allowed 120 characters per message)
(Thomas & McGee, 2012, p.20)

TOPHC: acronym for The Ontario Public Health Convention.

UTAUT: acronym for Unified Theory of Acceptance and Use of Technology.

CHAPTER 1. Introduction

The true solutions to the conflicts and problems non-violent people have to face can only be found in communal action carried out by a basic group. In such a group, the creative contribution of each one is acknowledged and indispensable
(Hildegard & Jean Goss-Mayer cited in Smith et al., 1997, p. 52)

The greater gift that you give to somebody in crisis is the gift of your presence. Someone that can validate the 'this is really happening to me'
(N. Cody, personal communication, March 2012)

1.1. Context of the Research

This research examines the use of text messaging among clients and counsellors at a pregnancy counselling organization in Edmonton called the Pregnancy Care Centre (PCC).

As a contribution to research on health communication, this study looks at the impact of text-messaging in the particular context of an agency supporting unplanned pregnancies in Edmonton. This thesis hopes to contribute primary research to the effort of the national network of pregnancy care centres in Canada, who are looking to empower their clients with knowledge and care.

This research will increase information available to the many non-profit organizations working hard to minimize some of the present social injustices by bringing support, options, and accurate information to clients. This research will contribute to the need for creating more community-based solutions in a developed world where there is “little sense of community” (Smith et al., 1997, p.4), a reality that sometimes foster abuse and addiction.

Youth facing unplanned pregnancies In Canada

Among the social injustices that nonprofits and health institutions are addressing are issues related to youth and their sexuality. Over the entire world, teen pregnancy, sexually transmitted infections (STI) and single teen parenting are viewed today as social problems or inequities that need to be embraced and solved (Fonseca, 2007). Even when many strategies have been developed worldwide to promote behavioral change in teens and youth through “health education, skills-building, and improving accessibility to contraceptives” (Oringanje, 2009, p.16), there is no evidence that interventions can assure a dramatic change in risky sexual behavior in youth. This is because a substantial lack of interest in learning about sexual health care, or over confidence in their present

knowledge, lack of trust in practitioners, or lack of access to resources that could be incorporated into their daily sexual choices (Wong et al., 2012; Sabourin & Burnet, 2012; Zdeb, 2012).

In Canada, government statistics have shown that rates of young adult unplanned pregnancies have decreased by 14% since 1997 (Norman, 2012, p. 187; Statistics Canada 2005a; Statistics Canada, n.d._a), and the termination of pregnancies as an option for unplanned pregnancies has also decreased since 2004 (Statistics Canada, 2005b, p.7; Statistics Canada, n.d._b). However, the literature suggests that unplanned pregnancies are still a common and difficult experience for women of all ages, especially for those in their twenties facing socio-economical disadvantages (Sabourin & Burnet, 2012; Ministry of Health and Long-Term Care, 2009; Sexual Health, n.d.) and it “is estimated that 40 % of all pregnancies are unplanned” and half of them end in induced abortions¹ (University of Ottawa, 2012, para 1).

This research challenges conclusions based on numbers reported by Statistics Canada that the social problems of unplanned pregnancies and youth parenting have been addressed and reduced in the last ten years (Maticka-Tyndale, 2008). The first challenge new research offers is in questioning the accuracy of reported decreasing unintended pregnancies and induced abortions in Canada. It is difficult to obtain a true accounting of unintended pregnancies that lead to abortion, since referrals to abortion clinics or hospitals are not necessary in most cases and abortion reports from clinics and hospitals have been voluntary since 1988, “and some providers do not respond or submit only summary counts” (Sabourin & Burnet, 2012, p. 537). The Canadian Institute for Health Information (CIHI, 2010)² confirmed that their induced abortion statistics are underestimated because of incomplete or non-existent reports from clinics or hospitals, and these numbers do not include the procedures performed in the province of Quebec³. Also, there exists in Canada a “lack of national information about the experience of minority and marginalized groups” (Canadian Federation for Sexual Health, 2007, p.2).

Secondly, the present statistics also show that induced abortions have not decreased in populations between 20 and 25 years old (Sabourin & Burnet, 2012). Just in Alberta, statistics show that women between 20-30 years old have increasing rates of

¹ “Induced abortion is defined as the medical termination of pregnancy. Equivalent terms include artificial abortion, therapeutic abortion, voluntary termination of pregnancy, elective termination of pregnancy and active termination of pregnancy” (CHIC, p.6)

² CIHI is the institution which collects the countries data of therapeutic abortion (Sabourin et al., 2012, p. 537).

³ Quebec does not report to CIHI.

abortion: the provincial rate is increasing by more than one hundred per year for this age group (Statistics Canada, n.d.). In fact, recent research shows that in Canada, the rate of women having one abortion in their life time has increased 31% between 1974 to 2005 (Norman, 2012, p.187).

These data are important to consider given that unplanned pregnancies, especially at young ages, not only affect individuals from psychosocial and physical perspectives, in terms of reproductive potential, increased pregnancy complications, and wellness, but it also affects the social and economic development of entire nations (Shah et al., 2011; Shrim et al., 2011; Murphy, Delaney & Murphy, 2011; Langille, Asbridge & Kisely, 2011;. Keller, 2011; Canada, 2010; Albert, 2010; Robinson, 2010; Graffigna & Kärin, 2009; WHO, 2006). In most cases in Canada, each province funds abortions. In Alberta, abortions are supported through taxes, and the costs reported⁴ do not completely reflect how much has been invested for this alternative to unplanned pregnancy.

Finally, even when the current statistics of unplanned pregnancies in Canadian youth do not cause general concern, there are ongoing significant health threats related to youth sexuality and their ongoing misunderstanding or lack of information about contraception. This is reflected in rates of STI transmission and related long-terms effects caused by impulsive decision making. The Public Health Agency (Canada, 2010) reported that in Canada, STIs continue to be a “significant and increased concern” (p.4) and rates are rising every year, especially in transmitted Chlamydia among young adults in Canada (Wong, P-H. et al., 2012; Ministry of Health and Long-Term Care, 2009). Maticka-Tyndale (2008) called the increase in “teen chlamydia rates occurring concurrently with a decline in teenage pregnancy rates” (p. 87) paradoxical.

1.1.1. Agencies using technologies to support sexual health care for youth in Alberta

In Edmonton, outreach agencies recognize unplanned pregnancies and STI transmission as a threat to the wellness of the community. In response to this reality faced by its young adults, many organizations in Alberta are trying to support their youth through sexual health education, and offering help to those facing unplanned pregnancies by presenting alternatives to abortion, such as coaching young parents or supporting

⁴ “The average cost for an early surgical abortion at a clinic is about \$500, while the cost for the same abortion at a hospital can exceed \$1000” (Abortion Rights Coalition of Canada, 2005, p. 2)

adoption choices. They offer their clients accurate information, education, services, counseling or directed support at any stage.

However, some of these agencies are competing with the information that mobile technologies offer in achieving these goals. Some researchers have called mobile phones use in their social networks, “a sex educator or peer supporter” in sexual health education for young adults (Chandra et al., 2008). Unfortunately for many agencies, with the current explosion of mobile phones, especially smartphone technology, many of their young adult clients or potential clients are changing the ways they find information, learn, and ultimately communicate their sexual concerns and needs. Mobile phones have not only erased the physical lines between continents and become the preferred media of the young generation (Ling, 2007) but have also allowed freedom and quick access to the internet and different forms of networks and relationships to the young Canadians that are still developing identities, gaining knowledge, and making sense of their sexual decision-making. These youth rarely look for health care support or information about their own sexual health care in a formal setting (Robinson, 2010, p.7).

Since youth are utilizing digital networks more than physical networks, it could mean that the use of mobile phones is not only transforming the youth social context and the way they access support, but is also prompting risky sexual behaviors by over-exposing youth to high levels of sexual content. Some authors suggest that the sexual-messages promoted in media, and that are available through the technologies, such as mobile phones, is promoting risky sexual behaviors such as multiple sexual partners and unprotected causal sexual engagements at increasingly younger ages (Albert, 2010; Chandra et al., 2008). The power of mobile phones in the hands of youth is increasing the challenge to support sexual health care for many agencies and organizations.

However, in Canada, there are no research publications reporting on how organizations are counteracting the negative effects of technology use, or how to include these technologies in supporting their work for youth and their sexuality. Little is known about the positive extent that the technology could have to reinforce these initiatives. However, organizations are starting to incorporate the device and its services into their campaigns. This is the case of Planned Parenthood Toronto, which in May of 2012 launched “Teen Health Source”, a sexual health website that includes a personalized sexual health texting service for teens⁵. Also, the Ottawa Public Health office (Uddin &

⁵ Accessed October 18, 2012: http://www.ppt.on.ca/aboutus_newsevents.asp

Harte, 2012) recently presented a campaign called “GET TESTED. Why not?”⁶. Among other media, this will use a bilingual texting service to promote sexual health messages.

In Alberta, preliminary data from an unpublished study that contacted 13 organizations (Keller, 2012), reported⁷ that within the province, some agencies, such as Multicultural Health Brokers Co-operative (MCBH) in Edmonton or AIDS Calgary Awareness Association, keep in contact with their clients through traditional mediums such as phone calls and emails combined with social media but still do not use text messaging services. Other agencies, such as the Boyle McCauley Health Centre (BMHC) in Edmonton and Calgary Sexual Health formally⁸ use texting services amongst their staff. Other organizations such as the Terra Centre, which has focused on supporting teen parenting, and the Alberta Life Issues Educational Society (ALIES), which support unplanned pregnancies, are incorporating texting in their services.

For instance, Terra is using text messaging to contact clients to schedule visits and for staff communication. The service is used by the outreach staff and is provided through a texting plan paid for by the agency. One of the ALIES projects, the Back Porch Ministry, supported partially by ALIES, has created a project called “Text to Save a Life”⁹, in response to a request of one of their teenage donors. Currently, text messaging has become an essential part of the Back Porch routine:

The entire Black Porch staff is really young so we use text messaging a lot, and when clients are interested, we give them our personal cell numbers, as well as the agency contact number. Some clients are more comfortable with text messaging, because it is a little less intimidating. Because we use our own personal cell phones our board of directors are considering covering part of our monthly plan. (Keller, 2012, p.2)

1.1.2. Who is CAPSS and how they are engaging their young adult clients

The Canadian Association of Pregnancy Support Services (CAPSS) is a national, non-political, registered Christian charity that has been leading and representing the

⁶ Accessed November 20, 2012: <http://www.gettestedwhynot.ca/>

⁷ Only seven organizations responded to this study.

⁸ Most of these organizations have contracts with local telecommunications providers such as Bell mobility, Rogers, Fido, and others (Keller, 2012).

⁹ “Text to Save a Life” is a participatory program offered by ALIES with the objective of involving supporters and donors of the charity with the ministry through an active prayer chain without compromising clients or their supporters confidentiality. Currently, the program has 80 participants who received from 25 to 60 messages a month with the words “pray for Back Porch”. Participants know that at the time they receive the text, a client is visiting the Back Porch and they are in need of prayer for her; “it makes them more aware of the kind of reality surrounding it” (Keller, 2012, p. 2). More information about the program can be find in their website: <http://www.alies.ca/what-we-do/74-text-to-save-a-life>

different pregnancy care centres since 1998. CAPSS supports 71 affiliate centres, located in towns and cities across Canada, and the Pregnancy Care Centre in Edmonton is one of them. In Alberta, six Pregnancy Care Centres (PCCs) operate. These local centres offer practical information and non-judgmental emotional and spiritual assistance by helping women and their partners or family through distressing pregnancies and post-abortion counseling (CAPSS, 2012).

The communication tools currently used by the different PCCs in Canada to establish and maintain contact with their clients include land-line phone calls, emails, and front line services such as client drop-in (one-on-one) counseling appointments. Recently, the centres have incorporated social media communication tools such as blogs, Facebook pages and a Google customized search engine, to connect with clients, donors, and for educational purposes. In December 2011, the 13 centres that exist in the province of British Columbia met to discuss effective client marketing strategies and social media opportunities that might help achieve this goal. Text messaging “was not an idea discussed,” but options to use smartphones and their applications such as You-tube video and Quick Response (QR) codes¹⁰ were presented as part of their near-future provincial marketing strategy (B., Norton, personal communication, March 1, 2012).

The strategy for these centres involves using social media tools to “foster quick access” to information that connects clients with the centres and increases referrals through Google search. However, peer counseling through this media is not been considered, because of the need of safeguard client confidentiality.

¹⁰ “Abbreviation QR: Quick Response Code, is the trademark for a type of matrix barcode (or two-dimensional code) first designed for the automotive industry. More recently, the system has become popular outside the industry due to its fast readability and large storage capacity compared to standard UPC barcodes. The code consists of black modules (square dots) arranged in a square pattern on a white background. The information encoded can be made up of four standardized kinds (“modes”) of data (numeric, alphanumeric, byte/binary, Kanji), or through supported extensions, virtually any kind of data” (Mashable, n.d.).

How to reach the unreached using online counseling

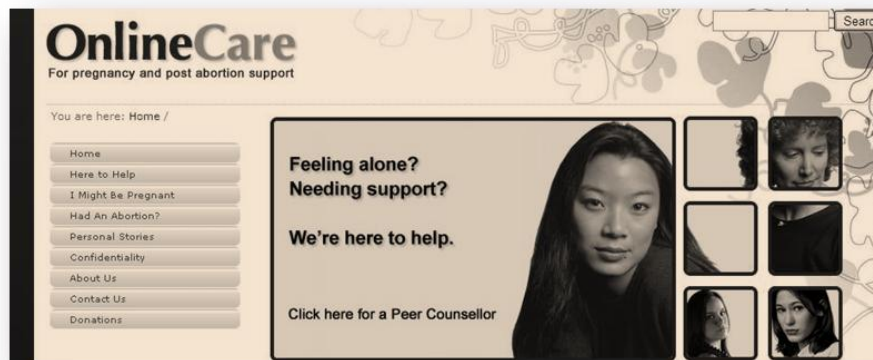


Figure 1-1. Photo of the home page of the OnlineCare system in Canada.

To offer up-to-date alternatives to in-person counseling, such as online counseling, in 2009 a secured system¹¹ was developed in England¹² specifically for women facing unplanned pregnancies or abortion. This system, developed with the vision of being replicated globally, was purchased by CAPPS and named OnlineCare¹³.

OnlineCare was adopted in Canada since the vision of CAPSS is to bring support to all areas of Canada for those dealing with pregnancy-related issues. The idea of having an online service provided a potential solution to the challenge of providing compassion and educational support to the many rural areas in Canada that have no access to sexual health care services.

The Director of the Crisis Pregnancy Centre of Vancouver and coordinator of the OnlineCare system comments that the system is not geographically but nationally focused:

Clients could have a OnlineCare anywhere in Canada. It contains all the centres of CAPSS across the country, and therefore all people across Canada can use it even when we do not have online counselors from every region. (N. Cody, personal communication, May 1, 2012)

¹¹ “Computer system protected through the use of special hardware and software, policies, and practices against data corruption, destruction, interception, loss, or unauthorized access. Five essential services provided by a secure system are (1) authentication, (2) authorization, (3) integrity, (4) privacy, and (5) non-repudiation” (Secure system, n.d.).

¹² This system was developed in 2006 by a systems engineer and his company with the idea of providing a service for those experiencing the pressure of unplanned pregnancies or forced abortions, and without a place to discuss their circumstances. He named it “Alice” in honor of his unborn niece. It soon started to be used by CareConfidential. See more information at: <http://www.careconfidential.com/Onlineadvisor.aspx>.

¹³ Canada is the third country using the system, as it was adopted initially by Denmark, France, and currently, Russia.

During recent years many centres providing personal peer counseling via email expressed a great hesitancy to use this medium for this purpose because of notorious confidentiality risks: “We are conscious that email can be hacked or can go to the wrong email address and it could mean that somebodies story is in somebody else hands” (N. Cody, personal communication, May 1, 2012). For this reason, CAPSS has ensured confidentiality of online counseling through OnlineCare by utilizing a secure site where clients can access an anonymous counseling system.

OnlineCare¹⁴ works through a web link where clients log in, post, and review personal messages by creating a username and password. The name may be real or an alias. Clients are asked to provide a small amount of information about themselves, such as age range, gender, first three digits of their postal code, and subject of their consult. In this way, they can be connected to the closest Centre by proximity. Counselors¹⁵ are assigned to clients by a coordinator and reply to client messages within 24 hours. This could be a disadvantage in cases where clients need faster and real-time assistance, but could also be positive in those cases where the counselor stays online for most of the day¹⁶. Norma Cody also expressed how the system supports beyond immediacy: “some clients establish a relationship with you through OnlineCare, and keep sending messages through their whole pregnancy to check in and let you know how they are doing, because you are one piece of their support system” (personal communication, May 1, 2012).

Since 2010, when the system was released, there are two known cases of clients who decided to carry their pregnancies to term because of the support offered and received through OnlineCare. Usually CAPSS realizes that the system is having a major impact on their client’s life when they notice online clients visiting their offices in BC (the system is coordinated from this region), but they cannot measure how many have visited the other centres.

¹⁴ <http://www.onlinecare.ca/>

¹⁵ CAPSS incorporates peer-counselors into OnlineCare that already have the training and skills needed in the counseling room. These counselors will also have to be comfortable with the technology and are trained on the system, in how to use it and how to write a good message.

¹⁶ The system is set up in a way that each client comes back to their old counselor. In case that something happens to the counselor (e.g. illness etc), the Coordinator will contact the client explaining why they have to switch counselors and give the client the choice to continue working with another peer-counselor. Clients usually do.



Figure 1-2. Photo of the "Find a local centre" page on the OnlineCare system.

Though CAPSS is trying to consider new avenues in how people connect to their services, in all instances they recognize the value of the counseling appointment:

We believe ultimately in being able to see the person and all the non-verbal communication that goes on in a counseling session. We hope to bring people to the centres through OnlineCare, but we are aware that if the clients are in a rural place, they may not have access. They might just have an online counselor. Some may not be ready to talk to someone face to face. The system is a bridge, and some day it will allow them to step out. We are not trying to be all what we could be in a face to face appointment, just be and care for them. (N. Cody, personal communication, May 1, 2012)

Today, there are still challenges with the system. The first one is to make it known to potential clients in the whole nation. There are also challenges in accessing places where wireless access is not available in Canada, and in overcoming barriers of misunderstanding amongst the centres, who, in some cases, are afraid of losing their clients through the online counseling system.

The pilot 'We text 2': A community-university research project in Edmonton

In the case of the centre in Edmonton, the PCC usually communicates with their clients through telephone, frontline services, blog, emails, and Skype calls and rarely, through Facebook. To make appointments, PCC usually contacts clients through telephone calls, or as a last resort, through email if the clients shared this contact information with them and their phone number does not work (PCC Edmonton staff, personal information, May 15, 2012).

In May of 2011, after some PCC staff had observed an increasing demand for the use of cell phones, especially texting, by their clients, they considered the possibility of integrating text messaging into their communication services as well. With the support of the Mobile Application for Research Support (MARS) Lab of the Faculty of Extension at the University of Alberta, a research pilot project involving the PCC, the MARS Lab, and the Community of Practice of FrontlineSMS was formed to create a text messaging pilot project that introduced this service in the PCC Edmonton, through a software package called FrontlineSMS¹⁷.

The intention of this pilot project was to connect the agency with new and existing clients through text messaging services, providing a new way to offer services, such as information and appointment reminders. Between June and October of 2011 the software was installed on one of the Centre computers, and a total of 20 counselors were trained.

The PCC updated their client protocol to include texting services and developed a policy on how to manage confidentiality through the new system (FLSMS). With the support of researchers, PCC developed a manual and a short-hand¹⁸ dictionary to be used by the counselors during their texting with clients. Through tests with young family members, a number of counselors learned that the short-hand did not apply to the context of Edmonton youth, who in fact were not comfortable using it; they consider it appropriate only between peers, not for text messages with PCC staff (PCC Edmonton staff, personal information, June 5, 2011).

The service was launched on October 14, 2011 to existing clients, and advertised through posters handed out at the Centre. An option for “texting” was added as one of the communication mediums to contact new clients on the client information sheet that is filled out during first appointments. Since this time, the system has been running through a monthly prepaid service offered by Rogers. All counselors were encouraged to use texting, following the protocol and the manual to access the FLSMS system on the laptop purchased by PCC for this purpose.

Counselors were to follow the protocol for texting, while carefully managing conduct to protect the anonymity of customers, owing to the nature of the agency and the

¹⁷ The FrontlineSMS initiative was born in Africa in 2005 under the same need that PCC has today: as a resource to reach specific groups of individuals within a target community. The software allows any organization / individual to text message with large groups of people anywhere there is a mobile signal without need of the internet or any expertise. The software only requires a phone activated and connected to the computer (Frontline SMS, 2011).

¹⁸ Language used by youth for texting or instant messaging purposes.

sensitivity of the services provided for clients. However, some did not remember how to access and use the software. In fact, a few of the counselors did not have any technological experience with computers before the pilot, which made their learning process with the software challenging.

From October 2012 until March 2012, 303 messages were sent and received through FLSMS. Most of the messages are related to training (tests) between counselors. Of twenty counselors trained, only six counselors used the software to establish contact with clients, and four of them were permanently and actively using it. Thirty-five messages were sent to clients, and 20 messages were received from clients. During this time, nine clients established and kept in contact with four counselors. One client established a relationship during and after a high-risk crisis with one of the counselors. Most of the counselors and staff at PCC expressed that even though the software was friendly, it needed to be tailored with the development of specific services that suit the needs of counseling organizations, such as those provided by PCC in Edmonton.

1.2. Statement of Research Interest

This research, based on the experiences and knowledge gained through the community research pilot project described above, intends to bring primary information to national and local organization on how text messaging, as a media tool and chosen source of communication by young adults facing risky sexual health behaviors, could support the work of agencies, such as the PCC, that are intentionally looking for ways to reach and support this population.

Since no studies have been developed in this country and little is known about health communication initiatives that involve much more than prevention, but that include community characteristics and the needs of the population (in this case young adults of Edmonton, their sexual realities and their means of communication), this research intends to respond to some of those questions using an exploratory case study approach. Therefore, the main research question that guided this study was: *How could text messaging improve the relationship between young adults in Edmonton facing unplanned pregnancies and an agency that provides pregnancy health information support?*

This question was supplemented by the following research questions:

1. How does the introduction of text messaging impact staff capacity and work practices at a pregnancy support agency?

2. How is the introduction of text messaging at a pregnancy support agency in Edmonton perceived by its young adult clients?
3. How does the mobile phone affect perceptions and attitudes among young adults in Edmonton toward sexual health care networks?

The case study approach considers this question through internal variables that guide the research such as data from the secondary literature review of the pilot, semi-structured interviews to clients and staff, interview notes, and observations, as well as external variables such as the historical background observations of the CAPSS and their use of technologies, and information from a reflexive journal with the personal impressions of the researcher.

1.3. Purpose of the Research

Our lives and subjectivities can be potentially rich resources for research as well as sources of bias and myopia... we have to think long and hard about what we do and to develop the habit of sustained reflexivity¹⁹ as well as humility. But there are potential rich interpretive rewards in making use of our own biographies and subjectivities when engaging with others.
(Merrill & West, 2009, p. 181).

In agreement with Habermas' critical communication theory of systematically deformed communication²⁰, this work was an attempt to observe and understand the motives of the participants, namely the young adult clients and staff, in terms of their mutual relationship with the technology, information economies (digital society) and the agency.

However, in order to understand their motives I needed to take into account and incorporate my own motives as well. My interest in not only academic but I am also personally committed to the goals of the agency. I also belong to the client population because I am a young adult. For this reason, I decided to embrace a study that speaks to and reveals aspects of the power of technology in our specific experience and in a specific time in the history of Edmonton and Canada. I wished to show how the ability to

¹⁹ “Reflexivity requires sensitivity towards the self and others; to feelings as well as thoughts, and to what may be difficult to us, as researchers, to engage with and understand, because of our own life histories and psyches” (p.181)

²⁰ Habermas explains that systematic disturbed communication, a term used in psychoanalysis, is not only for pathological speech issues, but also for “pseudo-communication, where the participants do not recognize any communication disturbance. Pseudo-communication produces a system of reciprocal misunderstandings which, due to false assumption of consensus, are not recognized as such” (Habermas, 1970, p. 206).

choose and embrace (or not) those technologies can change realities and relationships of people and agencies, such as the PCC.

My participation involved various roles: I did play a role in the development of the results of this study, being highly involved not only as a research assistant of the pilot and researcher of this study but also as a volunteer of the PCC Edmonton, and as a young adult (Atkinson & Hammersley, 1998). By playing these multiple roles in this study, I actively influenced the results of the research. Thus, my goal as researcher and participant was to be present to, hear, understand, interact with, and reconstruct our real interpretations through reviewing our “behavior and intersubjective interest”²¹ in our use of text messaging, for the purposes of sexual health care support (Sciulli, 1992; Habermas, 1970; Berman, Ford-Gilboe & Campbell, 1998). Gubrium & Holstein (2012) showed this exercise to be a way of “shaping and forming” together our history (p.32).

Some communication theories understand communication as an instrument that reflects reality or as an instrument that can transform, innovate, or create a new reality through the social process of cooperation, learning, and community development that involves the practice of communication. I believe the practice of communication also involves a social responsibility component that requires, in the end, the search for justice in social communities.

This study is my attempt to determine if a communication practice could be an instrument of innovation and social cooperation for a specific community, such as the one that supports the PCC in Canada. As well, it is part of my search for justice, by sensitizing my audience about the context of the agency of which I am a part, why their work is important for the well-being of Canadian society, and how understanding the role of new technologies in the agency could change their services.

Most of all, I believe that a communication study that attempts to reveal reality has to critically consider the rationale of the study from the point of view of its participants—including the researcher—and give relevance to their experiences and concerns (Merrill & West, 2009, p. 179). Even when some may see participant’s perspectives as relative to their contexts, through this study, I intend to detail the kinds of organizational and individual contradictions (exclusions, inclusions, values, and

²¹ “Habermas’ communication theory focuses on finding the reason or truth in the subjective, objective, purposeful, or inadvertent behavior of participants, and in contribution to social authoritarianism of the system. He explains that this mutual understanding can only be achieved when a participant’s behavior and their explanation of it, is freed from coercion, manipulation, and systematic distortion” (Sciulli, 1992, pp.300-301).

practices) in Edmonton, Canada that have help foster the current state of the use of texting and mobile phones in sexual health care and wellness in the context of the PCC (VanWynsberghe & Khan, 2007, p.89).

1.4. Motivation for this Research

I was motivated to develop this study because it represents a way to contribute to the mission of an agency that I deeply respect. My experience as a volunteer at the PCC for the last four years has been immensely holistic and rewarding, both personally and professionally. The more that I am involved in hearing stories and witnessing the power of compassion, love, and understanding, the more deeply committed I am to and believe in the cause of the agency. Also, my experience as a communications student involved in the area of new technologies supporting and facilitating organizational learning for the past nine years, and especially my experience as a research assistant with the Mobile Applications for Research Support (MARS) Lab of the Faculty of Extension at the University of Alberta using community-focused technologies such as FLSMS, has influenced my belief in the power and advantages, as well as disadvantages, that new media have in the social processes of cooperation, learning, and community development.

These experiences have fuelled my passion to learn more about the enormous power an organization has as a social force to influence how people see reality, and affect their responses to societal change (Merrill & West, 2009, p. 188). These are the reasons why the idea of doing research in this agency appealed to me. I saw it as an opportunity to use my skills and University tools to serve and support an organization that has given so much to me, other families, and the community.

1.5. Significance of the Study

This research seeks to make a contribution to the field of health communication, in the particular context of the PCC in Edmonton and the impact of text-messaging at the agency. Since studies do not yet exist in Canada that reflect an understanding of this particular context, the possibility existed for developing a case study that would address an information gap in an important social issue. It was also especially appealing to the agency, since through the information gained in this study, we could contribute to future understanding of larger cases (Gerring, 2004). This would be particularly useful as experiential knowledge in the near future to the national pregnancy care network CAPPS. Other health care networks in Canada could also find this information useful.

Also, in theoretical terms, this study makes a contribution to the scholarly field in Canada by initially answering some questions that have not been reviewed in connection with the health care networks in this country.

Socially, this study will contribute by identifying variables for the case of the PCC in Edmonton, so other agencies that work with the same types of challenges in Canada could use institutional self-study to formulate their own hypotheses.

1.6. Outline of the Study

This study is comprised of six chapters. Chapter 2 introduces a literature review relevant to the context of this study, such as the increased diffusion of mobile technologies worldwide, the effects of it uses in socio-economic settings and how it is affecting the youth population. Also, it examines the roots of theories related to technology adoption and its impact in non-profit organizations. Finally, it includes discussions on the role of the mobile phone for youth, health care, and specifically sexual health care, and how this technology affects the context of agencies providing sexual health services. Chapter 3 describes the project on which this study was based, and the research methods employed for data collection. It also details the recruitment process of the study. Chapter 4 presents the results of the study. The findings are presented in themes, in relation to the research questions and the categories found in the literature review and new categories recognized through the results. These are as follows: the results of the pilot, the interviews with staff, clients, and the participant observation and reflection of the researcher. Chapter 5 presents the analysis of the data, and offers discussion on the implications of the findings. Finally, Chapter 6 outlines the contributions of the study, and its limitations, and recommendations for future research.

1.7. References

- Albert, B. (2010). *With one voice 2010: America's adults and teens sound off about teen pregnancy*. Washington, DC: The National Campaign to Prevent Teen and Unplanned Pregnancy.
- Abortion Rights Coalition of Canada (2005). Abortion clinics must be fully funded under Canada health act (Position Paper #2). Retrieved from: <http://www.arcc-cdac.ca/postionpapers/02-Abortion-Clinics-Fully-Funded.PDF>
- Bellows, K. (2011, July/August). One on one: Leapfrogging the Internet.

National Geographic Traveler. Retrieved from:

<http://travel.nationalgeographic.com/travel/traveler-magazine/one-on-one/ken-banks>

Berman, H., Ford-Gilboe, M., & Campbell, J. C. (1998). Combining stories and numbers: A methodologic approach for a critical nursing science. *ANS: Advances in Nursing Science*, 21(1), 1-15.

doi:10.1146/annurev.publhealth.29.020907.090824

Canada, Public Health Agency (2010, July). *HIV/AIDS among youth in Canada*.

Retrieved from HIV/AIDS Epi Update publications website:

http://publications.gc.ca/collections/collection_2011/aspc-phac/HP40-56-8-2010-eng.pdf

CFSH (Canadian Federation for Sexual Health),(2007). *Sexual health in Canada:*

Baseline 2007. Retrieved from the Sexuality Education Resource Centre

Manitoba (SERC) website:

<http://www.serc.mb.ca/content/dload/sexualhealthincanadabaseline2007/file>

CIHI (Canadian Institute for Health Information), (2010). *Induced abortions reported*

in Canada in 2010. Retrieved from Quick Stats at the Canadian Institute for

Health Information (CIHI) website: [http://www.cihi.ca/CIHI-ext-](http://www.cihi.ca/CIHI-ext-portal/pdf/internet/TA_10_ALLDATATABLES20120417_EN)

[portal/pdf/internet/TA_10_ALLDATATABLES20120417_EN](http://www.cihi.ca/CIHI-ext-portal/pdf/internet/TA_10_ALLDATATABLES20120417_EN)

CAPSS (Canadian Association of Pregnancy Support Services), (2012). *Welcome to*

CAPSS. Retrieved from <http://www.capss.com>

Chandra, A., Martino, S.C., Collins, R.L., Elliott, M.N., Berry, S.H., Kanouse, D.E.,

& Miu, A.(2008). Does watching sex on television predict teen pregnancy?

Findings from a national longitudinal survey of youth. *Pediatrics*, 122(5): 1047 –

1054. doi: 10.1542/peds.2007-3066.

Fonseca, S. (2007). *An analysis of discourses within the context of school-linked*

integrated services for pregnant and parenting young women. (Ph.D. dissertation,

University of Ottawa (Canada). Retrieved August 26, 2011, from Dissertations &

Theses: Full Text.(Publication No. AAT NR49349).

FrontlineSMS. (2011). *About the software*. Retrieved from

<http://www.frontlinesms.com/aboutthesoftware/about-the-software/>

Gerring, J. (2004). What is a case study and what is it good for?. *The American*

Political Science Review, 98(2), 341-354.

Graffigna, G., & Kärin, O. (2009). The ineffable disease: Exploring young people's

- discourses about HIV/AIDS in Alberta, Canada. *Qualitative Health Research*, 19 (6), 790-801. doi: 10.1177/1049732309335393
- Gubrium, J.F., & Holstein, J.A. (2012). Narrative practice and the transformation of interview Subjectivity. In J.F. Gubrium & J.A. Holstein (Eds), *The SAGE Handbook of Interview Research: The Complexity of the Craft* (2nd Ed.) (pp. 27-45). Thousand Oaks, CA: Sage Publications, Inc.
- Habermas, J. (1970). On systematically distorted communication. *Inquiry: An Interdisciplinary Journal of Philosophy*, 13 (1-4), 205-218.
doi: 10.1080/00201747008601590
- Keller, A.M. (2012). *Independent study on texting and sexual public health in Alberta*. Unpublished manuscript. Edmonton, AB: Master in Communications and technology (MACT) Program, University of Alberta.
- Keller, J. (2011, January 28). Accounts paint blurry picture; bountiful by the numbers: Lots of teen moms, few high school graduates. *Kamloops Daily News*, pp. A.8.
- Keller A.M. (2010). *I am Pro-choice: A pragmatic stand*. Unpublished manuscript. Edmonton, AB: Master in Communications and technology (MACT) Program, University of Alberta.
- Langille, D., Asbridge, M., & Kisely, S. (2011). P2-S1.04 Associations of symptoms of depression with multiple sexual risk behaviours in Nova Scotia adolescents. *Sexually Transmitted Infections*, 87 (1), A220-A220.
doi:10.1136/sextrans-2011-050108.282
- Ling, R. (2007). Children, youth and mobile communication. *Journal of Children and Media*, 1(1), 60-67. doi:10.1080/17482790601005173
- Mashable. (n.d.). *QR codes*.
Retrieved from: <http://mashable.com/follow/topics/qr-codes/>
- Maticka-Tyndale, E. (2008). Sexuality and sexual health of Canadian adolescents: Yesterday, today and tomorrow. *The Canadian Journal of Human Sexuality*, 17 (3), 85-95.
- Merrill, B. & West, L. (2009). On being a biographical researcher. *Using biographical methods in social research* (pp. 179-190). Thousand Oaks, CA: Sage Publications, Inc.
- Ministry of Health and Long-Term Care, Public Health Division (2009). *Initial report on public health*. Ontario: Queen's Printer for Ontario.

- Murphy D., Delaney, T., & Murphy, P. (2011). Outcomes of teenage pregnancies on the Avalon peninsula of Newfoundland and Labrador between 2001-2008 in comparisons to their 20-24 year old counterparts. *J Pediatr Adolesc Gynecol*, 24 (2), e48. doi:10.1016/j.jpag.2011.01.020
- Norman, W.V. (2012). Induced abortion in Canada 1974–2005: Trends over the first generation with legal access. *Contraception*, 85 (2012),185–191. doi:10.1016/j.contraception.2011.06.009
- Oringanje, C., Meremikwu, M.M., Eko, H., Esu, E., Meremikwu, A. & Ehiri, J.E.(2009). Interventions for preventing unintended pregnancies among adolescents. *Cochrane Database of Systematic Reviews* Issue 4. Art. No.: CD005215. doi:10.1002/14651858.CD005215.pub2.
- Pool, I. de S. (1983). *Technologies of Freedom*. Cambridge, MA: Harvard University Press.
- Robinson, S. (2010). Sexual risk taking in adolescence: Examining negative gender beliefs. *Studies by Undergraduate Researchers at Guelph*, 4 (1), 7-13.
- Rotermann, M. (2007). *Second or subsequent births to teenagers*, 18(1), (Report No. 82-003). Retrieved from Statistics Canada website: <http://www.statcan.gc.ca/pub/82-003-x/2006002/article/9525-eng.htm>
- Sabourin, J.N. & Burnett, M. (2012). A review of therapeutic abortions and related areas of concern in Canada. *J Obstet Gynaecol Can.*, 34(6). Retrieved from: http://www.jogc.com/abstracts/full/201206_WomensHealth_1.pdf
- Sciulli, D. (1992). Habermas, critical theory, and the relativistic predicament. *Symbolic Interaction*, 15(3): 299-313. doi: 10.1525/si.1992.15.3.299
- Secure system (n.d) In *Business Dictionary.com*. Retrieved November 11, 2012 from: <http://www.businessdictionary.com/definition/secure-system.html>
- Sexual Health (n.d.). *Unintended pregnancy*. Retrieved from: <http://www.sexualityandu.ca/sexual-health/pregnancy/unintended-pregnancy>
- Shah, P.S., Balkhair, T., Ohlsson, A., Beyene, J., Scott, F., & Frick, C. (2011). Intention to become pregnant and low birth weight and preterm birth: A systematic review. *Matern Child Health J*, 15, 205–216. doi: 10.1007/s10995-009-0546-2
- Shrim, A., Ates, S., Mallozzi, A., Brown, R., Ponette, V., Levin, I., Shehata, F., &

- Almog, B. (2011). Is young maternal age really a risk factor for adverse pregnancy outcome in a Canadian tertiary referral hospital?. *J Pediatr Adolesc Gynecol*, 24 (4), 218-222. doi:10.1016/j.jpag.2011.02.008
- Smith, S. E., Willms, D. G., Johnson, N. A., & Uauag. (1997). *Nurtured by knowledge: Learning to do participatory action-research*. New York; Ottawa: The Apex Press; International Development Research Centre.
- Statistics Canada. (2005a). *Pregnancy outcomes* (Catalogue no. 82-224-X). Retrieved from the Statistics Canada website: <http://www.statcan.gc.ca/pub/82-224-x/82-224-x2005000-eng.pdf>
- Statistics Canada. (2005b). *Induced Abortion* (Catalogue no. 82-223-X). Retrieved from the Statistics Canada website: <http://www.statcan.gc.ca/pub/82-223-x/82-223-x2008000-eng.pdf>
- Statistics Canada.(n.d.a) Table 102-4503 *Live births, by age of mother, Canada, provinces and territories*, annual, CANSIM (database). Version updated September 27, 2012. <http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=1024503&p2=46#downloadTab#downloadTab> (accessed November 11, 2012).
- Statistics Canada.(n.d.b) Table 106-9005 *Induced abortions in hospitals and clinics, by area of report and type of facility performing the abortion, Canada, provinces and territories*, annual (number), CANSIM (database). Version updated August 21, 2009. <http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=1069005&patten=abortion&tabMode=dataTable&srchLan=-1&p1=1&p2=-1> (accessed November 11, 2012).
- Statistics Canada, (n.d.c).Table 106-9034. *Induced abortions in hospitals and clinics, by area of report and type of facility performing the abortion, Canada, provinces and territories*, annual (number), CANSIM (database). Version updated November 8, 2010. http://cansim2.statcan.gc.ca/cgi-win/cnsmcgi.exe?Lang=E&CNSM-Fi=CII/CII_1-eng.htm (accessed November 11, 2012).
- Uddin, Z., & Harte, G. (2012, April). Using social media to address youth sexually transmitted infections. GET TESTED. WHY NOT? A novel approach [PowerPoint slides]. In *Concurrent Sessions I*. Presentation conducted in The

- Ontario Public Health Convention (TOPHC), Toronto, ON. Presentation retrieved from: <http://www.tophc.ca/Pages/2012presentations.aspx>
- University of Ottawa (2012). Facts and figures on abortion. *The Society, the Individual, and Medicine (SIM) curriculum*. Retrieved from: http://www.med.uottawa.ca/sim/data/Abortion_e.htm
- VanWynsberghe, R., & Khan, S. (2007). Redefining case study. *International Journal of Qualitative Methods*, 6(2), Article 6. Retrieved [June 2012] from http://www.ualberta.ca/~iiqm/backissues/6_2/vanwynsberghe.htm
- WHO (World Health Organization), (2006). *Investing in our future: A framework for accelerating action for the sexual and reproductive health of the young people*. Regional Office for the Western Pacific (Ed.). Manila, Philippines: WHO Library Cataloguing in Publication Data.
- Wong, J. P-H., Chan, K.B.K., Boi-Doku, R., & McWatt, S. (2012). Risk discourse and sexual stigma: Barriers to STI testing, treatment and care among young heterosexual women in disadvantaged neighbourhoods in Toronto. *The Canadian Journal of Human Sexuality*, 21 (2), 75-89. Retrieved from <http://login.ezproxy.library.ualberta.ca/login?url=http://search.proquest.com/docview/1173597623?accountid=14474>
- Zdeb, C. (2012, August 27). 50% of all pregnancies in Canada unplanned: Birth control about more than just pills, local obstetrician says. *The Edmonton Journal*, p.D2.

CHAPTER 2: Literature Review

2.1. Theoretical context

This exploratory/descriptive case study examines the adoption of text messaging in a particular environment, such as the nonprofit PCC in Edmonton, and how the incorporation of this technology has affected the relationships between counselors and clients. The following theoretical framework reviews theoretical and empirical literature on mobile phones uses, such as text messaging, and its effects on users, institutions and human relationships. This review happens in the context of Canada, the population of the clients of the agency (young adults mostly) and the setting of nonprofits supporting sexual health initiatives, such as the case of PCC in Edmonton.

This chapter is divided into three themes. Initially, it begins by outlining the features and research areas of mobile phones, particularly text messaging services and how the mobile phone technology is transforming society, its structures, economies, and in the particular context of this study, non-profit organizations. In this section the argument is presented that non-profit organizations, such as the PCC, usually have a low rate of technology adoption because of internal and external factors that predispose this outcome. This chapter also explores how the Technology Adoption Model (TAM), combined with models that include individual and cultural factors, present ways to approach this specific challenge for the non-profit sector.

A second section briefly highlights the impact of mHealth (mobile health), an expanding field of healthcare technology around the world. This section also explains the mHealth concept with examples of how this field has globally influenced the health system, and examines why, for Canada, particularly in the case of sexual health care support, this field has multiple advantages to consider in further initiatives.

Finally, a third section situates the present study in the reviewed literature about mobiles technologies and young adults, and discusses why it is a relevant and timely topic for socio-economic inquiry, when Canadian youth, and other youth around the world are (a) communicating over the phone primarily, (b) are still experiencing sexual health challenges such as unplanned pregnancies, STI and other outcomes and (c) could be supported through mobile technologies in this challenge, as much as national research in other medical fields and international research evidence and literature over the world has exposed.

Literature search strategy. Internet websites, such as university and scholarly databases, and community of practice websites were accessed for literature review purposes. The following databases were used:

The University of Alberta library database/ Google scholar/ Academic Search Complete/
Communication & Mass Media Complete/ SAGE Premier / Business Source Complete/ Canadian Reference Centre/ Statistics Canada Library/ ProQuest Educational Journals/ Elsevier SD/ Freedom Collection/ EBSCOhost Library/ Information Science & Technology Abstracts with full text(LISTA) /Web of science / The Community of Practice website 'FrontlineSMS Community'.

The first stage of this study took place with the development of a secondary literature review, between June 2011 and May 2012. The literature review was focused on four areas of research. These were: SMS as the chosen communication tool of teens, SMS and sexual health care support for youth, SMS creating human capital (individual strengths), and SMS creating social capital (organizational capacity). Even though there was not a comprehensive review, the literature covered all advancements found worldwide and in Canada on these topics, by year (see Appendix 11).

Search strategy inclusion/ exclusion criteria. This literature review was made to provide a frame of reference for the research in the field, identify significant gaps, identify key categories, and use these key categories to purposely identify the themes for the semi-structured interviews and the data analysis. Database searches used Boolean logic [AND and OR] to combine different search terms together were used for this purpose. The emphasis was on Canadian literature and references from international sources in an effort to reflect current practices. The following keywords, in varying combinations, informed this search:

sexual health / mobiles / texting / text message/ online / Internet / information; cell phone / mobile phone / texting / intervention / counseling; mHealth (mobile health); smartphone / mobile phones / mobile device; texting / social impact / social cohesion / community cultural impact / texting / mobile phone /digital generation; relationships / text messaging / youth / social networks / media socialization; mLearning (mobile learning); parental monitoring / family / peer relations / youth / mobile phones; content development / social media / mobile phones; texting / development / youth / text-messaging dependency / multitasking; sexting / cyber-bullying / effects / mobile phones; mediated communication / mobile phone / cellphone / texting / organizations; relational work / text messaging / adoption / corporate technology; consumer behavior / Mobile communication systems / cellphone behaviors; texting uses / globally / worldwide; text language, text messaging, textisms

Led by the valuable suggestions of a sociology librarian of the University of Alberta in August of 2011, a further revision was produced using the same search engines to include a literature review of context in health communication, communication theories and health & youth, their sexual health, challenges such as teen pregnancy or STI / STDs in Canada. Additionally, using the Educational and Research Archive (ERA) website of the University of Alberta, under the community of the Faculty of Graduate Studies and Research (FGSR), collection “Theses and Dissertations”, recent thesis and dissertation works related to the methodology or the focus of this study were reviewed. These were used to guide the work, since the case study did not have a structure to follow.

Since no published literature on adoption of mobile phones in social organizations in Alberta was found (see Appendix 12), the following 13 organizations were contacted during the development of this study in order to review their relationship with technologies and texting for the support of internal and external services (see Chapter 1, numeral 1.2, p.11):

Alberta Life Issues Educational Society (ALIES) -The Back Porch Ministry / HIV Edmonton/ Multicultural Health Brokers Co-operative (MCBH) in Edmonton/ Boyle McCauley Health Centre (BMHC) / The Calgary Sexual Health Centre/ TERRA Centre in Edmonton / Sexual Health Access Alberta / AIDS Calgary, Awareness Association/ HIV Society of South-eastern Alberta (HSSA) / Planned Parenthood Alberta / OPTIONS Sexual Health Association Edmonton / Pregnancy Help Edmonton

Also it is worthwhile to mention that the literature review was expanded after the data analysis (summer 2012), in order to review literature according to the categories and themes that emerged from the data, and grey literature as articles published in local newspapers referring mobile phone uses and advances were reviewed as well.

2.2. Mobile phones are supporting the transformation of our society

Mobile devices have fundamentally changed the relationship between information, time and space.
(Purcell, 2012, p.5)

We are living in a world with a new ecology²²; a landscape that is dynamic, has no conventional form or structure, and that is raised and growing in the mediatization²³ of

²² “A branch of science concerned with the interrelationship of organisms and their environments” (Merriam-Webster Dictionary, retrieved May 2012 from: <http://www.merriam-webster.com/medical/ecology>) ; “The relationships between the air, land, water, animals, plants, etc., usually of a particular area, or the scientific study of this” (Definition of ecology noun from

the digital. This new landscape has been determined by a society that is evolutive in the robotic (Turkle, 2006), but at the same time, in its practices is reflecting more than ever the intrinsic human desire to connect (Carr 2011; Farley, 2007; Tuffler, 1980).

The postmodern society, marked by globalization and the switch of economy, where the product or service of value is information, combined with infinite / multifaceted technological advancement is changing and shaping our reality in ways that we are starting to measure and yet not completely understand (Castells, 1996). We are “self-mobilized” citizens of a world without divisions (Dalton, 1996), but perhaps, as some reflect, with too much access. Oksman (2010) and García-Montes, Caballero-Muñoz & Péres-Álvares (2006) refer to this global change as a place where information has made human beings more aware of their mental models and the risk of the future creating a generation focused on the immediate and in the present.

2.2.1. The mobile phone ended the technology divide

In this transformation of indiscriminate information available through the Internet and its digital networks such as Google and You Tube, users, especially young adults, have shaped the use of tools that are supporting this transformation. This group has chosen the mobile technology to be the medium that connects them instantaneously to the digital landscape by transforming and domesticating²⁴ it through use and demand since it appeared at the end of 1980s (Oskman, 2010; Hjavard, 2008; Haddon, 2007; Gow & Smith, 2006). Specific devices, such as computers, are no longer the unique mediums needed to access instant information. With the recent advances in iPads²⁵ and

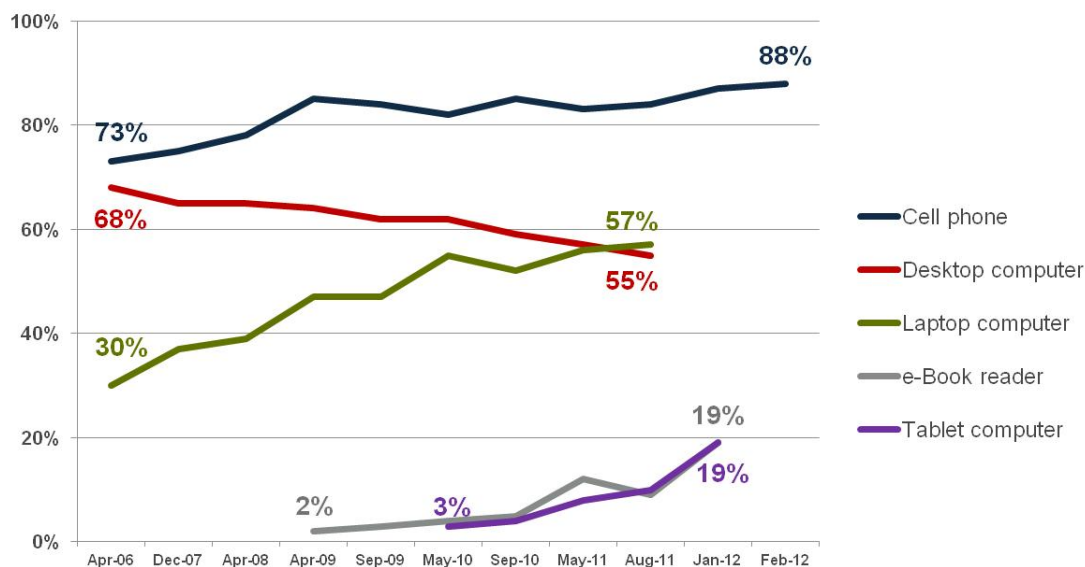
the Cambridge Advanced Learner's Dictionary & Thesaurus © Cambridge University Press, retrieved May 2012 from: <http://dictionary.cambridge.org/dictionary/british/ecology?q=ecology>)

²³ *The dialectical, institutional, and technically-driven process that changes the social and cultural environment* (Silverstone, 2003, p.3). *Mediatization relates to changes associated with communication media and their development. The processes of social change in which the media play a key role may be defined as extension, substitution, amalgamation, and accommodation* (Schulz, 2004, p. 88).

²⁴ Domestication is the process that involves the consumer appropriation, in taking technologies and objects home, and in making, or not making them acceptable and familiar (Silverstone & Haddon, 1996). Domesticated media and technology are double articulated: they are part of the household's private and public sphere. They are material artefacts and bearers of meaning in more than one sense (Berker et al., 2006, p. 4).

²⁵ The iPad is a tablet or "slate" computer. Apple formally declares that it is a "magical and revolutionary" device for "browsing the web, reading and sending email, enjoying photos, watching videos, listening to music, playing games, reading e-books and more". Apple has designed the iPad to occupy a new product category between the iPod and the Mac, and consequently, it is really neither an iPod nor a Mac (<http://everymac.com>). However; the new iPad could be used as a personal hotspot for even 4G generation cellphones (Apple Canada, 2012).

smartphones²⁶, such as iPhones or Androids, today's applications (apps), stored on mobile phones, allow users to access valuable online content with the touch of a button (Johnson et al., 2011; see Figure 2-1).



Source: Pew Internet surveys, 2006-2012

Figure 2-1. Percent of American adults age 18+ who own each device (extracted from Purcell, 2012, p. 7).

In the context of this study that reviews relationships of an agency and their clients mediated through mobile phone technologies, it is important to evaluate these facts to understand why mobile phones have overcome the technological barrier and are giving us a new understanding of how we, as a society, are connecting. Fox (2010a), from the Mayo Clinic, pointed out that a mobile is more than a dynamic device and has become the frame of reference for building a new civilization, “mobile devices are changing us, making us more likely to share, access information on the go. We are now on the other side of a massive shift in communications” (para. 17).

Theoretical dispute has arisen between communications authors about if mobile phones need to be categorized as one of the new technologies of the 21st century and the sub media of digital media, that has evolved and transformed in society; or if it's the

²⁶“A cellular telephone with built-in applications and Internet access. Smartphones provide digital voice service as well as text messaging, e-mail, Web browsing, still and video cameras, MP3 player, video viewing and often video calling. In addition to their built-in functions, smartphones can run myriad applications, turning the once single-minded cell phone into a mobile computer” (Smartphone, n.d.).

‘medium itself’ that converges all, representing a ‘second self’ and potentially substituting human relationships (Goggin & Hjort, 2009; Holmes, 2005; Fortunati, 2002). Despite this lack of commonality amongst authors, it is certainly agreed and substantiated by much research (Oksman, 2010; May & Hearn, 2005; Jenkins; 2006, Fidler, 1997) that mobile phones have converged all the advances of traditional and broadcast media, such as TV or radio (Holmen, 2009), and is already making the telephone landline obsolete in some countries of the world, including Canada, (Lenhart, 2012; Harrison, 2012, Tencer 2012).

Clifford Nass, a sociologist and psychologist from Stanford University, who studies the impacts of technology on society, recently stated that apart from mobile phones and especially iPhones, there “has not been another device that has changed social and technological life in such short time” (Boudreau & May, 2012, para. 3). Nass has also explained that people tend to “self-extend more to a robot if they build it themselves” (Groom et al., 2009; p.35) or actively participate in its construction, as is the case of mobile phone services, such as texting or apps.

In Canada, CWTA reported in the spring of 2011, that consumers are increasing their access to internet through mobile phones, especially in populations between 18 and 24 years old, who live in the province of Alberta, who own a Smartphone, and who only have a mobile phone as a medium of communication (CWTA , 2011; see Figure 2-2).

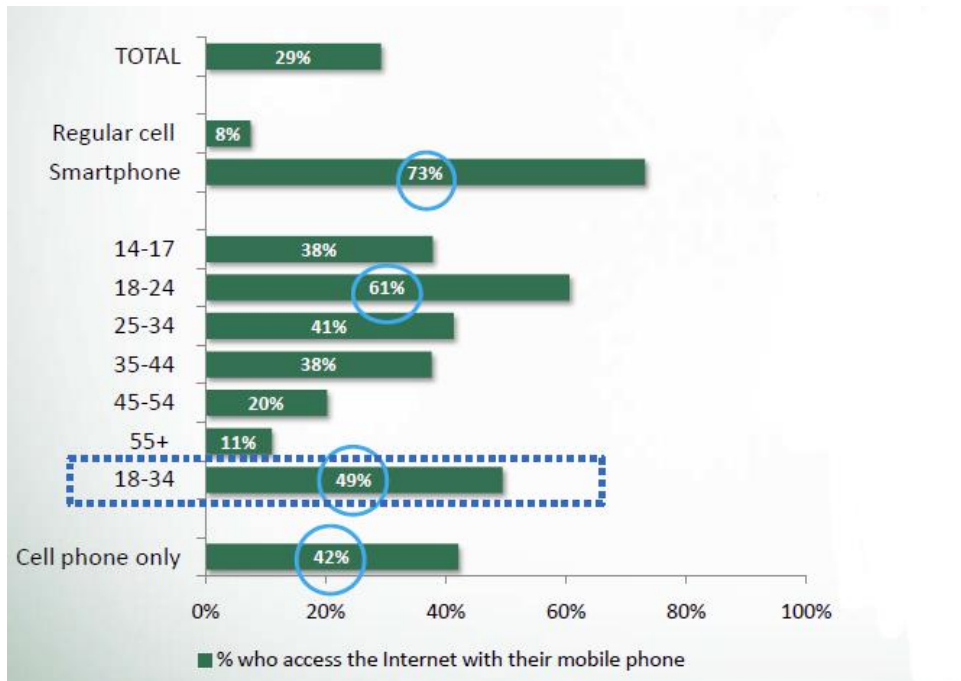


Figure 2-2. Use of Internet with mobile phones (extracted from the CWTA, 2011, p.24).

Worldwide, some of the impacts that mobile phones have had could be expressed in the next statement: In 2010, The Pew Internet & American life project suggested that by 2020, the entire world would be connected through mobile phones (Cole-Lewis & Kershaw, 2010, p. 1). Eight years before the fulfillment of this forecast, statistics are showing us that in Canada, as well as in other countries, being wirelessly connected through mobile phone has become even more complex than what we could have expected (See Figure 2-3).

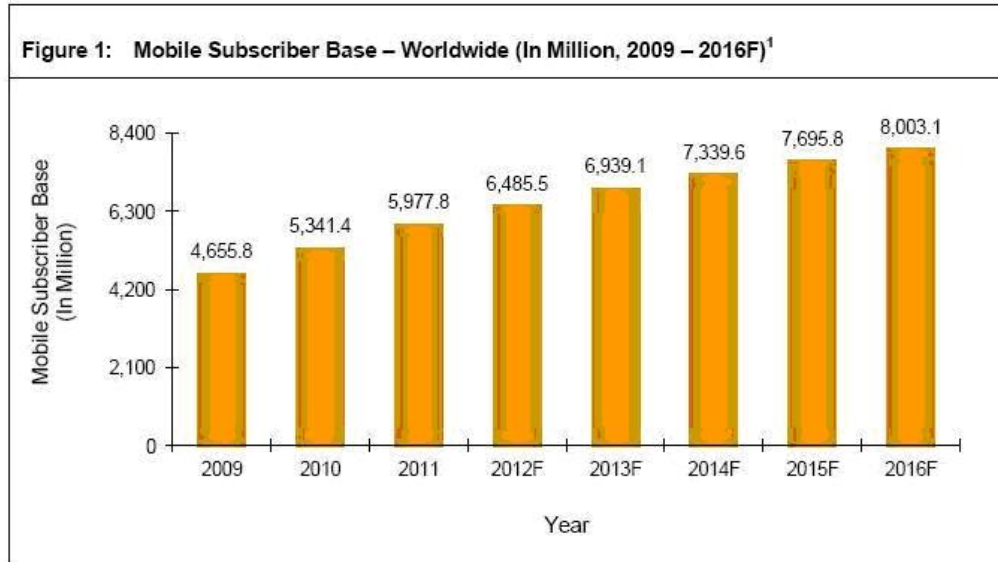


Figure 2-3. Forecast of mobile phone's subscribers over the world (extracted from Portio Research Ltd., 2012, p.7)

Today, there are 5.9 billion mobile subscribers²⁷, equivalent to 87 % of the world population. 1.2 billion of those users have a mobile phone with wireless capability and are using it to connect to the Web (Mobithinking, 2012). With the advances of fourth generation mobiles, the technology can be used to create, receive, connect, and share.

2.2.2. Institutions are changing through the uses of mobile phones

In 20 years of use, text messaging/ SMS is currently the most used feature of the mobile phone²⁸, and has been called the humble technology by Nokia and many newspapers over the world (Naughton, 2012; Turner, 2012), since nobody paid attention to the mobile device when it appeared or even believed it would make a greater impact beyond the business environment for which it was intended. Today, one of its services, SMS, is called bigger and more important than any other social media, such as Facebook (Willans, 2012). The technology has impacted people's lives more than expected.

The creation of a new language (short code texting or SMS language) is an example of how the uses of mobile phones are transforming what is understood as literacy (Plester & Wood, 2009), as well as the way that we learn and we create society. It would be ignorant to ignore the effects of being surrounded by such technological intake (McLuhan, 2003) and not wonder if it could ever affect us. We would be wise to

²⁷ Growth is led by China and India.

²⁸ Today (2012), 74% of the world population use text messaging (Willans, 2012, para. 6)

remember that all the greatest changes in human societies' timeline have been marked by language advances (Plester & Wood, 2009; Pinker, 2007; Halliday, 2003).

How quick are these social changes happening? Today, fourth generation mobile phones have changed concepts of space and time, creating new spaces, new social rules of interaction, and new competences for human interaction (Johnson et al., 2011; Fortunati 2002). Recently supported by Multimedia Messaging Services (MMS)²⁹, mobile phones are also transforming the way that we understand organizations and their role in society. The mobile phone, and all media condensed into the portable device, is disrupting the basic structures of how we used to do society, such as organizations and its services. Mobile phone use have introduced concepts such as mbanking (mobile banking) or mobile donation. Overall, the device is demanding³⁰ society to “participate in the twenty-first century” (Holeman et al., 2010, p. 150) by connecting us to the digital realm (Bashah, Jrstad, & Do van, 2010).

Changes are also notorious in how populations in the digital sphere are dividing into categories, such as baby boomers and the NET generation (Tapscott, 2008)³¹, or divided by their capacity to own devices (Lenhart, 2012; Walsh, et al., 2008; Rheinhold, 2000). At the same time, society itself seems to be blended in mobile phones, because its socio-economic structures and network systems, such as family, friends, businesses, schools, governments, health care, amongst others, are connected simultaneously through the device. The feature of this expandable multi-network (Bashah et al., 2010) is that the service-providers could be anything and anybody, including end-users or prosumers³² (Tapscott, 2008; Toffler, 1980).

In Canada, with the introduction of iPhones in 2008, the experience of inclusion and creation has become faster and more reliable. iPhones, among other smartphones, “increase consumer’s opportunities to easily access the internet and, hence, enhance their

²⁹ “MMS is called the revolutionary successor to SMS. It has emerged as the result of research efforts primarily by the Third Generation Partnership Project (3GPP) and Open Mobile Alliance (OMA). This service extends the services of SMS by providing automatic and fast delivery of multimedia messages (MMs) between capable phones and other devices, and supporting richer content types such as text, graphics, music, video clips and more”(Ghaderi & Keshav, 2005, p.1).

³⁰ Intentionally giving an anthropomorphic connotation to mobile phones.

³¹ Tapscott (2008) presents the hypothesis of two generations and their technological differences and divisions. Tapscott says that “the NET generation (born after 1978) uses the technology in as natural a way as breathing and as a means of their daily empowerment. The baby boomers (born between 1946 and 1964), on the other hand are a ‘passive generation’, influenced by media (TV) and social structures, such as the conservative and hierarchic” (pp. 38-40).

³² The word is a combination of the words producer and consumer. “When the consumer becomes producer” (McLuhan & Nevit, 1972, p.4).

potential” (Industry Canada, 2010a, p.7). This technology adoption is reflected in how smartphone usage increased 48% by the end of the first quarter of this year (CWTA, 2012; The Canadian Press, 2012).

Other structural changes have been reflected in the literature in the last few years. Garcia-Montes et al., (2006) says that thanks to mobile phones, communication has become horizontal and socially democratic. This means that traditional institutions that used to control or guide individuals, such as family and public organizations, “have lost some or most capacity to control and define relationships and behaviours” (p. 69). An example is families where children or teens are re-negotiating relationships of power and control with parents, through texting or SMS. Paradoxically, in this ‘detraditionalization’³³, dependency has increased³⁴ (Chena & Katz, 2009; Ling, 2007; Williams & Williams, 2005).

SMS has supported organizational capacity and effectiveness

As much as the use of the mobile phone is growing exponentially faster in the world and changing social structures, institutionally large and small organizations in all sectors have been forced to embrace the new dynamic of a market that produces content as much as it demands, and where the boundaries of personal communication networks are entwined with professional ones. The connected presence of employees and customers, through texting services that are promoted in corporate websites and advertisement, has removed the line between work and personal spaces, as well as other social extents, such “roles, hierarchies, and forms of power in relational economies” (Rice & Hagen, 2007, p.2).

Cellphone companies are negotiating and lowering their expensive rates, opening spaces for more businesses to engage consumers in mobile commerce (Industry Canada, 2010a, p.8). This has occurred only recently in the US and Canada, due to more Government latitude to a greater freedom of access (Industry Canada, 2010b; Wu, 2007), the proliferation of smartphones, cultural and political changes (Goggin, 2009), and the demands of users to access services that have been available worldwide for years to other users.

³³ “Refers to a social order in which tradition changes its status” (Williams & Williams, 2005, p. 314).

³⁴ It is reported that youth are prone to perpetuate those umbilical ties and in time, become excessively dependent on relationship with their parents through texting services (Ling, 2007; p.62).

Dianne Brisebois, president of the Retail Council of Canada, recently made an important statement to a local newspaper: “mobile technology is changing the way retailers interact with customers at a faster pace than any other technology. It took 15 years for online shopping to become mainstay; it might take just five years for mobile” (Harris, 2012, para. 3). The reality is that in Canada, many sectors of the industry and commerce have adopted mobile technologies already in their markets and business, and it is expected that ‘more than a half will join during the next three years’ (ibid). This explosion of virtual businesses fulfills the predictions of Brisebois and raises the question of how long this virtual world has been waiting to become local.

Today in Canada, newspapers, travel agencies, real-estate, security systems (Mckeen, 2012), broadcasters, entertainment, banks, local stores such as the Edmonton boutique called Room 322³⁵ (Ash, 2012) and even national events, like the Olympics in 2010 have taken advantage of advanced technologies such as QR codes and apps to “convert user’s phones into shopping bags” (Harris, 2012, para. 2). At this point, it is helpful to connect this information with the Albertan context of agencies, such as the one who participated in this study, where, however, the mobile phone adoption growth has not been as fast and as complete as in other sectors. At the time of this study, few reports of national studies in mobile phones used for and in agencies were found in the literature, as will be mentioned and expanded further in this Chapter.

SMS adoption has impacted the socio-economic network. In the case of adoption of mobile phones in community organizations supporting socio-economic development, most of the literature has focused on cases of developing countries or low-income communities of developed countries, where public institutions and local initiatives are using text messaging to open markets that were before unreachable (Aker & Mbiti, 2010; Dailey et al., 2010; Muto & Yamano, 2009; Dyson & Brady, 2009; Doner, 2007). Examples include the case of rural Ghana where “farmers in Tamale are able to send a text message to learn corn and tomato prices in Accra, over 1,000 kilometers away” (Aker & Mbiti, 2010, p.2) and the case of the aboriginal community of

³⁵ Room 322 in Edmonton is using *Instagram* for advertisement with its clients. *Instagram* is a mobile photo-sharing app that is available for free from the App Store or Google, but is also a social network and is usable by smartphone users. This app enables users to take and share photo updates in real time, allowing them not only to comment on photos but also create artistic quasi-vintage looks in their photos with filtered layers and photo tools (Ashpari, 2012, para. 2).

Lockhart River³⁶ in Australia, where after a pilot, more than a half the people of the town decided to own a mobile phone (Dyson & Brady, 2009, p.172).

One reason that explained this success using the technology to increase socio-economic capital is what Winston (1998) called “supervening social necessities” (p.6) or the fact that these markets offer low cost of services for mobile phone companies and users to adopt the technology. There are also few regulations and requirements for companies to introduce their services on a large scale, which is still not the case in Canada, where only recently have we opened our doors to foreign investment in telecommunications (Industry Canada, 2010b).

Another factor that explains this social adoption is Harper’s idea (2003) of seeing mobile phones not as the motivator of societal change but as a medium that allows this evolution “in small but socially significant ways” (p. 187). What is connected to the context of this study, which are the non-profit and charity sectors of Canada, are the international findings that relates the device use and socio-economic positive outcomes in community, “the literature generally shows that adoption of mobile telephones has significant benefits not just to the adopter, but to the community at large” (de Silva, Ratnadiwakara & Zainudeen, 2010, p.1).

SMS adoption is related to social cohesion. Worldwide, there are also many radical social changes registered in the literature that are related with the use of mobile phones, specifically text messaging, for citizen engagement, to dismiss bureaucracy (Shirkly, 2011), for health, to increase volunteerism, and ultimately in the construction of a social fabric focused on the advancement of social justice (Zack, 2010; Lasica, 2008; Gow & Smith, 2006; Stein, n.d.). These initiatives have acknowledged what Coleman (1988) explained thirty years ago in his theory of social & human capital, about recognizing the power of the relationships that are mediated through people and ‘things’ and what we are able to accomplish together.

For example, democracy, as a form of power for the masses, today has evolved through text messaging, into a global form of “political communication” (Gow & Smith, 2006, p. 59; Goldstein & Rotich, 2008) affecting the political history of nations, as was the case of the Filipino incident in 2000, where thousands of protesters in the streets,

³⁶ “Lockhart River Aboriginal Community is a very remote community in Cape York (Peninsula), which had a population of 542 in 2006, most of who live in town, where the research was undertaken” (Dyson & Brady, 2009, p.170).

connected through text messages, brought about the resignation of their then corrupt President, Joseph Estrada (Shirky, 2011).

However, in the context of this study it is important to highlight that socially, one of the most important effects that digital technologies, such as SMS, have brought is what many scholars have called the “mutation of the social fabric” and what makes the social and public sphere valuable to us: “the network of social relationships, their norms of behavior, and the trust among members” (Huysman & Wulf, 2004, p.54) or social cohesion. This is the possibility of using ICTs to increase people's ability to act together (Resnick, 2001).

Today, new technologies such as SMS, allow constant interaction, presence, openness, capacity, and completely erase barriers that limited social networks before, such as distance, time, space, and sometimes civil boundaries, such as governance. This new status also has brought new behaviors that are being recorded by scholars as well (Nurullah, 2009).

Isagarichi (2005), an associate professor in social psychology of the Nagoya University in Japan, found in his doctoral dissertation, that for the younger generation, which is leading the change in the social fabric through its digital interactions, the text-messaging social network actually increased the social capital of its users among personal relationships.

Text-messaging social network assumed segmentation of structure, and therefore, patterns of interpersonal relationships for text-message social networks corresponded to the theory of selective interpersonal relationship... this theory claims that mobile phones increase the frequency of communication, and hence, allot opportunities for expanding interpersonal relationships. (p.4)

McEwen (2010), also found in her research with young adults in Toronto that “mobile phones foster social cohesion among established ties in personal and intimate relationships, providing means for users to tap into their social networks anywhere, anytime, maintaining virtual co-presence” (p.37).

SMS adoption is related to human capital: The IT competence. Even when mobile phones have produced opportunities to expand interpersonal relationships in established communities, it has also created a trajectory of technical advances that have changed the human capital³⁷ of its users. Today, mobile phones are creating different

³⁷“Human capital is created by changes in persons that bring about skills and capabilities that make them able to act in new ways” (Coleman, 1988; p. s100).

social foundations, which result in developing new competences in its users and in the environment where they exist, such as the corporate realm.

What is being related in the literature as social outcomes of owning and using mobile phones, such as the phenomenon of multitasking³⁸, is likewise being related with organizational advancement literature as the new necessary competence. McEwen (2010) describes the reality of an information society and its practices, such as “sharing, seeking, and using information” (p.38) simultaneously, as a habitual³⁹ behavior for the young adult users. It is not surprising, then, that standards or values of the workforce are changing to the condition of the new society. In Canada, 74% of employers have not placed any restrictions on using mobile phones at work, and many of them are paying for the expenses of its uses for work purposes (CWTA, 2012).

Although there is not an extensive amount of literature investigating the impact of media multitasking and other technological behaviors affecting organizational productivity, what is known is that it is common to observe office staff multitasking and accessing media. This behavior has been explained by the reason that “young people are highly IT skilled by the time they reach university” (Bannister & Remenyi, 2009, p. 9). Also, what is emphasized by these scholars and others is that multitasking and over-connected behaviors could be beneficial in a work environment when it leads to “simultaneously accomplish tasks to contribute to the group’s overall goal” (Bell, Campeau & Olivera, 2005, p.2). This behavior also tends to make individuals look “more competent, dedicated and socially attractive” (ibid).

The SMS innovation in service organizations

The adoption of an innovation is the process of using an existing idea.
(Rogers, 2003, p.181)

In the case of social service organizations, the Government as well as other public institutions are acknowledging the reality of users, and deciding how to involve them with the community, and with their institutions. Through a case study, Al-Khamasey & Lawrence (2010) registered the rise of mGovernment (mobile government) in the countries of Australia, Jordan, and the United Arab Republic. Their findings

³⁸ “Media multitasking was associated with a number of negative social correlations, such as cognitive control of attention, and with more intense feelings (both positive and negative) toward online friends than in-person friends when we controlled for media use. Intriguingly, the level of face-to-face communication was strongly negatively associated with media multitasking, as if media multitasking and face-to-face communication were in a trade-off relationship” (Pea et al., 2012, p.1).

³⁹ “Regular condition or part of one's character” (Habitual, n.d.).

suggested that for these citizens, as well as for their government, what seems to work is a model using texting to interact with each other, generating content simultaneously, such as vandalism reports, creating faster services, increasing productivity and saving costs of services and products (p.4).

The results of Al-Khamasey & Lawrence's study (2010) contribute to a growing body of literature that agrees with the argument of mobile phones being an example of diffusion of innovations (Fidler,1997). Mobile phones had a rapid and massive penetration in society because of their early adopters⁴⁰: the younger generation. The advantage of the technology was and is obvious, the technology was compatible and matched the complexity of previous ones, and every year the adopters can rely more on the technology because it constantly advanced. Finally, early adopters are converting by exclusion those who are not using the technology.

Understanding technology adoption in nonprofit organizations

Unfortunately, even when Forrester Research reported in 2010 that “globally, government and institutions were expected to exceed \$1.6 trillion dollars in IT infrastructure” (IMAP, 2010, p.5), not all of these technologies are embraced quickly and on a large scale, as one would expect. As has been mentioned in this chapter, this is also the case of the nonprofit sector (Lovejoy & Saxton, 2012; Zorn et al., 2011). Extensive reported strategies do not exist that guide nonprofits to successfully engage the technology change and grow intelligently in the shifting market (Mitchell et al., 2012, p. 729; Senge, 1990), by using the technology as an “strategic-interactive stakeholder” (Lovejoy & Saxton, 2012).

In the case of text messaging, even when its organizational effects have been published for a few years (Oskim, 2010; Lefebvre, 2009; Gomez, 2008), adoption has been more challenging. This is because variables such as age, gender, and cross –cultural barriers (Haddon, 2007), become involved and strongly influence the culture and work ethics of many nonprofits. Ironically, most global organizational literature is starting to focus on the importance of introducing innovations adopted by consumers, and not by the

⁴⁰ Rogers (2003, p. 22) defined adopter categories as “the classifications of members of a social system on the basis of innovativeness”, His classification includes *innovators*, *early adopters*, *early majority*, *late majority*, and *laggards*; he does not included non-adopters in these categories. *Early adopters* were defined as those who have a role of leadership in the social system and who, by adopting the technology, put their stamp of approval (p. 283). *Late majority* are those individuals who wait until most of their peers adopt the innovation and *Laggards* are those more skeptical about innovations and change agents (p. 295).

ORG itself, such as mobile phones and particularly SMS, as an organizational advantage of differentiation, adaptability, development, capability, and as a response that recognizes the volatile characteristics of information and knowledge economies (Hsiu-Yuan & Shwu-Huey, 2010; Berendien & Liebie, 2010; Kohli & Grover, 2008; Hee-Woong, Hock & Sumeet, 2007).

Worldwide, many scholars have increasingly urged the importance for the nonprofit sector to embrace new technologies to achieve efficiency, and more than anything, establish legitimization with clients, supporters, donors, benefactors, and the society at large (Lovejoy & Saxton, 2012; Zorn et al., 2011). Ultimately, these groups are the ones who make it possible for nonprofits to exist and serve the community. These reflections are absolutely important in the light of the fact that most of these agencies face constant competitive challenges, and are constantly pressured to achieve credibility and professionalism in a dynamic and ambiguous market (Zorn et al., 2011).

Despite these reflections, inconsistencies between theory and practice remain. The technology acceptance model (TAM) from Davis (1986) that links⁴¹ behavioral beliefs and behavioral attitudes could explain these inconsistencies, in terms of what influences the probability to use and adopt a technology in individuals or entities, such as nonprofits. However, a limitation of this model is that it does not describe social variables that strongly influence adoption, especially in the case of nonprofits (de Silva, Ratnadiwakara & Zainudeen, 2010, p.2).

de Silva et al., (2010) also describes how factors added to the TAM model, by Van Biljon & Kotzé's (2008), present a more holistic perspective, including, what they called "mediating factors" that influence the determining factors described by Davis (1986), Davis et al., (1992) and how the mix of both variables play an important role in the adoption of the technology. These mediating factors are "personal factors, like preference and beliefs about mobile phones (including image); demographic factors like age, gender, education, etc., and socioeconomic factors, such as occupation and income" (de Silva et al., 2010, p.2).

These mediating factors have also been described and added to TAM by further studies of Davis and other scholars, such as Wixom and Todd (2005). These are

⁴¹ In his doctoral research, Davis (1989) was trying to demonstrate how "new systems and their capabilities of use" will influence users and their judgments about the applicability of the systems to their jobs, and generate motivational responses (p.12).

categorized as external variables, factors from related models, and additional beliefs (see Figure 2-4).

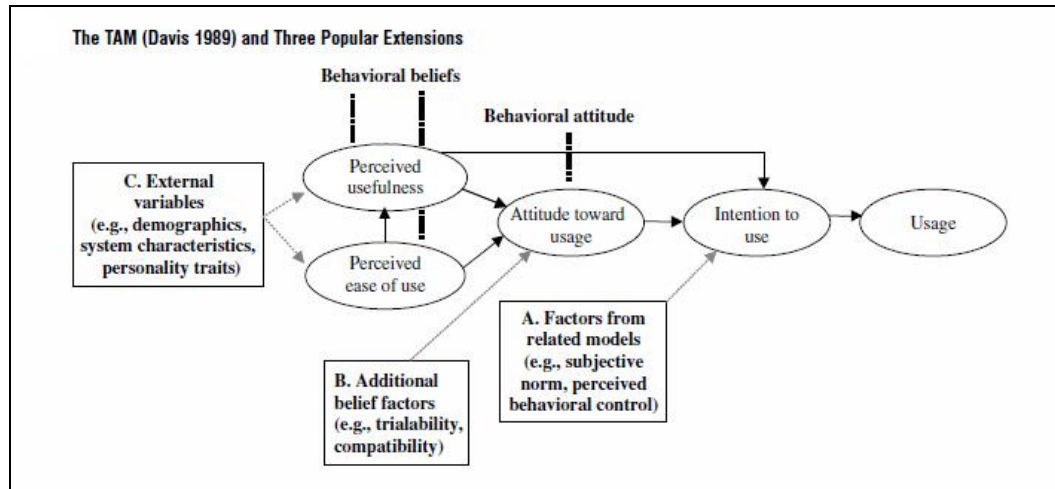


Figure 2-4. TAM model. Figure extracted from Wixom & Todd (2005, p. 87).

However, in the realm of non-profits, the description of the elements (A, B, and C, in Figure 6) influencing mobile phone adoption, are related with cultural factors (van Biljon & Kotzé, 2008). These are related with the organizational and individual realities in which nonprofits exist, and include organizational characteristics, such as values, budget, work ethics, size, system membership and culture, and environmental characteristics, such as competition, founders and expectations (pp. 2654-2656). These pressures enormously influence daily decisions and practices about technologies (Zorn et al., 2011, pp.3-5).

Furthermore, van Biljon & Kotzé (2008) expand what Venkatesh et al., (2003), proposed as the Unified Theory of Acceptance and Use of Technology (UTAUT); a model that “unifies conceptual and empirical similarities across other models” (p.426) such as TAM, the adoption of innovation theory (Rogers, 2003), and others. UTAUT reflects on how social influences and experiences⁴², among other characteristics, direct organizations and individuals to embrace challenges, such as IT adoption.

Even though van Biljon & Kotzé (2008) only refer to cultural dimensions in their study, their reflections help us to understand how social and cultural aspects noticeably affect and influence mobile phone usage and its favorable reception in non profits, where this study has been developed. The model also informs about the importance of how adoption varies according to culture and the user’s lifestyle (see Figure 2-5).

⁴² These characteristics have been called mental models by Senge (1990) as well.

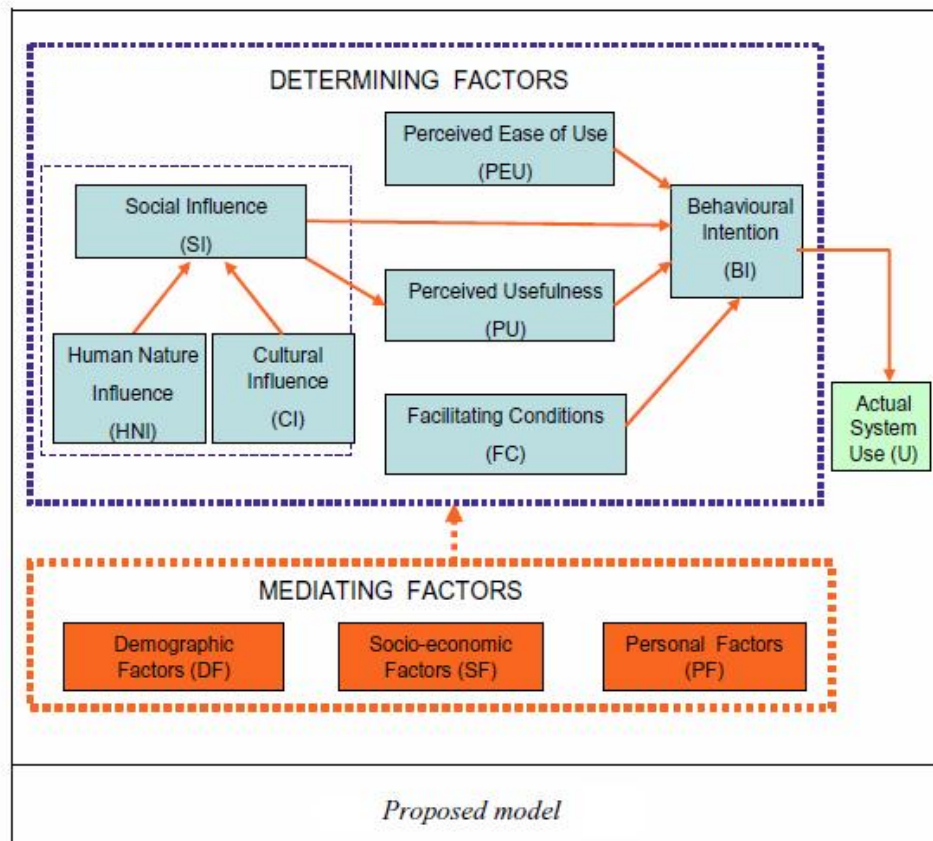


Figure 2-5. Proposed model. Figure extracted from van Biljon & Kotzé (2008, p. 2668).

This is very important when compared with what is known in case studies on adoption of technologies around the world, that point to the fact that no matter the field or location, emerging technologies are slower to be adopted in most cases (Fiddler, 1997, p. 8). This is due to the users: who they are (which includes their culture), their beliefs about the technology and usability, their adaptability to it and how it fits their life and social sphere. Cherubini et al., (2011) pointed out in his experience, that the “most common barrier for adoption is the lack of knowledge of what existing contextual applications can do” (p. 168), and in the context of this study, could do to their organizational environments and realities of non profits.

2.3. Mobile technologies in the Health Network

Focusing then on the organizational environment of agencies working in the realm of the health care sector, it is important to emphasize that new technologies are being widely adopted in the industry and are providing new ways to understand this sector. Christensen, Grossman & Hwang (2009), pointed out how recent technological

progress has transformed some fatal diseases into chronic illness, and how the disruptive⁴³ power of new technologies are transforming time, quality, and cost of diagnosis and treatments of various illnesses. In the case of mobile technologies, mobile Health (mHealth) has arisen as a new way to understand health support systems through a cell phone based communication network. mHealth recognizes mobile and especially text messaging as an important medium in health education and behavioral change (Mahmud, Rodriguez & Nesbit, 2010). Boulos et al., (2011, pp.7-11) stated that it is suggested that the medical profession will go mobile in ten years, since 80-90% of the world population will have Smart phones by that time.

These statements become challenging and interesting when the mobile phone is recognized as an agent that is supporting the convergence of medical tradition into a new culture of time, quality, accessibility and affordability (Jenkis, 2006, p.26). That has encouraged its users to constantly seek information, self-organize, and make connections (Boulos et al., 2011, p.2).

In the case of organizations assisting citizens, such as the PCC in Edmonton, it has been recorded that most of the successful health text-messaging campaigns are focused on individual interventions: individual behavioral changes and awareness (Riley et al., 2011; Preziosa et al., 2009; Abrams & Maibach, 2008; Kaplan, 2006) or health promotion and education (Jordan et al., 2011; Gomez, 2008; Cole-Lewis & Kershaw, 2010). However, there are not many publications that have documented the impacts of social network-level health communication campaigns (Abrams & Maibach, 2008, p.225; Chou et al, 2009; Jippes et al., 2010; Denizard-Thompson et al., 2010; CDC, 2011).

Recently, there have been reports published on how the uses of new technologies, such as texting, have innovated individual health interventions with patients with incurable diseases such as HIV, by encouraging patient self-management and preventing transmission. New innovations have also created collective and interconnected solutions

⁴³ Disruptive technologies are defined by Christensen et al., (2009, p.1) in their book *The innovator's prescription: A disruptive solution for health care* in these terms: "disruption connotes something 'upsetting' and 'radically different', among other things. And to many, 'technology' connotes revolutionary ways of doing things that are comprehensible only to Ph.D. scientists and computer nerds. As a result of these other connotations of the words we chose, many who have only casually read our research have assumed that the concept of disruptive innovation refers to a radically new technology that tips and industry upside down. But we have tried to give the term a very specific meaning: 'disruption' is an innovation that makes things simpler and more affordable, and 'technology' is a way of combining inputs of materials, components, information, labor, and energy into outputs of greater value".

amongst patients, practitioners, and researchers by revolutionizing their social capital⁴⁴ through phone devices that are capable of being used as a diagnostic resource, a data collection and socio-medical network (Swendeman & Rotheram-Borus, 2010 p.141; Ramathan et al., 2012). In most of these cases, the mobile phone has become a stakeholder in this social network.

2.3.1. How the world has adopted mobile technologies on the health field

Over the last six years, in different parts of the world, the focus of institutions using text-messaging as a tool for supporting their efforts has been reported largely in the public health industry, since it has the strength of maintaining “strong-tie” relationships, and allows essential two-way information exchanges that enhance action in the participants (WHO, 2011; Cole-Lewis & Kershaw, 2010; Greifinger, 2009; Krisberg, 2009; Lefebvre, 2009; Bernabe-Ortiz et al., 2008; Lim et al.; 2010 & Gomez, 2008). One factor that may have contributed to this re-direction in public health strategy is the awareness of the great impact or the 'switch' that the diffusion of this technology is accomplishing in society and all of humanity.

In developing countries such as South Africa, where the latest technologies, such as iPhones, are not easy to obtain, older generation mobile phones combined with FrontlineSMS Medic (FLSMS)⁴⁵ have changed the uses of mobile phones to dramatically engage citizens in participatory forms of health. This has brought health support and solutions in economical and effective ways, all by sending multiple or individual SMS through FLSMS (Mahmud et al., 2010; FrontlineSMS, 2011).

Besides providing accurate and instant information, mHealth is already opening new dimensions and possibilities in health networks. This realization was also made by Josh Nesbit, founder of FrontlineSMS medic in rural Africa, where medical capacity has been multiplied more than ten times due to text-messaging software used within the community (Mahmud et al., 2010).

⁴⁴ “Social capital is defined by its function. It is not a single entity but a variety of different entities, with two elements in common: they all consist of some aspect of social structures, and they facilitate certain actions of actors - whether persons or corporate actors - within the structure” (Huysman & Wulf, 2004, p.4)

⁴⁵ FrontlineSMS is a free, open-source software platform that uses a mobile connected to a computer, and only needs a mobile signal, not the Internet to function. The platform opens a hub between a community and support organizations, since the software is able to send messages to large groups of people, and collect responses to any questions or surveys, all via text message (FrontlineSMS, 2011).

Other forms of public mHealth have been reported all over the world. In North America, mobile phones have been used to support children, teenagers, and adults in the treatment of obesity (Woolford, 2010; Arteaga, 2010; Bauer et al., 2010; Toscos et al. 2006), asthma (Holtz & Whitten, 2009), youth suicide prevention (Jenner et al., 2010), and patients with addictions (Cohn et al., 2011; Freedman et al., 2006). Mobiles have been used in Africa to collect postpartum outcome data (Andreatta et al., 2011) and appointment reminders (Mbuagbaw et al., 2011; Crankshaw et al., 2010); in South and Central America with appointment reminders (da Costa et al., 2010; Piette et al., 2010), in Europe, to study uses in therapeutic depression (Bockting et al., 2011; Preziosa, et. al., 2009) and youth addictions (Laursen, 2010); in the Middle East to support diabetes patients (Fatehi et al., 2010). In Asia, the technology has been used to reduce non-attendance to clinics through reminders to patients with chronic disease (Liew et al., 2009) and youth mental health outreach (Furber et al., 2011, Kauer et al., 2009). The list of research topics increases every year in each continent.

In community support, the use of mobile phones for sexual health interventions has been reported in the US, in San Francisco with HIV/AIDS treatments (Levine, 2009; Levine et al., 2008; Krisberg, 2009) as well as in Ireland for informing about screen tests (Brugha et al., 2011), and in Peru (Bernabe-Ortiz, et. al., 2008), South India (Shet et al., 2010) and Australia (Lim et al., 2009) collecting sensitive data in researching HIV/AIDS. The results of these studies show that text messaging in health has converged the medical tradition into a new culture of time, quality, productivity, accessibility and affordability (Istepanian, Laxminarayan & Pattichis, 2006).

This information is not being ignored by policy makers and private/government organizations on continents like Europe, where Istepanian, et al., (2006) reported that the European Commission planned to adopt common e-health policies and to implement European health information networks, such as mHealth, by 2008. They have recognized the importance of this device in the future of health care systems, its fast evolution, and the amazing effect that text messaging has on an individual's positive and negative communication (Coyne et al., 2011; Reid & Reid, 2011), their connectivity, sociability (Green & Singleton, 2009; Mbuagbaw et al., 2011), learning / skills development (Sharples, Taylor & Vavoula, 2007), changing behavior (Greifinger, 2009), and most importantly, how this device has overcome the socio-cultural disparities that other health networks and media have not, such as the lack of access to tools or discrimination (Levine et al., 2008; Krisberg, 2009; Bernabe-Ortiz et al., 2008).

2.3.2. Why mHealth matters for the health initiatives of Canada

In Canada, there is little that is shown in the literature regarding how mobile phones are socially or structurally changing health institutions or its users. Very few studies have demonstrated cases of technology adoption in organizations, especially in health service organizations (WHO, 2011; Set et al., 2010; Cole-Lewis & Kershaw, 2010; Lawence & Er, 2007; Greenhalgh et al., 2004). Literature of how SMS technologies can or are empowering citizens to transform practices, governance, and understanding of health in Canada is in early stage. Recently, some case studies have been published related to health campaigns using texting to prevent diseases (Borycki, 2012), however in the specific case of pregnancy support this are of the literature in Canada remains unknown.

This information and knowledge becomes relevant in the context of this study, because today, in Canada, health care networks are facing the challenge of how to connect community practitioners, trustworthy information, individuals at risk, or with special health needs, and the ready information that this new era demands (Gomez, 2008). Susana Fox (2010a, para. 16) from the Mayo Clinic in the US called this information readiness a “massive shift in communications” where community health care providers need to realize that information has and needs to become portable, personalized, and participatory to be accessible.

Over the last decade in Canada, policy makers have recognized the value of participatory action research (PAR) and community-based research (CBR) in health because this research recognizes and involves the community in the development of their solutions. More recently, policy makers are financially supporting projects that promote citizen participation in the solutions to their own health matters (Flicker, et. al. 2008). This shift in policy that favors more participatory research is a reflection of what Fox (2010a) called the shift of a landscape or “the building of a new civilization” (para. 3): the cell phone generation, in which mobiles have become essential in the daily socio-economic dynamics of young individuals (Terry, 2008). Additionally, with the incredible penetration of Smart phones in western society, the device is “captivating subscribers from school children to senior citizens” (Boulos et al., 2011, p.2).

Knowing that 26% of cellphone users in Canadians are accessing health and wellness information mobile technologies (CWTA 2012, p. 77) suggests that Canadian studies for incorporating the capacity that mobile phones have for their users, to direct them to create new markets or landscapes of communication, will be needed in the short

term. This is especially true in areas like sexual health, where connections between citizens and the system are fundamental for social inclusion and change. This is significant, especially understanding that social networks lead to social cohesion, social intervention, and the construction of human and social capital. There is evidence that demonstrates how social networks positively affect health (Abroms & Maibach, 2008; Huysman & Wulf, 2004) by “linking resources and information embedded in social networks and health” (Eriksson, 2011, p.2). There is also data revealing that half of Canadians mobile phone users, specially the female population or those ‘living in cellphone only households’, are very interested in using mobile phones to interact with healthcare professional (CWTA, 2012, P.88).

Furthermore, given the evidence of these studies, there are valid reasons to believe that the role of virtual networks in professional health practices, such as those enabled by mobile phones, have the potential to facilitate not only relationships between the community participants, but also knowledge transfer between users and sexual health networks.

2.4. A Generation that has grown in the digital transformation

2.4.1. Youth and the technology phenomena

The world is the same size, yet with these richer, more direct and quicker forms of communication it seems smaller and more accessible.
(Otnes & MSL, 2011, p. 297)

Perhaps one of the most important references to mention, in the context of this study about youth and the technology phenomena, is the reflections made by Thompson & Cupples (2008) and Hjavard (2008), based in the work of McLuhan (1964), as to how important, as a society, it is for us to understand that we can no longer conceive any digital media, and in this particular case, mobile phones, as separate from the user, their culture, and social structure.

In reality, we are talking about a new entity resulting from the mediatization process, and not merely a historic phenomenon occurring between two participants in a certain space and time. Raised in the digital era, new generations grow ‘in an atmosphere of tremendous technological growth’(Skierkowski & Wood, 2012, p.744). They have

configured their neural networks⁴⁶ through the mobile phone, a technology that besides being distinguished by others in terms of mobility and individual ownership (Thompson & Cupples, 2008, p. 96), offers them an instantaneous, confidential, and inexpensive communication channel; indispensable for their choices in their daily life (Mullen, 2011; Sharples, Taylor & Vavoula, 2007; Greifinger, 2009; Krisberg, 2009). The Pew Research Centre in 2010 described social media as the most powerful force in young people's lives (Malikhao & Servaes, 2011, p. 69).

Today, teenagers and young adults all over the world use mobile phones, especially Smart phones, exclusively and indiscriminately to communicate with themselves, and the world, thanks to an unlimited connection with the net. Subrahmanya & Šmahel (2011) mentioned in their book, that among 12-14 year old teens, 98% in the US, and 96% in Canada use the internet. The figures are similar or higher in other parts of the world. Yes, they are and want to be connected!

It is not surprising that mobile phones have become an inner conscience of the youth generation, especially in the developed world, where more access is available. The mobile phone has arisen with power and intensity, to mediate interpersonal relationships, especially among family and friends (Lenhart et al. 2010). In some cases, the device and its services have replaced traditional forms of communication, and some suggest, some forms of human relationships. This is very important to review in the light of theories of adolescent development and peer relationships, where keeping connected to peers is critical for maturity, social construction of life, and relationship with society (Turkle, 2008, p. 125).

SMS as the chosen communication tool of youth

The best thing about (the cell phone) is social texting.
(Lenhart et al., 2010, p. 30)

Texting, as the preferred mobile phone service by youth of all cultures (Söderström, 2011) has grown enormously, and is even called “the core of teens” (Lenhart et al. 2010, p. 47; Turkle, 2008). Some of the advantages registered throughout

⁴⁶ “Neural network models are algorithms for cognitive tasks, such as learning and optimization, which are in a loose sense, concepts derived from research into the nature of the brain” (Müller, Reinhardt & Strickland, p.14). This theory recognizes how the human brain is interconnected by neurons through the ‘incredible complexity’ of the nervous system, especially those that are involved in the human intellect. This theory has been used to explain information processing systems in human brains and in machines, as well as other important scientific advances.

the world in the literature about uses of mobile phones, especially texting, by youth and people in general, is the capacity of “always being connected, the possibility to feel and be safe, change plans on the fly, and a *companion* for many teens when they are bored and want to entertain themselves’ (Lenhart et al. 2010, pp. 65-75). Texting has provided them the capability to accomplish micro-coordination and multitasking. It is functional, produces uninhibited behaviors of self-disclosure, and is seen as a necessity for life, even called ‘the one that I cannot live without’ (Subrahmanya & Šmahel, 2011; Haverila, 2011).

Recent studies have indicated that text-messaging has not only resulted in “a new form of dependent behavior”, possibly triggering a release of dopamine in the brain, resulting in addiction to the technology (Small, 2009; Walsh, White & Young, 2008), but is also changing the development of areas of the brain in teenagers because of their communication practices (Aratani, 2007; Carr, 2011). As mentioned previously, this is important to consider, since language is a factor that has changed society over human history (Marsh, 2011).

This year, the Pew Research Center's Internet & American Life Project stated that in the U.S. “Texting is the preferred method of communication among teens, and the number of texts sent daily is increasing” (Percell, 2012, p. 23; see Figure 2-6). Here in Canada, the consumption of text-messaging is also increasing. At the end of March 2012, Canadian wireless phone subscribers numbered 26 million (CWTA, 2012). The Canadian Consumer Affairs Minister, Gord Mackintosh, said that the average young person is sending almost 3,500 texts in a month (Province of Manitoba, 2011).

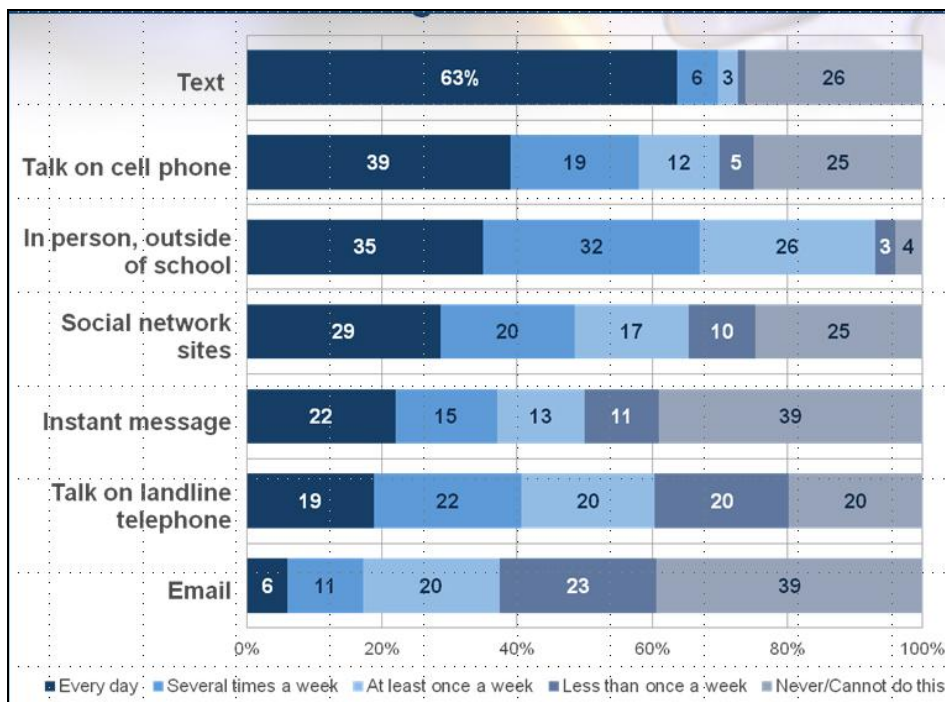


Figure 2-6. Volume of teen texting in U.S. (extracted from Purcell, 2012, p. 23).

The Canadian Wireless Telecommunications Association (CWTA)'s website⁴⁷ states that in Canada, 254 million text-messages are being sent per day, and uses of mobile phones vary from personal affairs, such as browsing dating chat sites, downloading apps with flight status alerts, weather, voting systems in reality shows, donations, mapping or navigation information, mobile banking (mbanking) to political and volunteer involvement (CWTA, 2012). This is even more impacting, with the knowledge that over 80% of young adult Canadians take their cell phone to bed (CWTA, 2011) and confirms that indeed the current population could be called the “cell phone generation”. Bernard Lord, President and CEO of the CWTA described text messaging as “one of the most important tools for Canadian families to stay connected and keep safe” (Canada NewsWire, 2010).

Recently there have been innumerable campaigns encouraging the use of mobiles, and especially text messaging, for community participation, such as the Youth Mobile Phone Film Making Project (City of Canada Bay, 2011), as well as bank transactions and commerce (Industry Canada, 2010a), education, services such as youth employment (Korenblum, 2010), and connecting volunteers (McGinn, 2009). As

⁴⁷ <http://cwta.ca/facts-figures/>

McEwen (2010, p.38) stated in her dissertation, “Increasingly, Canadians are using mobile phones as a primary communication device, especially among young adults”.

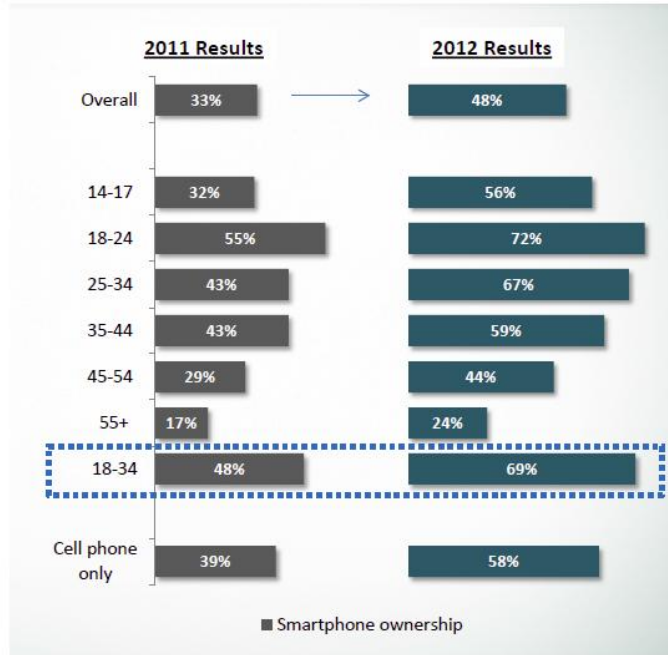


Figure A

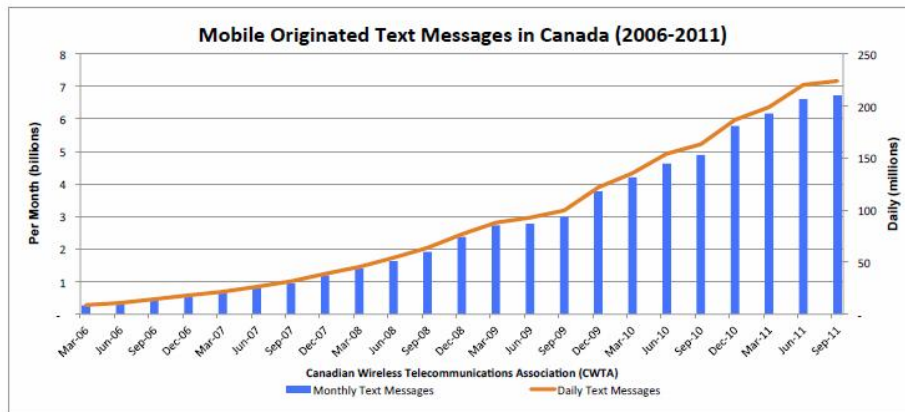


Figure B

Figure 2-7. Extracted from the CWTA reports. Figure A shows the increase of Smartphone ownership in Canada by age (CWTA, 2012). Figure B shows monthly and daily uses of text messaging in Canada from 2006 to 2011 (CWTA, 2011).

SMS has created strengths in young adults' life

Technology is not just a creator (and destroyer) of old forms of social capital. New forms of social relations can emerge that would be infeasible without computers mediating interactions and managing the interaction traces and artifacts that are created during interactions.
(Resnick, 2001. p. 667)

More and more, there are reports about how mobile phones have substantially changed the life of youth, empowering them with an independence and right to social control that did not exist before (Söderström , 2011). Rice & Hagen (2010, p. 18) stated that mobile phone use is connected strongly to human perceptions of influence, power, and status. The NET generation is a civilization that openly demands closeness, and it achieves this through mobile devices. This is a time of changing hierarchies in relationships, and where social questions are no longer about how to achieve access or closeness, but what this new generation or civilization does with the access that mobile devices openly provide (Pet al, 2012; Fox, 2010a; van Manen, 2010).

In the U.S, Brenner (2012), from the Pew Research Center's Internet & American Life Project, recently stated that by 2011 “young adults, between the ages of 18 and 24, exchange an average of 109.5 messages on a normal day and the typical or median cell owner in this age group sends or receives 1500 messages per month” (para.25). Her study found that most text-messages uses are to:

Take a picture, send or receive text messages, access the internet, send or receive email, record Video, download Apps, look for health or medical information online, check bank account balance or do any online banking among coordinating a meeting ,distraction or engagement while watching television, and others (para 28)

A recent Canadian study looking at how teens are using social media, reported that 79% of them are using it for creating things like new language, information, and knowledge, as part of the evolution that the digital revolution and mobile culture is causing in everyday communication (Wexler, 2011; Caronia, 2009).

SMS has permitted people to achieve new levels of trust and intimacy. The way that young adults the world over relate today through texting technologies have made scholars label mobile phones, and especially text messaging, an important component of social interactions (Rice & Hagen, 2010). These inquiries become relevant when closeness through access does not necessarily mean being closely attached to, very

intimate, or familiar with someone (*near*, 2011). Likewise, this does not necessarily mean creating bonded relationships or trust (van Manen, 2010, p. 1027, Pettigrew, 2009).

However, Isagarichi et al., (2005) as well as recent scholars (Skierkowski & Wood, 2012; Coyne et al., 2011; McEwen, 2010; Rice & Hagen, 2010; Blair & Fletcher, 2010) have found that young adults as well as adults are likely to increase intimacy and trust with those with who they text, because it reinforces their bonds, closeness, mutual dependence, deep familiarity, affection, and commitment by being able to maintain contact without restrictions of time or space. In fact, it has been recorded that young adults only text, in the majority of cases, with close friends or family.

Rice & Hagen (2010, p.10) stated that SMS has become the ritual totem for relationships among young adults to reinforce established relationships, increase connection with those who are familiar⁴⁸ or share ideologies and interests, and to develop relationships with people they meet only online; “and contact connection is linked to significance of the relationship” (p.11). Furthermore, Skierkowski & Wood (2012, p. 746) found that in young adults and other people, SMS promotes “feelings of being loved, valued, popular among their peer networks ... experiencing a greater sense of belonging”. Coyne et al. (2011, p.161) also found that texting has become “the primary way many couples stay in touch with each other”.

These facts are important, especially if they are linked with what Dani et al. (2006) wrote about how “communication plays an important part in building trust” (p.955) in any relationship. This is because communication can reinforce reliability and commitment, which are keys to building trust (Cummings & Bromley, 1996).

In Canada, recent graduate research has shown that most youth use text messaging because it strengthens strong relationships that they already have, and helps them to connect with support that provides useful information. “The person has become the portal and this is important for youth that have less structured lives” (McEwen, 2010, p. 40). In other words, since young adults are one with their devices, they become a source of trustworthy information with their peers, even though they may be geographically distant.

SMS could also be a challenge for youth

However, as much as texting has strengthened their close relationships, it has also generated multiple challenges – behaviors in the NET Generation that previous

⁴⁸ They found that this is especially the case in North America.

generations did not encounter. Perhaps this is because the same disinhibition effects that the digital sphere produces can act as "a double-edged sword and can cause toxic disinhibition" (Suler, 2004, p.321). Results include conduct that, without laws and boundaries that fully encompass digital scenarios, and protect their "cyber civilians", could become an unmanageable and destructive social force.

Canada, like many other countries in the world, is today facing challenges, such as cyber-bullying, sexting, cheating through text, driving and texting, and other phenomena that are related with electronic interactions. Canadian institutions, such as the Canadian Centre for Child Protection⁴⁹ have realized the major influence that mobile phones, and especially SMS, has in the life of teens, and how much they need texting education programming in Canada's schools and networks that support their effort to protect the wellness of this population (Canada NewsWire , 2010).

Socially obligated to be connected. Lenhart et al. (2010) describe the feeling of being obligated to be reachable as one of natural "social expectation created by constant connectivity" (p. 65) and also as one of the primarily negative effects of the youth-texting reality. Perhaps, the constant stimulation caused in the new generation's brains affects more than what we observe, creating addiction or dependency (Thomé, Härenstam, & Hagberg, 2011; Richtel, 2011; Baron, 2010; Bianchi & Phillips, 2005). Other physical effects are related to depression and increased deprivation of sleep because of the "always on" nature of the device. Dr Rich, of Harvard medical school, described these emotional effects as those related with tiredness; "downtime does to brain what sleep does to the body" (Richtel, 2011, p. 7). Thomée et al. (2011) also found that there is "even an indication towards a dose-response relationship between exposure and mental health outcomes" (p.10).

Campbell (2006) has also shown how the mobile phone, in terms of social construction, has helped youth to developed autonomy and identity, but at the same time has been a potential tool of social control and exclusion, as means to be always connected through the device to family and friends, as well as to information networks. These findings reveal a relationship between isolation from real connections with other

⁴⁹ "This is a charitable organization dedicated to the personal safety of all children. Their goal is to reduce child victimization by providing programs and services to Canadians" (<https://protectchildren.ca/app/en/>).

people and being too embedded with the technology (Carr, 2011; Albury, Funnell & Noonan, 2010).

Texting permits relationship discrepancies. A second potentially damaging use of mobile phones is what many scholars have described as the relational discrepancy of the technology (Allen, 2012; Thomas & Mcgee, 2012; Lenhart et al., 2010). Even when text messaging has become an essential part of the youth generation and has enhanced their close social networks, it also has been associated with a form of what we know as bullying, called Cyber-bulling⁵⁰. These behaviors are part of the harassment that many adolescents experience, and could be increased exponentially through digital devices. It can affect individuals or groups, and most victim cases are registered in female populations. They have produced effects in teens and youth that vary from feelings of anxiety, frustration, hopelessness, powerlessness, losing trust in people, anger, depression, low self-esteem, meaningless existence, and in some cases, unfortunately, suicide (Allen, 2012, pp. 108-110).

In Canada, half (51%) of teens with a social networking profiles have had negative experiences with some aspect of social networking. These experiences include someone else posting an embarrassing photo of them (16%), someone hacking their social network account pretending to be them (12%), and someone using information they found about them online to harass them at school, home, or work (6%). (Ipsos Reid, 2012, para. 5)

Texting and driving. Another phenomenon that has been recently documented in national and international newspapers, and has created polemic debate around the globe and especially among government institutions is the issue of texting while driving. Rosenberger (2011) stated how “more than 30 states in the US have enacted bans on sending text messages while driving” because there is more and more evidence of how much this activity has threatened people’s safety, since drivers that text are not safe on the road and potentially can hurt themselves or other drivers as result of their behaviors (p. 80). Strayer et al., (2011)⁵¹ concluded that “talking on a cell phone

⁵⁰ “The latest technological incarnation of bullying” (Thomas & Mcgee 2012, p. 20). Cyber-bullying happens through text messaging, social media networks, or emails. It is defined as the misuse of the technological tool to harass people with hostile and aggressive messages, to intentionally exclude other people, and to gossip about others.

⁵¹ Research group at the University of Utah, who has been studying driver distraction for the last ten years.

while driving increases the crash risk by a factor of four. Visual processing is substantially impaired when drivers are talking on a device” (pp.42-47).

In Canada, the figures are concerning as well. Simons (2012) described that in Alberta alone, this year, “as of July 15, there had been 14,939 convictions for distracted driving under the new legislation. Of those, 94.6% involved the use of hand communication devices, such as cell phones or tablets” (para.7).

Mobile phones and cheating. Other concerns have been raised in the uses of texting in education. Much has been reported in the literature about the promising advantages that the use of mobile phones has for the education system (Teocharis, 2012; Young, 2011; Kowalik, 2011; Engel & Green, 2011; Yau & Joy, 2010). In fact, a recent survey done by Ipsos in Canada found that “nine in ten (86%) of people ‘agree’ that schools should invest money in better and new technology to help teach kids”⁵². However, there is also literature reporting the misconduct of adolescents and children using mobile phones for cheating.

In fact, a recent study conducted by Common Sense Media (2011) found that “more than 35% of students admitted to using their cell phones to cheat” (para. 1). Paul Cappon, president of the Canadian Council on Learning (CCL), has associated the widespread use of mobile phones and their advancements with the spread of cheating at school; “over the past decade, internet and high-tech devices have enabled a virtual explosion of classroom cheating” (Brothen, 2010, para. 8).

2.4.2. Youth, health and technology

Nevertheless, mobile phones and their advancements have not only contributed to the increase or creation of negative behaviors, but also to the increase and innovation of wellness and especially, self-managed health.

In the US, in 2010, the Pew Research Center’s Internet & American Life Project published a report indicating that mHealth has become popular with teenagers who increased their use of health apps on their mobile phones by 15%. “There are apps for counting calories and nutrition information, ... apps providing health tips, apps to calculate disease risks, ... apps for keeping personal health records and for providing user’s health information to physicians and emergency workers, ... and others”(Fox, 2010 b, p. 2; Estrin & Sim, 2010).

⁵² <http://ipsos-na.com/news-polls/pressrelease.aspx?id=5760>

In Canada, 26% of “cell phone users access health and wellness or nutritional tools” (CWTA, 2012, p.7). Most of those users are owners of smart phones and between 18 and 34 years old. The tools (apps) downloaded or accessed are related to weight management, exercise, and healthy recipes. 24% of Canadians also reported to be interested in storing health information in their devices and 47% showed a real interest in interacting with a health professional through their device, for purposes of health emergencies and reminders (ibid, pp.7-24).

Sexual health is a challenge for youth

Across the globe, one of the biggest challenges for agencies, institutions, governments, and stakeholders supporting sexual health in the youngest generation is that despite the enormous efforts and campaigns to educate this population in safe sexual behavior, most of them do not use this information because of fear, avoidance, lack of understanding, barriers to access, distrust in practitioners and methods, or social / relationship pressures (Barbour et al., 2012; Colarossi, Billowitz, & Breitbart, 2010).

In Canada, this is a matter of high importance, since young populations are at serious and increasing risk of sexually transmitted diseases (STIs), including HIV/AIDS, and becoming prematurely sexually active or pregnant from grade 5 onward (Flicker & Guta, 2008; Keller, 2011). Currently, “half of all new HIV infections occur between the ages of 15 and 25” and the highest rates and increase of STIs and unplanned pregnancies are in people between these ages (Flicker & Guta, 2008). Additionally, a recent study of the University of British Columbia stated that “nearly half of all pregnancies in the United States and Canada are unintended, and because of this reason, abortion is presently one of the most commonly performed surgical procedures among reproductive-age women in North America” (Cessford & Norman, 2011, p. 39).

As a result of becoming prematurely pregnant, many youth are becoming part of the abortion statistic or they enter into the fastest growing family category in Canada: single parents. Without mentioning the consequences involved with early-age abortion (which is beyond the scope of this study), it is important to highlight that teenage single parenting is reported as a family type “where more children are at risk physically, economically and emotionally” (Flanagan, 2006, p.4). In Alberta “a higher proportion of urban aboriginal youth live as a single parent” (Wishart, 2009, p. 468).

This also has an important impact when these groups are in a vulnerable stage of their life where health decisions could affect their long term wellness, as well as their

families. As Flicker & Guta (2008) point out, “the healthy development for this age group means learning how to make informed decisions and negotiate options” (p.3) .

Sexting

*Our generation is built on now.
We want cellphones where we can send text messages right away,
the same thing happens when you want to be sexual
with someone. It's instant sexual gratification.
Richards & Calvert (2009, p. 16)*

Another phenomenon that has created commotion is the influence of mobile phones on risky behavior. Malikhao & Servaes (2011, p.69), among other researchers (Collins et al., 2011; Harris, 2011), have reported and suggested strong links between mass media, new media, and present social media consumption with risky health behavior in adolescents (such as heavy smoking, drinking, and sexual activities such as pornography, unplanned pregnancies and others). This link is important to review, as the latest technologies on devices allow indiscriminate access to all the media mentioned. Is also important to review since “socialization patterns of young people have changed dramatically” because of these technologies (McLoughlin & Burgess, 2009, p.1)

One of the risky behaviors embraced by teenagers through new media is Sexting⁵³. This appears to be one of the most dangerous behaviors assumed by the NET generation, and is of concern to the government, social institutions such as schools, and parents. Its consequences vary from an inducement to casual sex and increased partners, increased anxiety, social humiliation, to physical and social punishment that could turn into bullying or sexual assault, suspension from school, criminal prosecution (such as being accused of involvement with child pornography⁵⁴), and suicide (Albury & Crawford, 2012; Drouin & Landgraff, 2011; Harris, 2011; Henderson, 2011; McAuley, 2011; Jolicoeur & Zedlewski, 2010; McLoughlin & Burgess, 2009).

Also, as described in Albury, Funnell & Noonan (2010) this phenomenon is useful to understand, because those who are most exposed are women, girls, and their

⁵³ "The term combines the words ‘sex’ and ‘texting’, conveying the convergence between sexual behaviour and text messaging. Sexting may include sending, receiving, forwarding, and/or posting sexualized images and/or text through a variety of digital platforms including text messaging, social networking sites, e-mail, and blogging" (Bailey & Hanna, 2011, p.409).

⁵⁴ Richards & Calvert (2009) called sexting a phenomenon that has “outstripped the law” because there is little agreement among authorities on how to proceed with sexting cases. Some attempts have been made to apply traditional child pornography laws to the phenomenon (p.3).

sexuality. In Canada, Bailey & Hanna (2011) stated that girls are more exposed than boys since they are the ones “to suffer negatives social consequences from unauthorized secondary redistribution of their sexts” (p.440). Unfortunately, many young people do not realize the consequences until many years later, because, among other reasons, their “brain has not fully developed” to completely understand the negative social repercussions (Albury et al., 2010, p.3).

Lenhart (2009, p.4) from the PEW Research Centre stated that the US government has focused attention on how teens are “misusing mobile phones as part of their sexual interactions and explorations”. In reality, this phenomenon has caught the attention not only of America⁵⁵, but other countries such as the UK, Australia, Canada, and China because of increasing cases of suicide related to sexting (Jolicoeur & Zedlewski, 2010).

Also, in Canada, Bayle & Hanna (2011, p.408) described that even when there are “many short-term and long-term consequences” from sexting that include reported cases, such as increasing sexting complaints with the Toronto police, it seems that the government has focused its attention on educating society about the issue more than changing policies⁵⁶. The reality is that most teens (71%) and adults (81%) agree that sharing nude or semi-nude images of themselves or other teens electronically (through cell phones, websites, and/or social media networks) leads to more sex in real life. (Albert, 2010, p. 6).

In reference to this study, this facts are important to consider and review since, again, in Canada do not exist studies that reveal the scope of mobile phone uses for sexual health care. Furthermore, this findings suggest that the challenges that sexting has seems to be translated or adding to the present sexual health challenges that the youth population faces.

SMS: “the sexual super peer”

Paradoxically, and as mentioned previously, Canadian studies that offer socio-cultural information about the influence of text-messaging in youth, sexual health care, or

⁵⁵ “The California State Senate has recently passed a no-sexting bill (SB919) that allows for expulsion of students who engage in sexting on school property or on the way to or from school” (Drouin & Landgraft, 2011, p. 444)

⁵⁶ In Canada, the law has basically chosen to “not publicly pursue” cases that involve minors with sexting. No reports exist of prosecutions related with this behavior either (Bayle & Hanna 2011, p.418).

studies that have focused on a theoretical rationale for the uses and challenges of mHealth in sexual health networks, do not exist. (Cole-Lewis & Kershaw, 2010; Gomez, 2008). Only a single case study has been published referring to the benefits of using personal digital assistant technology (PDA) to support nurses and community health workers in the diagnosis and treatment of aboriginal patients with diabetes, STI / HIV, and in healthy reproduction for youth (WHO, 2011, p.56-59).

This gap in research literature is significant, particularly if it is connected to the mentioned gap in comprehensive knowledge available to youth, something that has been identified in Canada and across the globe.

It is also significant that findings show new mobile phones (smart phones) are the communication tool chosen by the younger generation to seek online health information, especially that related with risky or problematic behaviors (Mitchell et al., 2011; Subrahmanyam & Šmahel, 2011; Ybarra & Suman, 2008). Brown, Halpern & L'Engle (2005, p.424) labeled the mobile phone "the sexual super peer", since mobile phones are replacing peers and traditional social networks and becoming a peer-counselor on topics related to sexuality, such as dating, birth control, STDs, etc.

Since a few years ago in the US and Australia, several articles have been published regarding the effectiveness of SMS for reminders and promoting behavioral change through sexual health promotion. Convincing results in these studies highlight the reduction of risky behaviors, such as reduction in number of sexual partners, amongst others, because of the simplicity of text reminders. This effectiveness is explained through combining trustworthy sexual health resources with the digital technology that offers interactive, frequent, and most of all, personable messages which make the information comprehensive, simple and useful (Comes et al., 2012; Selkie, Benson & Moreno, 2011; Gold et al., 2011; Lenhart et al., 2010; Nielsen, 2009; Cornelius & St. Lawrence, 2009; Levine, 2009; Levine et al., 2008; Dobkin et al., 2007).

In other locations, such as Europe, Africa, and Asia, recent studies have demonstrated that the use of text messaging has been fundamental to supporting initiatives of sexual health for youth because of the advantages of the technology, such as affordability, and anonymity (Mitchell et al., 2011; Lim et al., 2010; Kinkade, Verclas & Toyama, 2008; Grinter & Eldridge, 2001). These become relevant when studies reveal that youth in Canada are still at serious risk of contracting sexual diseases and unplanned pregnancies (Flicker & Guta, 2008).

In sexual health networks, mobile phones have been used successfully for “appointment reminders, provision of STD test results, communication of sexual health information, and assisting with contacting partners after an STD diagnosis” (Greifinger, 2009). Furthermore, these studies have demonstrated that using text messaging in sexual health campaigns promote a participatory behavior in people because it makes the service personal, private, and portable.

This is what more sexual health care providers are trying to attain through their efforts: a two-way relationship that fosters trust for both parties and offers strong networks. The question of what could link their needs and the strength of this technology, then appears to be that text-messaging could increase the relational capacity of sexual health networks in Canada. If mHealth has the capacity to foster awareness and behavioral change in other parts of the world, it is relevant to see if text-messaging can increase relationships that foster social networks that provide support and guidance for populations at risk, such as our young adults in Canadian cities.

SMS could support unplanned pregnancies in youth

This question is also linked to what Canada today sees as one of its current issues in health services: the dual benefits of information and communication technology that provide access to benefits as well as the detriments of the system. In this, Lavis & Hoffman (2011) explained that globalization has changed health systems, including the Canadian system, incorporating new issues that arrived with it:

Through technology the world has become increasingly independent and interconnected such that the health of Canadians is now increasingly influenced by global issues emerging from places far away. (p.9)

Some of those issues have added to what is known as risky sexual health behaviors, such as *Sexting*, mentioned in numeral 2.2.1.3.3. However, this openness has also brought access to solutions to long-term health issues that have been affecting young adult Canadians for decades, such as unplanned pregnancies, STDs and other consequences of risky sexual behaviors.

One of those solutions is what Fogg & Adler (2009) call the persuasive proven power that text messaging has in people’s lives, and chiefly in the young adult generation, “because it can motivate and empower” them and because they already have a love relationship with the device. They trust it and its capabilities, and it is always with them (p.4-5) as was mentioned in the literature before. Furthermore, Fogg & Adler

predicted that in 13 years, mobile phones will be the most used platform to changing people's attitudes and behaviors.

Whether this forecast becomes real or not, it supports specific studies around the world that are using the ubiquitous power of mobile phones to empower low-income mothers (including teens). In Africa, the Philippines, Russia, and South America, initiatives have been tested using the benefits of text messaging. Unplanned pregnancies and poor natal care in developing countries⁵⁷ are linked to a lack of information, inability to reach information resources, or delay in receiving health care attention (Comick et al., 2012; Parker et al., 2012; Banks, 2011; Noordam et al, 2011; Nesbit, 2010; Lund, 2009; WHO, 2011). These programs are using SMS in devices that do not require an internet connection to link “pregnant women and their newborns to the health system with mobile phones” (Lund, 2009, p. 4), empowering women and young adult girls with information and resources that were unreachable before, improving their maternal services (less delays) and reducing maternal deaths.

In developed countries where the challenges in maternal health vary in terms of accessibility, the approach is tailored. Recently, the US has introduced mobile applications to support sexual health campaigns related with pregnancy care issues (Evans et al., 2012; Collins et al., 2011; Katz et al., 2011). They have found in their country there exists as high a mortality rate, in minority populations⁵⁸, as exists in developing countries. Because of this reason, they have created text messaging programs based on theories of planned behavior and social cognition, such as the text4baby program (see Figure 2-8).

⁵⁷ That results in perinatal mortality (Cormick et al., 2012, p. 1).

⁵⁸ Such as African Americans, Natives, and Hispanics.

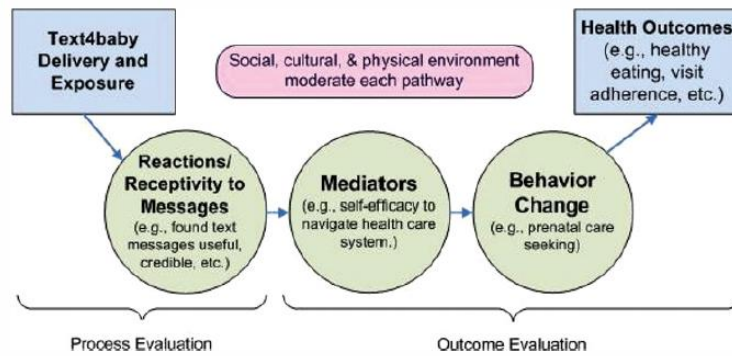


Figure 1. mHealth conceptual model of behavior change for the Text4baby project. Social cognitive theory and the health belief model were used to predict behavior change. Source: Evans, 2011. (Figure available in color online.)

Figure A

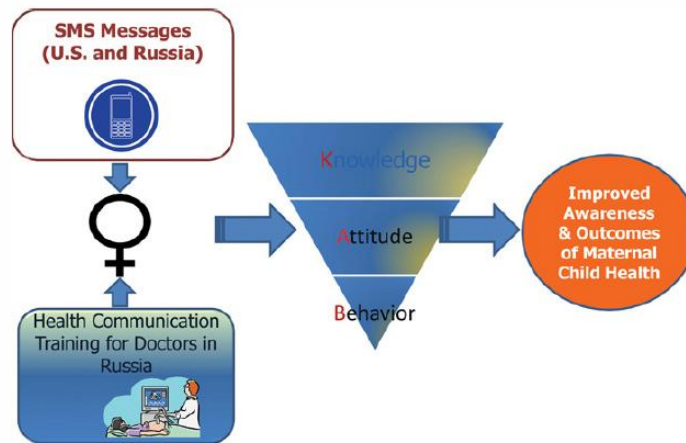


Figure 1. Text4baby logic model for project interventions, process, and outcomes. SMS messages=short message service messages (commonly referred to as text messages). (Figure available in color online.)

Figure B

Figure 2-8. Behavioural theory of Text4baby project in the US and later replicated in Russia (Figure A extracted from Evans et al., 2012, p.24; Figure B extracted from Parker et al., 2012, p. 32).

Text4baby is a national initiative of National Healthy Mothers (Evans et al., 2012, p. 24) which delivers “just in-time” text messages that help to improve prenatal and postpartum health care behaviors. Another program, GirlTalk, is part of the NHI-DC

initiative⁵⁹ to reduce teen pregnancy and subsequent pregnancies in Washington, DC. This program is comprised of a telephone counseling service available through mobile phone, scheduled on a weekly basis, that is focused on improving teen's reproductive health planning (and delaying further pregnancies) by:

building knowledge of health risks and developing positive teen attitudes and skills for future orientation and self-regulation. Other issues addressed included improving sexual partner communication and negotiation skills, resisting peer pressures for risk behaviors, and increasing connectedness with family, health providers, school, and work settings. The focus of the curriculum was on the teen's own goals and needs. (Katz et al., 2011, p.45)

Both programs successfully recognize that including individual, social, and contextual factors in their social media, such as texting, was fundamental, because these factors are key to supporting the sustainability and success of any initiative that intends to address a sensitive and cross-cultural challenge, such as maternal health, especially in unplanned pregnancies or with populations at high risk.

This information is relevant in the context of this study, as (1) in Canada at the date of this research, there are no reported studies that have used text messaging to support the role of maternal health, (2) low-income mothers and unplanned pregnancies present a social problem, and (3) there exists a need, due to the lack of literature, to understand how other initiatives in this specific area, facing similar challenges, are overcoming pitfalls by incorporating the power of mobile phones in their efforts.

In Canada, community outreach organizations supporting maternal health could vastly increase their service capacity by using text-messaging and understanding its power in the new connected society.

2.5. References

- Abrams, L.C., & Maibach, E.W. (2008). The effectiveness of mass communication to change public behavior. *Annual Review of Public Health, 29*, 219-234.
doi: 10.1146/annurev.publhealth.29.020907.090824
- Aker, J., & Mbiti, I.M. (2010). *Mobile phones and economic development in Africa*

⁵⁹ “This program is a collaborative project among four academic research institutions: Children's National Medical Center, Georgetown University, George Washington University, Howard University; a data-coordinating center : RTI International and the National Institutes of Health : Eunice Kennedy Shriver National Institute of Child Health and Human Development and the National Center on Minority Health and Health Disparities” (Katz et al., 2011, p.43).

- (Working Paper No. 211). Washington, DC: Center for Global Development (CGD). Available at SSRN: <http://ssrn.com/abstract=1693963> or <http://dx.doi.org/10.2139/ssrn.1693963>
- Albert, B. (2010). *With one voice 2010: America's adults and teens sound off about teen pregnancy*. Washington, DC: The National Campaign to Prevent Teen and Unplanned Pregnancy.
- Albury, K., & Crawford, K. (2012). Sexting, consent and young people's ethics: Beyond Megan's story. *Continuum: Journal of Media & Cultural Studies*, 26(3), 463-473. <http://dx.doi.org/10.1080/10304312.2012.665840>
- Albury, K., Funnell, N., & Noonan, E. (2010). The politics of sexting: young people, self-representation and citizenship. In K. McCallum (Ed.), *Proceedings of the Australian and New Zealand Communications Association Annual Conference (ANZCA): 'Media, Democracy and Change'*. (pp.1-13). Canberra, AU: University of Canberra.
- Al-Khamasey, S., & Lawrence E. (2010). Mobile government in action at local councils: A case study. *Proceedings of the ICDS '10: Fourth International Conference on Digital Society*. (pp.1-7). Feb. 10-16 2010. Dubai, United Arab Emirates: Higher Coll. of Technol., Dubai Women's Coll., Conference Publications.
- Andreatta, P., Debpuur, D., Danquah, A., & Perosky, J. (2011). Using cell phones to collect postpartum hemorrhage outcome data in rural Ghana. *Int J Gynaecol Obstet*, 113(2), 148-151. doi:10.1016/j.ijgo.2010.11.020
- Apple Canada (2012). *The new iPad: It is brilliant from the outside in*. Retrieved from: <http://www.apple.com/ca/ipad/>
- Aratani, L. (2007, February 26). Teens can multitask, but what are costs?. *The Washington Post Staff Writer*. Retrieved from: <http://www.washingtonpost.com/wp-dyn/content/article/2007/02/25/AR2007022501600.html>
- Arteaga, S. (2010). Persuasive mobile exercise companion for teenagers with weight management issues. *SIGACCESS Access.Comput.*, 96, 4-10. doi: 10.1145/1731849.1731850
- Ash, A. (2012, June 12). Boutique get mobile: Instagram for advertising, promoting and connecting with clients. *Edmonton Journal*, p. G2.
- Asphari, Z. (2012, April 6). Why is Instagram so popular?. *PCWorld*. Retrieved from:

http://www.pewworld.com/article/253254/why_is_instagram_so_popular_.html

- Associated Press (2012, September 17), Apple says iPhone 5 orders topped 2M in 24 hours; demand exceeds initial supply. *Edmonton Journal*. Retrieved from: <http://www.edmontonjournal.com/business/all/Apple+says+iPhone+preorders+topped+hours+says+demand/7253241/story.html>
- Banks, K. (2011, May 10). Safe motherhood: Mobile healthcare in the Philippines. *National Geographic Emerging Explorer*. Retrieved from: <http://newswatch.nationalgeographic.com/2011/05/10/safe-motherhood-mobile-healthcare-in-the-philippines>
- Bannister, F., & Remenyi, D.(2009). Multitasking: The uncertain impact of technology on knowledge workers and managers. *The Electronic Journal Information Systems Evaluation*, 12(1), 1-12.
- Barbour, J. B., Rintamaki, L. S., Ramsey, J. A., & Brashers, D. E. (2012). Avoiding health information. *Journal of Health Communication*, 17(2), 212-229. doi:10.1080/10810730.2011.585691
- Bashah, N.S.K., Jrstad, I., & Do van T. (2010). Service discovery in future open mobile environments. *Proceedings of the ICDS '10, Fourth International Conference on Digital Society*. (pp. 47 – 53). St. Maarten, Netherlands Antilles: Conference Publishing Services.
- Baron, N. (2010). *The dark side of mobile phones*. Washington, DC: Department of Language and Foreign Studies, American University. Retrieved from American University website: <http://www.american.edu/cas/lfs/faculty-docs/upload/The-Dark-Side-of-Mobile-Phones.pdf>
- Bauer, S., de Niet, J., Timman, R., & Kordy, H. (2010). Enhancement of care through self-monitoring and tailored feedback via text messaging and their use in the treatment of childhood overweight. *Patient Education & Counseling*, 79(3), 315-319. doi: 10.1016/j.pec.2010.03.014
- Bailey, J., & Hanna, M.(2011). The gendered dimensions of sexting: Assessing the applicability of canada's child pornography provision. *Canadian Journal of Women and the Law*, 23(2), 405-441. doi: 10.3138/cjwl.23.2.405
- Bell, C.S., Compeau, D.R., & Olivera, F. (2005). Understanding the social

- implications of technological multitasking: A conceptual model. *Proceedings of the Fourth Annual Workshop on HCI Research in MIS – pre ICIS* (pp.80-85). Las Vegas, NV: AIS SIGHCI. Retrieved from: <http://aisel.aisnet.org/sighci2005/2>
- Berker, T., Hartmann, M., Punie, Y., & Ward, K. (Eds.).(2006). *Domestication of Media and Technologies*. Maidenhead: Open University Press
- Berendien L., & Liebie L. (2010). The perceived value of mobile devices to passengers across the airline travel activity chain. *Journal of Air Transport Management*, 16 (1), 12-15. <http://dx.doi.org/10.1016/j.jairtraman.2009.02.002>
- Bernabe-Ortiz, A., Curioso, W. H., Gonzales, M. A., Evangelista, W., Castagnetto, J. M., Carcamo, C. P., & Holmes, K. K. (2008). Handheld computers for self-administered sensitive data collection: A comparative study in peru. *BMC Medical Informatics & Decision Making*, 8, 1-7. doi:10.1186/1472-6947-8-11
- Bianchi, A. & Phillips, J.G. (2005). Psychological predictors of problem mobile phone use. *Cyberpsychology & Behavior*, 8(1), 39-51.
- Blair, B.L. & Fletcher, A.C. (2010). “The only 13-Year-old on planet earth without a cell phone”: Meanings of cell phones in early adolescents’ everyday lives. *Journal of Adolescent Research*, 26(2), 155–177.
doi: 10.1177/0743558410371127
- Bockting, C.L.H., Kok, G.D., Kamp, L., Smit, F., van Valen, E., Schoevers, R., van Marwijk, H., Cuijpers, P.; Riper, H.; Dekker, J., & Beck, A. T. (2011). Disrupting the rhythm of depression using mobile cognitive therapy for recurrent depression: Randomized controlled trial design and protocol. *BMC Psychiatry*, 11(12),1-12. doi:10.1186/1471-244X-11-12
- Boudreau, J., & May, P. (2012, June 30). Revolutionary iPhone turns 5: Groundbreaking Apple device has changed people’s daily lives. *Edmonton Journal*, p.D10.
- Boulos, M.N.K, Wheeler, S., Tavares, C. & Jones, R. (2011). How smartphones are changing the face of mobile and participatory healthcare: An overview, with example from eCAALYX. *Biomed Eng Online* 10: 24.
doi: 10.1186/1475-925X-10-24
- Brenner , J. (2012, Sept. 14). Pew Internet: Mobile [Commentary]. *Pew Research Center's Internet & American Life Project*. Retrieved from:
<http://www.pewinternet.org/Commentary/2012/February/Pew-Internet-Mobile.aspx>

- Brothen, G. (2010, August 12). Number of cheating students on the rise: study
Internet, technology to blame; proper education the answer. *Canadian University Press*. Retrieved from: <http://newswire.cup.ca/articles/31799>
- Brown, J.D., Halpern, C.T., & L'Engle, K.L. (2005). Mass media as a sexual super peer for early maturing girls. *J Adolesc Health.*, 36(5), 420-427.
doi:10.1016/j.jadohealth.2004.06.003
- Brugha, R., Balfe, M., Conroy, R.M., Clarke, E., Fitzgerald, M., O'Connell, E., Jeffares, I., Vaughan, D., Fleming, C., & O'Donovan, D. (2011). Young adults' preferred options for receiving chlamydia screening test results: A cross-sectional survey of 6085 young adults. *International Journal of STD & AIDS*, 22(11), 635-639.
- Campbell, R. (2006). Teenage girls and cellular phones: Discourses of independence, safety and 'rebellion'. *Journal of Youth Studies*, 9(2), 195-212.
doi: 10.1080/13676260600635649
- Canada NewsWire (2010, 19 November). *New web site will help teach teens to practice safe texting*. Retrieved September 5, 2011, from CBCA Current Events. (Document ID: 2192148641).
- Caronia, L. (2009). *Mobile phones in peer culture: Teenagers' messaging as a metalinguistic performance*. Paper presented at the 59th Annual International Communication Association, ICA, Conference, Chicago, IL. Retrieved from: http://citation.allacademic.com/meta/p_mla_apa_research_citation/2/9/7/6/0/p297600_index.html?phpsessid=9efc4866a07807b76b2060336509acb4
- Carr, N. (2011) *The shallows: what the internet is doing to our brains*. New York, NY: W. W. Norton & Company.
- Castells, M (1996). *The Rise of the Network Society, the Information Age: Economy, Society and Culture* (vol. 1). Oxford: Blackwell Publishers
- CDC, Centres for Disease Control and Prevention, (2011) *The health communicator's social media toolkit* (CS215469-A) . Retrieved from the Social media at CDC website:
http://www.cdc.gov/socialmedia/tools/guidelines/pdf/socialmediatoolkit_bm.pdf
- Cessford, T.A., & Norman, w. (2011). Making a case for abortion curriculum reform: A knowledge-assessment survey of undergraduate medical students. *J Obstet Gynaecol Can*, 33(1), 38–45.
- Chena, Y.F., & Katz, J.E. (2009). Extending family to school life: College

- students' use of the mobile phone. *Int. J. Human-Computer Studies*, 67(2), 179–191. <http://dx.doi.org/10.1016/j.ijhcs.2008.09.002>
- Cherubini, M., de Oliveira, R., Hiltunen, A., & Oliver, N. (2011). Barriers and bridges in the adoption of today's mobile phone contextual services. *Proceedings of MobileHCI '11: 13th International Conference on Human Computer Interaction with Mobile Devices and Services* (pp. 167-176). New York, NY: Association for Computing Machinery (ACM).
- Chou, W.S., Hunt, Y.M., Beckjord, E.B., Moser, R.P., & Hesse, B.W. (2009). Social media use in the United States: Implications for health communication. *J Med Internet Res.*, 11(4), e48. doi: 10.2196/jmir.1249
- Christensen, C. M., Grossman, J. H., & Hwang, J. (2009). *The innovator's prescription: A disruptive solution for health care*. New York, NY: McGraw-Hill.
- City of Canada Bay (2011). *Future capture: Youth mobile phone film making project*. Retrieved from the Local Government Cultural Awards 2011 website: <http://culturalawards2011.lgsa.org.au/projects/81-future-capture-youth-mobile-phone-film-making-project>
- Cohn, A. M., Hunter-Reel, D., Hagman, B. T., & Mitchell, J. (2011). Promoting behavior change from alcohol use through mobile technology: The future of ecological momentary assessment. *Alcoholism: Clinical and Experimental Research*, 35(12), 2209-2215. doi: 10.1111/j.1530-0277.2011.01571.x
- Colarossi, L., Billowitz, M., & Breitbart, V. (2010). Developing culturally relevant educational materials about emergency contraception. *Journal of Health Communication*, 15(5), 502-515. doi: 10.1080/10810730.2010.492561
- Cole-Lewis, H., & Kershaw, T. (2010). Text messaging as a tool for behavior change in disease prevention and management. *Epidemiologic Reviews*, 32(1), 56-69. doi:10.1093/epirev/mxq004
- Coleman, J.S. (1988). Social capital in the creation of human capital. *The American Journal of Sociology*, 94, S95-S120. Retrieved from: <http://www.jstor.org/stable/2780243>
- Collins, R.L.; Martino, S.C.; Elliott, M.N. & Miu, A. (2011). Relationships between adolescent sexual outcomes and exposure to sex in media: Robustness to propensity-based analysis. *Developmental Psychology*, 47(2), 585–591. doi: 10.1037/a0022563.

- Common Sense Media (2011, July 21) *Cheating goes hi-tech: Some bad apples have discovered a sneaky use for their cell phones. Learn how to prevent it with your kids*. Retrieved from: <http://www.common sense media.org/advice-for-parents/cheating-goes-hi-tech>
- Coomes, C. M., Lewis, M. A., Uhrig, J. D., Furberg, R. D., Harris, J. L., & Bann, C. M. (2012). Beyond reminders: A conceptual framework for using short message service to promote prevention and improve healthcare quality and clinical outcomes for people living with HIV. *AIDS Care, 16*(18), 1-10.
doi: 10.1080/09540121.2011.608421.
- Cornelius, J. B., & St. Lawrence, J. S. (2009). Receptivity of african american adolescents to an HIV-prevention curriculum enhanced by text messaging. *Journal for Specialists in Pediatric Nursing, 14*(2), 123-131.
doi: 10.1111/j.1744-6155.2009.00185.x.
- Cormick, G., Kim, N.A., Rodgers, A., Gibbons, L., Buekens, P.M., Belizán, J.M., & Althabe, F.(2012).Interest of pregnant women in the use of sms (short message service) text messages for the improvement of perinatal and postnatal care. *Reproductive Health, 9*(1), 1-9. doi:10.1186/1742-4755-9-9
- Coyne, S.M., Stockdale, L., Busby, D., Iverson, B., & Grant, D.M (2011). “I luv u :)!”: A descriptive study of the media Use of individuals in romantic relationships. *Family Relations, 60*(2), 150–162.
doi:10.1111/j.1741-3729.2010.00639.x
- Crankshaw, T., Corless, I. B., Giddy, J., Nicholas, P. K., Eichbaum, Q., & Butler, L. M. (2010). Exploring the patterns of use and the feasibility of using cellular phones for clinic appointment reminders and adherence messages in an antiretroviral treatment clinic, Durban, South Africa. *AIDS Patient Care & STDs, 24*(11), 729-734. doi: 10.1089/apc.2010.0146.
- Cummings, L.L., & Bromley, P. (1996). The organizational trust inventory (OTI): Development and validation (pp.302-330). In T.R. Tyler & R.M. Kramers (Eds), *Trust in organizations: Frontiers of theory and research*. Thousand Oaks, CA: Sage Publications.
- CWTA, Canadian Wireless Telecommunications Association (2012, June 1). *2012 Cell Phone Consumer Attitudes Study* (Report). Retrieved from: <http://cwta.ca/wordpress/wp-content/uploads/2011/08/CWTA-2012ConsumerAttitudes1.pdf>

- CWTA, Canadian Wireless Telecommunications Association (2011, April 29). *2011 Cell phone consumer attitudes study* (Report). Retrieved from http://www.cwta.ca/CWTASite/english/facts_figures_downloads/Consumer2011.pdf
- Da Costa, T. M., Salomão, P. L., Martha, A. S., Pisa, I. T., & Sigulem, D. (2010). The impact of short message service text messages sent as appointment reminders to patients' cell phones at outpatient clinics in São Paulo, Brazil. *International Journal of Medical Informatics*, 79(1) 65-70.
- Dailey, D., Bryne, A., Powell, A., Karaganis, J., & Chung, J. (2010). Broadband adoption in low-income communities (Report). *Social Science Research Council (SSRC)*, Version 1.1. Retrieved from: http://webarchive.ssrc.org/pdfs/Broadband_Adoption_v1.1.pdf
- Dalton, R. J. (1996). *Citizen Politics: Public Opinion and Political Parties in Advanced Industrial Democracies* (2nd Ed.). Chatham, NJ: Chatham House.
- Dani, S., Burns, N., Backhouse, C., & Kochhar, A. (2006). The implications of organizational culture and trust in the working of virtual teams. Proceedings of the Institution of Mechanical Engineers (Part B). *Engineering Manufacture*, 220(6), 951-960.
- Davis, F.D. (1986). *A technology acceptance model for empirically testing new end-user information systems : theory and results*. (Ph. D. Dissertation, Massachusetts Institute of Technology). Retrieved from: <http://hdl.handle.net/1721.1/15192>
- Davis, F.D., Bagozzi, R.P., & Warshaw, P.R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology*, 22 (14), 1111-1132. doi: 10.1111/j.1559-1816.1992.tb00945.x
- Denizard-Thompson, N., Feiereisel, K., Stevens, S., Miller, D., & Wofford, J. (2011). The digital divide at an urban community health center: Implications for quality improvement and health care access. *Journal of Community Health* 36(3): 456-460. doi: 10.1007/s10900-010-9327-5.
- Dyson, L.E., & Brady, F. (2009). Mobile phone adoption and use in Lockhart River aboriginal community. In H. Xiangpei, S. Eusebio & H. Qing (Eds.), *Proceedings of ICMB 2009: Eighth International Conference on Mobile Business*. (pp. 170 - 175). Washington, DC: IEEE Computer Society.
- Dobkin, L., Kent, C., Klausner, J., McCright, J., Kohn, R., & Levine, D. (2007). Is

- text messaging key to improving adolescent sexual health?. *Journal of Adolescent Health*, 40(2), S14-S14.
- Doner, J. (2007). The use of mobile phones by microentrepreneurs in Kigali, Rwanda: Changes to social and business networks. *Information Technologies and International Development*, 3(2), 3–19.
- Dover, C. (2008). *Pop Songs, text messages, and lessons: Media culture in everyday life at school*. Paper presented at the annual meeting of the International Communication Association, TBA. Montreal, Quebec. Retrieved from: http://citation.allacademic.com/meta/p_mla_apa_research_citation/2/3/3/6/9/page_s233699/p233699-9.php
- Drouin, M., & Landgraff, C. (2012). Texting, sexting, and attachment in college students' romantic relationships. *Computers in Human Behavior*, 28, 444–449. doi: 10.1016/j.chb.2011.10.015.
- Du, H., Hao J-X., Kwok, R., & Wagner, C. (2010). Can a lean medium enhance large-group communication? Examining the impact of interactive mobile learning. *Journal of the American Society for Information Science and Technology*, 61(10), 2122–2137 .
- Engel, G., & Green, T. (2011). Cell phones in the classroom: Are we dialing up disaster?. *TechTrends*, 55(2), 39-45.
- Eriksson, M. (2011). Social capital and health: Implications for health promotion. *Global Health Action*, 4, 5611. doi: 10.3402/gha.v4i0.5611. Retrieved from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3036711/>
- Estrin, D., & Sim, I. (2010). Open mHealth architecture: An engine for health care innovation. *Science*, 330(6005): 759. doi: 10.1126/science.1196187
- Evans, W.D., Abrams, L.C., Poropatich, R., Nielsen, P.E., Wallace, J.L. (2012). Mobile health evaluation methods: the Text4Baby case study. *Journal of Health Communication: International Perspectives*, 17(S1), 22-29.
- Farley, T. (2007). The cell-phone revolution. *American Heritage of Invention & Technology*, 22(3), 8–19
- Fatehi, F., Malekzadeh, G., Akhavimirab, A., Rashidi, M., & Afkhami-Ardekani, M. (2010). The effect of short message service on knowledge of patients with diabetes in Yazd, Iran. *Iranian Journal of Diabetes & Obesity (IJDO)*, 2(1), 27-31.
- Fidler, R. (1997). *Mediamorphosis: Understanding New Media*. Thousand Oaks, CA:

Pine Forge Press.

- Flanagan, J. (2006, February). Family under stress: Personal problem or social reality? *Alberta Views*, 9(1), 4. Retrieved September 5, 2011, from CBCA Complete. (Document ID: 988225921).
<http://albertaviews.ab.ca/issues/2006/feb06/avfeb2006editorial.pdf>
- Flicker, S., & Guta, A. (2008). Ethical approaches to adolescent participation in sexual health research. *Journal of Adolescent Health*, 42(1), 3-10.
 doi: 10.1016/j.jadohealth.2007.07.017.
- Flicker, S., Savan, B., McGrath, M., Kolenda, B., & Mildenberger, M. (2008). If you could change one thing... what community-based researchers wish they could have done differently. *Community Development Journal*, 43(2), 239-239.
- Fogg, B.J., & Adler, R. (2009). *Texting 4 health: A simple, powerful way to improve lifes*. Stanford, CA: Standford Captology Media.
- Fortunati, L. (2002) The mobile phone: Towards new categories and social relations. *Information, Communication and Society*, 5(4), 513-29.
<http://dx.doi.org/10.1080/13691180208538803>
- Freedman, M. J., Lester, K. M., McNamara, C., Milby, J. B., & Schumacher, J. E. (2006). Cell phones for ecological momentary assessment with cocaine-addicted homeless patients in treatment. *Journal of Substance Abuse Treatment*, 30(2), 105-111. doi: 10.1016/j.jsat.2005.10.005
- FrontlineSMS. (2011). About the software. Retrieved September 15, 2011, from
<http://www.frontlinesms.com/aboutthsoftware/about-the-software/>
- Furber, G.V.; Crago, A.E.; Meehan, K.; Sheppard, T.D.; Hooper, K; Abbot, D.T.; Allison, S. & Skene, C. (2011). How adolescents use SMS (short message service) to micro-coordinate contact with youth mental health outreach services. *J Adolesc Health*, 48(1), 113-115.
- Fox, S. (2010a, September). *The power of mobile: Managing health care information*. Panel presented at the Mayo Clinic Center for Innovation Transform 2010 Symposium: Thinking differently about health care, Rochester, MN. Retrieved from the Pew Research Center's Internet & American Life Project. :
<http://pewinternet.org/Commentary/2010/September/The-Power-of-Mobile.aspx>
- Fox, S. (2010b). *Mobile health 2010*. Retrieved from the Pew Research Center website: <http://pewinternet.org/Reports/2010/Mobile-Health-2010.aspx>
- Ghaderi, M., & Keshav, S. (2005) Multimedia messaging service: System description

- and performance analysis. *Proceedings of the First International Conference on Wireless Internet*, 198–205. doi: 10.1109/WICON.2005.22
- García-Montes, J.M., Caballero-Muñoz, D & Pères-Álvares, M. (2006). Changes in the self resulting from the use of mobile phones. *Media, Culture & Society*, 28(1), 82-67. doi: 10.1177/0163443706059287
- Goggin, G., & Hjort, L. (2009). The question of mobile media. In Goggin, G. & Hjort, L.(Eds.). *Mobile Technologies: From Telecommunications to Media*. New York, NY: Routledge.
- Goggin, G. (2009). Adapting the mobile iPhone: the iPhone and its consumptions. *Continuum: Journal of Media and Cultural Studies*, 23(2), 231-244. doi:10.1080/10304310802710546
- Gold, J., Aitken, C. K., Dixon, H. G., Lim, M. S. C., Gouillou, M., Spelman, T., Wakefield, M., & Hellard, M. E. (2011). A randomised controlled trial using mobile advertising to promote safer sex and sun safety to young people. *Health Education Research*, 26(5), 782-794. doi: 10.1093/her/cyr020
- Goldstein, J., & Rotich, J. (2008). Digitally networked technology in Kenia's 2007-2008 post- election crisis. *Berkman Center for Internet and Society at Harvard University*. Available at: http://cyber.law.harvard.edu/sites/cyber.law.harvard.edu/files/Goldstein&Rotich_Digitally_Networked_Technology_Kenyas_Crisis.pdf.pdf
- Gomez, E. A. (2008). Connecting Communities of Need with Public Health: Can SMS Text-Messaging Improve Outreach Communication?. *Proceedings of the 41st Annual Hawaii International Conference on System Sciences*. (p.128). Washington, DC: IEEE Computer Society.
- Gow, G., & Smith, R. (2006). The personal trusted device (pp. 51-61). In *Mobile and Wireless Communications: An Introduction* (1st Edition). Maidenhead , UK: Open University Press.
- Green, E., & Singleton, C. (2009). Mobile connections: An exploration of the place of mobile phones in friendship relations. *The Sociological Review*, 57(1), 125-144. doi:10.1111/j.1467-954X.2008.01807
- Greenhalgh, T., Robert, G., Macfarlane, F.; Bate, P., & Kyriakidou, O. (2004). Diffusion of innovations in service organizations: Systematic review and recommendations. *The Milbank Quarterly*, 82 (4), 581–629. doi: 10.1111/j.0887-378X.2004.00325.x

- Greifinger, R. (2009). *Independent study on mobilizing for health: The future of cell phones and public health*. Cambridge, MA: Center for Health Communication, Harvard School of Public Health. Retrieved from:
<http://mobileactive.org/research/mobilizing-health>
- Grinter, R. E. & Eldridge, M. A. (2001). y do tngrs luv 2 txt msg?. *Proceedings of ECSCW'01:the Seventh Conference on European Conference on Computer Supported Cooperative Work*. (pp.219-238). Norwell, MA: Kluwer Academic Publishers.
- Habitual. (n.d.). In *Oxford Dictionaries online*. Retrieved from
<http://oxforddictionaries.com/definition/english/habitual?q=habitual>
- Haddon, L. (2007). Looking for diversity: Children and mobile phones. In G. Goggin & L.Hjorth. (Eds.), *Proceedings of Mobile Media 2007: an International Conference on Social and Cultural Aspects of Mobile Phones, Convergent Media and Wireless Technologies*. (pp.97-106). Sydney, NSW: The University of Sydney.
- Halliday, M.A.K. (2003). The functional basis of language (pp. 295- 300). In B.B. Bernstein, *Class, Codes and Control: Applied studies towards a sociology of language* (Vol. 2). London & New York: Routledge.
- Harper, R. (2003). Are mobiles good or bad for society? (pp. 185-214). In K. Nyíri (Ed.), *Mobile democracy: Essays on society, self and politics*. Budapest: Passagen.
- Harris, M. (2012, August 16). Real stores meet virtual stores: smartphones, QR codes, virtual store fronts beat pure online. *Edmonton Journal*, E3.
- Harris, A.L. (2011). Media and technology in adolescent sexual education and safety. *J Obstet Gynecol Neonatal Nurs.*, 40(2), 235-242.
 doi: 10.1111/j.1552-6909.2011.01218.x.
- Harrison, K. (2012, August 8). How to break up with your landline. *Forbes*.
<http://www.forbes.com/sites/kateharrison/2012/08/08/how-to-break-up-with-your-landline>
- Hartley, M. (2012, April 25). iPhone powers record quarter. *The National Post*. FP2.
- Haverila, M. (2011) Behavioral aspects of cell phone usage among youth: An exploratory study. *Young Consumers: Insight and Ideas for Responsible Marketers*, 12(4), 310 - 325. doi: 10.1108/17473611111185869
- Hee-Woong K., Hock C.C., & Sumeet, G. (2007). Value-based adoption of mobile

- internet: An empirical investigation. *Decision Support Systems*, 43(1), 111–126.
<http://dx.doi.org/10.1016/j.dss.2005.05.009>
- Henderson, L. (2011). Sexting and sexual relationships among teens and young adults. *McNair Scholars Research Journal*, 7(1), 31-39.
- Hjarvard, S. (2008). The mediatization of society. A theory of the media as agents of social and cultural change. *Nordicom Review*, 29(2). Available at:
http://www.nordicom.gu.se/common/publ_pdf/269_hjarvard.pdf
- Holeman, G., Wright, R., Jackson-Rossi, L., Dewan, N.A., & Lorenzi, N.M. (2010) Leading change in implementing technology (pp. 149-180). In N. Dewan, J. Luo & N. M. Lorenzi (Eds.). *Information Technology: Essentials for Behavioral Health Clinicians*. London, UK: Springer.
- Holmen, E. (2009). TXTING4HEALTH: The role of the mobile channel in the health care industry and in the sphere of public health. *Social Marketing Quarterly*, 15 (1), S30-S35. doi: 10.1080/15245000902960932
- Holmes, D. (2005) Telecommunity (pp. 221-225). *Communication Theory: Media, Technology and Society*. Thousand Oaks, CA: SAGE Publications Ltd.
- Holtz, B., & Whitten, P. (2009). Managing asthma with mobile phones: A feasibility study. *Telemedicine and e-Health*, 15(9), 907-909.
 doi: 10.1089/tmj.2009.0048.
- Hsiu-Yuan W., & Shwu-Huey W. (2010). Predicting mobile hotel reservation adoption: Insight from a perceived value standpoint. *International Journal of Hospitality Management*, 29(4), 598–608.
<http://dx.doi.org/10.1016/j.ijhm.2009.11.001>
- Hughes, A. (2010). (white paper). Using Social Media platforms to amplify public health messages: An examination of tenets and best practices for communicating with key audiences *Ogilvy Washington & the Center for Social Impact Communication at Georgetown University*. Retrieved from:
<http://csic.georgetown.edu/involved/fellowships/188086.html>
- Huysman, M., & Wulf, W. (2004). *Social capital and information technology*. Cambridge, MA: MIT Press
- IMAP, Inc. (2010). *Computing & Internet Software Global Report*. Retrieved from:
[http://imap.com/imap/media/resources/HighTechReport WEB_89B4E29C01817.pdf](http://imap.com/imap/media/resources/HighTechReport_WEB_89B4E29C01817.pdf)
- Industry Canada, Office of Consumer Affairs, OCA (2008, Fall). Cellphone services

- Recent consumer trends. Retrieved from the Office of Consumer Affairs (OCA), Consumers Trends website: [http://www.ic.gc.ca/eic/site/oca-bc.nsf/vwapj/FINALCell2008Info-Apr21-eng.pdf/\\$FILE/FINALCell2008Info-Apr21-eng.pdf](http://www.ic.gc.ca/eic/site/oca-bc.nsf/vwapj/FINALCell2008Info-Apr21-eng.pdf/$FILE/FINALCell2008Info-Apr21-eng.pdf)

Industry Canada, Office of Consumer Affairs, OCA (2010a, Winter). Mobile commerce — New experiences, emerging consumer issues. Retrieved from the Office of Consumer Affairs (OCA), Consumers trends website: [http://www.ic.gc.ca/eic/site/oca-bc.nsf/vwapj/Mobile_Commerce_mobile-eng.pdf/\\$FILE/Mobile_Commerce_mobile-eng.pdf](http://www.ic.gc.ca/eic/site/oca-bc.nsf/vwapj/Mobile_Commerce_mobile-eng.pdf/$FILE/Mobile_Commerce_mobile-eng.pdf)

Industry Canada (2010b, June). *Opening Canada's doors to foreign investment in telecommunications: Options for reform*. (Consultation paper SFO9920). Retrieved from Internet, Radio & Wireless; Spectrum Management and Telecommunications website.: <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf09920.html>

Igarashi, T. (2005). *Social networks formed through the Internet and mobile phone text-message and their effects on psychological well-being: Focusing on social capital approached from micro-, dyad-, and meso-levels* (Doctoral dissertation, Nagoya University, Japan). Retrieved from: http://tasukuigarashi.com/PDF/article/dissertation_summary.pdf

Igarashi, T., Takai, J., & Yoshida, T. (2005). Gender differences in social network development via mobile phone text messages: A longitudinal study. *Journal of Social and Personal Relationships*, 22 (5), 691-713.
doi:10.1177/0265407505056492

Ipsos Reid (2012, March 20). *The Internet a new school yard for bullies?: One in five (21%) Canadian teens online have witnessed cyber bullying*. Retrieved from Ipsos's website: <http://www.ipsos-na.com/news-polls/pressrelease.aspx?id=5556>

Istepanian, R. S. H., Laxminarayan, S., & Pattichis, C. S. (2006). M-health [electronic resource]: *Emerging mobile health systems*. New York, N.Y: Springer.

Jackson, N.M. (2011). Dn't txt n drv: Why you should disconnect while driving. *Current Health Teens* 37(7), 6-9.

Jenkis, H (2006). *Convergence culture: Where old and new media collide*. New York & London: New York University Press.

Jippes, E., Achterkamp, M.C., Brand, P.L.P., Kiewiet, D.J., Pols, J., & van Engelen,

- J. M.L. (2010). Disseminating educational innovations in health care practice: Training versus social networks. *Social Science & Medicine*, 70(10), 1509-1517. doi:10.1016/j.soscimed.2009.12.035
- Jenkins, H. (2006). *Convergence culture: Where old and new media collide*. New York, NY: NYU Press.
- Jenner, E., Jenner, L. W., Matthews-Sterling, M., Burrs, J. K., & Williams, T. E. (2010). Awareness effects of a youth suicide prevention media campaign in Louisiana. *Suicide & Life-Threatening Behavior* 40(4): 394-406. Retrieved from <http://www.biomedsearch.com/nih/Awareness-effects-youth-suicide-prevention/20822366.html>
- Johnson, L.; Tandon, S.D.; Trent, M.; Jones, V. & Cheng, T.L. (2012). Use of technology with health care providers: Perspectives from urban youth. *The Journal of Pediatrics*, 160(6), 997-1002, doi: 10.1016/j.jpeds.2011.11.059
- Johnson, J. (2012, June 7). Techno-toilets and smart couches, the digital age comes home. *Winnipeg Free Press*. Retrieved from: <http://www.winnipegfreepress.com/business/techno-toilets-and-smart-couches-the-digital-age-comes-home-157729665.html>
- Johnson, L., Smith, R., Willis, H., Levine, A. & Haywood, K. (2011). *The 2011 Horizon Report*. Austin, Texas: The New Media Consortium.
- Jolicoeur, M., & Zedlewski, E. (2010, June). *Much ado about sexting*. (Report No. NCJ 230795). Retrieved from the National Criminal Justice Reference Service website: <https://www.ncjrs.gov/pdffiles1/nij/230795.pdf>
- Jones, C., Ramanau, R., Cross, S., & Healing, G. (2010). Net generation or digital natives: Is there a distinct new generation entering university?. *Computers & Education*, 54(3), 722–732. Retrieved from: <http://dx.doi.org/10.1016/j.compedu.2009.09.022>
- Kaplan, W.A. (2006). Can the ubiquitous power of mobile phones be used to improve health outcomes in developing countries?. *Globalization and Health*, 2(9), 1-14. doi: 10.1186/1744-8603-2-9.
- Kauer, S.D., Reid, S.C., Sancu, L., & Patton, G.C. (2009). Investigating the utility of mobile phones for collecting data about adolescent alcohol use and related mood, stress and coping behaviours: Lessons and recommendations. *Drug & Alcohol Review*, 28(1), 25-30. doi: 10.1111/j.1465-3362.2008.00002.x
- Katz, K.S., Rodan, M., Milligan, R., Tan, S., Courtney, L., Gantz, M., Blake, S.M.,

- McClain, L., Davis, M., Kiely, M., & Subramanian, S. (2011). Efficacy of a randomized cell phone-based counseling intervention in postponing subsequent pregnancy among teen mothers. *Matern Child Health J.*, *15*(Suppl. 1), 42-53. doi: 10.1007/s10995-011-0860-3
- Kinkade, S., Verclas, K., & Toyama, K. (2008). Reflections on MobileActive 2008 and the M4D landscape wireless technology for social change. *Mobile Active*. Retrieved from:
http://mobileactive.org/files/DVT_M4D_choices_final.pdf
- Kohli, R., & Grover, V. (2008). Business value of IT: An essay on expanding research directions to keep up with the times. *Journal of the Association for Information Systems (JAIS)*, *9*(1-a2). Available at:
[http://193.146.160.29/gtb/sod/usu/\\$UBUG/repositorio/10280849_Kohli.pdf](http://193.146.160.29/gtb/sod/usu/$UBUG/repositorio/10280849_Kohli.pdf)
- Korenblum, J. (2010, December 2). Fighting youth unemployment with mobile phones. *CNBC*. Retrieved from:
http://www.cnbc.com/id/40449722/Fighting_Youth_Unemployment_With_Mobile_Phones
- Kowalik, E. (2011), Engaging alumni and prospective students through social media (pp.211- 227). In L.A. Wankel & C. Wankel (Eds.). *Higher Education Administration with Social Media* (Cutting-edge Technologies in Higher Education, Volume 2). Bingley, UK: Emerald Group Publishing Limited. doi: 10.1108/S2044-9968(2011)0000002014.
- Krisberg, K. (2009, March 10). RU healthy? public health efforts take on text messaging. *The Nation's Health*, *39*(2). Retrieved from:
<http://thenationshealth.aphapublications.org/content/39/2/1.3.full>
- Lawrence, E., & Er, M. (2007). Longitudinal study of mobile technology adoption: evolution at work. *Proceedings of the First International Conference on the Digital Society (ICDS'07)*. (pp.1-12). Washington, DC: IEEE Computer Society. Retrieved from: <http://doi.ieeecomputersociety.org/10.1109/ICDS.2007.27>
- Lasica, J. D. (2008) *Civic Engagement on the Move: How Mobile Media Can Serve the Public Good*. Washington DC: The Aspen Institute.
- Laursen, D. (2010). Counseling young cannabis users by text message. *Journal of Computer-Mediated Communication*, *15*(4), 646-665. doi: 10.1111/j.1083-6101.2009.01510.

- Lavis, J.N., & Hoffman, S.J.(2011, May 12) Dialogue summary: Addressing health and emerging global issues in Canada. *Proceedings of the 2011 Global Health Conference: Advancing health equality in the 21st Century*. (p.1-41). Hamilton, ON: McMaster Health Forum. Retrieved from: <http://bit.ly/uJSCld>
- Lefebvre, C. (2009). Integrating cell phones and mobile technologies into public health practice: A social marketing perspective. *Health Promotion Practice, 10*(4), 490-494. doi:10.1177/1524839909342849
- Lehman-Wilzig, S., & Cohen-Avigdor, N. (2004). The natural life cycle of new media evolution. *New Media & Society, 6*(6), 707-730. doi:10.1177/146144804042524.
- Lenhart, A. (2012). Teens, smartphones & texting: Texting volume is up while the frequency of voice calling is down. About one in four teens say they own smartphones. *Pew Research Center's Internet & American Life Project*. Retrieved from: <http://pewinternet.org/Reports/2012/Teens-and-smartphones.aspx>
- 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 Research Center's Internet & American Life Project*. Retrieved from: <http://pewinternet.org/Reports/2010/Teens-and-Mobile-Phones.aspx>
- Lenhart, A. (2009). Teens and sexting: How and why minor teens are sending sexually suggestive nude or nearly nude images via text messaging. *Pew Research Center's Internet & American Life Project*. Retrieved from: <http://www.pewinternet.org/Reports/2009/Teens-and-Sexting.aspx>
- Levine, D. (2009, October). Using new media to promote adolescent sexual health: Examples from the field. *prACTice Matters*. Ithaca, NY: ACT for Youth Center of Excellence. Retrieved from: http://www.actforyouth.net/resources/pm/pm_media_1009.pdf
- Levine, D., McCright, J., Dobkin, L., Woodruff, A., & Klausner, J. (2008). SEXINFO: A sexual health text messaging service for San Francisco youth. *American Journal of Public Health, 98*(3), 393-395.
doi: 10.2105/AJPH.2007.110767
- Liew, S.M., Tong, S.F., Lee V.K.M., Ng, C.J., Leong, K.C., & Teng, C.L. (2009). Text messaging reminders to reduce non-attendance in chronic disease follow-up: A

- clinical trial. *British Journal of General Practice*, 59(569), 916-20.
doi: 10.3399/bjgp09X472250
- Lim, M. S. C., Sacks-Davis, R., Aitken, C. K., Hocking, J. S., & Hellard, M. E. (2010). Randomised controlled trial of paper, online and SMS diaries for collecting sexual behaviour information from young people. *Journal of Epidemiology & Community Health*, 64(10), 885-889.
doi: 10.1136/jech.2008.085316.
- Ling, R. (2007). Children, youth and mobile communication. *Journal of Children and Media*, 1(1): 60-67. Retrieved from:
http://www.richardling.com/papers/2007_Journal_of_child_and_media.pdf
- Lovejoy K. & Saxton, G.D. (2012). Information, community, and action: How nonprofit organizations use social media. *Journal of Computer-Mediated Communication*, 17(3), 337-353. doi:10.1111/j.1083-6101.2012.01576.x
- Lund, S. (2009). *Wired mothers: Use of mobile phones to improve maternal and neonatal health in Zanziba*. Retrieved from ENRECA Health website:
<http://www.enrecahealth.dk/archive/wiredmothers>
- Mahmud, N., Rodriguez, J., & Nesbit, J. (2010). A text message-based intervention to bridge the healthcare communication gap in the rural developing world. *Technology & Health Care*, 18(2), 137-144. doi:10.3233/THC-2010-0576
- Malikhao, P., & Servaes, J. (2011) The media use of american youngsters in the age of narcissism: Surviving in a 24/7 media shock and awe – distracted by everything. *Telematics and Informatics*, 28(2), 66–76.
doi:10.1016/j.tele.2010.09.005
- Marsh, J. (2011). Young children's literacy practices in a virtual world: Establishing an online interaction order. *Reading Research Quarterly*, 46(2), 101–118.
<http://dx.doi.org/10.1598/RRQ.46.2.1>
- May, H., & Hearn, G. (2005). The mobile phone as media. *International Journal of Cultural Studies*, 8(2), 195–211. doi: 10.1177/1367877905052417
- Mazzoleni, G. & Schulz, W (1999). "Mediatization" of politics: A challenge for democracy?. *Political Communication*, 16(3), 247-261.
<http://dx.doi.org/10.1080/105846099198613>
- Mbuagbaw, L.; Thabane, L.; Ongolo-Zogo, P.; Lester, R.T.; Mills, E.; Volmink, J.;

- Yondo, D.; Essi, M.J.; Bonono-Momnougui, R.C.; Mba, R.; Ndong, J.S.; Nkoa, F.C. & Ondo, H.A. (2011). The cameroon mobile phone sms (CAMPS) trial: A protocol for a randomized controlled trial of mobile phone text messaging versus usual care for improving adherence to highly active anti-retroviral therapy. *Trials*, 12(1), 1-8. doi: 10.1186/1745-6215-12-5
- McAuley, J. (2011). *Raising school counselor awareness regarding students' inappropriate use of cell phones*. (Master's thesis, University of Wisconsin–Stout). Retrieved from:
<http://www2.uwstout.edu/content/lib/thesis/2011/2011mcauleyj.pdf>
- McEwen, R. (2010). *A world more intimate: Exploring the role of mobile phones in maintaining and extending social networks*. (Doctoral dissertation, University of Toronto). Retrieved September 5, 2011, from Dissertations & Theses: Full Text.(Publication No. AAT NR73152).
- McGinn, D. (2009, December 22). Too busy to volunteer? Not if you've got a spare couple minutes. *The Globe and Mail*. Retrieved from
<http://www.theglobeandmail.com/life/too-busy-to-volunteer-not-if-youve-got-a-spare-couple-minutes/article1408140/>
- McKeen, S. (2012, June 9). Security systems controlled with smartphone. *Edmonton Journal*, p. H3.
- McLuhan, M. (1964) *Understanding media: The extensions of man*. New York, NY: McGraw Hill.
- McLuhan, M., & Nevitt, B. (1972). *Take today: The executive as dropout*. San Diego, CA: Harcourt Brace Jovanovich.
- McLuhan, M. (2003). The medium is the message. In N. Wardrip-Fruin & N. Motfort (Eds.), *The New media reader* (pp. 203-209). Cambridge, MA: The MIT Press.
- McLoughlin, C., & Burgess, J. (2009). Texting, sexting and social networking among Australian youth and the need for cyber safety education. Inspiring innovative research in education. *Proceedings of the AARE 2009 International education research conference: 'Educational Technology and Media'*.(refereed publication). Canberra, AU: ACT. Retrieved from:
<http://www.aare.edu.au/09pap/mcl091427.pdf>
- Mitchell, J.I., Gagné, M., Beaudry, A., & Dyer, L. (2012). The role of perceived

- organizational support, distributive justice and motivations in reactions to new information technology. *Computers in Human Behavior*, 28(2):729-738.
Retrieved from: <http://dx.doi.org/10.1016/j.chb.2011.11.021>
- Mitchell K.J., Bull, S., Kiwanuka, J., & Ybarra, M.L. (2011). Cell phone usage among adolescents in Uganda: Acceptability for relaying health information. *Health Educ. Res.*, 26(5), 770-781. doi: 10.1093/her/cyr022
- Mobithinking. (2012, May 22). *Global mobile statistics 2012*. Retrieved from: <http://mobithinking.com/mobile-marketing-tools/latest-mobile-stats>
- Mobithinking, (2010). *The insider's guide to mobile web marketing in Canada*. Retrieved from: <http://mobithinking.com/guide-mobile-web-canada>
- Mullen, J. K. (2011). The impact of computer use on employee performance in high-trust professions: Re-examining selection criteria in the internet age. *Journal of Applied Social Psychology*, 41(8), 2009-2043.
doi:10.1111/j.1559-1816.2011.00790
- Müller, B., Reinhardt, J., & Strickland, M.T. (1995). *Neural networks: An introduction* (Second updated and Corrected ed.). Berlin; New York: Springer-Verlag.
- Muto, M. & Yamano, T. (2009). The impact of mobile phone coverage expansion on market participation: Panel data evidence from Uganda. *World Development*, 37(12), 1887–1896. <http://dx.doi.org/10.1016/j.worlddev.2009.05.004>
- Naughton, J. (2012, May 6). Now 4 billion people know the joy of txt. *The Observer*. Retrieved from: <http://www.guardian.co.uk/technology/2012/may/06/sms-text-messages-20th-birthday?newsfeed=true>
- Near (2011, September 27th). Retrieved from the Oxford English Dictionary (EOD): <http://www.oed.com/view/Entry/125544?rskey=qRGEzR&result=1&isAdvanced=false#eid>
- Nesbit, J. (2010, September 27). Maternal health and mobile technology: New tools for an important fight. *Women Deliver*. Retrieved from: <http://www.womendeliver.org/updates/entry/maternal-health-and-mobile-technology-new-tools-for-an-important-fight>
- Nielsen. (2010, October 14) U.S. teen mobile report: calling yesterday, texting today,

using apps tomorrow. *Nielsen Wire*. Retrieved from:

http://blog.nielsen.com/nielsenwire/online_mobile/u-s-teen-mobile-report-calling-yesterday-texting-today-using-apps-tomorrow/

- Noordam, A.C.; Kuepper, B.M., Stekelenburg, J. & Milen, A. (2011).Improvement of maternal health services through the use of mobile phones. *Tropical Medicine and International Health*, 16(5), 622–626.
doi:10.1111/j.1365-3156.2011.02747.x
- Nurullah, A.S. (2009). The cell phone as an agent of social change. *Rocky Mountain Communication Review*, 6 (1), 19-25. Available at SSRN:
<http://ssrn.com/abstract=1482386>
- Oksman, V. (2010). *The mobile phone: A medium itself*. (Doctoral dissertation, University of Tampere). Retrieved September 20, 2012, from NORDICOM Database: Full Text (VTT publications; 737).
- Otnes, K. & MSL, Made Simple Learning (2011). Communicating with e-mail, IM, and social networks. (pp. 297-360). In *Windows 7 Made Simple*. New York, NY: Apress.
- Parker, R.M., Dmitrieva, E., Frolov, S., Gazmararian, J.A. (2012). Text4Baby in the United States and Russia: an opportunity for understanding how mHealth affects maternal and child health. *Journal of Health Communication: International Perspectives*, 17(1), 30-36.
- Pea, R., Nass, C., Meheula, L., Rance, M., Kumar, A., Bamford, H., Nass, M., Simha, A., Stillerman, B., Yang, S., & Zhou, M. (2012, January 23). Media use, face-to-face communication, media multitasking, and social well-being among 8 to 12-year old girls. *Developmental Psychology* [Advance online publication]. doi: 10.1037/a0027030
- Pettigrew, J. (2009). Text messaging and connectedness within close interpersonal relationships. *Marriage & Family Review*, 45(6-8), 697-716.
doi: 10.1080/01494920903224269
- Piette, J. D., Mendoza-Avelares, M., Milton, E. C., Lange, I., & Fajardo, R. (2010). Access to mobile communication technology and willingness to participate in automated telemedicine calls among chronically ill patients in Honduras. *Telemedicine and e-Health*, 16(10), 1030-1041. doi: 10.1089/tmj.2010.0074
- Pinker, S. (2007). *The Language Instinct: How the Mind Creates Language*. New York, NY: Harper Collers Publishers..

- Plester, B. & Wood, C. (2009). Exploring relationships between traditional and new media literacies: British preteen texters at school. *Journal of Computer-Mediated Communication*, 14, 1108–1129. doi:10.1111/j.1083-6101.2009.01483.x.
- Portio Research Ltd. (2012). *Portio research mobile factbook 2012*. Available from <http://portioresearch.com/subscribers/>
- Preziosa, A., Grassi, A., Gaggioli, A., & Riva, G. (2009). Therapeutic applications of the mobile phone. *British Journal of Guidance & Counselling*, 37(3), 313-325. doi:10.1080/03069880902957031
- Province of Manitoba (2011). *Sexting new threat to text-message safety, needs teen, parent awareness: mackintosh*. Retrieved from the Province of Manitoba website: <http://news.gov.mb.ca/news/index.html?item=10823>
- Purcell, K. (2012). Teens 2012: Truth, trends, and myths about teen online behavior [Powerpoint Presentation]. *Presentation at the 27th Annual ACT Enrollment Planners Conference in Chicago*. Retrieved from: <http://pewinternet.org/Presentations/2012/July/Teens-2012-Truth-Trends-and-Myths-About-Teen-Online-Behavior.aspx>
- Ramanathan, N., Swendeman, D., Comulada, W.S., Estrin, D., & Rotheram-Borus, M.J. (2012). Identifying preferences for mobile health applications for self-monitoring and self-management: Focus group findings from HIV-positive persons and young mothers. *Int J Med Inform.* [Epub ahead of print]. Retrieved from: <http://www.ncbi.nlm.nih.gov/pubmed?term=22704234>
- Reid, F., & Reid, D. (2010). The expressive and conversational affordances of mobile messaging. *Behaviour and Information Technology*, 29(1), 3-22. doi:10.1080/01449290701497079
- Rheinhold, H. (2000). *The virtual community*. Cambridge, MA: MIT Press.
- Resnick, P. (2001). Beyond bowling together: SocioTechnical capital (pp. 647-672). In: J. M. Carroll (Ed). *Human-computer interaction in the new millennium* (1st edition). Boston, MA: Addison-Wesley Professional
- Rice, R.E., & Hagen, I. (2010). Young adults' perpetual contact, social connection, and social control through the internet and mobile phones (pp. 2-39). In C.T. Salmon (Ed.), *Communication Yearbook* (34). New York, NY: Routledge.
- Rice, R.E., & Hagen, I. (2007). Social connectivity, multitasking, and social control:

- U.S./Norwegian college students use of Internet and mobile phones. *Paper presented at the 57th Annual Conference of the International Communication, TBA*, San Francisco, CA. Retrieved from:
http://www.allacademic.com/meta/p169907_index.html
- Richards, R.D., & Calvert, Clay. (2009). When sex and cell phones collide: Inside the prosecution of a teen sexting case. *Hastings Communications and Entertainment Law Journal*, 32(1). Retrieved from:
<http://www.lawrencewalters.com/articles/AlpertArticle.pdf>
- Richtel, M. (2011, Jan 31). Growing up digital. *The New York Times Upfront*, 143(9). Retrieved from:
http://teacher.scholastic.com/scholasticnews/indepth/upfront/features/index.asp?article=f013111_digital
- Riley, W., Rivera, D., Atienza, A., Nilsen, W., Allison, S., & Mermelstein, R. (2011). Health behavior models in the age of mobile interventions: Are our theories up to the task?. *Translational Behavioral Medicine*, 1(1), 53-71.
 doi: 10.1007/s13142-011-0021-7
- Rogers, E.M. (2003). *Diffusion of innovations* (5th Ed.). New York (NY): Free Press
- Rosenberger, R. (2012). Embodied technology and the dangers of using the phone while driving. *Phenomenology and the Cognitive Sciences*, 11(1): 79-94.
 doi: 10.1007/s11097-011-9230-2
- Schulz, W. (2004). Reconstructing mediatization as an analytical concept. *European Journal of Communication*, 19(1), 87-101. doi:10.1177/0267323104040696.
- Selkie, E.M., Benson, M., & Moreno, M. (2011). Adolescents' views regarding uses of social networking websites and text messaging for adolescent sexual health education. *Am J Health Educ.*, 42(4). Retrieved from:
<http://www.ncbi.nlm.nih.gov/pubmed/22229150>
- Senge, P. (1990) *The fifth discipline: The art & practice of the learning organization*. New York, NY: New York: Currency Doubleday.
- Seto, E., Leonard, K.J., Masino, C., Cafazzo, J.A., Barnsley, J., & Ross, H.J (2010). Attitudes of heart failure patients and health care providers towards mobile phone-based remote monitoring. *Journal of Medical Internet Research*, 12(4), e55.
 doi:10.2196/jmir.1627

- Sharples, M., Taylor, J., & Vavoula, G. (2007). A theory of learning for the mobile age (pp. 87-99). In R. Andrews & C. Haythornthwaite (Ed.), *The SAGE Handbook of E-learning Research*. London, UK: Sage Publications
- Shet, A., Arumugam, K., Rodrigues, R., Rajagopalan, N., Shubha, K., Raj, T., D'souza, G., & De Costa, A. (2010). Designing a mobile phone-based intervention to promote adherence to antiretroviral therapy in South India. *AIDS and Behavior*, *14*(3), 716-720. doi: 10.1007/s10461-009-9658-3
- Shirky, C. (2011) The political power of social media. *Foreign Affairs*, *90* (1): 28-41.
- Silverstone, R. (2003). Mediation and communication. In C. Calhoun, C. Rojek & B.S., Turner. (Eds.). *The International Handbook of Sociology*. London: Sage.
- Silverstone, R., & Haddon, L. (1996). Design and domestication of ICTs: Technical change and everyday life. In R. Silverstone & R. Mansell (Eds). *Communication by design. The politics of information and communication technologies*. Oxford University Press, Oxford.
- Simons, P. (2012, August 4). Texting drives common sense off course: Thousands haven't got message about device-distraction charges. *Edmonton Journal*. P. A5.
- Small, G. (2009, July 22). *Techno addicts*. Retrieved from the Brain Boot camp's Blog in Psychology Today: <http://www.psychologytoday.com/blog/brain-bootcamp/200907/techno-addicts>
- Smartphone* (n.d.). PC Magazine Encyclopedia. Retrieved from: http://www.pcmag.com/encyclopedia_term/0,2542,t=Smartphone&i=51537,00.asp
- Snyder, G., Linkov, F., & Laporte, R. (2007). Global health communications, social marketing, and emerging communication technologies. In W.H. Markle, M.A. Fisher & R.A. Smego (Eds), *Understanding Global Health*. New York, NY: McGraw-Hill Medical
- Söderström, S. (2011). Staying safe while on the move: Exploring differences in disabled and non-disabled young people's perceptions of the mobile phone's significance in daily life. *Young*, *19*(1), 91-109.
doi: 10.1177/110330881001900106
- Stein, M. (no date). Strategy guide 2: Using mobile phones in advocacy campaigns. *MobileActive*. Retrieved from: http://www.mobileactive.org/files/MobileActiveGuide2_0_0.pdf

- Skierkowski, D. & Wood, R.M.(2012). To text or not to text? The importance of text messaging among college-aged youth. *Computers in Human Behavior*, 28(2), 744–756. <http://dx.doi.org/10.1016/j.chb.2011.11.023>
- Strayer, D.L., Watson, J.M., & Drews,F.A. (2011). Cognitive distraction while multitasking in the automobile (pp. 29-58). In B. Ross (Ed.). *The Psychology of Learning and Motivation* (Vol. 54). Retrieved from: <http://www.psych.utah.edu/lab/appliedcognition/publications/distractionmultitasking.pdf>
- Subrahmanyam, K. & Šmahel, D. (2011). Adolescents’ digital worlds: An Introduction (p.1-25). In R. J.R. Levesque (Ed). *Digital youth: Advancing responsible adolescent development*. New York, NY: Springer.
- Suler J.(2004). The online disinhibition effect. *Cyberpsychol Behav.*, 7(3), 321-326. doi:10.1089/1094931041291295.
- Swendeman, D., & Rotheram-Borus, M.J. (2010). Innovation in sexually transmitted disease and HIV prevention: Internet and mobile phone delivery vehicles for global diffusion. *Curr Opin Psychiatry*, 23(2), 139–144. doi:10.1097/YCO.0b013e328336656a
- Tapscott, D. (2008) *Grown up digital: How the net generation is changing your world*. New York, NY: McGraw-Hill.
- Taylor, A., & Vincent, J. (2006). An SMS history (pp. 75-91). In L. Hamill & A. Lasen (Eds). *Mobile world: past, present and future* (vol. 3). New York, NY: Springer.
- Tencer, D. (2012, August 31). Landlines will disappear from workplace along with PCs, and maybe tablets too: Survey. *The Huffington Post Canada*. Retrieved from http://www.huffingtonpost.ca/2012/08/31/landlines-will-disappear-pcs_n_1844600.html
- Terry, M. (2008). Text messaging in healthcare: The elephant knocking at the door. *Telemedicine and e-Health*, 14(6), 520-524. doi: 10.1089/tmj.2008.8495.
- Theocharis, Y. (2012). Cuts, tweets, solidarity and mobilization: How the Internet shaped the student occupations. *Parliamentary Affairs*, 65(16), 162–194. doi:10.1093/pa/gsr049
- The Canadian Press (2012, March 22) iPhone ousts BlackBerry from top spot in Canadian smartphone market. *The Globe and Mail*. Retrieved from: <http://www.theglobeandmail.com/news/technology/tech-news/iphone-ousts-blackberry-from-top-spot-in-canadian-smartphone-market/article2377964/print/>

- Thomas, K.M., & McGee, C.D., (2012). The only thing we have to fear is...120 characters. *TechTrends*, 56(1), 19-24. doi: 10.1007/s11528-011-0550-4
- Thomé, S., Härenstam, A., & Hagberg, A. (2011). Mobile phone use and stress sleep disturbances, and symptoms of depression among young adults - a prospective cohort study. *BMC Public Health*, 11(66), 1-11. doi:10.1186/1471-2458-11-66.
- Thompson, L., & Cupples, J. (2008). Seen and not heard? Text messaging and digital sociality. *Social & Cultural Geography*, 9(1), 95-108.
<http://dx.doi.org/10.1080/14649360701789634>
- Toffler, A. (1980). *The Third Wave*. New York, NY: Morrow.
- Toscos, T., Faber, A., An, S., & Gandhi, M. P. (2006). Chick clique: Persuasive technology to motivate teenage girls to exercise. *Proceedings of CHI '06 Extended Abstracts on Human Factors in Computing Systems*. (pp.1873-1878). doi:10.1145/1125451.1125805.
- Turkle, S. (2008) Always-on/Always-on-you: the tethered self (pp.127-137). In J.E. Katz (Ed.), *Handbook of Mobile Communication Studies*. Cambridge, MA: The MIT Press
- Turkle, S. (2006) A nascent robotics culture: New complicities for companionship. *Presented at the 21st National Conference on Artificial Intelligence, Human Implications of Human-Robot Interaction (HRI)*. Winnicott, D.W.: Association for Artificial Intelligence (AAAI) Retrieved from:
http://web.mit.edu/sturkle/www/pdfsforstwebpage/ST_Nascent%20Robotics%20Culture.pdf
- Turner, J. (2012) Are there really more mobile phones than toothbrushes?. Retrieved from *The 60 Second Marketer's Blog* on May 26, 2012:
<http://60secondmarketer.com/blog/2011/10/18/more-mobile-phones-than-toothbrushes>
- Valente, TW. (1996). Social network thresholds in the diffusion of innovations. *Social Networks*, 18(1), 69-89. [http://dx.doi.org/10.1016/0378-8733\(95\)00256-1](http://dx.doi.org/10.1016/0378-8733(95)00256-1)
- Van Manen, M. (2010). The pedagogy of momus technologies: Facebook, privacy, and online intimacy. *Qualitative Health Research*, 20(8), 1023-1032.
doi: 10.1177/1049732310364990
- Van Biljon, J., & Kotzé, P. (2008). Cultural factors in a mobile phone adoption and usage model. *Journal of Universal Computer Science*, 14(16), 2650–2679.
doi: 10.3217/jucs-014-16-2650

- Venkatesh, V., Morris, M.G., Davis, G.B., & Davis, F.D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quart.*, 27(3), Available at: <http://www.jstor.org/stable/30036540>
- Walsh, S. P., White, K. M., & Young, R. M. (2008). Over-connected? A qualitative exploration of the relationship between Australian youth and their mobile phones. *Journal of Adolescence*, 31(1), 77-92.
doi: 10.1016/j.adolescence.2007.04.004
- Wexler, E. (2011, April). Decoding digital friends. *Strategy*.
Retrieved from: <http://strategyonline.ca/2011/04/01/youthreportdecode-20110401/>
- WHO, World Health Organization (2011). mHealth: New horizons for health through mobile technologies: second global survey on eHealth. Global Observatory for eHealth series (Vol. 3) (NLM classification: W 26.5) Geneva, Switzerland: WHO Library Cataloguing
- Willans, J (2012, February 22). Thanx v much! Celebrating 20 years of the humble text message. *Nokia Connects*. Retrieved from: <http://nokiainconnects.com/2012/02/22/thanx-v-much-celebrating-20-years-of-the-humble-text-message>
- Williams, S., & Williams, L. (2005). Space invaders: The negotiation of teenage boundaries through the mobile phone. *The Sociological Review*, 53(2), 314-331.
doi: <http://dx.doi.org/10.1111/j.1467-954X.2005.00516.x>
- Winston, B. (1998). *A history: From the telegraph to the internet*. Lane, London: Routledge
- Wishart, D. (2009). Dynamics of education policy and practice for urban aboriginal early school leavers. *Alberta Journal of Educational Research*, 55(4), 468-481.
Retrieved September 5, 2011, from CBCA Complete. (Document ID: 2170783181).
- Wixom, B.H., & Todd, P. A. (2005). A theoretical integration of user satisfaction and technology acceptance. *Information Systems Research*, 16 (1), 85-102.
doi 10.1287/isre.1050.0042
- Woolford, S. J., Clark, S. J., Strecher, V. J., & Resnicow, K. (2010). Tailored mobile phone text messages as an adjunct to obesity treatment for adolescents. *Journal of Telemedicine & Telecare*, 16(8), 458-461.
doi: 10.1258/jtt.2010.100207

- Wu, T. (2007). Wireless net neutrality: Cellular carterfone and consumer choice in mobile broadband. *New America Foundation* (working paper 17). Available: http://www.newamerica.net/files/nafmigration/WorkingPaper17_WirelessNetNeutrality_Wu.pdf
- Yau, J.Y-K. & Joy, M. (2010).An adaptive context-aware mobile learning framework based on a usability perspective. *Int. J. Mobile and Learning Organisation*, 4(4), 378-390. doi: 10.1504/IJMLO.2010.037535
- Ybarra, M.L., & Suman, R. (2008) Reasons, assessments and actions taken: Sex and age differences in uses of Internet health information. *Health Educ. Res.*, 23 (3): 512-521. doi: 10.1093/her/cyl062. Retrieved from:
- Young, J.S. (2011). The other side of media literacy education: Possible selves, social capital, and positive youth development. *Journal of Media Literacy Education*, 2 (3). Retrieved from: <http://www.jmle.org/index.php/JMLE/article/view/111>
- Zak, D. (2010, June 13). *Mobile volunteerism* (Web blog) Retrieved from: <http://www.dalezak.ca/2010/06/mobile-volunteerism.html>
- Zorn, T.E., Flanagin, A.J., & Shoham, M.D. (2011). Institutional and noninstitutional influences on information and communication technology adoption and use among nonprofit organizations. *Human Communication Research*, 37(1),1-33. doi: 10.1111/j.1468-2958.2010.01387.x

Chapter 3. Methodology

3.1. Introduction

This chapter describes the qualitative approach that was used during the development of this research through the discussion of the following categories: description of the research design, contextual research, the role of the researcher as a participant observer, the ethics approval, the participant sampling and recruitment, data collection, data analysis, rigor, and limitations. Because of the nature of this study, which was built on the results of a pilot community-university project, the pilot will be presented at the end of this chapter as well.

3.2. Research design: A qualitative case study

This study adopted a single qualitative case study model as a research strategy to analyze a phenomenon (VanWynsberghe & Khan, 2007), using an exploratory / descriptive methodology. The unit that I chose to analyze was the relationship between clients, counselors, and the new technology; SMS, introduced in the Pregnancy Care Centre (PCC), in the particular context of Edmonton, Alberta, Canada.

For this reason, this case study is instrumental⁶⁰ and heuristic⁶¹. Besides these characteristics, the rationale for choosing a case study as the research strategy is because it has been used by scholars for exploration and description of empirical areas where existing knowledge is limited (Ying, 1994). It is also useful where the purpose is an in-depth understanding of a phenomenon and its context, without explicit control or manipulation of variables, involving multiple rich sources of information (ibid; Stake, 1995). The characteristics of this strategy of research are present in the context of the agency.

The needs of the agency, my interest as a student doing research, and the academic community participating in this study, were to learn and be led by the phenomenon through exploration. Our ultimate purpose was to gain a better understanding of the reality present in the context, by listening to the voices of that reality and avoiding the process of trying to predict it (Tellis, 1997, para. 33).

⁶⁰ To provide an insight to an issue that could support the understanding of the same phenomena in other cases. (Stake, 2005, p.445)

⁶¹ “Heuristic means that the case study illuminates the readers understanding of the phenomenon under study. They can bring about the discovery of a new meaning, extend the reader’s experience, or confirm what is known” (p.30)

Even when studies related to this research are established in other areas of the world, no related research had been done by the agency or in the city before. As Benbasat, Goldstein & Mead (1987) state, the “case study is extremely useful where research and theory are at the early, formative stages” (p.369). In this case, since the purpose and relevance for the PCC and the researcher was to be able to tailor their support to young mothers and clients, using the results of this study, it was fundamental to understand their context and dynamics, and the case study allowed this intention.

As well, it is important to highlight that through reading the literature it became obvious to me that the best way to approach this particular phenomenon was doing a case study. In the last century, many scholars (Subrahmanya & Šmahel, 2011; Söderström, 2011; Tapscott, 2008) studying the adoption of mobile phones and particularly texting, have found (as is described in Chapter 2), that even when it shares cross-cultural characteristics, every location and time have particularities that are related to different populations, cultures, environmental and socio-economic aspects. These all affect and play an important role as causal factors for the ways that adoption, relationship, and uses occur.

The exploratory / descriptive qualitative methodology was used for the case study since the research was about exploring and focusing on the characteristics of the introduction of a communication system in a specific healthcare network, in a particular place and time (the PCC in 2011), instead of trying to understand and generalize the research from the lens of a known methodology (Stake, 2005; Gerring, 2004; Caelli, Ray & Mill, 2003; Sandewloski, 2000a).

Crawford (1997), from the Food and Agriculture Organization of the United Nations (FAO), described exploratory / descriptive research as a method “that reaches a better understanding of the research problem. This includes helping to identify the variables which should be measured within the study. When there is little understanding of the topic it is impossible to formulate hypotheses without some exploratory studies; also descriptive research can describe the extent of association between the variables”. (p.8)

This exploratory study was a step toward identifying and describing key variables for the case of the PCC in Edmonton, so other agencies that work with the same types of challenges in Canada could use this case as a frame of reference for institutional self-study to formulate their own hypotheses.

As Yin (1994) expresses, “a case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (p. 13). Through the exploration of the phenomena and its variables, it was expected to expand information and provide explanations in the literature of empirical and practical studies and projects that are focused on understanding and giving meaning to their actors and their context (Benbasat et al., 1987).

The design of this study followed the six sources of evidence that Stake (1995), and Yin (1994) identified in case studies. These are secondary documents such as literature review documents, studies and pilot reports (including the FLSMS Log and the PCC records); archival records, as those provided indirectly by the agency, and the Canadian Association of Pregnancy Support Services (CAPSS), the organization that affiliates PCCs across Canada, participant observation, researcher personal reflective journal, direct observation, and semi-structured interviews (see Figure 3-1; Tellis, 1997).

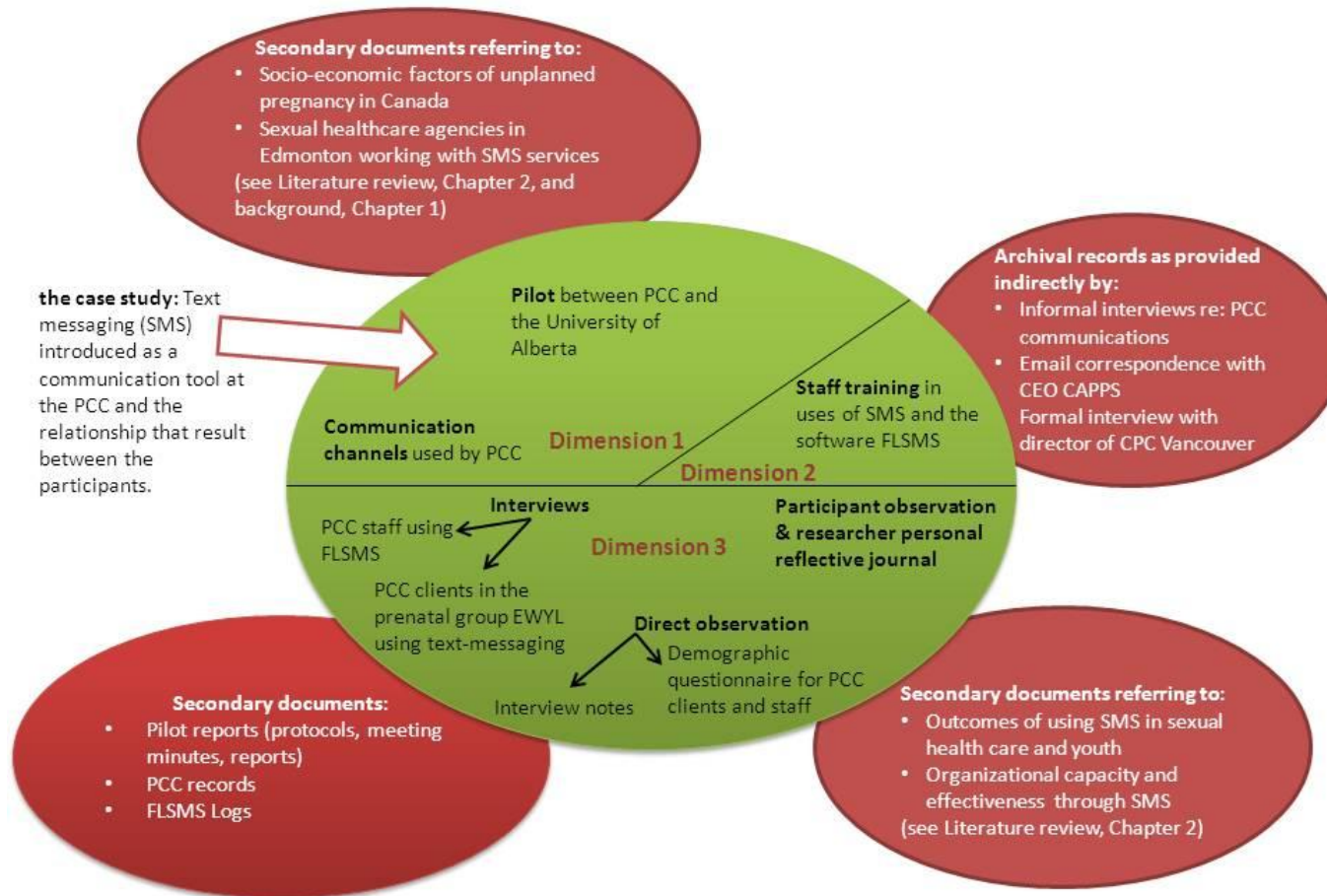


Figure 3-1. Research design for the case study (adapted from Figure 17.1, Stake, 2005, p. 446)

3.3. Contextual research

3.3.1. Background

The PCC is a not-for-profit, walk-in agency in Edmonton, that has been running since 1984, and works to support people, especially youth, facing unplanned pregnancies, with information, material aid, parenting support, peer pregnancy counseling, and spiritual support, as well as post-abortion counseling.

The agency is, as are many other social service agencies in Canada, full of enthusiasm and passion to serve the community, but facing competition and capability limitations, in terms of capacity and access to resources. This reality is reflected in how many of their services are supported by charity, and the valuable commitment and support of their volunteers, who make up 70% of their staff (PCC staff, personal information, 2011).

The volunteers of PCC in Edmonton vary from 20 to 70 years old, with different cultural and professional backgrounds. All volunteers go through an interview process and four weeks of PCC mandatory training. Volunteers at the PCC serve in any of the four programs that PCC runs: informative counseling, follow up parenting education, sexual health training through programs in all Edmonton area schools, and administrative support. The volunteers are able to support PCC's work by counseling clients, doing administration duties such as house-keeping and accounting, and by educating youth in schools, and clients in the Centre about sexual health care issues through supportive groups. Volunteers who will become counselors hold walk-in sessions in the company of more experienced counselors for three weeks.

Most of the clients of the PCC are experiencing an unplanned pregnancy, and their involvement with PCC at the first stage, in most cases, is anonymous. Clients vary from 13 years to 65 years old, and this population includes men and women. The most current clients are young adult women (18-30 years old), who have decided about carrying on their pregnancies and are attending the prenatal classes at PCC.

The contact rate at PCC varies seasonally, from 20 to more than 80 people per month. The communication tools currently used by the agency to establish and maintain contact with their clients vary from land-line phone calls, front line services such as client drop-in (one-on-one), counseling appointments, emails, and a Blog site.

During the last couple of years, volunteers and staff have observed that many of their clients were texting during their visits to the agency, and reported this observation to one of their volunteers in the area of communications support, who was also involved as a

research assistant at the MARS Lab of the Faculty of Extension at the University of Alberta.

The MARS Lab has been working in conjunction with an open-source program called FrontlineSMS⁶², which allows any agency to send large numbers of texts and receive messages, without the use of internet. Through this software, the MARS Lab has brought an alternative to address the technological gaps of organizations and their client's needs to the community of Edmonton, (especially NGOs) using mobile and wireless communications technologies. The software has been used by the University of Alberta for approximately one year with much success, and is supported by their online Community of Practice⁶³ (G. Gow, 2010, personal communication).

3.3.2. Problem: the need for text

The agency needed support and access to new technologies that would help them efficiently reach their clients. This is important, since most of their clients are pregnant young adult women (18-35 years old), who are usually texting during their time in the agency or “all the time” (PCC, 2011, personal communication). Unfortunately, most of the communication resources in Canada are still private, which means that they are very expensive for NGOs to access on a large scale, considering the low budgets and multiple needs NGOs such as the PCC have.

3.3.3. A practical solution: *We txt 2*, a community-university project

The volunteer and graduate student initially presented the idea of supporting the PCC with the resources of the MARS Lab. After building the idea of introducing FLSMS as an optional communication channel for their services, through the graduate student, the MARS Lab presented a partnership proposal to the PCC Edmonton. The idea was studied by the board of directors of the PCC in Edmonton for the month of April 2011.

⁶² FrontlineSMS works by connecting a computer, the software, and a cell phone, and has the capacity of storing data from a two-way text-messaging hub, such as contacts and mass-messaging, without demographic data if required. It also has the capacity to export this data into Windows programs such as Excel. The initiative was born in Africa in 2005 under the same need that PCC has today: resources to reach specific groups of individuals within a target community (Frontline SMS, 2011). “FrontlineSMS text messaging software, offered for free, is used in more than 70 countries. It has helped locals monitor elections in Africa, run a rural health-care network in India, and receive commodity pricing information in Cambodia and El Salvador” (Bellows, 2011).

⁶³ <http://frontlinesms.ning.com/>

In May of 2011, a community / University project between the PCC Edmonton and the MARS Lab was established to create a mHealth (mobile health) pilot that would introduce a text messaging service for new and existing clients. The ethical approval for the project was provided by the University of Alberta, and a Memorandum of Understanding (MOU) was signed between the PCC Edmonton and the MARS Lab. This pilot was the first experience of PCC Edmonton and all the CPCs across Canada in the use of cell phones to promote information sharing and text counseling⁶⁴ in support of unplanned pregnancies.

Objectives of the pilot project

The use of FLSMS in PCC Edmonton was intended to support new and existing clients with information about their services, text counseling, and appointment reminders through text messaging as a new medium of communication for the agency. It was hoped this would provide some insight for the potential of knowledge building between the agency and their clients, in terms of how communication happens through text messaging, and how that influences their relationships with clients.

With this information in hand, PCC Edmonton expected to tailor their support using texting in their communications and offering networks that enhance the success and well-being of the young mothers and clients / future clients. The MARS Lab also expected to profit by gaining new knowledge in the uses of texting in Edmonton, in order to engage communities with research and development solutions.

Methodology: how it was done

During the MOU and through several meetings, the terms of work of the pilot were discussed, the possible length for the pilot (1 year), each parties' responsibilities, the definitions of success understood for each party, how the research will be done for each party, and the uses of FLSMS in the PCC (see Appendix 11).

The MARS Lab support was focused on the implementation of the software at PCC, creating a development plan for the software with participation of PCC, staff training, provision of physical resources, the assistance of a Masters student to develop a thesis / research project, and a field report.

⁶⁴ Clients are able to access staff through text messaging, and are able to receive appointments and counseling, if needed, through text messaging as well. It was agreed that information that could compromise the confidentiality of clients, such as discussing situations related to unplanned pregnancies or crises in detail, will be avoided through text messages, and counselors were encouraged to refer clients to face-to-face appointments.

The PCC's support was focused on the provision of physical resources / a place to do research, provision of a laptop, provision of human resources, administration of the software, sharing collected information, and their participation in the development of a field action report to be shared with the community.

The software was installed at the agency in June 2011. During the summer and fall of the same year, twenty volunteers and counselors and three staff were trained to use the software. Using the capabilities of the software, PCC Edmonton was able to replicate a folder structure in the program that allows each counselor to maintain a file of existing clients, and a history of their text message exchanges with specific clients (see Figure 3-2, and Table 3-1).

Keywords with automatic responses were also created in the software to allow clients to text and be categorized by need. The new clients joined the service by using the keyword INFOPCC⁶⁵. Existing clients joined by choice when they wished, by selecting the box 'texting' on the list of communication media that they want to be contacted by. This box appears on the client sheet, which is filled in during the first session where they have face-to-face discussions with counselors. Clients can leave this service at any moment by texting the keyword "LEAVE".

⁶⁵ The keyword will automatically reply to clients: *Thank you for contacting The Pregnancy Care Centre. We are here to help you. Would you like to talk to a counselor? By sms reply TEXT, by phone reply VOICE.* If the client replies TEXT the response is: *A counselor will contact you by text in the next 24 hours* (A.M. Keller, personal communication, July 2011).

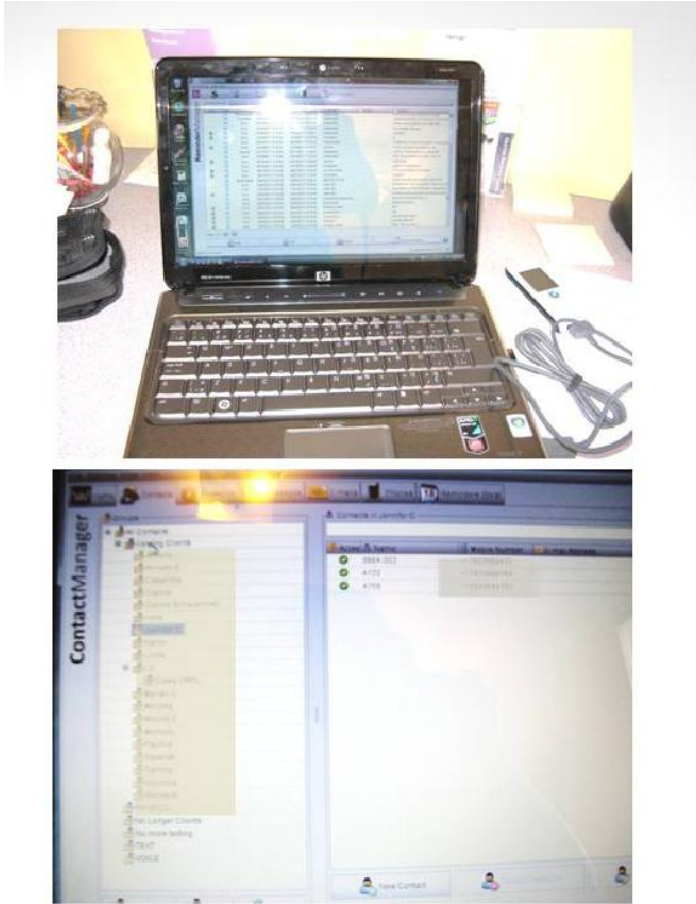


Figure 3-2. Picture of PCC laptop, running the FLSMS (Edmonton).

Table 3-1. Folder layout for counsellors using FLSMS.

Contact Manager Tab on FLSMS at PCC Edmonton*				
• ALL CONTACTS	Active**	Name**	Phone #**	Email**
<ul style="list-style-type: none"> ▪ Existing clients <ul style="list-style-type: none"> ▪ List of Counselors by Name <ul style="list-style-type: none"> ▪ Prenatal group (by counselor) ▪ INFOPCC (new clients) ▪ No longer clients ▪ No more texting ▪ TEXT ▪ VOICE 	This box defines if the file is active, which means PCC is in contact with the client	This box contains the file number of the client, since to protect anonymity during the pilot, names of clients will not be stored in FLSMS archives	This box contains the mobile number of clients	This box will not be used.

* Under the tab “contacts” in FLSMS, folders were created for new and existing clients. The new clients appeared under the group *new clients*, and *existing clients* appeared under individual counselors by name, reflecting how counseling operates at PCC. For this reason, folders for each counselor were created under the group *existing clients*, so in this way they were able to manage their client’s information in their folder (e.g. individual counselors run different prenatal groups, but not all counselors do). The reason to follow this structure, which was created by PCC & the researcher, was to reflect as much as possible the way PCC works with their counselors, thereby making sense to them and their work practices.

** Under each counselor folder there appears a list of clients with information such as active, name, phone number and email as is detailed in the columns on the right side of table 1.

A detailed protocol was also developed between the researcher and the agency, adapting the agency volunteer protocol of behavior with clients, to guide counselors in their interactions with clients by text messaging and to ensure the safety and privacy of clientele. This protocol included a glossary of text-speak terms or text lingo (see Appendix 8 for the protocol and Appendix 9 for the text glossary).

On October 14th of 2011 the service went live and was launched. Posters were distributed in different places in the agency as well as added in their client sheet (see Figure 3-3). A formal group training followed this day, with live examples of how to use the program, and a session of questions between counselors, volunteers, the volunteer coordinator, the principal investigator, and the researcher. Peer-to-peer training followed during the length of the pilot, by request of individual counselors.



Figure 3-3. Poster distributed at PCC Edmonton after the launch of FLSMS.

Advanced functions were only taught to the PCC Volunteer Coordinator, as required by the PCC CEO, since she was the staff member coordinating the work of their volunteers / counselors by being the administrator of FLSMS. The decision by the PCC Edmonton CEO was to begin the first campaign with existing clients only,

and after the pilot to move on with new clients and with different programs at the PCC.

Since October of 2011, the partnership has been exploring the use of text-messaging for clients seeking access to PCC services. This exploration is expected to be completed through this research. Preliminary results of the pilot (see Appendix 11, p. 240) will guide the following results (Chapter 4) in the uses of texting to access the services provided by PCC. The findings and conclusions of this document (Chapter 5 & 6) are expected to be delivered in a report to PCC with recommendations to be implemented on the agency's health communications strategy.

3.4. Participant sampling and recruitment

A total of 12 individuals (six counselors and six clients attending a prenatal class) were interviewed at the PCC Edmonton. Recruitment of participants for this study was completed through the PCC Edmonton, at the agency location, using some strategies such as purposeful sampling and snowball technique.

Since two varieties of participants were chosen, (clients and staff), it is worth explaining the process of recruitment individually.

Young adult clients were recruited purposely through the Earn What You Learn (EWYL) pre-natal program⁶⁶ that was running at the PCC location once a week, from the end of April until May of 2012. Even though the original plan of this study was to enroll client participants according to their increased interaction (or not) with the agency through FLSMS, this was not used as a criterion of inclusion, since no clients that used FLSMS were in the prenatal group.

Inclusion criteria for the youth client participants were those who were interested in participating in the research, who were participating in the prenatal classes, those of legal age, who owned a mobile phone with texting services, and who were 'cognitively' able. I defined 'cognitively able' as those people with insights on text messaging technology, and with the capacity to use and interact with it on a daily basis, therefore, those who had a comfortable level of knowledge with the use of texting. The exclusion criterion was defined as those clients who were not participating in the prenatal classes, even if they were texting with counselors at the

⁶⁶ Earn What You Learn (EWYL) at the PCC is "a prenatal or parenting group. Each class involves discussion, sharing, a video and learning module and homework. Some of the classes are: 1st, 2nd & 3rd Trimester; Fetal Alcohol Effects; Bonding with Your Unborn Baby; Newborn Care; Going It Alone; Breastfeeding and Ultrasound"
(<http://www.pregnancycentre.ca/Resources/EWYL/tabid/90/Default.aspx>)

agency. This was because it was not possible for either the researcher or the agency to guarantee their confidentiality or anonymity.

The clients were recruited by presenting them with an informative sheet about the research at the beginning of the pre-natal program (see Appendix 7). The counselor that was teaching the prenatal classes was asked by the researcher to help to present the research, since she had developed a rapport with the clients through previous peer-to-peer counseling.

The day of the presentation, all clients that formed the prenatal group class (seven in total) were interested in participating in the study, and all of them met most of the criteria purposefully chosen. This day, I made appointments over the following weeks to interview each of the client participants before or after the prenatal classes in the PCC. With the exception of a client who quit the prenatal group, all participants were interviewed within a time period of three weeks between February 16th and March 2nd, 2012.

Two participants were 27 and 34 years old, and therefore slightly outside the demographic set up in this study to define 'youth' (between 18 and 25 years old). However, reviewing the data with a peer and my supervisor, I found that those participants shared much in common with the 18 to 25 year old clients because of their life situation (facing unplanned or concealed pregnancies, attending a prenatal group, and having a cell phone with texting services). I decided to include their data in this research, after finding in the literature that SMS usage characteristics among youth appears to be correlated with that of young adults, and also because the age of young adults in Canada is defined as between 18 and 34 years old (Warren, 2007, p. 13).

Staff participants were recruited in PCC's installation, during their volunteer shift. The goal for sample selection within each participant type (counselor staff and young adult clients) was to obtain a representative group of texting service users. In the case of staff participants, the volunteer coordinator of PCC Edmonton offered to help select those counselors who were trained, were using the texting program with clients on regular basis, with a variety of ages, and who agreed to be interviewed. This selection took about six months (between December 2011 and May 2012) continually, since some of the counselors gave up their volunteer work during this period, and new counselors were selected by snowball technique.

3.5. Data collection strategy

The data was collected through semi-structured interviews, observation, and notes. These included the collection of data resulting from a demographic

questionnaire, and the historical background observations about the Canadian pregnancy care network and their use of this technology in the same context (Stake, 2005); a personal reflective journal made by the researcher during the time of this research, and artifacts such as secondary documents provided from the results of the pilot, such as FLSMS reports⁶⁷ and the pilot study, which is presented in numeral 4.10 of this chapter.

Data gathering took place from December 2011 until May 2012. The primary data collection was carried out through interviews. Even though the ethical approval was granted at the beginning of December 2011, and it was planned that interviews would be held between December 2011 and March 2012, the interviews were not set up until February 2012, since some volunteer-counselors were on holidays or gave up their volunteer work during this period. Because of these changes, it took until February for a prenatal group to be set up.

Interviews with staff counselors were completed between February and May, 2012. Interviews with the young adult clients were finished in April 2012.

3.5.1. The physical artifacts

Sandelowski (2000) mentioned exploration of artifacts, such as archival records and secondary documents, as a data collection technique that is commonly used in qualitative descriptive studies, especially case studies.

Archival records. Given that the PCC is an agency under the CAPSS, I did a background search of the communication channels and tools used currently by the PCC in Edmonton, and by all the PCCs around Canada, and of their future plans.

For this purpose, and in view of the fact that PCC Edmonton does not have formal documents / records related to specific campaigns of communication and technology inclusion (this area does not formally exist in the PCC Edmonton), an informal conversation was recorded in April, 2012 with one of the administrative staff members of the PCC in Edmonton who had been working at PCC for four years, and who is in charge of frontline communication with clients (see Appendix 11 to review the interview in more detail).

⁶⁷ FLSMS captures all text-messaging interactions between counselors and clients, such as content, time, date, caller ID, and frequency. These data will be available to the researcher of this study as a database for analysis and will inform qualitative interviews. The data does not disclose the identity of the clients since their information is saved in FLSMS under the four last digits of their mobile phone or their client ID number.

Also, as recommended by the CEO of CAPPs, email communication was established in January of 2012 with the director of seventeen Centres in the province of British Columbia. In December of 2011, this director was involved in a communication brainstorming meeting with a marketing team, where they reviewed the top referral sources for two main Centres (Vancouver and Burnaby), and also for a number of other Crisis Pregnancy Centres (CPCs) across Canada. Through this communication, I was able to identify the communication channels that CPCs across Canada were using, including uses of text-message technologies, and further plans with social media. I was also able to set up an interview with the director of the Crisis Pregnancy Centre of Vancouver, who is pioneering work in establishing OnlineCare Canada: a counseling system for clients. This interview took place in Vancouver, in February 2012, (see Chapter 1, numeral 1.3.1, pp. 14-18, for more detailed information).

Secondary documents. Through this study, I used the reports⁶⁸ of the pilot developed between the PCC and the MARS Lab at the University of Alberta, as secondary documents that will be used in the analysis. Using this document, I reviewed the categories related to the research questions and literature review, such as SMS as the chosen communication tool of teens, SMS and sexual health care support for youth, SMS creating human capital, and SMS creating social capital, which allowed me to review valuable information on how communication occurred through text messaging in the agency, and how that influenced their internal and external relationships with clients.

I also observed the capability of the software, reviewing the monthly report of the FLSMS' logs⁶⁹ and considered through these observations, variables such as volume (number of messages sent to counselors), space (length between contact messages per participant), content request (such as messages requesting agency information and support, referrals or additional services), and behavioral change (reporting change in relationships with the PCC in the pilot study).

Finally, I used the results of demographic questionnaire data (see Appendix 4) as a secondary document to understand participant's conceptualization and experience of the phenomena, and to observe information about the variation across their characteristics such as social media uses, ethnicity, age, and place of residence.

⁶⁸ See numeral Appendix 11 for more detail about the pilot report.

⁶⁹ Between June 2011 and March 16, 2012

3.5.2. Semi-structured interviews

This research involved semi-structured interviews as an essential source of information for the data collection (Yin, 1994, p.84).

The interviews started during the pilot, ranged in length from twenty minutes to one and a half hours, and were digitally recorded. These were conducted one-on-one with the participants. By conducting semi-structured interviews I was able, as a researcher, to be sensitive to emergent information. This included body language and behavior of participants, as result of the environment offered through the semi-directed questions, which I observed during the interviews and recorded in a personal reflective journal. The semi-structured interview format also allowed me to follow the goal of this research. This was fundamental, since I was involved as a volunteer in the agency during the time of this research, as well. I strived to keep space for unexpected information, as well as ensure that the “appropriate lines of inquiry were pursued”. This was especially important in exploring sensitive issues such as the use of mobiles for sexual health, where the research could take multiple lines of interest, and where there is so much to say and explore (Perry, Thurson & Green, 2004, p.142).

It was expected that this format would help me detach from my role as an agency volunteer in a small proportion, without losing the advantages of being a researcher and an ‘insider’ of the experience (in the case of the interviews with counselors). However, my perception after the interviews was that this format, instead of detaching me from my role as a volunteer, made me more aware of my attachment to the agency, their cause, and my love for working with their clients. As a result, I conducted semi-structured interviews that were more conversational in nature, and that allowed me to work with a consciousness of my dual role, my insights, tensions, and biases during the interviews. These were not removed from this study and I believe, make it richer and distinct in its results, as is reported in Chapter 4.

Before the interviews, I read the questions to the participants, and provided an extra sheet with the questions to those who asked. Before going into the interviews, I asked again if they were comfortable with having the interview recorded. I asked them (counselors) about their week, and I disclosed my volunteer involvement with PCC with some of the young adult participants to create rapport and prepare a relaxed ambience. This rapport was possible with the counselors, since I knew them previously as a volunteer, with the exception of one. A rapport was not achieved in the first two client interviews. After reviewing the interviews with my supervisor, I realized that in the young adult client participants’ experience, it was

most comfortable if the interview was more conversational, and included my own experience with mobile phones and text messaging.

When I started to record the interview, I wrote down the participant number, date, location, and time length for the interview on the interview sheet. I asked each participant for demographic information, as well as their mobile information⁷⁰: if participants had a mobile phone with them at the time of the interview, if the phone had text messaging service, and what kind of plan they had. This information was recorded in order to review how involved the technology was in each participant's life.

The structure of the sheet that guided the interviews (see Appendix 4 and 5) was designed to look for specific information, following the categories that I found in the literature review. For this, I divided this guide into the following sections:

- Section One: SMS as a chosen communication tool by youth. This section was intended to guide participants and myself in describing how text messaging was seen by the young adult clients and by the staff, some of whom were young adults as well, or were in contact with them.
- Section Two: SMS and sexual health care support for youth. This section was intended to guide the interviewer and interviewees in describing how text messaging has supported or could support client's sexual health at the PCC.
- Section Three: SMS creating human capital. This section was intended to guide the interviewer and interviewees in describing if text messaging had increased their individual capacities and competences.
- Section Four: SMS creating social capital. This section was intended to guide the interviewer and interviewees in describing if text messaging had increased their organizational capacity and social networks.

It is also worth mentioning that during the interviews, there was room for opinions, ideas, or anything that participants wanted to share, in addition to the questions that the researcher asked.

At the end of each interview, participants were expected to be contacted to repeat interviews for evolving interpretations (Mayan, 2009). This process was omitted in this case study because of convenience for participants and their limitations⁷¹, in the case of young adult client participants. Also, saturation was achieved with the counselor participant interviews after six interviews.

⁷⁰ Only in the case of staff participants.

⁷¹ Those limitations are described as the high mobility of clients and the ethical guidelines with high risk participants. In order to ensure an ethical approach, I was not able to insist on repeating interviews with clients who were already struggling to attend their prenatal classes (some interviews were rescheduled since they did not come to the class that day). After they

When the interviews were completed (staff and clients) they were transcribed verbatim, including non-verbal content such as the emotions expressed during the conversation, and the context that surrounded the interview (e.g. interruptions). Once the interviews were transcribed, I listened to each interview again, to ensure accuracy. I substituted names for participant numbers and I erased information where names were mentioned in the transcriptions.

3.5.3. Directed observation & field notes

In this study, one of the important functions of directed observations and field notes were to attempt to recognize the thin line that divided my personal insights from the research data (Marshall & Rossman, 2010; Eisenhardt, 1989). The notes I recorded of my observations during and after the interviews helped me to recognize what worked or not (during the interview). This gave me an insight of how to tailor my questions to gain access, and maintain my ethics and the ethics points agreed on with the University of Alberta for this study (Marshall & Rossman, 2010, p. 97).

My directed observations during the pilot and the interviews were casual and participatory in the case of the staff participants, since most of my observations related to them were in regard to the time they were using the software, and where I actively passed from a researcher role to a volunteer role, who serves the agency with the same purpose as they do. I converted the notes that I took during and after the interviews into an electronic file that was erased after the analysis of this study was complete.

Even though I cannot guarantee the reliability of these data, I believe that it would not be possible to gather the information in another way, in the case of this study. It was also this particular characteristic that permitted the study at all (see Appendix 11; Tellis, 1997b).

The structure that I used for my observations and field notes was suggested and described in Katherine Eisenhardt's work (1989, p.539) regarding useful field notes, and is described below:

- a. I wrote down all impressions that I had for the length of the research. Eisenhardt explains this process as "to react rather than to sift out what may seem important, because it is often difficult to know what will and will not be useful in the future".

finished the prenatal classes with the Centre, I was not able to contact them because of PCC's policy of confidentiality. In order to not disrupt the work that the agency was doing with them I tried to be as unobtrusive as possible and have one interview for each who agreed to participate in this study.

- b. When I wrote these impressions, I “pushed” myself with questions such as, “what am I learning?”, “what are they learning?”, and “how do these responses (staff and clients) differ from the last interview (or) how do they connect?”
- c. I compared ideas, and expressed feelings about my relationships with the agency, volunteers, and clients. This included anecdotes and informal observations.
- d. I recorded impressions from thesis meetings with my supervisor as well as informal meetings with a colleague and a family member, with whom I shared my thoughts, ideas, and study. I wrote down their thoughts and emergent ideas as “useful devices for overlapping data collection and analysis”⁷².

Through the review of these field notes, I was able to reflect during the process and add adjustments to the data collection instruments⁷³. These adjustments included the creation of an informative sheet for client participants (see Appendix 10), the addition of a question to the young adult clients’ interview protocol, and a generalization of the questionnaire, which on the initial proposal of this study, was designed and intended to be filled out only by client participants.

Also through directed observations in interviews and field notes, I was able to realize that contextual information about the uses of texting in service agencies in Alberta was not available. I decided to contact some of those organizations through email and get a more contextual picture of the reality concerning new technologies in service organizations. Also, formal contextual information on the PCC’s communication history was not recorded, and for this reason I added an informal interview to my data collection in order to reference this information in my study (see Appendix 11).

3.5.4. The researcher as a participant observer

Since I, the researcher, have been a volunteer with the PCC in Edmonton for a period of around four years, I considered it worthy and ethical to openly include my observations in the data and add an additional step to my data collecting through a reflective work of my participation. Towards this end, I used an inter-subjective

⁷² Eisenhardt (1989, p. 539) states that overlapping data analysis with data collection not only gives the researcher a head start in analysis, but more importantly, allows researchers to take advantage of flexible data collection.

⁷³ Eisenhardt (1989) also states that these types of alterations in the data collection methods of a case study are legitimate. The rationale is that the researcher is “trying to understand the case study individually, and in as much depth as is feasible. The goal is not to produce summary statistics about a set of observations. Thus, if a new data collection opportunity arises or if a new line of thinking emerges during the research, it makes sense to take advantage by altering data collection. This flexibility is not a license to be unsystematic. Rather, this flexibility is controlled opportunism in which researchers take advantage of the uniqueness of a specific case and the emergence of new themes to improve results” (p. 538).

approach in my writing, as a strategy to present and incorporate my observations, insights and reflections of the experience into the analysis as a participant. These are discussed in Chapter 5 (Ellis & Berger, 2003).

I developed a personal reflective journal during the length of the study, which recorded my personal tensions, biases, and assumptions during and after the study. In this journal I also recorded my impressions of my visits during the time that data was collected, during my time as volunteer of the agency, my relationships with old counselors and new ones, my connections or disconnections with clients, as well as times where I was working with the data and the evolution of my reflections about my role, about participants perceptions in visits or during the interviews, my academic responsibilities, and feelings towards the study, its goals, my goals, and my expectations with it (Singleton & Straits, 2010; Marshall & Rossman, 2010, p. 97; Moustakas, 1994).

As Henwood & Pidgeon (1992, p.106) affirm, through the personal reflective journal, I, the researcher, was able to review my values and assumptions during this journey. I believe I have also provided a new understanding of the study that would not be possible to achieve if I did not have this dual role.

3.6. Data analysis strategy

Content analysis was the strategy chosen for this study since it is the appropriate strategy used for an exploratory descriptive case study (Sandelowski, 2000a; Mayan, 2009). Through this tool I analyzed, from a deductive hermeneutic perspective⁷⁴, and using a directed⁷⁵ approach, the dynamic information from the secondary documents, interviews, directed observation, field notes, and my research journal.

The following steps summarize the approach that I took for the content analysis:

- a. I first scanned the secondary documents from the pilot as a secondary analysis (Polit & Hungler, 1999). To interpret these data, I explored relationships presented

⁷⁴ “Hermeneutics is primarily concerned with the meaning of text or text dialogue. In case studies dealing with the implementation of information systems, the text is ‘social’ and political action. Then, the hermeneutic dialectic perspective emphasizes both the subjective meanings for individual actors and the social structures which condition and enable such meanings and are constituted by them”. Myers (1994, pp. 56-57).

⁷⁵ “Content analysis using a directed approach is guided by existing theory or prior research that exists about a phenomenon that is incomplete or would benefit from further description. The existing theory or research can help to focus the research question” Hsieh & Shannon (2005, p.1281).

in the data of the pilot with the research questions and the variables in the literature review.

- b. Consequently, I did a detailed analysis of the transcriptions by highlighting sections of the text and coding them. This work was accomplished by reviewing the meaning of the words, what events occurred, and the meanings that participants gave to those events (Roulston, de Marrais, & Lewis, 2003; Lindlof & Taylor, 2002; Sandewloski, 2000a);
- c. At the same time, I highlighted the observations and sections of my reflective journal, looking for categories related with the research questions and the variables presented in the literature review, as well as new categories that represent the participant's knowledge and my own personal experience (Schmidt, 1993).
- d. Even though my supervisor recommended using NVivo® to code the data, I decided to do it manually, because I found that through this process I was more involved with the data and could include my impressions in the coding and reflexivity during the coding process.
- e. After the coding was complete, I cut the highlighted areas out of the text and grouped them into the categories that emerged (Mayan, 2009, p. 95).
- f. I completed the same process separately with the secondary documents, the field notes / observations, and my reflective journal.
- g. As I finished this exercise, I compared the data of each instrument (interviews, secondary documents, field notes / observations, and my reflective journal) and analyzed them in the context of technology implementation (text messaging implemented in the PCC).
- h. I then triangulated the data⁷⁶, by dividing the categories identified in each group by the links and ideas identified between those categories (Richards & Morse, 2007).
- i. I organized these categories around connected ideas. I prepared a summary for each category describing its contents and examples from the transcripts.
- j. After this process, themes anchored the categories and helped me to draw conclusions in the total analysis (Mayan, 2009).
- k. These themes were linked to the research questions, the variables presented in the literature review, and the categories that represented the participant's knowledge.

⁷⁶ It was expected that through this exercise, I would be able to refine categories and measure the consistency between the participant's descriptions as well as my interview/field notes and journal.

The total analysis, which can be found in Chapter 4 & 5, was assisted by including and comparing the themes and the new research questions with the information found in the contextual documents. These include the background of communication channels and tools used currently by the PCC in Edmonton, and by the PCCs around Canada, CAPSS, and their future plans.

3.7. Rigour

This study was constructed with reliability and validity. To achieve reliability this study was submitted to the revision of different actors that were participating (or not) in the study:

- Internally, this study was reviewed by the supervisor of this study who was also the principal investigator of the pilot, and by myself, the researcher.
- Externally, the study questions and literature review were evaluated by consulting a sociology librarian from the University of Alberta, and by comparison with dissertations of related studies. Prior to its submission, this study was presented to a peer graduate student, as well as a family member, and their comments and insights helped to shape and validate its results (Darke et al; 1998, p. 286).

Finally, reliability was achieved by the data management of the instruments of this study. By repetitively reading each transcript and the field notes, I was able to obtain a general sense of the information and avoid mistakes in the transcription. Also, by discussing field notes with internal members, such as the supervisor of this study and some colleagues (Creswell, 2011), I was able to be in touch and discuss different scholarly perspectives, taking into account that I, as the principal researcher, was experiencing tension between my role as researcher and volunteer of the agency. By reviewing the on-going findings with my supervisor and with the members of the committee of this study⁷⁷ as a third party, I was able to discuss progress and address issues emerging from the data (Perry et al., 2004, p. 137).

⁷⁷ As a tool to ensure the reliability and the consistency of this study, a draft was sent to the committee of this study previous to the final defense requesting comments and insights.

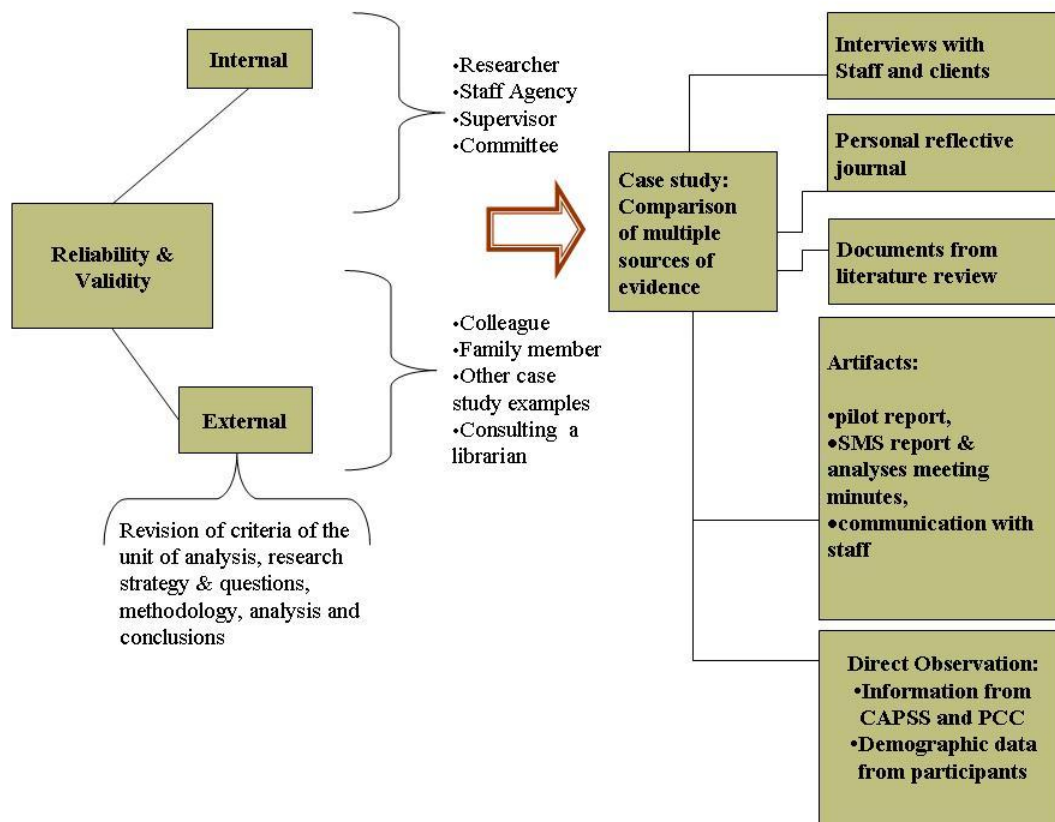


Figure 3-4. Rigour design for the Mobile Sexual-Health Networks case study.

To achieve validity, this study used three strategies (adapted from A.M., Keller, personal communication, December, 2011; Lincoln and Guba, 1985):

- Triangulation of the data and participants: This study chose multiple data collection tools to verify the information validity, as well as twelve people (perspectives) to interview (Singleton & Straits, 2010).
- Internal validation: The journal served as a record of the researcher's personal tensions and assumptions.
- Member validation: Some staff of the agency reviewed the findings. Unfortunately, because of limitations with clients, such as confidentiality and convenience⁷⁸, they were not able to read copies of this study before it was completed and be more active in the revision of the study. However, during and at the end of interviews, I questioned them about comments in the interview to verify correct interpretations and conclusions of their comments (Singleton & Straits, 2010; Mayan & International Institute for Qualitative Methodology, 2001).

⁷⁸ Most clients were in an advanced stage of pregnancy.

3.8. Ethics considerations

Following the ethics approval by the Research Ethics Board 1, at the University of Alberta in December 12th of 2011 (see Appendix 13), we recruited the sample.

Potential participants were informed about the purpose, procedure, and benefits and / or risks of the study, and were assured of anonymity and confidentiality. I explained to participants that their interviews were anonymous in the sense that no information would be disclosed that contained names or sensitive information, such as the topic of consultation with PCC, or any characteristic that could identify participants in the findings that will be published by this study.

Participants were also informed about their right to refuse to answer any questions or withdraw from the study at any time, since their involvement was voluntary, and they had the right to acquire a copy of this study in order to allow them access to the data that would be collected. A total of eight participants asked for a copy of the final document, and one participant asked for a digital copy of her interview. In this case, the request was denied, since it was agreed that all copies of interviews were to be erased after the analysis, as a clause of protection. The client participant responded positively to this explanation.

Interviews were carried out at the PCC location during regular business hours. The location was chosen because it was safe and minimized participant risk in this research. It was explained to client participants, who were pregnant at the time of the interviews, that the PCC was chosen as the location to ensure their physical safety. All agreed to this research requirement.

I sent the general consent form and an interview consent form to staff participants a week or two in advance of interviews, through the internal mail or through the volunteer coordinator of the agency. In the case of client participants, because of internal agency security policies, I was not able to contact them directly by email or phone, but through the agency or in person. For this reason, I gave the clients the forms a week before, when they agreed to participate, but I brought copies to each interview, since most of them lost their forms or did not bring them with them at the time of the interview.

Before each interview, I informed each participant of the requirement to sign a consent form, an interview consent form, and to fill out a demographic questionnaire. The questionnaire served the purpose of observing the variation across demographic characteristics of the participants. All participants signed the forms personally in the presence of the researcher and one counselor, in the case of client

participants. Copies of the forms were handed out to each participant, as well as to the agency, through the volunteer coordinator.

I gave participants some time to read the forms and ask for clarification. Almost all staff participants asked about the contributions of this study to their work, my personal motivations to participate in it, and my personal opinion about the technology: SMS. Two client participants asked about risks of anonymity mentioned in the consent form.

Interviews were recorded digitally and transcribed verbatim. The transcriptions were stored in my home computer and were accessible only to me, my supervisor, and the agency, when asked from the agency (in the case of transcriptions only). Clients were aware and agreed with this procedure. The names of all participants, and any other identifying information was removed from the transcriptions, and the digital copies of interviews were stored in a folder of my home computer. At the end of the data analysis, these files were destroyed.

3.9. Limitations

This study was limited by a few factors. Primarily, because of the scope of this case study (exploratory/descriptive), some results cannot apply to various situations, and perhaps, some particular findings of this study will apply uniquely to the case of the PCC in Edmonton, Canada. However, it is this subjectivity that has made the data of this study so rich as well.

I suggest that generalization of the study findings could be seen as a limitation for scholars who are looking for a final pattern. Given the exploratory nature of this research, its findings may not allow general definitions of reality to be generated. However, some findings are likely to be similar in other settings what suggest it can and should be replicated with different agencies and locations. This study, as the first in the country of its nature, is a contribution, or a first step, to further in-depth studies that look to understand different realities and phenomena that were exposed in this case study.

Secondly, the length of time was identified as a limitation since the pilot and this research were built in a limited duration. The length of time limited the efficiency and effectiveness of the data collection. As Yin (1994, pp.66-69) exposes, this is part of “dealing with the difficulties of gathering data in the real environment not controlled by the researcher”. In the case of this study the real environment that we dealt with were those factors such as financing, times in the agency (adoption of technology, learning curve, work practices that changed at the time of the study), time

the researcher had to finish the study, and time of client participants, who were participating in a prenatal class at a specific time in the agency.

In order to make the experience comfortable for the client participants, taking into account their pregnancy risk, time management, and knowing that it was not likely to be possible to repeat the interviews because of their life circumstances⁷⁹, and as a result, trying to make the most of the interviews in the short time given, was a challenge. Also, because of the financial-time constraints of this study, variables that could be more useful in different times and circumstances were not possible to study.

Also, some of the guidelines presented by the Ethical Research group of the University of Alberta were identified as a limitation for this study. In the case of the young adult client participants in this study, it was not possible to understand their total reality, since the observation of actors that define and interact in their reality using text messaging, such as family members, relatives, and friends were not included because of ethical constraints. I propose that even when the group is in a delicate situation, the nature of this study will have not put those participants at risk.

In the case of interviewing staff two limitations were identified:

1. Some participant's schedule and availability were a challenge. Initial client participants were withdrawn from this study because of internal changes in the agency, including some volunteer drop-off, agency commitments, and holidays. This situation caused a lengthened timeline on the research.
2. I reflected that in future case studies where the researcher is a volunteer participant, as I was, a companion researcher should be used, besides the supervisor of the study. I identified the rapport that I have with some of the counselor participants as a limitation of this study. This, I did through our interviews, and the reflections that caused some negative limitations on them. I believe that if the staff was being interviewed by an external researcher, it could open the door to more criticism, since personal feelings would not be involved in the expressions of their beliefs and thoughts.

3.10. References

- Benbasat, I., Goldstein, D. K., & Mead, M. (1987). The case research strategy in studies of information systems. *MIS Quarterly* 11(3): 369-385. Available: <http://www.jstor.org/stable/248684>
- Berman, H., Ford-Gilboe, M., & Campbell, J. C. (1998). Combining stories and

⁷⁹ Some clients after they do the prenatal classes at PCC do not come back to the center

- numbers: A methodological approach for a critical nursing science. *ANS: Advances in Nursing Science* 21(1): 1-15.
doi:10.1146/annurev.publhealth.29.020907.090824
- Caelli, K., Ray, L. & Mill, J. (2003). Clear as mud: Toward greater clarity in generic qualitative research. *International Journal of Qualitative Methods*, 2(2), Available:
<http://ejournals.library.ualberta.ca/index.php/IJQM/article/view/4521/3651>
- Crawford, I.M. (1997). *Marketing research and information systems*. (Marketing and Agribusiness Texts - 4). Rome: FAO Regional Office for Africa. Retrieved from:
http://books.google.ca/books?id=ns8_OpkPUi8C&printsec=frontcover&source=gb_s_ge_summary_r&cad=0#v=onepage&q&f=false
- Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and Conducting Mixed Methods Research* (2nd Ed.). Thousand Oaks, CA: SAGE Publications, Inc.
- Darke, P., Shanks, G., & Broadbent, M. (1998). Successfully completing case study research: Combining rigour, relevance and pragmatism. *Info Systems J* 8:273-289.
doi: 10.1046/j.1365-2575.1998.00040.x
- Denzin, N. K., & Lincoln, Y. S. (2005). *The SAGE Handbook of Qualitative Research* (3rd ed.). Thousand Oaks, CA: Sage Publications, Inc.
- Eisenhardt, K.M. (1989). Building theories from case study research. *Academy of Management Review*, 14(4), Retrieved from:
<http://www.jstor.org/stable/258557>
- Ellis, C., & Berger, L. (2003). Their story/my story/our story: Including the researcher's experience in interview research (pp.156-183). In J.F. Gubrium & J.A. Holstein (Eds.). *Postmodern interviewing*. Beverly Hills, CA: SAGE Publications, Inc.
- Gerring, J. (2004). What is a case study and what is it good for?. *American Political Science Association*, 98(2), 341-354. doi:
<http://dx.doi.org/10.1017/S0003055404001182>
- Habermas, J. (1970). On systematically distorted communication. *Inquiry: An Interdisciplinary Journal of Philosophy*, 13 (1-4), 205-218.
doi: 10.1080/00201747008601590
- Henwood, K.L., & Pidgeon, N.F. (1992). Qualitative research and psychological theorizing. *British Journal of Psychological Society*, 83(1), 97-111.
doi: 10.1111/j.2044-8295.1992.tb02426.x
- Lincon, Y.S., & Guba, E.G. (1985). *Naturalistic inquiry*. Beverly Hills, CA: SAGE

Publications, Inc.

- Mayan, M. J., & International Institute for Qualitative Methodology. (2001). *An introduction to qualitative methods: A training module for students and professionals*. Edmonton: International Institute for Qualitative Methodology, University of Alberta.
- Mayan, M. J. (2009). *Essentials of qualitative inquiry*. Walnut Creek, CA: Left Coast Press.
- Marshall, C., & Rossman, G.B. (2010). *Designing Qualitative Research* (Ed. 5th, illustrated). Beverly Hills, CA: SAGE.
- Moustakas, C.E. (1994). *Phenomenological Research Methods*. Beverly Hills, CA: SAGE
- Perry, C., Thurson, M., & Green, K. (2004). Involvement and detachment in researching sexuality: Reflections on the process of semistructured interviewing. *Qual. Health Res.*, *14*(1): 135-148. doi: 10.1177/1049732303255853
- Polit, D. F., & Hungler, B. P. (1999). *Nursing research. Principles and methods* (6th ed.). Philadelphia, PA: Lippincott.
- Ragin, C. C. (1997). Turning the tables: How case-oriented research challenges variable-oriented research (pp. 27-42). In G. Brochmann (Ed.), *Comparative social research: Methodological issues in comparative social science*. Greenwich, CT: JAI.
- Richards, L., & Morse, J. M. (2007). *Reademe first for a user's guide to qualitative methods*. Thousand Oaks, CA: Sage.
- Roulston, K., de Marrais, K., & Lewis, J. B. (2003). Learning to interview in the social sciences. *Qualitative Inquiry*, *9*(4), 643-668. doi: 10.1177/1077800403252736.
- Sandelowski, M. (2000a). Focus on research methods: Whatever happened to qualitative description? *Research in Nursing & Health*, *23*(4), 334-340. doi: 10.1002/1098-240X(200008)23:4<334::AID-NUR9>3.0.CO;2-G
- Sandelowski, M. (2000b). Focus on research methods: Combining qualitative and quantitative sampling, data collection, and analysis techniques in mixed-method studies. *Research in Nursing & Health*, *23*(3), 246-255. doi: 10.1002/1098-240X(200006)23:3<246::AID-NUR9>3.0.CO;2-H
- Schmidt, M. R. (1993). Grout: Alternative kinds of knowledge and why they are ignored. *Public Administration Review*, *53*(6). Available: <http://www.jstor.org/stable/977362>
- Sciulli, D. (1992). Habermas, critical theory, and the relativistic predicament.

- Symbolic Interaction*, 15, (3). Available:
<http://www.jstor.org/discover/10.1525/si.1992.15.3.299>
- Singleton, Jr., R., & Straits, B.C. (2010). Data processing and elementary data analysis (pp. 497-535). In *Approaches to social research* (5th ed.). Oxford: University Press
- Söderström, S. (2011). Staying safe while on the move: Exploring differences in disabled and non-disabled young people's perceptions of the mobile phone's significance in daily life. *Young*, 19(1), 91-109.doi: 10.1177/110330881001900106
- Stake, R.E. (2005) Qualitative case studies (pp.443-466). In N. K. Denzin & Y. S. Lincoln (Eds.), *The SAGE handbook of Qualitative Research* (3rd Ed.). Thousand Oaks, CA: Sage Publications.
- Stake, R.E. (1995). *The Art Of Case Study Research*. Thousand Oaks, CA: Sage Publications.
- Subrahmanyam, K., & Šmahel, D. (2011). *Digital youth: Advancing responsible adolescent development*. Singer. doi: 10.1007/978-1-4419-6278-2_1
- Tapscott, D. (2008) *Grown up digital: How the net generation is changing your world*. New York, NY: McGraw-Hill.
- Tellis, W. (1997 a). Introduction to case study [68 paragraphs]. *The Qualitative Report* [On-line serial], 3(2). Available: <http://www.nova.edu/ssss/QR/QR3-2/tellis1.html>
- Tellis, W. (1997 b). Application of a case study methodology [81 paragraphs]. *The Qualitative Report* [On-line serial], 3(3). Available: <http://www.nova.edu/ssss/QR/QR3-3/tellis2.html>
- VanWynsberghe, R., & Khan, S. (2007). Redefining case study. *International Journal of Qualitative Methods*, 6(2): 80-94. Available: <https://ejournals.library.ualberta.ca/index.php/IJQM/article/viewArticle/542>
- Warren, C. (2007). *Delayed transitions of young adults* (Catalogue number: 11-008). Retrieved from Statistics Canada website: <http://www.statcan.gc.ca/pub/11-008-x/2007004/pdf/10311-eng.pdf>
- Yin, R.K. (1994). *Case Study Research: Design and Methods* (2nd Ed.). Thousand Oaks, CA: Sage Publications.

Chapter 4. RESULTS

4.1. Introduction

The following chapter presents the main themes that emerged from the research data used, such as pilot reports, demographic questionnaires, and semi-structured interviews with staff counselors and young adult clients at the Pregnancy Care Centre (PCC) in Edmonton, observations, field notes, and my personal reflective journal.

These research data were organized into three categories of information; the pilot project results, the staff counselors, and the young adult clients. These results are presented under the framework of a content analysis strategy, as referred to in Chapter 3 (see logic of analysis in Figure 4-1) and are presented under the research question that guided this case study.

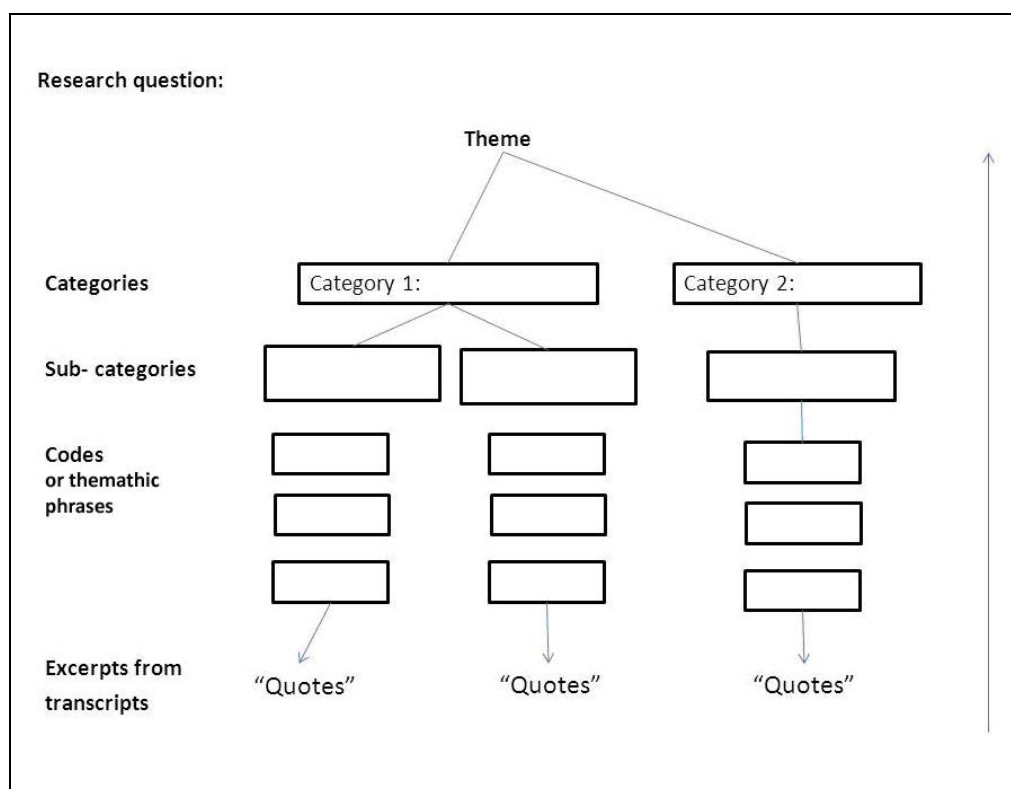


Figure 4-1. Content analysis graphic. Adapted from Mayan (2009, p. 96).

The unit of study of this research is the relationship between clients, counselors, and the new technology, SMS, introduced at the PCC, in the particular context of Edmonton. The objective to research this relationship was to delineate the trends and challenges present in it, in the context of agencies working with unplanned pregnancies. Also examined was the relationship between the technology use and the youth in Edmonton. Their experiences and responses to the technology before the

pilot were explored. Finally in this research, the implications of introducing a new technology, such as SMS, in the environment of PCC, and specifically in the counselors work practices were explored.

This chapter describes what is specifically happening in an Edmonton based non-profit which is using text messaging to support their relationships with clients, from the perspectives of those involved, and who participated in the study.

4.2. The pilot project: We text 2

4.2.1. Context of results

This research is built on the results of the pilot research that was developed between the Pregnancy Care Centre (PCC) in Edmonton and the MARS Lab at the Faculty of Extension, University of Alberta between June 2011 and June 2012 (for more information see Chapter 3, p. 96; Appendix 7, p. 221, and Appendix 11, p.252).

4.2.2. Staff counselors perspectives of text messaging at the PCC Edmonton

When I reviewed the secondary documents provided by this pilot, which included the results of the FrontlineSMS log, meeting minutes, and the pilot report, I initially examined how the introduction of text messaging impacted the staff capacity and work practices at the agency. In the coding of these documents three categories emerged. These **categories** were:

- *Category 1: A pilot using new technologies establishes the standard of use and can be disruptive,*
- *Category 2: The technology learning was a barrier*
- *Category 3: The training in texting created tangible knowledge.*

The results of the documents and especially the pilot report revealed that the pilot was successful in setting up a standard of how texting worked initially in an organization that embraced it for the first time. However, in that process, multiple factors related with the specific technology created disruptive results in the staff, in positive and negative ways. For example, value was added to the group and to the individual capacity of the agents of the agency. As well, struggles were created in the process of learning how to use it. A **theme** that emerged through these categories and respective subcategories and codes, is that introducing a new technology to an agency with no prior experience of that technology can add value but also has the potential to create crisis in the agency.

Category 1. *A pilot using new technologies establishes the standard of use and can be disruptive*

After reviewing the staff's uses of the software on the FLSMS log, the pilot reports, and comparing this information with the researchers personal notes about observations made with counselors during the pilot and this research, it was concluded that the pilot established a standard of how a new technology could work in an agency with the characteristics of PCC, but also demonstrated that its implementation could not be fully understood in a short-term view because factors such as time, financial limitations, and ways of working affecting its adoption.

In conclusion, I observed that implementing a new technology, such as texting, through software in development such as FLSMS, can be disruptive or challenging, especially if most of the users (the counselors, in the case of the PCC) were not comfortable using the technology. This was because most were not familiar with texting or new technologies, and did not understand how they operate at work.

This is reflected in the **sub-category** below.

Short time to learn about the technology and the pilot practices. The **thematic phrases** that emerged in this sub-category were: *Software used with success with university pilots and projects* and *software has errors because it is in development, as is the pilot*. Most of the pilot minutes had evidence of the expectation of success with the technology that each of us had with the pilot (see full report in numeral 3.9., pp.128-140). This is reflected in some extracts from the pilot report:

“Since the software was used with success in other countries and nonprofit initiatives, we as academia expected that implementing FLSMS at the PCC would provide an understanding of the uses of the software in Edmonton. Also, it was expected by the agency and some of the volunteers, that with the results of the pilot we would be able to tailor our social media communication initiatives with clients. With this in mind, the project was set up for a length of one year. However, both of our expectations were based on the assumption that the software would be used by counselors with clients. Multiple errors with the software and resulting challenges with user adoption were present because levels of comfort with the tool. Some counselor expressed: *this laptop frustrates me...the system should be friendly and keep it simple*”.

Category 2. *Learning the technology was a barrier*

During the pilot training some of the 20 counselors trained, especially those over 40 years old, expressed frustration, fear, and feelings of rejection towards the technology. Few were very comfortable and saw the benefits of using it for their

volunteer work and personal experience. This is reflected in the identified **sub-category**: *Notable differences in technology knowledge amongst users.*

Notable differences in technology knowledge amongst users. The **thematic phrases** that emerged in this sub-category were: *The software learning was challenging and the learning process with the new technology frightened some volunteers at PCC Edmonton.* Most of the counselors confessed and expressed informally that after the formal training session on the software, they did not have a clear understanding of how to use it. This was reported in the researchers personal journal. They did not know how it worked, but did not want to receive more training or were avoiding the software because it intimidated them. Also, after months passed, some confessed to have little or no experience with computers or mobile phones at all. A few reported excitement in learning the technology because it would enhance relationships with family.

Category 3. The training in texting created tangible knowledge

Something that was observed during the length of this pilot is that even when not all the counselors were comfortable with the introduction of the technology in their volunteer work, all of them valued learning and using a new technology. This is reflected in the identified **sub-category**: *Learning the technology added to the professional value of the staff.*

Learning the technology added to the professional value of the staff.

The **thematic phrases** identified in this sub-category were: *Reactions towards the technology were observed in the staff and growing in knowledge caused comfort and discomfort.* This is reflected in some staff's comment during the pilot: "text is best, so I want to text them".

4.2.3. Young adult clients pre-conceptions of text messaging before the pilot

After reviewing the secondary documents, such as the FrontlineSMS log, the pilot report, and meeting minutes, and comparing them with my notes, the data was examined to determine how text messaging was perceived by its young adult clients before the pilot. In the coding of these documents, two categories emerged. These **categories** were:

- *Category 1: The young adult clients of PCC Edmonton recognize texting as their chosen communication channel*

- *Category 2: The young adult clients of PCC Edmonton have boundaries in the uses of texting and their mobiles phones.*

The results of the documents and especially the FLSMS Log, which recorded all the interactions with clients, revealed that young adult clients did not interact frequently with the counselors in the software. However, a few did, and there was a case of “support intervention” through text. Also, many of the clients checked a preference to be contacted through text on the client sheet. A **theme** emerged afterward, by examining these categories and respective subcategories and codes, is that the young adult clients of PCC Edmonton recognized texting and mobile phones as their chosen communication media, but they are selective and restrictive about its uses.

Category 1. *The young adult clients of PCC Edmonton recognize texting as their chosen communication channel*

Observations from the client sheets revealed that roughly 12 clients per month expressed the best way to contact them was through text messaging. This is reflected in the identified **sub-category**: *Preference to be contacted through the mobile phone.*

Preference to be contacted through the mobile phone. The **thematic phrase** identified in this sub-category was: *Best or only way to contact them is texting.* Two counselors informally revealed that they each counseled a different client through text messaging services exclusively. One client was assisted during a support intervention, and the other was only reachable by text, through the counselor’s personal device.

Category 2. *The young adult clients of PCC Edmonton have boundaries in the uses of texting and their mobiles phones*

Also, during the pilot, it was observed that in the software log (FLSMS), of 23 clients contacted, 12 replied and made contact with the staff⁸⁰. Most of them were not comfortable using texting for chatting, or using short-hand with counselors. This is reflected in the identified **sub-category**: *Understanding how they should be contacted through texting is defined by the young adult clients, not by the agency.*

Understanding how they should be contacted through texting is defined by the young adult clients, not by the agency. The **thematic phrases**

⁸⁰ Some client contact sheets appear without a communication channel chosen by the client to be contacted. Counselors do not always follow up with clients for this information.

identified in this sub-category were: *Clients did not take the lead to contact the agency through text and short-hand is not accepted by this group for communication with an agency.* Roughly, between 15% and 30% of clients did check texting as the communication medium to be contacted, but it was observed that none contacted the agency first. Of the 23 clients that were first contacted through the software by counselors, half were not receptive or answered their text messages. Interestingly, I also observed that those messages that were answered were those regarding specific questions about pregnancy, maternal health, housing, and services. Also, we learned, through a test with a counselor's family member, that using short-hand is seen as a sign of immaturity by youth in Edmonton. This is reflected in some software log excerpts:

“Yes I got this but I did not get last weeks”, “Thanks for all of your help. I will be there for the prenatal classes. Please take my number off the contact by text list. Thanks and have a good evening”, “Ppl don't really use those abbreviated sayings often. It's more mature to use full words and proper grammar. Ppl know that it reflects on their intellect, the way they text”.

4.2.4. Young adult clients perspectives of text messaging at the PCC in Edmonton

Finally, after reviewing the secondary documents and comparing them with my notes, how text messaging could improve the relationship between young adults in Edmonton facing unplanned pregnancies and the PCC was examined.

In the coding of these documents three **categories** emerged that responded to this research question. These categories were:

- Category 1: *Texting services at PCC provided a new resource for the technological need of the agency and the community, and this was achieved because they trusted the researcher*
- Category 2: *Texting provided support in unexpected ways*
- Category 3: *Measure of success and technology uses were different for each participant.*

These categories reflect that texting as a new communication tool at the PCC, provides a service that benefits both the agency and the community. A **theme** that emerged through these categories and respective subcategories and codes, is that text messaging added value to the agency, its purposes, beneficiaries, and local community by introducing a service that supports clients through communication, in an innovative way.

Category 1. Texting services at the PCC provided a new resource for the technological need of the agency and the community. This was achieved because they trusted the researcher

Something observed and that was reflected in the pilot report and minutes was the trust that the agency put in the implementation of this software because a volunteer was involved with the academia. That volunteer was the researcher, and even when the necessity of introducing text messaging as a service was observed and expressed informally by staff, it was through the relationship with the volunteer-researcher that they were able to process how to make it happen. This is reflected in the identified **sub-categories**:

- *Alternative to address technological / communication gap*
- *A non-profit committed to the community and with limited capacity.*

Alternative to address technological / communication gap. The **thematical phrase** identified in this sub-category was: *the pilot added value to the agency, the university group, and the community.* This is reflected in some of the pilot report's excerpts:

“This pilot highlights the feasibility of FLSMS as a permanent resource for organizations in Canada and suggests it is perfect for the use of pilots” “the MARS Lab has introduced an alternative to address the technological gaps of nonprofits and their community in Edmonton, using mobile communications technologies and this was the case of texting at PCC through FLSMS”,

A non-profit committed to the community and with limited capacity.

The **thematic phrases** identified in this sub-category were: *Passion to serve the community facing unplanned pregnancies, competition and capability limitations and commitment to embrace new strategies is related to trust in the researcher.*

Category 2. Texting provided support in unexpected ways

Texting at the PCC provided new ways to interact with clients, something that did not happen before at the Centre. This is reflected in the identified **sub-category**: *Contact and support of unexpected populations.* This is reflected in some of the pilot report's excerpts:

“The twenty first century NGO, such as the PCC, does not need a ridiculously big budget to include new technologies in their communication strategies”,
 “The pilot is the first experience using cellphones to support unplanned pregnancies at the PCC and all the CPC's across Canada”.

Contact and support to unexpected populations. The **thematic phrases** identified in this sub-category were: *Contact with male clients/partners through text* and *contact and support in difficult situations*. It was also observed that for some counselors, text messaging provided a means to support new clients such as establishing male partners through text, or texting with clients that never come to the centre and only receive support remotely. A counselor was able to contact the male partner instead of the client, and another counselor was able follow-up text a difficult situation with a client, offering support and words of encouragement during her experience.

Category 3. Measure of success and technology uses were different for each participant

Even though the idea of setting up a texting system came from a staff member at the PCC, reactions of different staff and volunteers to the system, varied from excitement to frustration. This is reflected in the identified **sub-category**:

- *Notable differences in work practices and expectations.*

Notable differences in work practices and expectations. The **thematic phrases** identified in this sub-category were: *The roles and responsibilities expected of staff participants with the technology were not followed, resulting in disruption of project goals* and *notable differences regarding measuring success of the project between participants*. This is reflected in some of the researcher's observations excerpts:

"I observe that many clients do not choose in their file-sheet any communication media to be contacted by, others click on 'text messaging' and others, 'phone', but counselors do not follow this choice. This is not relevant for the counsellors to follow, e.g. contact the client and confirm the best media, but contacting directly by 'phone'".

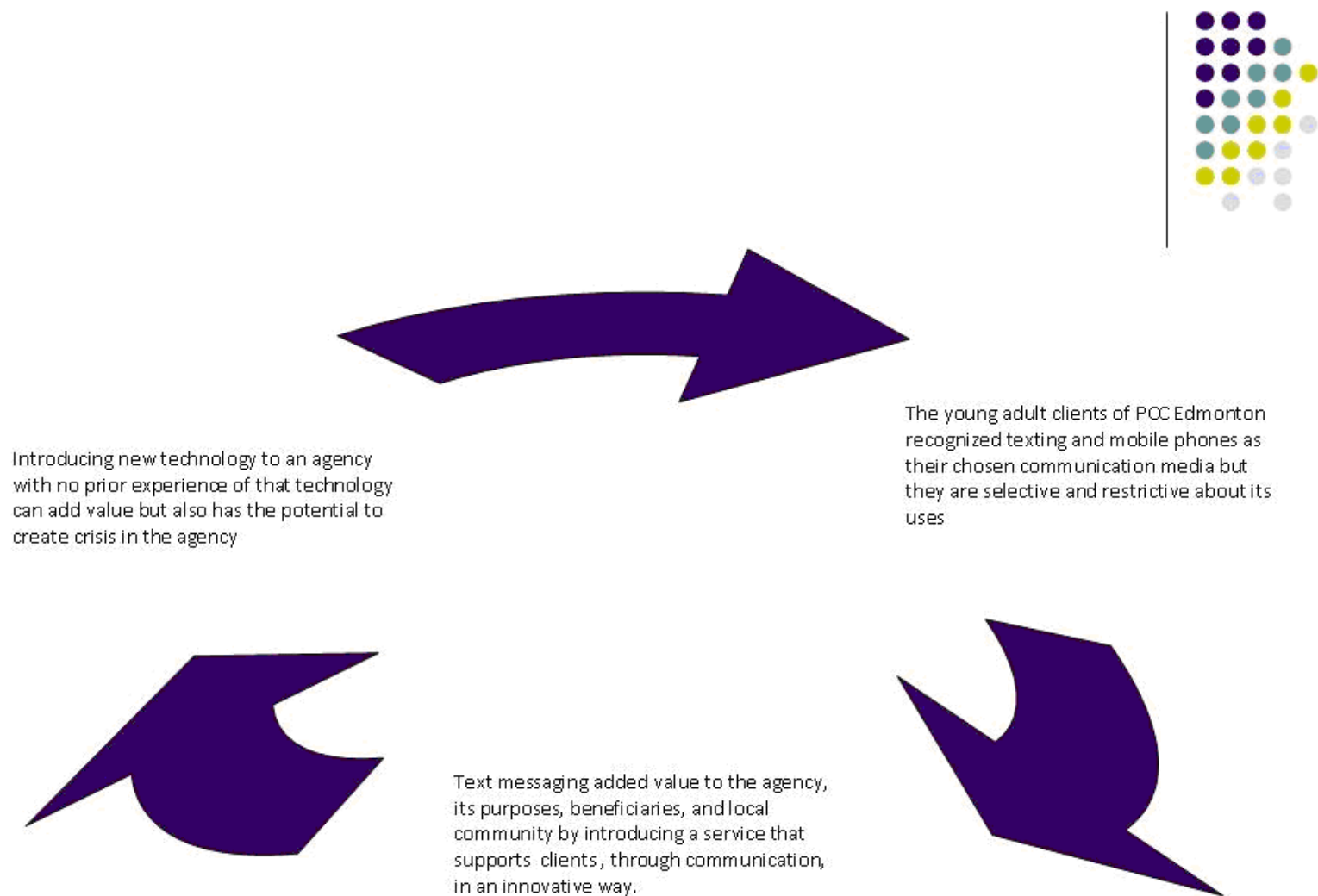


Figure 4-2. Themes identified from the Pilot's evaluation.

4.3. Young adult client participants

4.3.1. Characteristics of the young adults

To better understand the clients that participated in this case study, their environment, and personal experiences with communication tools, such as texting and mobile phones, a demographic questionnaire was requested to be completed at the beginning of each interview. This information, in some cases only partially completed, gave some reference as to where these young adult client participants were coming from at the time of their interviews. Six of seven individuals were interviewed and were participating in one of the prenatal classes that were held by the PCC Edmonton. These interviews occurred between February and March of 2012.

The client participants were pregnant young adult women between 14 and 30 weeks of pregnancy, who were voluntarily participating in an eight week prenatal class called Earn What You Learn (EWYL) at the PCC. They also chose to voluntarily participate in this research. Their ages varied between 18 and 34 years old, and they represented various ethnic groups in Canada: two Aboriginal, three Caucasian and one Afro-Caribbean. As a group, they also represented different social groups of the city, by living in the west, northwest and downtown areas.

All of the clients had a working mobile phone with texting functionality. All expressed not having difficulties hearing, seeing, or communicating at the time of the interviews as well as texting on a daily basis. Three client participants used iPhones, and five in total had a Smartphone⁸¹ of some variety.

In response to a question about how they use media to communicate, most of the clients expressed a preference to communicate, in order of importance, by phone calls, text messaging, or one on one contact. Interestingly, all of the clients recognized twitter as a medium of communication that they never use. Some also categorized the internet and YouTube as an alternative and individual medium of communication.

⁸¹ “Smartphones are mobile phones that offer not only standard features such as voice and text communication, but also advanced computing and communication capability, including, for example, internet access and geo-positioning systems. In comparison to earlier mobile phones, smartphones generally also have larger, higher resolution display screens. Most of the newer generations of smartphones also incorporate other features such as on-board personal management tools, high quality cameras, and recording devices. They are popular because of their intuitive and tactile graphical user interfaces and natural gesture control. The latest generation of smartphones are increasingly viewed as handheld computers rather than phones, due to their powerful on-board computing capability, capacious memories, large screens and open operating systems that encourage application development” (Boulos et al., 2011, p.3).

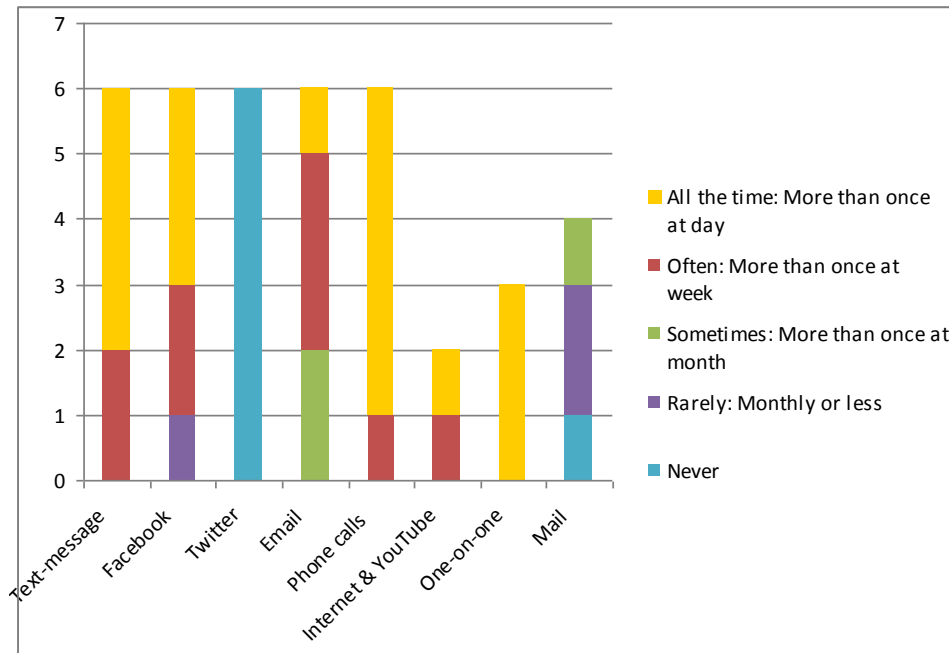


Figure 4-3. Communication methods used by young adult client participants

When asked about how they use media to communicate with the PCC, specifically, most of the clients responded that, in order of importance, phone calls, email, text- message or one-on-one counseling have helped them to communicate with PCC staff and counselors most often. All of the clients recognized twitter, regular mail, and PCC’s Blog as mediums of communication that are never used to communicate with PCC Edmonton. They also rarely used media such as email, Facebook, and text messaging.

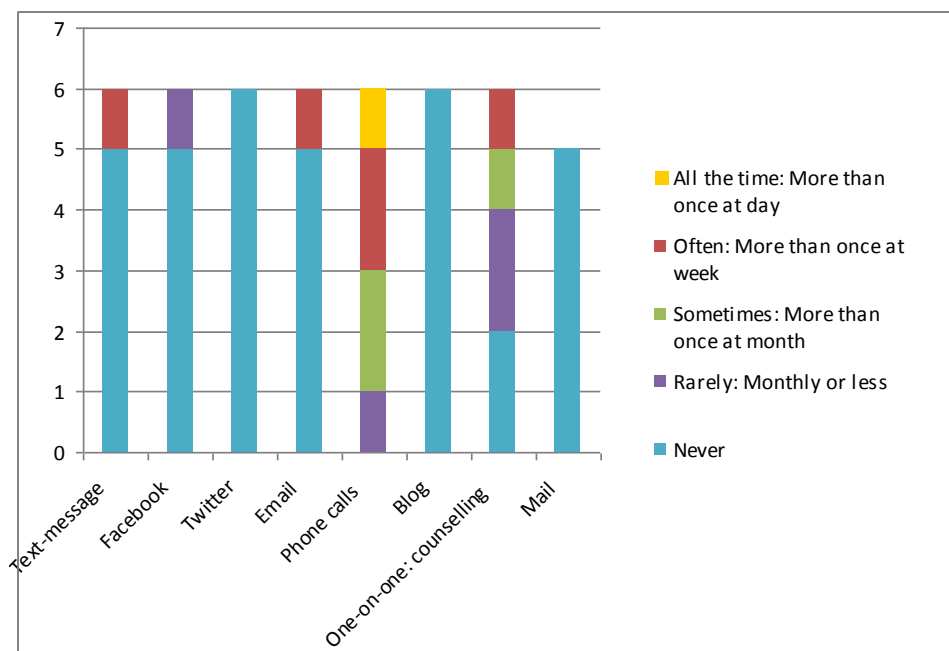


Figure 4-4. Communication methods used by young adult client participants with the PCC Edmonton

4.3.2. Perceptions of young adults in Edmonton, to mobile phones and sexual health care networks

To start to understand the phenomena of texting as a tool of relationship between young adult clients and an agency that provides pregnancy support, it was important to review how young adult clients in Edmonton understand their relationships with their mobile devices, and especially how these devices are connected to their sexual health care or pregnancy care networks.

Since the researcher, as a young adult, did not have the experience of owning and using a mobile phone, the young adult client participants were asked about their relationships with their mobile phones and texting; how they function daily and their own thoughts towards the technology. The intention was to answer the question: *how do mobile phones affect their perceptions and attitudes toward sexual health care networks* (see Appendix 14). Two **categories** were found in their responses. These categories were:

- Category 1: *Mobile phones are connected to personal relationships, perceptions, choices, and behaviors*
- Category 2: *Google and iPhones are connected to behavioral change toward information access.*

These categories revealed that for the young adult clients, networks, services, sources of knowledge, sources of communication, and relationships are understood through their mobile phones. A **theme** that was exposed through these categories and respective subcategories and codes, is that for the young adult clients of the PCC, their personal mobile phones are their networks, including those related to sexual health care and pregnancy care.

Category 1. Mobile phones are connected to personal relationships, perceptions, choices and behaviours

All clients expressed that their mobile phones are a means to interact and maintain close relationships, such as family and friendships. Through it, they are able to be always available, and to do different activities while they are 'connected'. Many of them related to their mobile devices with affection; the phone in turn affecting their mood and behavior. This is mirrored in the identified **sub-categories**:

- *My behavior is affected by the message content*
- *I choose where to use it*
- *I LOVE to be connected*
- *Texting is always fun*

- *Texting is a back up in emergencies*
- *Texting is convenient for multitasking*
- *It extends ties with family*

My behavior is affected by the message content. The **thematic phrases** that emerged in this sub-category were: *I read messages right away but depending on the time and who it is, I may answer later and if it is something I want to receive, I feel excited.* Most of the young adult clients expressed how the message, including the identity of the sender, is what affected their response to the technology. Some of their responses reflect this reality:

“It depends on who it is from”, “It depends what the message is about”, “I answer depending if I am busy or not”, “If I KNOW who it is, I will answer right away”, “it depends on if I send out a question that I REALLY want to know, then if it is something that I want to receive, I feel excited”, “when I receive a message I feel just mediocre... like calm”, “I usually read it right away , but if I am busy then I do not answer until I have a minute”, “it is interesting to see when your phone vibrates, who it is and what is going on”

A reason that may explain this behavior is seen in their expression of being “very used to the mobile phone and texting”. This aligns with their surprise when asked if they experience any feelings when they receive text messages. Since most of these young adult client participants have been receiving texts for about 10 years.

I choose where to use it. The **thematic phrases** identified in this sub-category were: *I text anywhere I am allowed and I text anywhere it is safe.* Most of the young adult clients expressed how they use their mobiles everywhere they choose, with the exception of those places that are not safe or are restricted. Some of their responses reflect this reality:

“I text anywhere that they have service”, “you have to be safe... anywhere where I can be safe with it”, “only doctors offices and driving is not OKAY. Where ever else is OKAY”, “I CHOOSE everywhere, <laughs> it does not matter, I can use it when I am taking a shower”, “I usually USE IT everywhere, it’s nice because if I do not want to talk with someone, I just don’t reply back, so it’s not like calling, where you have to, like, answer the phone”.

I LOVE to be connected. The **thematic phrases** identified in this sub-category were: *I wake up to text, my phone is always on me, and I use the phone until I go to bed.* Most of the young adult clients expressed anthropomorphic feelings towards their devices, relating to them in terms of relationships of love or connection, as that is what the technology provides for them. Some of their responses reflect this reality:

“I wake up to text”, “I am on every day”, “every hour of the day”, “until I go to bed I am connected”, “I have it right there”, “all the time”, “I text every day”, “I probably use texting more than talking on the phone”, “everyone gets a hold of me because it is always on me”.

The emotions were reflected in their tone of voice and physical behavior with the device (touching it while we were talking about it).

Texting is always fun. The **thematic phrases** identified in this sub-category were: *I like to SHARE memories with family and friends, and I like to gossip through texting.* Most of the young adult clients expressed relational behavior such as sharing feelings or constructing memories with others through texting, which gave them a sense of joy and interest with the technology. Some of their responses reflect this reality:

My friend always likes to send me pictures of her and her kids doing stuff. IT IS ALWAYS NICE just to see that she is doing good”, “My fiancé just sent me a picture with a tiger and XOXO. It is cute when he sends me stuff like that”, “Sometimes it’s like someone smells on the bus <laughs> then you just text your friend: “Oh my God, there is someone who smells in the bus, and they’re sitting right beside me”... you just do not want to be rude and say that, right over the phone. I am not saying it is good to talk behind people’s backs, but it is just something to mention”, “It is kind of funny getting text from my nine year old nephew. He will just send pictures of himself, or a VOICE RECORDING, a little play, pretend that he is doing a news-cast”.

It is worthwhile to mention that in the moment of the interview most clients physically expressed emotions of tenderness and joy. This was especially evident when they shared fond memories, as observed by their expressions, and that happiness was contagious. Some clients even showed some of the messages stored on their phones. It was witnessed how talking about other people through texting was understood as a joke, as was reflected in their laughter. Also witnessed was a sense of censorship with their feelings when they realized they were talking loudly about these experiences.

Texting is a back-up in emergencies. The **thematic phrases**

identified in this sub-category were: *If it is really important I will call first and if you cannot call you can text in an emergency.* Most of the young adult clients expressed and clearly categorized text messaging as the second communication choice in the case of an emergency⁸². Some of their responses reflect this reality:

“In a crisis the best way to reach information is to call”, “if something like...dramatic happened, like my water broke, yea, I will automatically call like my sister or someone that drives”, “If I can not call, I can text”, “I will call, and if they do not answer right away then I just text, but usually I just call first”, “I will call 911 or something like that, and if I need to get a hold of someone, I will call them first, and if they do not answer I probably will leave a text message to call me back”, “In an emergency I will call, but I have texted too, like, I will text my sister”.

Texting is convenient for multitasking. The **thematic phrases**

identified in this sub-category were: *Texting helps if you are busy because it is quick and silent* and *I can text any time no matter what I am doing.* Most of the young adult clients expressed that mobile phones and especially texting services cooperate with the business of their lives or their families and friends. Some of their responses reflect this reality:

“It helps if you are busy”, “you can talk to them through the three hour period while you are doing stuff”, “we will be talking through the whole day”, “I can do text while I am on the bus, or between classes without having to leave the classroom. I can just do it quickly”, “It is easier at school because the teacher can not see you texting”, “I am allowed to text at work because it is not busy, but I am NOT GONNA TEXT if I am in a meeting”, “I text, and I am still getting stuff done”.

It extends ties with family. The **thematic phrases** identified in this

sub-category were: *My family texts me often, my parents pay my cell bill and my family and friends are usually busy so we text during the day.* Most of the young adult clients expressed how mobile phones and especially texting services perpetuate ties or mediate new communication and connection with families and friends. Some of their responses reflect this reality:

“It is just a regular communication with everybody. Like me and my sister do not get to see each other anymore, so it’s like the only way of communicating, because she is always in school, and she just gets text messages and replies later”, “I do not see my fiancé the whole day and we are communicating through texting...he texts me to see how I am doing”, “if you are like, in a busy or loud place, it’s easier just to text because you can READ

⁸² I noticed that “emergency” was not a term used very often by the young adult clients.

IT, like if you are in a concert and you see your friend, and they just text, because it would be so hard to hear them”, “my dad actually pays for my phone. He bought me the phone and he pays the bills every month”.

Physical emotions of contentment were observed through their voice or facial expressions (smiles) in most clients. These emotions were expressed when they were talking about being connected to their loved ones through text messaging and the mobile phone.

Category 2. Google and iPhones are connected to behavioural change toward information access

Most of the young adult client participants expressed that their mobile phones, especially iPhones, allowed them to connect to their primary focus of information and ultimate source of knowledge: Google. This was reflected in the identified **sub-categories**:

- *I trust Google on my phone for everything*
- *The iPhone is revolutionary.*

I trust Google on my phone for everything. The **thematic phrases** identified in this sub-category were: *If I am not sure, I find helpful information about everything on Google; I found helpful information about local health support on Google and I decide what to do after I check Google.* All of the young adult clients expressed how Google is the source of knowledge, information, and a behavior guideline in their current world. Some of their responses reflect this reality:

“I look on Google for everything...it is good to know”, “I will be at a restaurant and wonder if the food is good, so I Google it just to see if it is safe for me to eat it. Google said that it’s always good to have your meat well cooked, so I had to send it back and they cooked it well done for me”, “Google is HELPFUL”, “I look on the internet for health information, and I call info-link a lot for that”, “if I am not sure about something I usually Google it on my phone, like, some kind of medicine or food that I wonder is safe, I can just look it up on my phone”, “I look for information that I need mostly on the internet and Google”.

The iPhone is revolutionary. The **thematic phrases** identified in this sub-category were: *I have an app for pregnancy information, I found online support for pregnancy on my iPhone, Internet and downloads are FREE, I text all the time because it is EASIER, the iPhone is really –really FAST and I share and access more information with my iPhone.* The young adult clients who owned an iPhone at the time of the interview all expressed how the iPhone and its services have transformed

they way they access people, information, services, and social networks. Some of their responses reflect this reality:

“I had an iPhone since last July... IT’S GOOD, I really like it” , “The iPhone allows you to get the internet easier, and the video on it is WAY BETTER. Some phones... they are just very simple and they do not allow as much, like web-browsing, so it is such a GOOD INVESTMENT”, “I share pictures through texting with my fiancé, he has the same phone, he just got one, you can send it with a phone that has a camera, take your picture, insert it, and send it to someone’s email, or someone’s other phone”, “I text every day probably for the last year, but before it was not like that, I did not have this good of a phone <laughs> so it was harder to text, but now with the phone that I have, it is really easy”, “it is really, really fast”, “It is free to download stuff”.

At the time of the interviews, it was witnessed how the clients who owned an iPhone expressed emotions of excitement and joy, physically about their phones.

4.3.3. Perceptions of young adult clients to text messaging at the PCC Edmonton

After reviewing the relationship between the use of mobile phones, texting, and the young adult clients interviewed, the next step was to understand how they understood and value the introduction of texting as a tool of communication between them and the PCC, as an agency that provides unplanned pregnancy support in Edmonton.

Since this evaluation needed to be local, it was decided to ask clients specific questions about how text messaging is perceived in terms of communication in their specific reality and with the PCC agency. The intention was to review the question of how the introduction of text messaging at the agency was perceived by them, as part of the population of young adults in Edmonton (see Appendix 14). Two **categories** were found in their responses:

- Category 1: *Text messaging and mobile phones are a familiar means of communication for young adults in Edmonton*
- Category 2: *Text messaging with the PCC or any formal institution is on the client’s terms*

These categories revealed that the young adult client participants of this study understand mobile phones and text messaging as the communication tool used by their generation and as an exclusive medium of communication. A **theme** that was exposed through these categories and respective subcategories and codes, is that introducing texting in an agency such as the PCC, does not necessarily mean greater access to communication between their clients and the agency, but it means an open

possibility of being included or excluded from the clients, by their preferred medium of communication.

Category 1. Text messaging and mobile phones are a familiar means of communication for young adults in Edmonton

All clients expressed that their mobile phones are their source to interact and communicate with people and life, as reality is understood digitally by this generation. This is reflected in the identified **sub-categories**:

- *It is a way of life*
- *It is a means of communication*
- *Having a mobile phone IS very important*
- *We live in a digital society*
- *Land lines and voicemail are obsolete.*

It is a way of life. The **thematic phrases** that I identified in this sub-category were: *Is something in my everyday life, It is so handy, It feels normal and I use my phone for everything.* Most of the young adult clients expressed how mobile phones and text messaging, as one of the most common mobile phone uses, is a regular and established daily activity. Some of their responses reflect this reality:

“It is kind of normal”, “I am just used to it”, “I always had a phone with me, I have had different phones...many phones”, “I got my first cellphone when I was 12”, “I got a cellphone when I was really young”, “I usually set my alarm on my phone”, “It is more easy to use than my computer”, “It is very handy”, “I feel just mediocre texting, like calm”, “I am texting and finding information on internet at the same time, all the time”.

A reason that may explain the rationale of some of the clients, who were observed as Canadians “used to” mobile phones and texting, is that most expressed having access to the technology for 10 to 13 years, when they got “their first mobile phone”.

It is a means of communication. The **thematic phrases** identified in this sub-category were: *It is just for communication with family and friends, I feel connected to my loved ones and It is the only way of communication for young adults.* Most of the young adult clients expressed how the use of mobile phones, and particularly text messaging is an exclusive communication channel to connect with their close ones. These include daily social circles such as family, friends, work, and school. Some of their responses reflect this reality:

“I use it every day to keep in touch with family and friends and see what they are doing” “I use it to keep in touch with teachers and other students”, “I use it to say hi and hear news from my friends”, “it’s GOOD, I feel connected”, “because it’s mostly friends and family who text you, it’s just more closer for people to have your phone number to text”, “usually young adults have only texting in their phones and they do not have calling, so it’s more accessible to text someone quickly, instead of using your MINUTES if you or they have any”.

Having a mobile phone IS very important. The **thematic phrases** identified in this sub-category were: *Oh my God! You don’t have a cellphone?* and *Everyone has a cellphone.* All young adult clients expressed during the interview how unusual it was for them that the researcher did not own a mobile phone. They expressed this through words, their tone of voice and laughter and also shared thoughts about how they consider mobile phones and text messaging to be an important tool for social connection. Some of their responses reflect this reality:

“Now, yea it is a BIG thing”, “you do not have a phone? <laughs>”, “<laughs> I thought we were the same...”, “now EVERYBODY has a cellphone. My dad can text...everyone can text”, “<laughs>”, “oh really? You do not have a phone? WOW...I am like, WHAT?”

We live in a digital society. The **thematic phrases** identified in this sub-category were: *Institutions give you an electronic number instead of receipts; work practices have changed: I text my boss; It doesn’t matter if the agency is in Canada, the information that I find matters,* and *Nowadays you can text Bus-Link.* Most of the young adult clients expressed how the setting for their daily socio-economic activities and their understanding of how it works have changed. Some of their responses reflect this reality:

“I can text my boss and tell her that I may be a little late, ask her if she wants a coffee...it’s awesome”, “I set up to receive text from a business”, “everything is online, there are no receipts, the reference number IS a receipt”, “I don’t know if it is a Canadian organization, it may be, maybe not, it does not matter”, “I use texting for Bus Link, a number for the bus stop that you can text and they will text you when the bus is coming ...it’s really helpful and very convenient”.

Land lines and voicemail are obsolete. The **thematic phrases** identified in this sub-category were: *I only have a cellphone number; most of my friends only have a cellphone number; my cellphone number is my contact number for everything; I will not leave a voicemail, I will text,* and *people do not really check their voicemail.*

Most young adult clients expressed how the way they communicate has changed. Services of landlines and voicemail are obsolete forms of communication for the young population of Edmontonians. However, it was noted that one of the clients interviewed, particularly the youngest one (18 years old, and who lives with her parents), had a different perspective. Some of their responses follow:

“it is my home number, I do not have a land phone number, this is my contact for everything”, “well, I used to have a landline, but I never use it, the only person that would call me was my mom <laughs>, so now I just have a cellphone”, “I never use the cellphone as a general contact, I always use my land phone number, I would not mind if I just had a cell phone, but probably I would use both”, “most of my friends only have a cellphone”, “I will not leave a message, I will text”, “lots of people do not really check their messages right away”, “sometimes I do not get to the phone because PCC calls from a blocked number and I barely check my voice mail, so I will get their messages like two weeks later”.

Category 2. Text messaging with the PCC or any formal institution is on the client’s terms

All clients expressed a relational form of restriction and control towards establishing a relationship through text messaging with institutions, especially when they are not the ones taking the initiative. ‘Control’, in the context of their responses is understood as a ritual of exclusion and inclusion that accompanies the relationships they establish through the mobile phone and texting. This is reflected in the identified **sub-categories**:

- *I do not want PCC to text me to ‘chat’*
- *I want to choose when to text with the PCC*
- *No texting with formal institutions or strangers*

I do not want PCC to text me to ‘chat’. The **thematic phrases** identified in this sub-category were: *No way. I use text to say hi to family and friends only, It just seems better to call or talk one on one , I do not see or have the need to chat by text and I don’t know who will have my phone number and reply back.* Most of the young adult clients expressed discomfort with staff of the PCC contacting them to ‘talk or chat’, specifically through text messages.

During the interviews, repetitive silences and laughter were noted, accompanied by complaints indicating feelings of awkwardness towards the situation of PCC texting them to ‘chat’. In order to verify understanding, questions were asked several times, assisted by the scripted questions about their perceptions. In this way,

it was assured that their view was understood. This is reflected in some of their responses:

“NO WAY, it’s just, most of the advantages are like for saying hi to family and friends”, “some counselor told me, but I do not even remember <laughs>”, “well, I do not really use it for contacting PCC, mostly it’s for family”, “If I need information I will call”, “I think I saw the sign but I didn’t know with who to talk about it, who will have my phone number and who will be resending messages”, “No, I kind of see them once a week and that is enough for me”, “I will save the questions for then”, “I just come to this meeting every week, and I do not really see that I need a reason to text them”, “I have seen the sign upstairs but I just did not ever need to use it”, “I did not copy the number for the text message services; it just seems that I will never use it.”

Through these comments and their body language, an indifference to the service was noted, as well as near suspicion to contact the agency through texting because the young adult clients are used to texting only with family and friends, as they expressed. Also, it was noted that counselors did not promote the service during their sessions with any of them:

Client: No, I do not text with PCC. They do not have texting here yet, anyways

Me: They DO. But they do not promote it.

Client: <laughs>

I want to choose when to text with the PCC. The **thematic phrases** identified in this sub-category were: *We do not have that relationship yet; If somebody from here texted me to say “hi”, that would be WEIRD; It is unprofessional, I would receive a text but I do not know if I would want to reply and I will decide at the end of the classes if I will text.* In an attempt to understand the previous subcategory, some of the questions led to this sub-category. Here, most of the young adult client participants expressed that the reason PCC would be excluded from their texting niche is because this kind of relationship is not chosen by them, and is happening when they are not ready for it. This is reflected in some of their responses:

“After the baby is born”, “if there’s someone from here to say *how’s it going?* <laughs>..hum NO”, “I do not really have that kind of personal RELATIONSHIP with them <silence>, I am not saying that I do not want to, but I mean, I want it on my time”, ““the *I am just calling to say what’s up* for no particular reason, causes me to worry and I do not like to worry for nothing; it’s just like the doctors...you know, it’s this professionalism like *Ok, only call me if something is wrong or schedule*, otherwise it makes me worry and freak out”, “it does not seem that professional, because she is kind

of like a teacher, teaching us about pregnancy and we do not have that bond yet”, “YEA, I will receive it, I would not mind, I just don’t know if I will have a reason to reply back”, “Maybe at the end of the classes, we will see... you just have to find your comfort zone”.

No texting with formal institutions or strangers. The **thematic phrases** that I identified in this sub-category were: *It would be weird: I would not know what they want; I only text with those that I know and I will not answer or I will block the number.* This sub-category was also revealed when the researcher was trying to understand the reason to exclude the PCC from text-chatting with them. Most clients expressed the same uncomfortable feelings about texting or being contacted to chat from formal institutions or strangers. Some of their responses reflected this reality:

“It will be kind of weird”, “I do not know what they would want <laughs>, I will be so confused”, “if they don’t know me, then I will tell them to not text me anymore and I will block that number”, “If I do not know the person, I will not answer”, “ if I do not know you I DO NOT give you my number, “I will feel unprofessional, it’s mostly just for friends and family who usually text me, not the Government”, “I probably will be concerned, WHY did they call my number?”, “As long as I know the person and it is for a REASON, and is not just like JUNK”, “if they know me, they can text me”.

4.3.4. Young adults relating to the PCC Edmonton through texting

Finally, after reviewing the relationship between the uses of mobile phones, the young adult client participants in Edmonton, and their perceptions of texting as a service of the PCC, it was decided to review how this service could possibly enhance a relationship between the clients and the agency. The intention was to review the research question of how text messaging could improve the relationship between young adults in Edmonton facing unplanned pregnancies, and the PCC, as an agency that provides unplanned pregnancy information support (see Appendix 14). Two **categories** in their responses:

- Category 1: *Text-messaging at the PCC provides a new access to local information and services*
- Category 2: *Mobile phone and texting provides the tools for client’s specific needs.*

These categories revealed, as will be shown in the following paragraphs, how texting with an institution such as the PCC needs to be connected to a service that the clients identify as a necessity and supports what the mobile phone virtual networks already provide. A **theme** that was exposed through these categories and respective subcategories and codes, is that text-messaging affects the relationship between the

young adult client participants and the PCC if a similar service is not already offered through their mobile phone networks.

Category 1. Text-messaging at the PCC provides a new access to local information and services

All young adult clients described how PCC texting services could provide a help to them that is not provided by any agency on the city of Edmonton. These include reminders, information about safety, pregnancy, and after care. This category is made up of the following two **sub-categories**:

- *Reminders, info about pregnancy, and after care text could be useful*
- *No local agencies support clients through text.*

Reminders, info about pregnancy and after care text could be useful. The **thematic phrases** identified in this sub-category were: *A little text is easier than calling to remember, I want reminders, I want privacy and If it is information, I WANT that.* Surprisingly, even when the clients were reluctant to be contacted ‘to chat’ by PCC counselors, when asked how text messaging could work for them, most expressed a high desire and interest to receive one-way information from the PCC through text messaging. Information especially related to reminders about their classes, information about pregnancy safety, and possible supports after their babies were born were of interest. All expressed that as new moms, any information they could receive at this stage of their lives, would be an added value. Some of their responses reflect this reality:

“I would like a support after the baby arrives”, “sending a little text to remind is probably easier than calling”, “they call us every week to let us know like, our appointments, so if they can text me instead of calling me that will be a lot of help”, “if it is set on an automated texting I LIKE THAT”, “I probably would not want more than a reminder”, “if it’s information, YES, say they just got this new recall on something...like baby seats and they want to inform me, I would appreciate that”, “OF COURSE I will be wanting to receive pregnancy safety information because I may just miss it and it’s information in regard to pregnancy safety”.

Something unexpected occurred in a moment of deep connection between a client and the researcher when she openly explained to me why this service would be so valuable in her new role as a mother. Even though the researcher is not facing a pregnancy and does not have a mobile phone, we both experienced a common understanding of the need for support in transitional moments of life:

Client: *I do not have a mother; I do not have somebody that just personally supports me, like another woman figure... I have someone but she doesn't know everything and I WANT THAT. I want to get as much information from different areas that are possible, than just one person*".

Researcher: *I am from another country, my mom is far away... and I have friends like moms, but it has taken me a while.*

Client: *TO WARM UP, eh?*

Researcher: *yea.*

Client: *Some people just click... you know... some people are just naturally motherly... and they just warm you around...but everyone is different*

Researcher: *yea, it's really a gift to find something like that.*

Client: *<smile> yea.*

No local agencies support clients through text. The **thematic phrases** identified in this sub-category were: *I know this agency, but I never text them* and *We do not know other agencies supporting through texting*. All the clients that were interviewed also said that they are not aware or know of any agency or service institution that formally addresses and supports clients through text message communications. Some of their responses reflect this reality:

"I do an online shopping business, and they text you, and that is what I know of organizations texting", "umm... NO, I do not really know any places. Like I know this agency you can text them, but I never tried", "No, we do not know other agencies that text".

Category 2. Mobile phones and texting provides the tools for client's specific needs

All young adult clients also revealed how the mobile phone services, especially text messaging, provides for the socio-economic needs that they experience in their daily activities. This is reflected in the identified **sub-categories**:

- *Clients have access*
- *Clients have control*
- *Clients like inexpensive services*
- *Clients are PROSUMERS: producer and consumer*
- *Clients use varying degrees of text message shorthand (short-it).*

Clients have access. The **thematic phrases** identified in this sub-category were: *I found valuable information for pregnancy on my phone, texting saves time, and text is handy and quick with friends*. All clients expressed how they are able to quickly and easily access information and relationships that are valuable in their context as young adult women facing unplanned pregnancies. This is possible through their mobile phones and texting, because of the connection that it provides with their friends and the net. Some of their responses support this reality:

“I have the app on my phone *what to expect when you are expecting*, I can look at that and it’s really neat”, “it kind of gives you information about stuff that you should do or have”, “the app has everything that would help”, “it reminds you of all KINDS OF INFORMATION”, “the Baby Center helps because it comes like a kind of attachment to my text to remind me”, “I guess I talk to friends more often and quicker, it’s just quick messages”, “the phone has helped me for a lot of upcoming information and information about my boyfriend”, “texting is handy... one of my friends, she uses this program on her phone, and in that way she can get a hold of me and knows where I am”.

Clients have control. The **thematic phrases** identified in this sub-category were: *I take care of the bills through mBanking (mobile Banking), I am ahead with the house bills: it is empowering and receiving text reminders keeps me organized.* Some clients expressed how through mobile phones, and its services, such as texting, they have gained control, empowerment, and status with their peers and loved ones, in terms of administration of responsibilities because it is easier to be organized through and because of the phone. Some of their answers demonstrate this:

“It helps with my bills and all that stuff, coming through my text too, saying *oh, you have your billing now*”, “most of the time all of my bills are paid online”, “I am very organized, I pay the bills and I write down the day, amount, and the reference number. If the other company says *I did not receive your money*, at least you do not have to search for it, I just have to say that I have the reference number and I will go to my bank, and they will investigate for you if it’s necessary”, “I feel safe doing mBank”, “My fiancé lets me take care of the bills” “I am organized, IT WORKS, I also write it on the calendar, and he is like *we have to pay the bills*, and I am, like *yeaa*, I already know and did it because of texting reminders”.

Clients like inexpensive services. The **thematic phrases** identified in this sub-category were: *Texting does not cost extra; for long distance it’s usually the thing to do, it’s unlimited and I do not pay for the information, I pay for internet.* All clients expressed that one of the great advantages of mobile phone services, texting, or web browsing, is the low cost of service that it offers to its users, compared with other technologies. This is reflected in some of their responses:

“Text messages do not cost anything extra from your plan. I guess just regular text messaging rates”, “Texts from some companies do not charge you”, “There are not many plans out there that have unlimited long distance and for long distance, TEXTING is usually the thing to do”, “It’s UNLIMITED and way cheaper”, “I have to pay for the DATA, like for being connected to the internet, but I do not have to pay for the information itself”, “they sell plans like, in gigabits, whatever you pay, as long you do not go over that, then it does not cost you anything, so you can look at lots of different websites”, “I am in a package and I just put add-ons.. It’s like, for the internet”.

Clients are PROSUMERS: producers and consumers. The **thematic phrases** identified in this sub-category were: *It allows me to find and share information about pregnancy and I choose the options that I want, when and how.* Most clients, especially those who carry smartphones, expressed how their devices have allowed them to be not only consumers of information, but at the same time, producers of information and choices; especially in their socio-economic networks. For young adults, being ‘connected all the time’, allows them to be proactive in their lives and realities. This is reflected in some of their responses:

“I sign up on a website called Baby Centre, and it weekly tells me what my pregnancy is up to and what to expect. It tells me from week 2 to 40”, “I went online and then found how to program in my bank to receive text reminders saying that my bill is in, it’s called eBill instead of paper bills, you just have to sign up”, “I have an app where there is like, other people who are having their babies at the same time as me, who write messages there, so if you have a question, you can see what other people are experiencing or you can answer other peoples questions”.

Clients use varying degrees of text message shorthand (short-it).

The **thematic phrases** identified in this sub-category were: *Most choose not to use it because they like to spell words properly, Few use it all the time to keep messages short, All use “LOL”, and It is okay if the PCC uses “short-it”, as long as they can understand.* Young adult client participants in Edmonton expressed different perceptions respecting text message shorthand (short-it).

Confusion was noted with the term “lingo”, which was used in the structured questions of the interviews, and derived from US references. Clients corrected the researcher, which caused embarrassment, because, at the time of the interview, there was no formal information in the literature indicating that in Canada it is called short-it, or short-hand words used in texting. This is reflected in the following dialogue:

Researcher: *Have you used lingo?*
 Client: *LINGO? What’s that?*
 Researcher: *Sorry if I am using the wrong term. It is the short words when you are texting... it is called lingo... I guess. Right?*
 Client: *mmm... Short-it...oh yea, I use it all the time*

Curiously, it was found that all the young adult client participants used the short-it “LOL”, in their messages. This means laughter, or literally “Laugh Out Loud”. Otherwise, there were notorious differences in the uses of short-it between members of the group. Interestingly, a connection was noted between those differences and ethnicity. All Caucasians of the group expressed a tendency to like spelling words properly on their texts. In the case of First Nations and immigrant

participants, they were more likely to use short-it regularly to keep their messages simple. All of them expressed being comfortable receiving text-messages using short-it words from the PCC, as long as they could understand them. This is reflected in some of their responses:

“Not as much as a lot of people do, because I, like, I am into English and I like to spell things out perfectly”, “but the little ones like LOL”, “YEA, Of course... I use it more than regular expressions”, “I usually type everything in, the only thing that I will use is LOL when I am saying something in a text message”, “I type everything and then I always use grammar even when I am texting”, “I mean, if I was in a hurry, and I need to text you really fast, I would, but usually I do not have to and I am not in a rush”, “ sometimes, I use like, the short words”, “ It will be okay if PCC uses short-it, as long as I can understand it”, “yeah, I would not mind, I just choose not to text like that”, “for some things, as long as I know what it means, sometimes I have to look it up <laughs>, because I do not know what it means”.

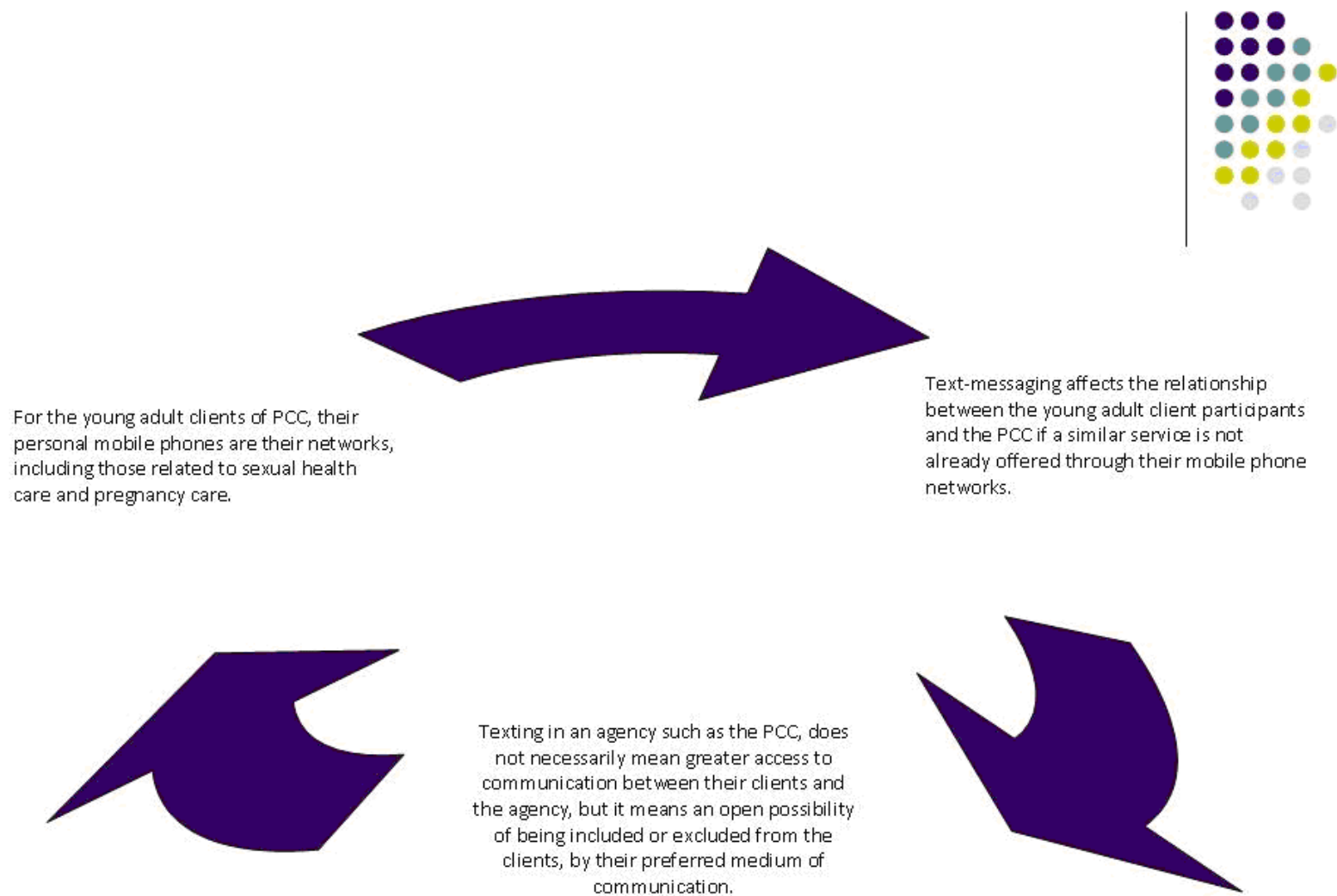


Figure 4-5. Themes identified from the Young adult client participants

4.4. Staff Participants

4.4.1. Characteristics of the Staff Participants

To better understand the environment and personal experiences with communication tools, such as texting and mobile phones, for the staff that participate in this case study, a demographic questionnaire was distributed at the end of the interviews by email. As a researcher-volunteer, this information provided some references to where these staff participants were coming from at the time of the interviews. Six individuals were interviewed. The interviews occurred between the months of January and May of 2012. Of six participants, five demographic questionnaires were completed at the end of June 2012.

The staff participants varied in age between 22 and 55 years old, and represent various ethnic groups in Canada. These were four Caucasians, one Chinese-Caucasian, and one African-American. As a group, they also represent different social groups of the province, and live in the south east, south west, and northwest areas of the city, as well as in another city close to Edmonton.

At the time of the interviews, most staff participants were volunteers, with the exception of one, who worked at the PCC as a staff leader. Volunteers at the PCC are called staff volunteers because, as mentioned in Chapter 3, 70% of the staff is comprised of volunteers. However, even when the PCC serves the community through four different programs, the staff that participated in this study were only involved in two of them: informative counselling and follow up parenting education.

The staff participants also have different professional backgrounds. These range from a university student in psychology, to an entrepreneur, two professionals, one in social work & biology, and two retired from the medical profession (nursing). All of the staff participants were trained to use FLSMS though not all were using it at the time of the interviews.

80% of the staff interviewed owned a cell phone, and among those, 50% reported have an activated mobile phone with texting functionality. All expressed not having difficulties hearing, seeing, or communicating at the time of the interviews. Three staff participants used Smartphone devices, and two used regular cell phones.

Responding to concerns about how they use media to communicate on a daily basis, most of the staff participants expressed a preference to communicate, in order of importance, by phone calls, email or one on one contact.

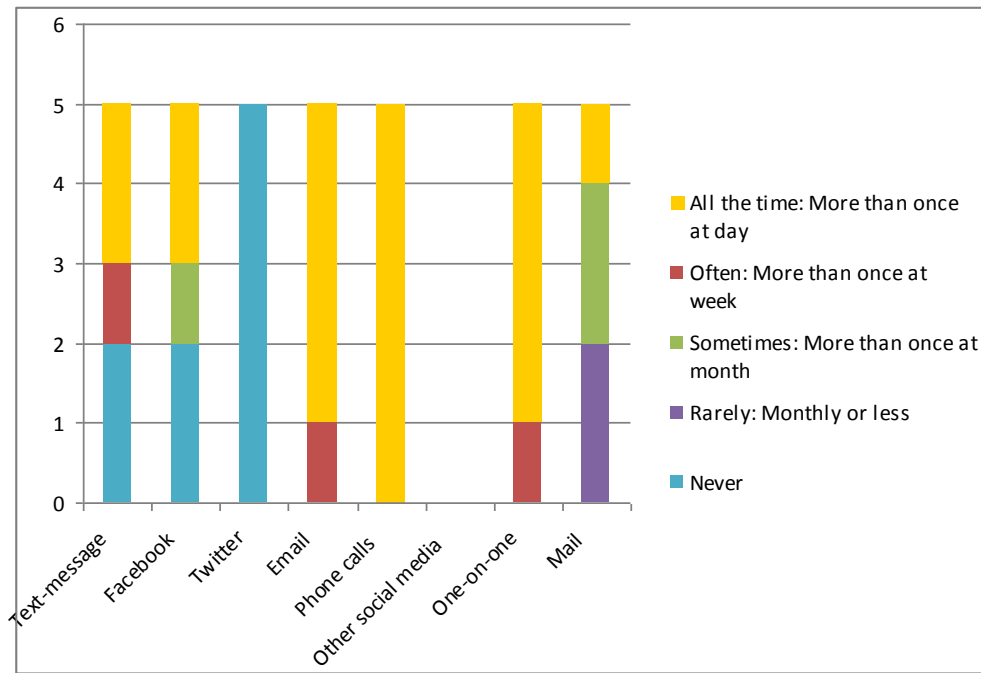


Figure 4-6. Communication services utilized by PCC Edmonton staff participants for every-day communication

All of the staff recognized Twitter as a medium of communication that had never been used by this group. Half, especially the youngest ones, expressed using text messaging and Facebook regularly. None mentioned using social media other than the ones mentioned on the questionnaire.

In response to questions about how they use media to communicate with clients at the PCC Edmonton, most of the staff participants expressed a preference to communicate by phone or one-on-one. They also indicated that in a few cases, they use email and Facebook to communicate with clients, and rarely, text-messaging. This was extremely interesting, since it was not understood why they were not using social media tools and text-messaging to communicate with their clients.

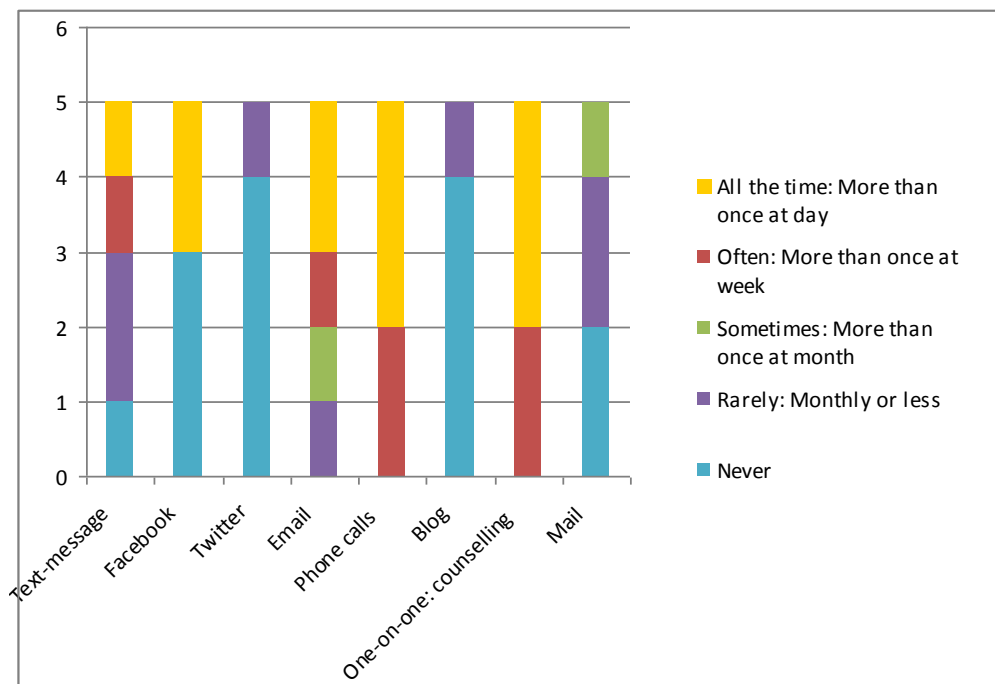


Figure 4-7. Communication services utilized by PCC Edmonton staff participants for communication with clients

Also, interestingly, all of the staff recognized Twitter and PCC’s Blog as mediums of communication that they never use to communicate with clients, even though the Blog had been created for this purpose.

4.4.2. Staff participant perceptions of how young adult clients are affected by their uses of mobile phones and how it affects their sexual health care networks

To start to understand the phenomena of texting as a tool of relationship and connection between young adult clients and an agency that provides pregnancy support, it was important to examine the case of the specific staff interviewed at PCC in Edmonton. This was accomplished from the perspective of how they witnessed and understood their client’s relationships with their mobile devices, and especially how their uses are related or connected to their sexual health networks. This is important, because these staff volunteers were the ones who were trained and ‘using’ the software with their clients.

For this purpose, the staff participants were formally asked how they perceived the client’s relationship with their mobiles and texting, what they observed daily at the Centre, and their own thoughts toward the possible impact of the technology in the clients challenges. These questions were formally asked, because the researcher already knew the opinions of some of the staff prior to the interview, through informal gatherings at the Centre.

The intention was to respond to the question of how mobile phones affect perceptions and attitudes among young adults in Edmonton toward sexual health care networks from the point of view of the staff (see Appendix 14). Three categories were found in their responses. These **categories** were:

- Category 1: *Beliefs about texting and its relationship with the new generation varies*
- Category 2: *Texting and its uses among young adults, concerns the staff of PCC*
- Category 3: *Most staff at PCC don't believe texting can make a difference in the client's urgent situation, or improve communication with them*

These categories will be the subjects of the following paragraphs. Staff participants of this study and people who share their values, like the researcher, and other workers at the PCC, have expressed and unexpressed concerns about the role of mobile devices in the lives of young adult clients. A **theme** that was exposed afterward, through the categories and respective subcategories and codes, is that the staff participants of PCC Edmonton have different beliefs about uses of texting amongst young adults, but most of them are concerned about young adults uses of their mobiles devices and do not believe the technology can make a difference in the client's difficult situation or improve their communication with them.

Category 1. *Beliefs about texting and its relationship with the new generation varies*

All Staff counselors identified that mobile phones, and especially texting, is an active behavior in their clients, but not all of them were concerned or disturbed if clients use it quickly at the PCC, especially if those counselors also constantly use texting services. This is reflected in the identified **sub-categories**: *Young adults are always connected and most clients are aware of turning off their phones in the counseling session.*

Young adults are always connected. The **thematic phrases** identified in this sub-category were: *In the counseling room they don't often text but their phone always rings; most young adults who are clients communicate through the mobile phones and we should accept it and they are in the age range where they never leave their house without a phone.* Through the responses of the counselors it was very clear that mobile phones are an active agent in the life of their clients, especially those who were young adults. Some of their responses reflect this reality:

“Actually they do not text in the counseling room, because I mean, we are talking; but I have seen them sometimes texting while they are waiting”, “I have never had a client texting in a counseling session, but I have had them...um... their cellphone will ring and they will put it out of their pocket, and... they will look”, “In the case of our clients, we’re dealing with sixteen, seventeen, twenty year olds, and they communicate differently, so we have must adjust to that”, “the clients that COME HERE are usually around the 15 to 25 mark, and so, they never leave their house without a phone and they are always texting, PROBABLY more texting than actually calling people”.

Most clients are aware of turning off their phones in the counselling session. The **thematic phrases** identified in this sub-category were: *It depends on the client’s personality, it depends on the value clients put on their phone; mostly, when clients realize the reason of their visit, they become aware of listening and they are almost embarrassed because it is inappropriate.* Most of the staff agreed that client’s reaction and beliefs about the appropriateness of texting while they are in a counseling room, depends on their personality. Some of their responses reflect this conclusion:

“I don’t have any cases of people not listening; once it’s raised they are very good with putting their phones away and listening, because really the Centre is here for them and the reason why we are talking is for them. I feel like it’s based on personality. Some people are like connected to their phone at the hip, like, they have to text every damn minute of their lives and other clients they’ll come in and they’ll forget they have their phone with them. It’s more depending who they are and the value that they put into their cell phone”, “I think they are almost embarrassed because they realize it was not appropriate”, “when I told them to stop, they are not angry at me, I mean, they are there with an unexpected pregnancy, so we are dealing with fairly important issues”, “some people apologize and some people they just do it as if it is like part of their life, so, it just depends of the client”.

Category 2. Texting and young adults uses for it, concerns the staff of PCC

This is reflected in the identified sub-category:

- Most counselors at the PCC believe that texting or mobile phones are unhealthy, trivial, and promote anti-social and addictive behaviors.

Most counsellors at the PCC believe that texting or mobile phones are unhealthy, trivial, and promote anti-social and addictive behaviours. The **thematic phrases** identified in this sub-category were: *Being in contact all the time is unhealthy and it shows a deeper hunger and need for relational connection than text can provide; in my personal life texting is not important, and I believe the general use of it is trivial; texting is anti-social, rude, and promotes anti-social behavior and texting has become a way of addictive life: an addiction to their cell phones. As*

mentioned, most of the counselors interviewed in this study expressed a deep concern about the role of new technologies in the lives of young adults (and in this case, those in Edmonton). Some of their responses reflect this reality:

“About being in contact all the time? Hum... I think it’s unhealthy. Why does one need to be in contact all the time with people? That’s another study in itself. I wonder if one has a sense of their own self-worth, of the value of quietness, of settledness. It indicates just a hunger for meaningful relationship, but I don’t think that gives meaningful relationship. I want to maintain a balance in my life, and for me personally, I don’t need to be in instant contact with everybody all the time, every time. I think that’s unhealthy, and unnecessary. Perhaps in emergencies, a cell phone would be extremely helpful, other than that, it’s not important or needed, and that makes texting even less relevant, because for me texting appears to be almost superficial trivia that I don’t see any use for; in my personal life, it’s not important.”

Category 3. *Most staff at PCC don’t believe texting can make a difference in the client’s difficult situation, or improve communication with them*

Most counselor staff expressed a belief that texting cannot make a difference in client’s crises or improve their communication with the agency as a consequence of believing texting is unhealthy, trivial, and promotes addictive behaviours. This belief is reflected and explained in the identified **sub-categories**:

- *Most clients had the mindset that text is only helpful at prenatal classes*
- *Re-connection with clients after the first visit only happens if the staff and Centre are helpful*
- *Texting is not the means for better communication with clients.*

Most clients had the mindset that text is only helpful at prenatal classes. The **thematic phrases** identified in this sub-category were: *Clients had a pre-conceived mindset and text cannot change that, unless they want it to* and *text could be more helpful regarding its use in the prenatal class.* Most of the staff participants expressed how they believe the clients’ situation cannot be changed or improved only through the power of a technology. The change has to be something that the client has decided in their own. Some of their responses reflect this reality:

“I think if the client has their mind set already, it’s like, the text message, or whatever is going to really change their mind, unless they want”, “sometimes, the girls come in once, they’re coming in for a pregnancy test, they’re not pregnant, they’re happy, they’re out of here. They really don’t care about you anymore. Now, the girls come in and they’re pregnant, and then they’re going to come back! Because they’re going to do the prenatal classes, and

you set up a connection with them. I think then it's different, right?", "maybe in the prenatal classes texting could be more helpful".

Re-connection with clients after the first visit only happens if the staff and Centre are helpful. The **thematic phrases** identified in this sub-category were: *What brings them back is not texting, but what services we can offer to them and connections with clients happen when we find common ground, and PCC staff are helpful.* Most staff participants believed, by their own experiences with other technologies and the realities of clients and their relationship rituals with them, that in the specific case of the PCC, clients establish a relationship with the agency through them when they find needed help. Some of their responses reflect this reality:

"Not yet any connections with clients through text...I just think it's still a little bit new", "no, I haven't connected with clients through text. That's happened the most when they've been in the room with me, I show them how they can network, right in the office, that is just to show that I'm seriously involved with them, the positiveness of that is that it is happening in the centre, with the issue that they are specifically dealing with, and there's a bonding between myself and the client, because I'm being relevant to what their need is, "because of my limited use of the texting and the rather ineffective responses from them, I would see it not being helpful at all in bringing people back a second time. What would bring them back a second time is an issue that they see me being relevant for and that I could come and help them, or that they've developed a trust in me where they want to talk over more personal issues".

Texting is not the means for better communication with clients.

The **thematic phrases** identified in this sub-category were: *I think face to face is the best way to connect with people in crisis, texting is another media to contact young adults, text helps to get in contact but not to connect, I don't believe clients only connect through text and text could lead to misinterpretation of ideas through written words.* Also, most of the staff participants believed, either by knowledge gained through their experience with clients, or their personal reflections, that in the specific stressful reality that most clients go through in unplanned pregnancies, the power of a unique resource such as texting could not guarantee better communication with them. Some of their responses reflect this reality

"I hear people say, people don't answer the phone anymore, and you know young people they are texting or whatever, it is like that and you have to go down were they are or whatever. I DON'T BELIEVE that fully", "when I phone a person, and when I come into contact with that person on the phone, I feel a lot more connected than, like, sending a text message to them; for texting", "It is a good resource to get people in the Centre, I think, or to reminder to come to the Centre, but to use it as the only tool to connect with them... I don't think we are doing justice", "I think a client coming into the

Centre, sitting down, face to face, you talking to them, looking them in your face, getting more information is way more beneficial than texting back and forth, kind of just a conversation piece.”

4.4.3. Staff participant perceptions of text messaging at the PCC

Edmonton

After reviewing how staff participants observed the influence that mobile phones have on their clients and how it could affect their sexual health care networks, the next step was to understand how the staff participants were affected by the introduction of text-messaging as a new tool at the agency. The specific intention was to review how the introduction of text messaging at PCC impacted staff capacity and work practices at the agency (see Appendix 14). Five **categories** were exposed in their responses:

- Category 1: *Depending on staff familiarity with texting, some are disturbed by client's uses and others feel okay, but all staff feel they are competing with the client's phone for the client's attention*
- Category 2: *Texting has impacted the agency directly and the staff users indirectly because of differing degrees of knowledge in the technology and the learning curve*
- Category 3: *Staff feels that the way the service is set up does not support their clients reality and their work practices.*
- Category 4: *The short-hand guide has added value to the knowledge that PCC has of the “new generation”*
- Category 5: *Staff are not interested and have resisted using texting at PCC because most prefer to use the phone.*

These categories revealed, as will be shown in the following paragraphs, that at the PCC, there were few who advocated the ‘texting cause’. A **theme** that was exposed through these categories and respective subcategories and codes, is that introducing texting in an agency such as the PCC created great distress and disruption on their volunteers, staff, and work practices because the technology did not necessarily result in a greater support to the staff and their work, because it was not comfortable to learn. The agency staff were also uninterested in ‘replacing’ their traditional ways of communication, even when there was evidence of the intake of the technology with their clients.

Category 1. Depending on staff familiarity with texting, some are disturbed by client's uses and others feel okay, but all staff feel they are competing with the client's phone for the client's attention

Some counselors were annoyed by their clients use of texting and others were not. However, something quite interesting is that all of the staff participants in this study identified the device as a competitor for the attention of their clients. This is reflected in the identified **sub-categories**:

- *I don't mind if they text quickly*
- *I do not allow texting or phoning*
- *I feel competition for their attention with the phone*

I don't mind if they text quickly. The **thematic phrases** identified in this sub-category were: *I don't mind if it is a short text, I do text myself everywhere, I am not to concerned if they text quickly during the session and it is fine to text while they are waiting for me.* As was expressed before, some of the staff participants expressed to me few if any feelings towards young adult clients texting at the PCC. Some of their responses reflect this supposition:

"I don't mind texting, I do it myself", "I do not have any reaction if they text, I am not to concerned if is quick", "Oh, It is fine, they can text while they are waiting for me, or until we start the class", "sometimes, like, they might receive a text message while they are in the counseling room or something and they will text back. But I usually do not have a problem with that, nope", "most of the time they are not texting in the room, sometimes if they receive something they will just quickly text something back", "I DON'T HAVE MUCH PROBLEM, I don't have a lot of them doing that, but I can tell you that they check it and some of them you can hear it ringing, whatever sound it's doing that... and they will look at it and put it back".

I do not allow texting or phoning. The **thematic phrases** that I identified in this sub-category were: *They have to leave the session-room if they answer the phone; for the safety of the counseling session, if they are texting longer, I will ask them to stop and we do not have too much time to talk.* Other staff participants expressed feelings of discomfort (some quite strong) with the behavior of young adult clients texting at the PCC. Some of their responses follow:

"if they are texting all the time during the counseling session, then we will tell them to stop", "once we are done talking and having that conversation about what's going on for them, then they can tell whoever, you know, because they probably want to text their boyfriend or their friend or whatever for results or things", "I do not really allow texting when I am counseling", "when they have the phone, yes, it rings, sometimes they answer it and they have to leave the room", "some of them will pick up and answer and I will

ask them for the safety of the counseling, maybe you need to turn your phone off, because it's interfering", "we do not have time, we have limited time in the counseling room", "I would ask them to shut it off, that is HOW I FEEL about texting in the counseling room".

I feel competition for their attention with the phone. The **thematic phrases** identified in this sub-category were: *If they are texting while listening to me, I feel disrespected and frustrated; if they are texting the whole time of the counseling session I feel they are not listening; I feel that they are not serious about the session and I feel it is a challenge to come back to the conversation when they text.*

Interestingly, all of the staff that participated in this study expressed how the mobile phone and text messaging has become almost 'a rival' in terms of client's attention during their counseling sessions. Some of their responses reflect this reality:

"If someone is texting I am good with that, but if I am talking to them face to face and hoping that they are listening to me, if they are texting I feel disrespected and that they are not fully hearing what I am saying", "YEA, I get upset and frustrated about it, for sure", "I feel that they are not serious about the session because something else is on their minds", "the challenge for me after they are texting is to get the discussion in focus again and to try to deal with the issue that we are talking about, so that the phone became quite irrelevant", "I try to be as diplomatic as I can, but when they are finished I just make it very clear that we are in a serious counselling session, and if they will be kind enough to turn it off and connect with the person afterwards, and without exception they have agreed to that".

Category 2. *Texting has impacted the agency directly and the staff users indirectly because of differing degrees of knowledge in the technology and the learning curve*

It was observed that texting impacted the agency directly because it represented a challenge for the staff. This is reflected in the identified sub-categories:

- *The software was hard to learn or to use*
- *Differences in ages and work practices contribute to the learning curve*
- *Learning texting at PCC has impacted the agency but not the counselors*
- *Texting knowledge varies according to personal experience*
- *'The thing is getting used to it'.*

The software was hard to learn or to use. The **thematic phrases** identified in this sub-category were: *For some counselors it was easy to learn the program but there were issues using it and for some counselors, there were issues*

learning how to use the software. Some counselors expressed how learning the software and text messaging was easy because it was similar to their previous experiences with mobile phones. Where there was effort involved, that was in overcoming some of the glitches of the software. However, for those counselors who were not familiar with mobile phone uses, this adoption has been challenging and unwanted. Some of their responses reflect this reality:

“because I was texting some people and they weren’t getting my texts, and I don’t know why”, “I was texting a client last week, that same client, and what I wrote I didn’t like, so I just started deleting it and I re-wrote it and when I sent it I looked, and my previous one got sent and I never sent it, I never used the send button”, “It was embarrassing for the agency... and it can be dangerous, because if we are typing things <sigh> and maybe we shouldn’t use this word, and it gets sent in the meantime, worst case scenario, that could be a lawsuit”, “It was good that you explained it to me first, because I think I would have been, like, not too sure for a while if I had to just kind of go at it alone. I thought you did very well explaining, and I found it very straight forward to just work with the program, you know.”

Differences in ages and work practices contribute to the learning curve. The **thematic phrases** identified in this sub-category were: *Participants recognized they were learning the “technology of the century”, learning a new technology is a challenge for mature participants and some need more one-on-one coaching.* Some of the staff participants recognized that their differences in age and the way they understand work, and work practices, (in this case, volunteer practices) are different. Some come from a more maternal, group oriented way of working and some are more individual. They recognized that these factors have contributed to the adoption of texting at PCC. Some of their responses reflect this reality:

"It's been positive, it's helped me to enter into technology in the 21st century, and I'm very pleased that the Centre is wanting to introduce this", "I appreciated the detailed written guides that you gave us and appreciated you coming to the office to try and be there, right beside me, and coach me through it because I needed that kind of one on one help", "I see my counselors at the start of IN ACTION with trying to figure out how to deal with the text messaging and learning the software; and some of them catch on QUITE QUICK and the other ones take in a LITTLE BIG LONGER...I think age has a huge factor in it", "it's hard when you are dealing with a lot of counselors, and on a day to day basis, especially if they don't fully grasp the idea and they don't really take responsibility for it; reminding them and getting them to check it, and getting them to do the text messaging."

Learning texting at PCC has impacted the agency but not the counselors. The **thematic phrases** identified in this sub-category were: *Learning texting has been neutral, learning texting at PCC means learning a new way of*

communication, I am older and I am sticking with familiarity and it has not changed my experience because I do not use it. This sub-category brings understanding to how the counselors' beliefs influence their work practices and contribute to their learning curve of mobile phones and text messaging technologies at the PCC. Some of their responses reflect this:

"Texting hasn't changed my experience as volunteer, it's kind of no different than an email or a phone call", "I don't think learning text has affected me negatively or positively, it's kind of a neutral thing", "texting has changed our experience here at the centre, because it's a different level of communication that the staff is learning, so...it's definitely how things are here at the Centre", "No, texting hasn't had that profound an effect, because I haven't used it as much as I should, so ask me in a year if I'm still here, and see how much it's changed me", "I need to be careful because I'm older and I'm sticking with familiar usage, i.e., the phone and face to face visits. That's what I'm used to, but that doesn't mean that I should always continue with that".

Texting knowledge varies according to personal experience. The **thematic phrases** identified in this sub-category were: *I never used text before and it feels like a privilege to learn at PCC, I do not text that often because my phone is frustrating and I am used to texting and use it for my personal life and work..* Some of their responses reflect this:

"I use it on a daily basis to connect with people. Not that I don't phone them. If it's like, something really important that I want to make sure that they got it or whatever, I'll give them a call, but it's just a really quick way to get something that I want them to know about...or an encouragement in the morning. It's quicker", "I have texted with my director, if I need to communicate something with her that I'd really like her to know, or have used it with some of my clients, with the ones that I'm really working one-on-one with, and I feel comfortable with them having my number. I haven't done that often, when I feel like it's going to be really helpful for them I'll give them my number, and then I have texted with them", "No I don't text because my cell phone is not very easy to text with. It's just a real basic phone with no keyboard so every button has three letters on it, and you have to find the right letter and...anyway... <laughs>, I need to get a different phone to really do texting."

'The thing is getting used to it'. The **thematic phrases** identified in this sub-category were: *It is a matter of practice, it is a matter of grasping the idea and taking responsibility, it is a matter of getting familiar and it is a matter of making it part of the work routine.* Even when some of the counselors excuse their avoidance of texting services because they do not get 'a satisfactory response or experience', most of them recognized that to fully understand the scope of texting at PCC, they

needed to adopt the use of the technology in their volunteer / work experience. Some of their responses reflect this reality:

“Every time that I come I don’t have the time to text because you need the time or whatever to get on there, even to go through my files and all that kind of stuff, because if they had not replied back I don’t feel like I need to go on there, because these peers never make connection with clients with the texting yet”, “I think I could have called you more often to say ‘*would you please plan to be here on such and such*’, because I haven’t developed the mentality of when I get to work, the first thing I would do is pull up the computer and check my text messages. I haven’t developed that habit”, “some of them (clients) have not ticked off that they want to be texted...so that’s another thing I could work on...when a client comes in now, perhaps I need to be more diligent when we talk about it, can we communicate with you by phone, by text... whatever. If they haven’t ticked off text, I could say to them, uh, well, *could I text you and phone you*, and I haven’t been doing that.”

Category 3: Staff feels that the way the service is set up does not support their clients reality and their work practices

It was observed that staff feels that the way texting is set up at PCC does not support the agency directly because it differs of clients realities and their work practices. This is reflected in the identified **sub-category**: *Work practices at PCC and client realities don’t match texting practices.*

Work practices at PCC and client realities don’t match texting practices. The **thematic phrases** identified in this sub-category were: *counselors just work once a week and they do not check text messages immediately; mostly, everything is communicated with clients in their initial visit and they do not come back; how can we be effective for clients if we reply to their messages every week?; most clients just come one time to the Centre so it is not useful to text asking how they are and the time length between a message and a response is too long.* Through this sub-category, it was observed that the way the service is set up is not functional for the schedules and day-to-day work practices that the staff participants experience in a nonprofit such as the PCC. Some of the responses that support this include:

“My trouble is, when I come, I don’t know if I have a nine o’clock appointment or a ten o’clock, so it’s hard to know exactly what time in the day I will have the time to check my text messages”, “I think we should really continue to work on this, because counselors only come once a week, and texting is an instant kind of thing, in the real world. I mean, people text and then they respond, and back and forth, back and forth. That is not the case here, so it does create some unique challenges to meet our needs, I think”, “right now how it works is like... they text message the client this morning, let’s say, and then the client doesn’t get it until five thirty. The

counselor's gone ...the person texts them, and the counselor can't text them back until next week...So then there's that...that kind of break in communication, while that client is waiting for the counselor to text them back."

Category 4. *The short-hand guide has added value to the knowledge that PCC has of the "new generation"*

Also, the staff participants expressed appreciation to learn about short-hand abbreviations, even when they considered it inappropriate for use at the PCC. Regardless, some of them valued that this 'knowledge' helped them to understand the ways that the new generation relates. This is reflected in the identified **sub-categories**:

- *The short-hand is valuable as a reference, not for use*
- *Short-hand is not popular or useful for texting at PCC*

The short-hand is valuable as a reference, not for use. The **thematic phrases** identified in this sub-category were: *For the professional image of the agency, it is important to spell messages properly; learning short-hand is valuable to the Centre and other PCCs to connect with the secular world; some young adult staff at the PCC are not comfortable using short-hand, and some staff are not ready to use it and do not understand how it works.* Some of their responses reflect this reality:

"In regards to my counselors learning it for themselves and how they text, I don't think that's as important, just because we're an agency and ah... we want to come across as professionals, which we are in what we do, so you know, framing a sentence that has all the words spelt properly and capitalized and periods umm... makes it a little bit more formalized than if you were talking to a friend", "I'd have to have the sheets right in front of me so that I see the texting lingo, and depending on what message I was sending to the client, I would literally look through the sheet, and then send that, but I'm not at that stage yet, I mean, that would take a while down the road to do that", "I think some of them might be good, but a lot of them seemed a little bit pointless to me <laughs>; because I mean, like I don't even hear, like, some of those, out with friends and stuff, so, I'm just assuming that not a lot of people have heard them either, <laughs>."

When the staff was being interviewed, the researcher observed that some of them did not understand short-hand as a language created by text users, and not as a protocol that could be changed by an organization, such as the PCC.

Short-hand is not popular or useful for texting at PCC. The **thematic phrases** identified in this sub-category were: *I do not use it because I think*

it is unprofessional, I do not use it because I am not used to it, I use few of the common short-hand, and I do not use it because there is no need for it. Also, most of the counselors expressed that short-hand was not useful in the context of the agency. Some of their responses reflect this reality:

“I never use the short-hand. I just think it’s unprofessional”, “I use it probably for both (personal and work), I’m not totally short-hand savvy. There are some things that I’ve just acquired that I do all of the time like LOL... I don’t even say ‘laugh’ or ‘haha’ anymore, I’m just so used to writing LOL, it’s easier right? So it is kind of customary in my brain. For some of the other stuff, like the big acronyms or things, I don’t... sometimes I’ll use them but for the most part... I’ll just write out half and half”, “I do not use short-hand and it makes sense, it’s just having to learn how to do it <laughs>. I mean, some of them I know, right? ‘U’ for ‘you’, ‘R’ for ‘are’. I basically type everything out, I don’t use a lot of abbreviations and well, my messages in texting have been really short, so I haven’t had to do a lot of abbreviations.”

Interestingly, as the young adult clients expressed, the younger staff participant also referred to short-hand as unprofessional outside the context of friendship.

Category 5. Staff are not interested and have resisted using texting at PCC because most prefer to use the phone

Some staff explained their lack of interest in texting technologies, because they preferred other medias, such as phone calls, or they were not interested in learning it. This is reflected in the identified **sub-categories**:

- *Using texting at PCC is not appealing for counselors*
- *Staff at PCC expresses resistance to the software in various ways*
- *Most staff prefer to use the phone to reconnect with clients after the first visit because it is common, comfortable, and works to connect*

Using texting at PCC is not appealing for counselors. The **thematic phrases** identified in this sub-category were: *I am not against it but I am not inclined to use it either* and *I use text at PCC because of my relationship with you.* Some counselors recognized that texting was not an activity / function that was appealing or necessary in their activities and this is reflected in their comments:

“I have not been inclined or whatever to do a lot, I hope I am not the only one that hasn’t been. I am not against it or whatever, but I really feel that I have to force myself to do it, just for the sake of doing it, but if there is something else that works and it gets me to my client, I am not sure if I need to text them, you know”, “I started to use texting because I did really want to help

you with your research. I think if another person was doing the research... I don't know if I would actually really use texting at PCC",".

Interestingly, this behavior was observed in the researcher's journal: *I just feel she is not interested at all; I feel there's no reason to keep asking about texting.*

Staff at PCC expressed resistance to the software in various ways.

The **thematic phrases** identified in this sub-category were: *Resistance to the software expressed by passive rejection, resistance to the software expressed by "not having time and it's not easy to use", resistance to the software expressed as "it is a defeatist attitude", resistance to the software because it is a big change in how staff already know how to work at PCC and that is uncomfortable and resistance to the software because they do not believe it could help clients in a difficult situation.* Some of their responses reflect this reality:

"We kind of need some practice, and I don't have the time to do that when I am coming, I am in the evenings, when you are coming in the day, there is a lot more people, a lot more you know, you can do that. I find it, it will be complicated for me to sit and go through the instructions sheet. PHONING or writing an email, I think is easier", "texting takes time from my volunteer work", "I think that as human beings, we like to understand things because it gives us a sense of control, um... so if we understand how something works, then we feel in control about it and we feel like okay, this is a normal part of my life. I think in general all of us are quite resistant to something changing especially if we have no idea what it looks like or how to do it, and so, for some of the counselors... even if they wouldn't say it, or maybe it wouldn't even be at the top of their minds, I think there is a little bit of resistance because they need to learn something new and it's different and maybe they will not be good at it and the different fears that get involved with that. So I think it's just 'cause it's a big change and they have to get used to it and it has to become a routine."

Interestingly, the researcher observed that some of the counselors who answered that texting is good have mostly been those who did not use the software.

Most staff prefer to use the phone to reconnect with clients after the first visit because it is common, comfortable, and works to connect. The **thematic phrases** identified in this sub-category were: *I do prefer the phone to connect with clients because it works and I feel more normal using it, I feel more professional using the phone with clients, connecting often happens mostly on the phone and not through text, some clients prefer phone calls to contact them instead of texting, if the message is quite long I prefer to call. If it is short, I text and personally, I prefer to call, because it is difficult to text with my phone.* Again staff participants

understanding of replacing settled medias at PCC is a constant in their responses, as demonstrated below:

“I connect with my clients through phone, that is normally what I will do and if I can through that, I may try email later”, “for those kind of professional things, I think I do prefer phone“, "when I first started volunteering here, texting was being implemented right away. So I haven't actually been volunteering without. But I know that, even for the first little while, I was more just calling my clients and stuff. I guess it's just, I felt it was more formal. Like, I think it comes down to the whole personal thing. I think it just felt more personal to just say, hi, you have an appointment, how are you doing. I didn't actually start using the text message until a few weeks, maybe a month ago or so", "connecting often happens mostly on the phone, in discussion, because, we've got this instant dialogue going on. Now the same thing could happen if I got into back and forth dialogue on the texting, but because that hasn't happened yet, I can not say."

4.4.4. Staff participants relating to young adult clients through texting

Finally, after reviewing how text messaging impacted staff capacity and work practices at the PCC, it was decided to review how this service could possibly enhance a relationship between the clients and the agency. The intention was to review how text messaging could improve the relationship between young adults in Edmonton facing unplanned pregnancies and an agency that provides pregnancy health information support (see Appendix 14). Two **categories** emerged in their responses:

- *Category 1: Texting could LINK some clients who are always connected to their mobile devices, to the PCC*
- *Category 2: The nature of the Centre's work and their clients demands a specific use of texting at PCC.*

These categories revealed, as will be explored in the following paragraphs, how texting at the PCC means having a channel of communication that the new generation has identified as their only, or most used form of contact. It also shows that the way that texting is currently working at the PCC does not facilitate this channel for clients or for counselors. A **theme** that was exposed through these categories and respective subcategories and codes, is that text-messaging could strongly affect the relationships between the young adult client participants with the PCC in Edmonton because clients are always connected to their mobiles phones. However, the technology needs to be tailored to address the gap between the needs of the clients and the needs of the agency, especially in terms of the way that the agency operates.

Category 1. Texting could LINK some clients who are always connected to their mobile devices to the PCC

Even when the levels of connection with clients through text were low, some counselors recognized texting as a channel that, in the short time of the pilot, had produced attention and new responses from their clients. This is reflected in the identified **sub-categories**:

- *Text is a form of communication at PCC that produces attention from some clients*
- *Depending on the client and the staff, texting at PCC can promote connection*
- *PCC could connect with young adult clients through cellphones because it is confidential and accessible*
- *Some staff beliefs about texting are starting to be challenged by the first results of the pilot at PCC.*

Text is a form of communication at PCC that produces attention from some clients. The **thematic phrases** identified in this sub-category were: *Not many clients say they want to text, but they reply sooner by text; text is a form of communication for clients; clients don't get back to the Centre by other communication mediums, and text promotes communication with clients because they respond.* Some of the staff participants expressed that with those few clients that they had established contact, they had been surprised to see that even when their responses were short, at least they had a second response. Some of their responses reflect this reality:

“Clients don’t usually get back, period. It doesn't matter if it’s email or text or phone calls, so it’s just another form of communication”, “I haven’t got a lot of clients that have said that they want to be texted, but I can see them answering a text maybe sooner”, “I phone them on their cell phone and leave a message and they very rarely ever call back. So, let’s say those I texted...if I would have phoned them, I would have maybe not gotten a reply, with me texting them, they actually reply back”, “I think that it’s an important concept that we’re introducing into the care Centre. The experience I’ve had with it is infrequent. In our new forms now, the client ticks off whether we can follow up with them by phone or text. So where they said text, I would text”, “one client replied, ...this gentleman was married actually, and in his one text he said that *the reason* he did not respond right away was because their basement had flooded, and that distracted them completely from the text.”

Depending on the client and the staff, texting at PCC can promote connection. The **thematic phrases** identified in this sub-category were: *Some staff*

were disappointed because their clients did not respond to their texts; opened PCC's eyes to clients that get support only through texting; staff needs more time to know if text connects / supports clients, and some new clients don't know staff enough to open a personal conversation through text. Some of their responses reflect this reality:

"I enjoy doing it, and I am trying to follow the instructions and get it started and write my little message, and also there's a sense of anticipation. The few times when I have had, like opened it up to see if anybody's replied, I'm kind of 'did they reply? did they reply??', so yeah there's that sense of expectancy... but there was no further connection, so I must admit that did discourage me", "I'd have to say, I did not connect, because, it's a one way conversation. I'm sending them messages, and I'm not hearing back. So, I feel I'm talking into a vacuum", "It is a good tool to have, I think... um... one client that I connected with, through a difficult situation... she may have not responded had it been an email or phone call. So, if it... if it's one person, it's worth it", "since we've had the program, there has been some clients, like I can think of one of them in my brain where they didn't do anything other than texting and so, we would not have been able to communicate with them unless we had the option for texting, so that was a really big one for us. Now, we're able to do this, we're able to you know, meet them on their level and how they communicate."

PCC could connect with young adult clients through cellphones because it is confidential and accessible. The **thematic phrases** identified in this sub-category were: *Young adult clients are connected to their cell phones at all times; one client communicates through text exclusively, and text has a great potential to develop trust because it is confidential and the issues that bring clients to the Centre are confidential.* Most counselors, including the staff coordinator, recognized that text messaging is a service that could provide a tailored service for some clients that only communicate through text. Some of her responses elaborate this reality:

"I think we are at a really beginning stage right now...and sort of trying to work out the glitches and the issues, so we're not seeing the full potential of it at this point", "some of the other clients...if there was confidentiality issues with other people finding out about their information, they still haven't told people about certain things, then being able to text them is a way that they were getting that information secretly, without a phone ringing and somebody else picking it up, so I think those being able to text message has kind of opened up bigger possibilities for our clients to communicate, even on a level that is maybe more confidential., I think that we'll see more, and I think that from what I've seen that's been a really good thing", "I have seen, well, specifically with that one client who didn't do anything other than text, we wouldn't have been able to communicate with them, so, it did make a difference."

Some staff beliefs about texting are starting to be challenged by the first results of the pilot at PCC. The **thematic phrases** identified in this sub-category were: *I have no answers through email or voice messages, but some through text; I do*

not believe any media worked to get them calling back, but I had some success with text, and it works but not all of them want to text us back. Some counselors also started to reflect and recognized how text messaging, when it had been used at the PCC, had provided a connection that did not happen before through other traditional or new medias. This has brought up questions in them, which is reflected in some of their responses:

"We've done emailing to...and I've never gotten a reply back, but now with these two clients I texted, two of them sent me back a reply. Which, actually, three sent me back a reply, right? One saying, *don't text me again*, the other two just saying *I'm okay*. ...I don't know, maybe texting is better", "So it could be that texting for the future, might be a better way of connecting with our clients.....than emailing, or phoning, but the thing is, that not everybody wants you to text them, right? So, again, it's totally a personal thing", "It could be that for them, I can't speak for them.. but if we didn't have such a thing called text, maybe they would have replied to the emails, maybe those same girls would have replied, so... it's hard to say" .

Category 2. *The nature of the centres work and their clients, demands a specific use of texting at PCC*

All staff participants expressed that texting services at the PCC needed to integrate with the aim and work that the agency is able to provide. This is reflected in the identified **sub-categories**:

- *Texting at the PCC could focus on contacting and bringing new clients to the Centre*
- *The way texting works at the PCC needs to incorporate the immediacy of technology and work practices*
- *The software and the training need to be more personalized*
- *Most clients at PCC only reply to text messages when they are close-ended questions*

Texting at the PCC could focus on contacting and bringing new clients to the centre. The **thematic phrases** identified in this sub-category were: *Texting is not for conversation but to REMIND clients about the Centre; texting is convenient, portable, and accessible; I cannot spend the whole hour texting, I have other stuff to do, and texting can help do follow up with regular clients.* The staff participants expressed that this pilot has provided them a preliminary knowledge by recognizing and suggesting ways where they see how the convenience of mobile phones and services such as text messaging, could support their work and their client's realities. Some of their responses reflect this reality:

"The strength of texting is that I'm calling clients in the middle of the day, and they're either at school or working. They're not always there. And so, when that happens, I need to get up and go do a text to them, which I have not been doing. So that's where I think I haven't used text as much as I could have", "texting could be beneficial for reminding somebody or even keeping in touch with somebody who is more regular: they know they are pregnant, they know they are keeping their baby. Maybe you could text them and say *how you are doing?* You know, kind of that way", "I think it's a great means to just send out little reminders, little things to the clients, but ultimately, I wouldn't want to have like, a deep conversation with them through text message", "when clients phone, you try to give them more information, yes, texting is okay, but you know, we are so much more. We can offer you what we can't text about. I mean is just the time to expend on the texting, but when you come to the Centre you got an hour, right? I am not sitting here and texting for an hour, you know, because I could be doing some other things".

The way texting works at PCC needs to incorporate the immediacy of technology and work practices. The **thematic phrases** identified in this sub-category were: *Texting at the PCC needs to be in real time, personal, accessible and portable, and currently that is a challenge and the current way the software works at PCC is not useful for immediate response.* The agency, through its volunteer coordinator, expressed via this subcategory, the preliminary knowledge that the software installation at PCC helped them to realize and how texting services could improve in the specific context of the PCC. Some of her responses reflect this reality:

"I think that the best way text could work at the Centre is if all the counselors had their own cell phones, or their own devices where they could text the clients, then they're not having to wait on a text message coming in that's here at the Centre. They have that phone on them and then they're able to have more of a back and forth communication", "even though we have a laptop set up, it is stationary here at the Centre, right, so it's not like they're taking it home or whatever the place may be. So having those cell phones and being able to text those clients whenever that text comes in... I think would open up more doors for best communication in regards to text messaging", "so that connection keeps on flowing", "I think our biggest barrier, though is how much that would cost, and having people who are volunteers, having the Centre's cell phones, and how does that look, and what are the rules behind that and would that even work".

The software and the training need to be more personalized. The **thematic phrases** identified in this sub-category were: *The way the software is set up doesn't make texting interactive at the PCC; training in texting one on one is helpful and required for the long term, and the software and instructions sheet need to be more user friendly for newcomers to texting.* Most of the counselors expressed a need to tailor the software functions to PCC needs and their individual work practices, since most of them did not have time to check the laptop where the software is

installed at the PCC or are not familiar with using a software like FLSMS, that is interactive and required basic knowledge of platforms like MS Office.

As well, it was noticed that for a few counselors, social media concepts such as free text messaging services accessed online or through software, on a device that was not the mobile phone, were new and confusing. That was revealed through fellow staff volunteers that humbly asked the researcher if they needed their mobile phones on to be able to text through FLSMS or if Twitter and texting were the same services. This reality is reflected in some of their responses:

"I think you've got different grades of students here at Pregnancy Care. You have people like myself who are raw beginners, and you have others who have texted and are very comfortable with it, and they are also comfortable with a computer, so they would have no trouble, really, using the tools that you give them. So I guess what I'm saying is that as you look at your audience, that you need to realize that you're going to have to spend more time with some than others, just because of their ignorance of the whole system. It would mean coming in on the days the newcomers like myself are coming in, and pushing us", "I think maybe the only thing was the instructions sheet. They need to be a little more user friendly, kind stuff what to do what not to do, and another thing too that I found, is as I turn on the computer, I think it will be nice if we have the computer open for both the email and the texting, I think it will be beneficial, With good lighting, so when I am doing, you know, I can see <laughs> I think that it'd be really nice for it to just be an ongoing interaction. That, because of the learning curve for the counselors, the way that it's set up, it's hard for it to just kind of bounce back and forth like that."

Most clients at PCC only reply to text messages when they are close-ended questions. The **thematic phrases** identified in this sub-category were: *Clients are more prompt to reply to texts when they have specific questions; staff who sent lengthy messages received no replies and assumed there was no connection, and I do not know why they don't reply but I do not ask them either.* Most of the counselors expressed noticing, without understanding, that most of their clients text them back when the messages were punctual, short, and more close-ended questions. The researcher also observed that most of counselors did not follow the protocol, read it, or remember these instructions, and some of them sent messages that required three texts. This was reflected in some of their comments:

"Something that I notice is clients replying about a specific question that the counselors have asked. So, if the counselor asks, did you get... did you find a doctor and make an appointment... or, did you... So if it's a yes or no answer, something that's quite clear... I find that they will text back, but if it's something more like, haven't heard from you in a while, just wondering how you're doing, it's very kind of open ended... and yea, we don't find as much feedback for those type of questions", "I haven't had a reply yet <laughs>", "why they do not text back? Did they tell me? That's a good question; I can't give you a definite answer there, perhaps because I never asked them".

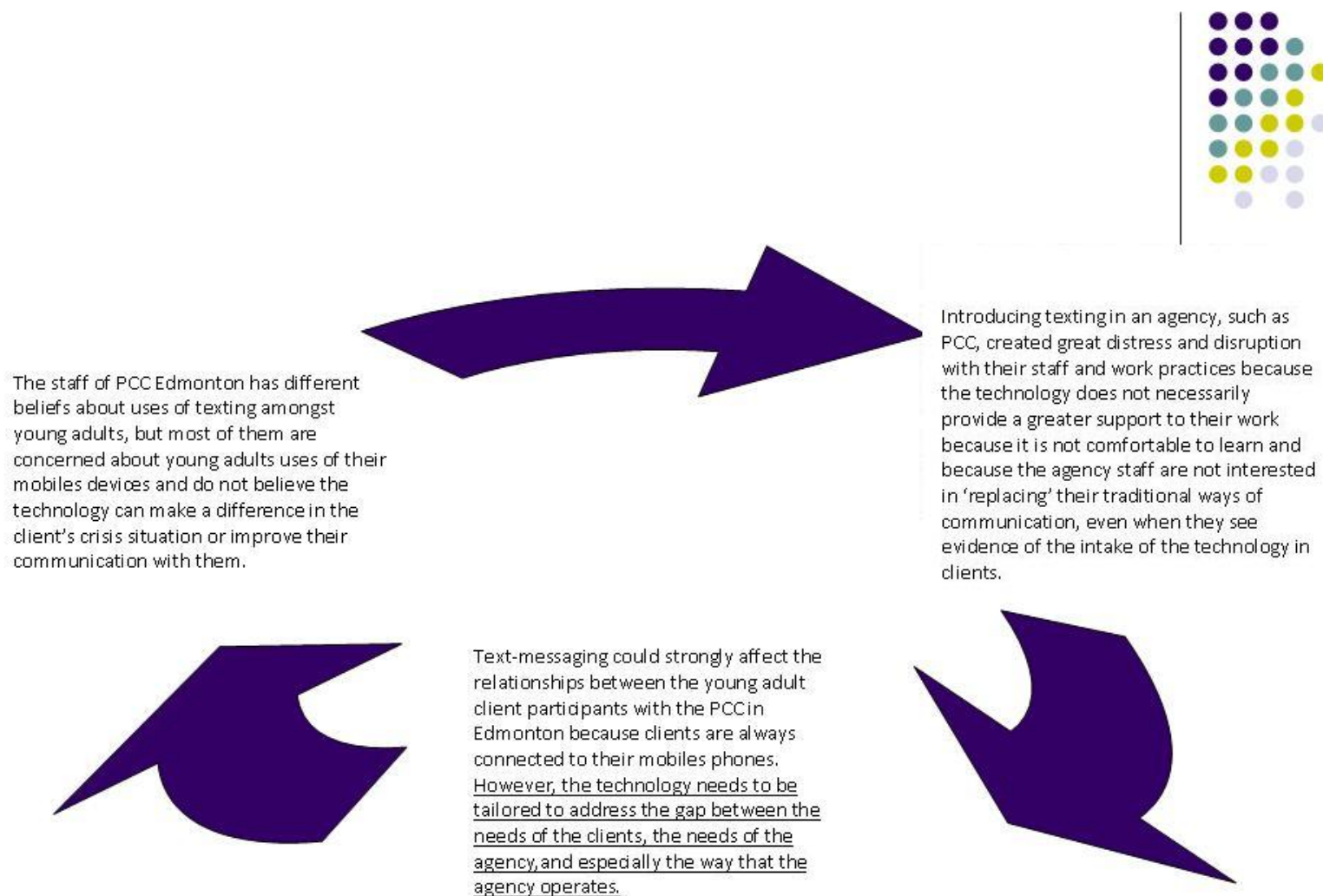


Figure 4-8. Themes identified from the staff participant results.

4.5. References

- Atkinson, P. & Hammersley, M. (1998). Ethnography and participant observation. In N. Denzin & Y. Lincoln (Eds.) *Strategies of Qualitative Inquiry*. London, Sage
- Boulos, M.N.K, Wheeler, S., Tavares, C. & Jones, R. (2011). How smartphones are changing the face of mobile and participatory healthcare: An overview, with example from eCAALYX. *Biomed Eng Online* 10: 24.
doi: 10.1186/1475-925X-10-24
- FrontlineSMS (2011).
Retrieved from: <http://www.frontlinesms.com/the-software/frontlinesms-version-2/>
- Government of Alberta (2012, July). *Distracted driving legislation (Bill 16)*. Retrieved from the Ministry of Transportation website: <http://www.transportation.alberta.ca/distracteddriving.htm>
- Mayan, M. J. (2009). *Essentials of Qualitative Inquiry*. Walnut Creek, CA: Left Coast Press.

Chapter 5. Discussion of Results

The aim of this study was to gain understanding of how the adoption of a new means of communication, such as text messaging, could impact the relationship between a non-profit agency and its young adult clients.

These results contribute to the small amount of research that has been done in Canada using mobile technologies for healthcare, and also more specifically, the use of mobile phones to support health campaigns that enhance the sexual health care of young adults. To date, no studies have been developed in Canada in this area. Since this is an exploratory descriptive study, it is important to mention that the analysis of the data did not have a pre-determined theoretical framework that narrowed the findings. However, the categories that were established from the literature review guided the discussion of the findings of this research.

The research question that guided this study was “how could text messaging improve the relationship between young adults in Edmonton facing unplanned pregnancies and an agency that provides pregnancy health information support?” By triangulating the results from the pilot reports, the staff counselors, and young adult client participant data, it appears that the technology is indeed a medium that can create, support, and improve the relationships between the clients and the agency because it can fill a void by offering this resource in the city, providing local access, and specific tools to support client’s needs in unexpected ways (see Figure 5-1).

The categories found in the results of this study (see Figure 5-2) revealed that when the PCC Edmonton introduced texting services, they created a bridge to being ‘present’ and reachable for specific clients who are always ‘connected’ to their mobile phones and who mediate their networks, communities, and relationships including those related to sexual health care and pregnancy care, through mobile phone services such as texting. However, these categories also indicate that in order to establish a relationship with clients through their chosen communication medium, the text messaging service at PCC needs to offer valuable and tailored information. Two categories highlight those expressed needs:

1. Innovation: by offering access to a local service that is not already in use and that can be acquired for free through Smartphone applications.
2. Negotiation: by validating client’s usability concerns and rituals of exchange in their mobile phone services (on their terms).

These categories also revealed that the relationship between the agency and clients is mediated and affected directly by staff feelings, beliefs, and wants related to the use of mobile phones or technologies, and specifically text-messaging at PCC.

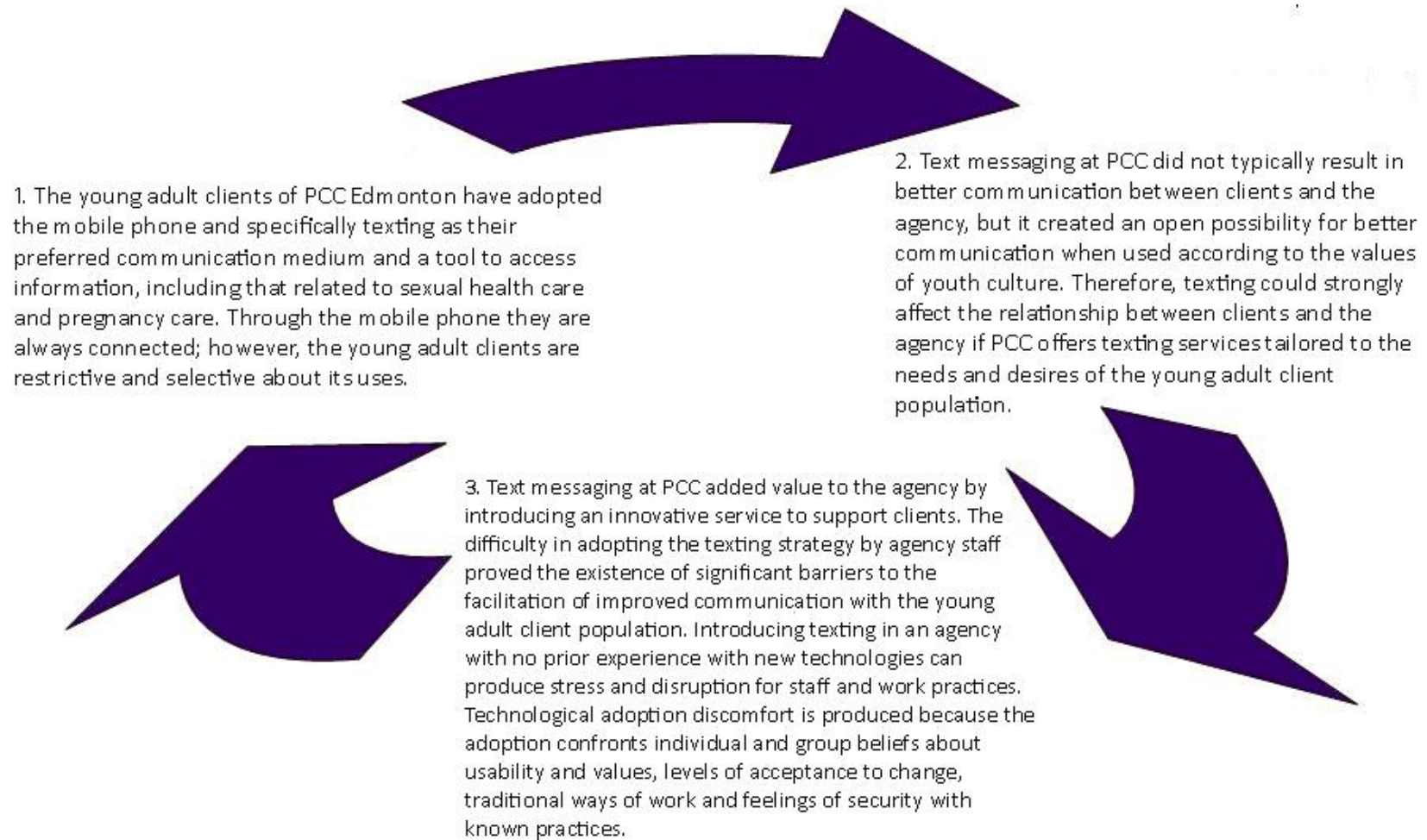


Figure 5-1. Findings of the case study.

RESEARCH QUESTION: how could text messaging improve the relationship between young adults in Edmonton facing unplanned pregnancies and an agency that provides pregnancy health information support?"

PILOT RESULTS:

- Category 1: Texting services at PCC provided a new resource for the technological need of the agency and the community, and this was achieved because they trusted the researcher
- Category 2: Texting provided support in unexpected ways
- Category 3: Measure of success and technology uses were different for each participant.

YOUNG ADULT RESULTS:

- Category 1: Text messaging and mobile phones are a familiar means of communication for young adults in Edmonton
- Category 2: Text messaging with the PCC or any formal institution is on the client's terms
- Category 3: Text-messaging at the PCC provides a new access to local information and services
- Category 4: Mobile phone and texting provides the tools for client's specific needs.

STAFF RESULTS:

- Category 1: Depending on staff familiarity with texting, some are disturbed by client's uses and others feel okay, but all staff feel they are competing with the client's phone for the client's attention
- Category 2: Texting has impacted the agency directly and the staff users indirectly because of differing degrees of knowledge in the technology and the learning curve
- Category 3: Staff feels that the way the service is set up does not support their clients reality and their work practices.
- Category 4: The short-hand guide has added value to the knowledge that PCC has of the "new generation"
- Category 5: Staff are not interested and have resisted using texting at PCC because most prefer to use the phone.

Figure 5-2. Categories exposed from the sources of information explored in this case study.

These results revealed that the degrees of staff knowledge of the technology and their learning curve at the agency needs to be addressed and recognized by the agency in order to shape PCC's capability to reach the digital clients.

Furthermore, the results of this exploratory study revealed that the possible relationship that a technology can mediate is related not only to each participant's understanding of the technology but also to their cultural, socio-economic, environmental, and individual characteristics, such as beliefs and values, knowledge,

physical and mental attributes, ethnicity, identity and gender amongst others.

Characteristics of the technology also affect characteristics of the user. These areas are partially explored and described through this study and were exposed by the subsequent questions that explored more deeply the initial research question:

- How does the mobile phone affect the perceptions and attitudes among young adults in Edmonton toward sexual health care networks?
- How is the introduction of text messaging at a pregnancy support agency in Edmonton perceived by its young adult clients?
- How does the introduction of text messaging impact the staff capacity and work practices at PCC.

The findings explored through these questions appear to be connected to previous research done in the Technology Acceptance Model (TAM), by Wixom & Todd (2005), and are linked most directly to the recent Proposed Model by van Biljon & Kotzé (2008), and the model of usability described by Ford & Kotzé, which integrates cultural dimensions to the adoption and usability of information systems. This includes the TAM model, diffusion of innovations, and domestication theory (Silverstone & Haddon, 1996). Van Biljon & Kotzé connect beliefs and attitudes toward technology, and behavioral beliefs and attitudes towards the adoption of the technology with social aspects and environment and cultural dynamics such as ethics, beliefs, mental models, status, ethnicity, user characteristics, knowledge, financial constraints, amongst others (see Figure 5-3).

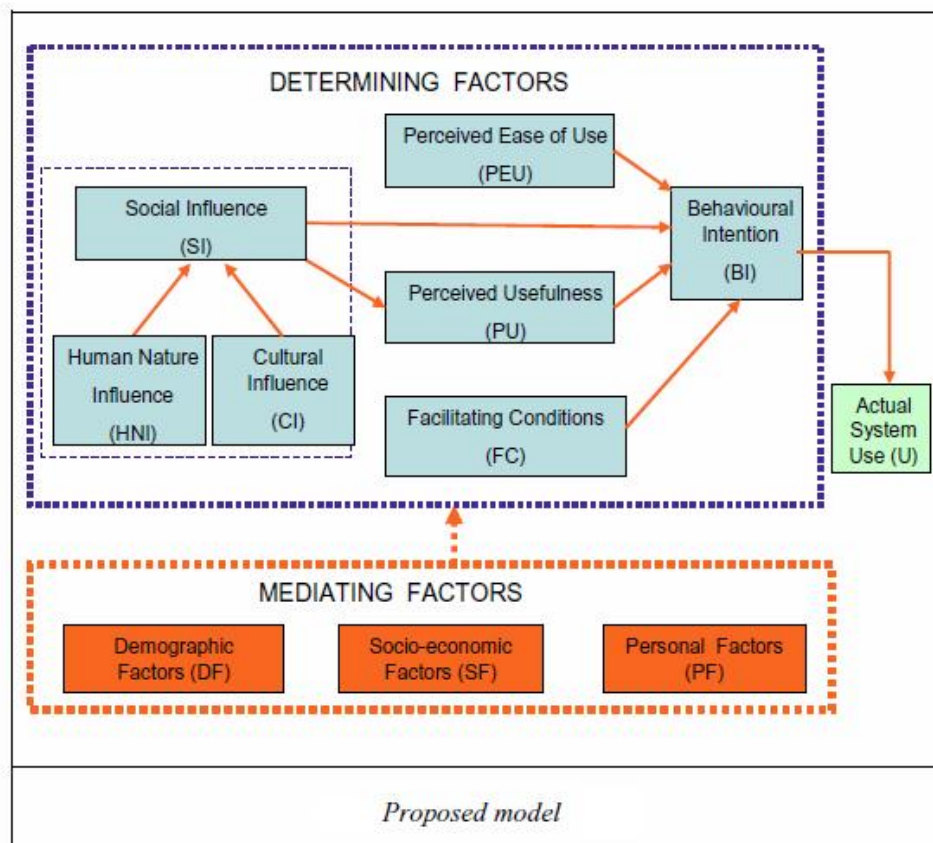


Figure 5-3. Model of technology acceptance and the mediating factors influencing the adoption by van Biljon & Kotzé (2008, p. 2668).

However, the results of this study have shown that in the case of the PCC Edmonton and the introduction of text messaging to enhance the relationship with young adult clients and the agency, there is a clear difference between the client participants and staff participants in terms of the use and adoption of the system.

Thus, in the case of the young adults, as opposed to most staff participants of the agency, this study exposed that this population is experiencing a post-adoption phase of the technology (mobile phone), where there does not exist a need to adopt the system (texting), but a need to understand the variables that are defining the young adults use of the technology, including receiving text messages from the PCC Edmonton. These variables are also explained broadly in the extended literature of TAM, by Davis et al., (1992), Venkatesh & Davis (2000), Wixom & Todd (2005). These authors stressed determining factors such as perceived usefulness, perceived ease of use, and perceived enjoyment of the technology as variables that determine its continued usage. Van Biljon & Kotzé (2008), and Ford and Kotzé (2006) complement their views by exposing and

relating to these variables, personal factors (e.g. levels of use, satisfaction), and cultural factors, that not only determine the continued usage, but the user's communication choices and commitment to the system. These cultural factors seem to be present in this study as well.

5.1. Post-adoption variables that describe some of the young adult clients uses of texting and why currently does not function at PCC

5.1.1. Users personal variables

Beliefs & values about the mobile phone medium. In the case of the young adult clients that participated in this study, mobile phones are a fundamental part of their lives, especially text messaging, which is their preferred communication tool to connect 'always'. The results of this study confirm what other studies, such as Skierkowski & Wood (2012), Subrahmanyam & Šmahel (2011), Malikhao & Servaes (2011), Rice & Hagen (2010), Jones et al., (2010), Thompson & Cupples (2008), Tapscott (2008), amongst other authors, found about the bonded physical, and in some cases, spiritual relationships between young adults and their mobile phone devices. Observed expressions of disregard to the service (receiving a text) contrast with levels of interest depending on the content, confirmed that for these young adults the technology has become, as they expressed, 'mediocre' and habitual. This realization, in the light of the demographic data, makes sense since some of these young adults have incorporated mobile phones and texting services from young ages (some had their first mobile phone when they were 12 years old).

These results also indicate that mobile phones help young adult clients to connect to Google, which is what most people, including myself, use to find basic information these days. The difference is that through their devices, they are able to reach this source at any time.

Attitudes towards identified usefulness and self-efficacy. Listening to the young adults experiences with their phones put into perspective the convenience of the device, especially the Smartphones. They have identified that through the mobile device they not only can communicate and connect quickly, but are also empowered with skills that are achieved through the technologies services. These skills vary according to the type of phone they own. For example, some of the young adults that have smartphones are able

to consume services and produce / share services with others at the same time, which is not the case of those who own regular mobile phones.

These clients are gaining status and responsibilities amongst their close circles because of the ‘organizing’ skills that the device allows them to display, as was the case of one of the clients who shared being the ‘one in charge of the bills at home’ because through the phone she is more organized than her partner. These results are also recorded in international literature that identify mobile phones as a source of independence, capacity, and negotiated control that did not exist before (Lenhart, 2012; Söderström, 2011; Rice & Hagen, 2010; Caronia, 2009; García-Montes, Caballero-Muñoz & Péres-Álvares, 2006) . My recorded personal reflections also expressed this idea:

“That is so AMAZING that she can check that info on her phone and it is FREE. And wow, she is organized! I am getting ideas for myself here.... and I should get that (an iPhone) with my husband, it is so awesome that she doesn’t miss bills because of (texting) reminders!”

These statements also helped me to realize that my unacknowledged belief that mobiles were ‘non-essential’ was challenged by the client participant’s value / belief. This happened as a result of their shared experience with the Smartphone and with texting services. My perception of the mobile phone was changed by the ‘instrumental’ benefits that I observed in clients owning a device. These clients showed how extremely useful mobile phones are to communicate with others because they are easy to use and have unlimited access to people and information. The mobile phone becomes extremely convenient, because its services are desirable to my observation, as Davis et al. (1992) predicted it would influence me. Some of my comments in my personal reflections express these ideas:

“I owned a mobile phone before, but I recognize that being disconnected now has affected my perception, not only about how functional it can be, but what I believe about cellphones...I am surprised <smile> that I can say after this study, that I would like an iPhone and I may be wrong in my previous conclusions”.

The communication preference. Most of the young adult clients of this study revealed that mobile phone services, such as texting, are not only a way to connect with loved ones and access valuable tools, but a way to reach their support networks.

Mobile phones have become necessary to access networks, such as sexual health care, and this is true regardless of the place where an individual is physically located (e.g. Edmonton or Canada). This is supported by literature in Canada by McEwan, and

globally by authors like Nurullah (2009) and Holmen (2009). It is also supported by the statements of client participants, who confirmed the global concept of living in a society that operates digitally, and which is accessible through their mobile phones.

I would never think about texting someone in an emergency. I think I just realized that perhaps, without a mobile phone, ability to communicate in an emergency would be limited.

“Also, the idea that landlines and voicemail are obsolete forms of communication for this population of Edmontonians surprised me, because landline phone is my primary means of communication!”

5.1.2. Socio-cultural variables

Social fabric cohesion related to mobile phones. The young adult participants answers demonstrate that the mobile phone itself has become a hub of social cohesion for users and has the capacity to support its users in tailored and free ways, so much so that it questions the usability and validity of social initiatives that do not include digital networks. This reality has been documented cross-culturally, which means that the relationship between young adults, their mobile devices, and its affects can be generalized in different cultural contexts, as Söderström (2011) highlighted. The results of this study add to the extensive literature review of the acceptance of the technology by this generation, in this case in Canada. Specifically, it demonstrates that the young adults that participated in this study⁸³ use their devices to communicate exclusively, and their communication is mediated through the mobile phone and its services, such as connection to internet, social media, text messaging, voice calling, amongst other features.

These results corroborate the findings of Lenhart et al, (2010), Rice & Hagen (2010), Green & Singleton (2009), and Ling (2007) who suggest that the mobile services used by this population represent what they call the digital version of “relational rituals”, referring to the social constructive theory of Gergen (1999). Thus, levels of intimacy, trust, and acceptance are exposed according to the value that they (the users) give to each mobile contact. In the case of this study, the findings connect to recent literature (Pea et al., 2012; Haverila, 2011; Coyne et al., 2011; McEwen, 2010) and demonstrate that in Canada, young adults have reinforced their ties with family and close friends through mobile phone services. Because of this closeness, texting becomes “the ritual” to express the meaningfulness of their relationships (See Figure 5-4). These rituals were spoken of by most clients who clearly expressed that texting is used ‘for family, friends, or peers’

⁸³ It is interesting that Edmonton youth who participated in this study were not all Caucasian.

and how through mobile services, such as texting, they are able to connect with loved ones on levels that were not possible without the device⁸⁴, improving and enhancing their already established relationships.

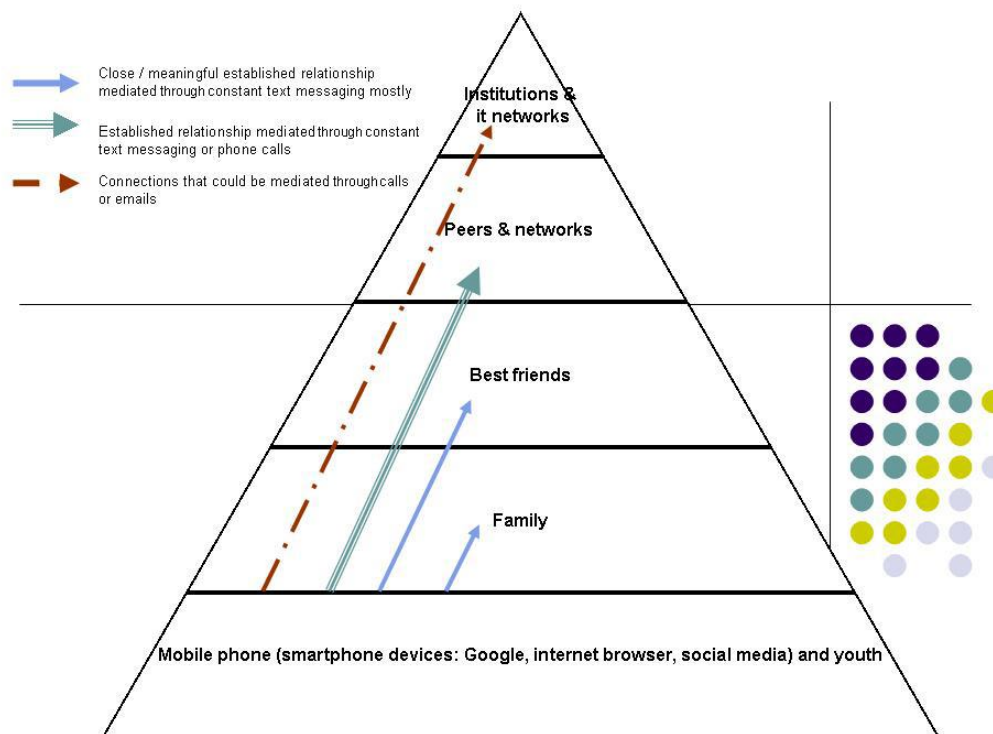


Figure 5-4. How youth in the 21st century mediate their relationships (adapted from Literature review, see Chapter 2)

My personal reflections support conclusions concerning the way mobile phones facilitate social cohesion:

I do not relate with the experience of mediating my life through a device and I accept that I am being disconnected from services and networks that could facilitate my life in Edmonton as a consequence (e.g. receiving a text with the time the bus arrives in winter or being perpetually connected with my loved ones that I can not physically reach).

In the case of the relationships with the agency or the counselor, it was not clear if they belong to a relational category (as shown in Figure 5-4), though what was clear is that the relationship with the Centre is limited. The way PCC approached its young adult clients through text-services was perceived by most of the clients as inappropriate for the relational rituals that these young adults had established through mobile phones. This

⁸⁴ Because of physical limitations such as distance, time or space.

information, combined with data from the results, reflect relational patterns that the clients have with the figure of “counselors”. These patterns are translated to the digital sphere. The young adult clients of Edmonton value their privacy, and it would not be surprising that they would find it awkward to be contacted by the PCC to chit-chat, if they did not initiate or request this form of communication.

The current way that texting operates at the PCC is inappropriate for the relational rituals that young adult clients in Edmonton have established through mobile phones and because of this reason; texting at PCC has not been embraced by its clients.

Despite this, it is interesting that some young adult clients who participated in this study were texting with teachers, or constructing networks of education with teachers through the technology. This is contradictory to the notion the literature review exposes regarding an avoidance of texting with institutions, and suggests as a hypothesis, that the technology has “leveled the playing field”, and influences students to relate to their teachers as peers. This can be connected to the literature relating to uses of mobile devices for education (Plester & Wood, 2009), (Pinker, 2007), (Halliday, 2003); however these are primary observations that will need further an extensive exploration in Canada.

These results lead towards a conclusion that the young adult clients of the PCC decide how, when, and with whom they will communicate, which includes formal institutions, such as the PCC Edmonton.

Mobile culture. Mobile phone use creates relational boundaries between users. This has been recorded in international literature; (Taspcott, 1998; Lenhart et al., 2012; Cooper, 2009; Walsh et al., 2012). Mobile adoption can divide people by usability and ownership. The fact that one of the client participants told me that she thought we were the same until I told her that I didn’t have a mobile phone, made me realize that somehow not having a mobile phone truly was creating an unspoken division between us. This is reflected in my journal notes:

I felt that without a mobile phone, I was outdated and worse, excluded. This made me feel different because even when I shared some of their feeling of the “coolness” of being able to be contacted so easily, I did not relate to any technology as an omnipresent entity or something that defines me.

Local social conventions for texting. Fortunati (2002), and Johnson et al. (2011), express how mobile phones have changed concepts such as space and time, and created new rules of interaction and competences for interacting with others.

With the young adult clients, this was observed in terms of how they use language through text messages. It was learned through the pilot that the mobile culture, at least in Edmonton, does not necessarily use short hand, or are comfortable using it. From my observations I came to the conclusion that this is a result that could vary from what is often seen across the globe. The results of this study suggest that in Edmonton, texting language could be used and valued differently by different ethnicities (Caucasian, Afro-American, First Nations), and other minorities. For example, in this study the Caucasians participants value text messages that are properly spelled as a sign of intelligence. It was observed, as well, that those participants that belonged to minorities such as Afro-Americans or First Nations do not assign as much value to the user as to the usability of the short hand.

Mental models. Patterns of thinking, assumptions, and feelings were revealed by the young adult clients towards the mobile phone, its services, and how they should work. This is aligned with the cultural characteristics described by Ford & Kotzé (2006), and Van Biljon & Kotzé (2008) in their model of mobile adoption. Some of these individual models are identified in the clients extracts:

“Until I go to bed I am connected”, “I look in Google for everything”, “everyone has a cellphone”, “If I need information I will call”, “I do not really have a personal RELATIONSHIP with PCC <to text>, and I want it on my on time”, “it does not seem that professional, because she is a teacher” (young adult client participants, personal communication, 2012)

It is interesting to describe that in the case of the young adult clients, these mental models vary according to ethnicity.

5.1.3. Environmental Variables

Economic Context. This study also reveals that as Canadians, economic affluence has resulted in near universal internet access, with the possibility to acquire newer and better technologies that may change the way that social construction, communities, and networks occur. For example, as opposed to the case of young adults facing unplanned pregnancies in Africa, where there is little access to the internet, and where texting campaigns have enhanced or created useful networks among these populations, (Banks, 2001; Nesbit, 2010), this study has initially revealed that the young adult clients in Edmonton have access to unlimited digital networks through their devices. Thus, the need and expectation for physical peer support is different, because of the

resources they have. This reflection must lead us to consider how adoption is also based on the economies of countries, and the stability of those economies that permit constant usage and access.

5.2. Variables that describe the staff participant's stage in the adoption of texting at the PCC

5.2.1. Personal variables

Beliefs & values about the mobile phone medium. For the counselors, the mobile phone is a rival for the client's attention when they are at PCC, and most of them seem to believe that the technology is unhealthy, trivial, and produces addictive behaviors. These beliefs appear to be related to their individual experiences with texting and their individual adoption or rejection of the technology in their personal life, as some counselors value texting as a tool of communication and other disregard or reject it uses. Some of my personal notes reflect these ideas:

She is right; the mobile phone doesn't give you the real thing... the real connection with someone. I reject the technology as she does, because it makes you rude. She asked me if it's fair that someone is texting in front of you while you are talking to them. I could not respond... I do not want to formally agree, but ...yes, it is awful.

These statements are connected to previous studies by Tapscott (2008) and Rheinhold (2000) who presented concepts such as virtual communities and generational differences and divisions created by the influence of technology on people's lives. Comparing Tapscott and Rheinhold's discourses with the findings of this research made me realize that the client's beliefs about mobile phones could be associated not only to their personal characteristics such as type of personality, preferred ways to communicate and relate with others, feelings and notions about relationships, and experiences of connection, but also to how much the generational division, marked by technology advancement, has played an even stronger role in their personal beliefs.

Mental models. Patterns of thinking, assumptions, and feelings were revealed by counselors towards the use of mobile phones at PCC and in life. These patterns, related in the literature to nonprofit organizations, influenced by technologies (Zorn, Flanagin &

Shoham, 2011), are expressions of values and personal / organizational interests. Some of these individual models are identified in the clients extracts:

“being in contact with everybody all the time is unhealthy and unnecessary”
 “texting is an antisocial thing now”, “the business that we do, we want to be face to face with clients”, “texting is an addiction”, “if the client has their mind set already, nothing is going to really change their mind, unless they want”, “I DON’T BELIEVE you have to text them to reach them”. (Staff participants, personal communication, 2012)

Also, some staff participants expressed feelings of discomfort (some quite strongly) with the behavior of young adult clients texting at the PCC. Others were impartial. It was observed that the latter group were the staff who usually did text on a daily basis. I believe that this level of neutrality was also due to their level of comfort with the technology.

Identified usefulness. Through this study it was identified that most of the staff participants believed, either through knowledge gained in their experience with clients, or their personal reflections, that in the specific stressful reality that most clients go through during unplanned pregnancies, the power of a unique resource such as texting could not guarantee better communication with them. Counselors at PCC understand communication as the ability to be able to establish a meaningful or helpful connection with their clients, and usually in their experience, this only occurred in face to face or over-the-phone interactions.

However, I believe that the results reveal that a misunderstanding or bias exists in the adoption of texting technology, as if the medium would replace traditional communication channels at PCC, even though it was formally discussed during the training that this was not the purpose of the pilot. This perception of usefulness is linked to pre-conceptions or assumptions (discussed above) that limited what they were able to identify as effective in the technology, and confirms what van Biljon & Kotzé (2008) and Cherubini et al., (2011) called the “lack of knowledge” due to the user’s personal perspectives. The feelings and thoughts that I was experiencing at that moment of the research reflected how the staff’s perspective of usefulness confused me:

I feel sad and wonder about what they believed about texting; if it is not useful, is it my fault? Why did I bring something that would not be useful to the Centre? I feel hopeless and wondering if the FLSMS was the right thing for PCC.

Curiously, some of my observations identified that when these preconceptions were challenged by influential figures, such as family, the staff saw the usefulness of the technology, as recorded in my journal and some extracts:

“I want to learn because my daughter texts all the time, even when she is sleeping, and I want to understand her behavior”, A counselor texted with family members nine times and was very excited when they replied to her”, “Most of the messages reported in the software are related to testing between the volunteer coordinator and counselors”, “after the training, some counselors expressed great interest in learning about texting to use with family members.

Behavior toward technologies. Text messaging at the PCC revealed a service gap and requirement for potential clients who will only interact with the agency through texting services. However, this realization was confirmed by the few staff who were confident enough to use the software. Most staff found texting challenging, as it was a new experience for them. Due to their lack of knowledge and comfort, most staff did not even try to use the software. Others attempted to use it with difficulty as is reflected in my personal journal notes and counselors comments:

“I was calm when the error happened, because it happened to me before at the MARS Lab, but Lori was so confused and scared for both of us... she thought we were in trouble!.. I wanted to explain that this happens often, but I realized she doesn’t even know how to use the mouse. she says: using this laptop frustrates me...the system should be friendlier and keep it simple”

These behaviors inhibited the uptake of the texting medium at PCC, and limited what we were able to understand about the technologies adoption. Rogers (2003) called this inhibition a decision to “fail to adopt” (p.17). In light of these results, it is important to understand these behaviors since they will continue to affect the agencies ability to incorporate new technologies in their practices, as was predicted by Davis et al., (1992).

This study shows that at the PCC, staff use communication mediums as tools to relate with their clients, and prefer to stay with what works, especially one-on-one counseling sessions (Figure 5-5). However, the results contradict their experiential knowledge. Even when texting services have not been fully implemented, the initial use revealed aspects of the PCC that were not known before. For example, through the communication channels traditionally used, clients were unlikely to respond to follow up contact attempts. With text messaging, some clients did reply to similar follow up inquiries.

Some counselors were able to recognize how text messaging had provided a connection that did not happen before through other traditional or new medias. This created an inquietude or questioning in them. It surprised me to realize that one of the staff participants felt so comfortable using the device that she was communicating through her phone, with other staff members at the PCC, and individually with clients.

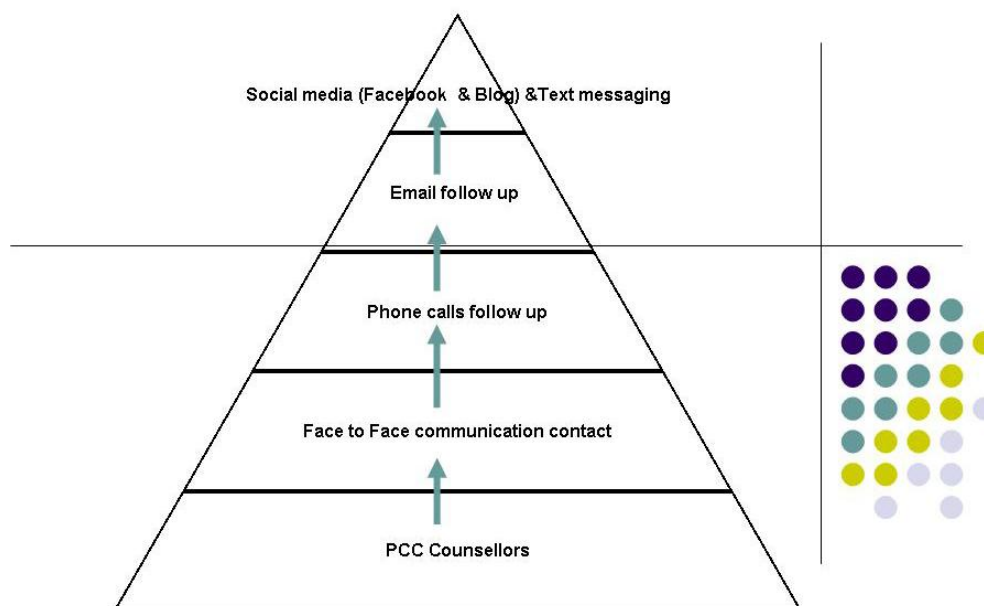


Figure 5-5. Communication mediums most valued by PCC staff for the purpose of establishing relationships with clients.

Complexity of texting at PCC. For most staff participants, the technology was not easy to use, and this experience seems to have affected the staff and volunteers notions of change and expertise towards the adoption of texting. PCC counselors are experts in their field, but the complexity of the new technology put them in the position of apprentices. This appeared to be challenging, given their normal roles, work practices, and pressures and it confirms that in the case of non-profits that experience greater ambiguities and pressures compared to other organizations, the ‘initial’ complexity that an innovation can involve, overshadows the desire or initial adoption. This was also what precipitated the unspoken belief that text messaging was a dismissed service at the agency.

These observations helped me to realize that texting had impacted the agency, but had not yet fully impacted the experience of volunteers and staff, since they were not yet

embracing it. These results compliment the TAM model and suggest that the complexity of a technology is a determining factor in adoption. In fact, even the perception of complexity has the same affect.

Different staff participants of this study also had different levels of practice and experience with texting technologies, which may have contributed to their learning curve or desire to learn. Some of the staff participants were very familiar with texting, and others were not even familiar with how to use the laptop. Some of these experiences were reported in my journal notes:

Several errors with the software frighten some counselors that are inexperienced with current common technologies...When clients have experience texting; it is funny to see how they behave with the technology... If the counselor is not tech-savvy, this service could be more a challenge than a help...Some counselors, especially those over 40, required more training, but did not always request it. They were also more reluctant to use the software on the basis of their volunteer experience...It is true that it is difficult because of the laptop, and they are not familiar with it.

The results, in the light of referential work from technology adoption, such as Davis et al., (1992) and Zorn et al., (2011), support a hypothesis that apparent complexity could be mediated by unpleasant first impressions. This is the case where some staff participants and I had seen a side of the technology that may have discouraged or influenced our capacity to see its potential, to overcome the learning curve, and to focus more on the complexity. This study has started to challenge this perception, as was recorded in my journal notes: *She (the counselor) is recognizing at this point the need for change at PCC because she sees that the technology actually works, and I do see it too.*

5.2.2 Cultural variables

PCC Organizational culture. In the case of the staff participants, this study also revealed that specific cultural factors of the agency and the people it employs, have proven to have an determining impact in the adoption of text messaging at the agency, even though it was mandated by its CEO as a service. Zorn et al., (2011) described factors in nonprofits, such as system membership, work ethics, or environment as key roles in the introduction and settlement of new technologies that can benefit and improve the performance and goals of these organizations.

Through the results, this study has revealed that at the PCC, volunteers have an important role and power, not only as the heart of the agency, but as the force that determines what is accepted as a responsibility, a priority, and ultimately, what will be

accepted in volunteer practices, which in the case of PCC, means work practices. However, this study suggests that their membership status as volunteers is not the only social factor affecting texting adoption. These, combined with the personal factors mentioned before, such as age (the generational divide mentioned by Tapscott, 2008), values (e.g. toward what is fundamental and what is trivial to support clients), and budget, among other social, and technological factors, have notably influenced the agencies ability to adopt a service such as text messaging.

Regarding work environment, this study has also exposed that the way that this kind of NGO works delays adoptions. For example, during the pilot, some counselors resigned their volunteer commitment with PCC and new counselors were trained. Since clients are contacted by only one counselor that volunteers at the Centre one day a week, the possibility of use was reduced.

As well, the PCC has a characteristic ambience of support between counselors and staff. In the case of introducing a new technology such as texting, without knowing individual or group pre-conceptions, it is possible that a lack of support from a small group of individuals could spread to the entire group.

PCC Culture and texting. Another factor identified through this study was a subjective culture of common beliefs at PCC. This subjective culture was characterized by an outspoken desire to support the goals of PCC, and with unspoken but known ideas and values of how to support these goals from what is understood as a selfless commitment to the needs of the client. My observations led me to understand that in the subjective culture of the people that conform PCC, human beings are valued more than tasks or accomplishments for the agency. This socially high standard of volunteer work, and approach to its clients, has allowed PCC to support lives in crisis and at the same time, has led it to experience external pressures for immediacy in results. This is the case of many non-profits trying to incorporate new technologies in organizations that do not work in the culture of information-immediacy and who work more with the commitment of individuals to the well-being of their community (Zorn et al., 2011).

This study revealed that the counselors shared a common, unspoken belief about the role of omnipresent technologies in the lives of people, and a valid concern about the health of this reality for the new generation. This unspoken belief plays a role in their acceptance of texting at PCC. Texting was not a typical form of communication established before at PCC. This study seems to suggest that to motivate counselors to

step into using the unexplored tool to reach clients, texting needed to validate itself culturally as a service that would promote wellness and goodness for the clients of PCC.

Staff responses reflected that the technology adoption was not only affected by the internal culture, but also by standards of work related to what some staff participants believe are a responsibility at PCC, and what are not. This was reflected in my journal notes:

When I was doing the checking on client sheets, I saw some forms where clients check “text” as the only way to communicate, but counselors have not followed through. Definitely, the practices of communication contact with clients are not okay! Some counselors do not follow up with clients; they automatically assume that the best way to contact them is to phone them.

Some of my notes reflect the reality of how this culture of resistance looked during the length of the study:

I feel discouraged, she says texting at PCC is fine, but I know she has never used the software ... At some point I asked myself if this study and pilot were necessary. I wonder if counselors are resisting change; to change their work responsibilities... I know that they do not promote this service with clients. Is this a passive rejection behavior towards texting? Other counselors are more open and plenty told me they do not want to text if texting is not necessary!

5.2.3. Environmental variables

FLSMS experience. Implementing a new technology, such as texting, through software in development such as FLSMS, can be disruptive or challenging, especially if most of the users (the counselors, in the case of the PCC) were not comfortable using it. This study has also exposed the software experience as an additional factor that influenced the beliefs and attitudes toward the adoption and performance with the technology. The software, FLSMS, and its complexity⁸⁵ was a mediating factor that negotiated and directly influenced the connection between the counselors, their clients, and mobile phones.

The level of usability and perceived complexity of FLSMS directly influenced the passive and active resistant behavior of some counselors toward texting. The perceived complexity of FLSMS, in the eyes of counselors, acted as a barrier towards the adoption of text messaging at the PCC and the advance of the goals of the pilot. The

⁸⁵ See also Rogers (2003) relative advantages, compatibility, complexity, trialability and observability as factors that influence the adoption of a technology / innovation. Rogers stated that “individuals’ perceptions of these characteristics predict the rate of adoption of innovations” (p. 219).

perceived complexity affected the interest and capability of PCC counselors in adapting text messaging at the agency as a new communication medium to pursue connections with its clients. This was reflected in the pilot report's extracts:

“the software is a work in progress and hands on, and it seems like counselors are not that comfortable with this unexpected demand”, “initially, the software did not work with a new phone recommended by the FLSMS community, resulting in numerous software errors”, “one of the challenges was finding the right phone to work with the software since most of the phones that would work are obsolete in Canada”, “logistics of coordination of how to use the laptop, when to use it, connecting the phone to the laptop and FLSMS contributed to the difficult acceptance of the software for the inexperienced counselors”

FLSMS has considerable possibilities for supporting initiatives such as the pilot at PCC. In many places of the undeveloped world, there exist many documented cases recognizing valuable experiences with the software as a means to empower the community with access and information (Banks, 2011; Nesbit, 2010); however, there are many other factors also at play in their context that can not be translated to the context of Canada and that in fact, may contribute to the decrease of effectiveness. For example, at PCC Edmonton, the software increased work loads, because users were not familiar, interested in, or believed they needed the service, and because possible communication errors with clients through the software could threaten their status as a reliable agency supporting people in crisis. Some of my personal reflections underline this realization:

I found myself struggling with feelings of guilt because FLSMS could be challenging and I didn't consider it could be. This makes me feel ashamed because the program is not easy for the counselors. In all honesty, I would be as frustrated as her if I was in her shoes; there are very delicate issues that we are talking about here.

5. 3. Conclusions

The current rapid domestication and adaption of mobile phone technologies into people's lives has made it impossible for designers, researchers, and users to predict future trends in mobile adoption and uses (Söderström, 2011). However, the results of this study have exposed that the influence of mobile phones on the life of their users in Edmonton, specifically in the population of young adults that are clients with the PCC, seem to be fundamental for their social constructions. These results contribute to the global literature that has identified mobile technologies as part of the core of a young adult's life. We cannot predict or know how stable the mobile culture is, but we present through this study how mobile culture appears today in a niche of Edmonton.

In summary, there were a number of factors affecting the results of this study, such as the relationship of young adult clients in Edmonton with their mobile devices, especially with text messaging; the relationship and pre-conceptions that counselors at PCC had about mobile devices and its uses, and the complexity of the software that mediated the texting relationship between the agency and the clients. All of these factors are directly related with each other and affected the potential relationships that the PCC wanted to establish with its young adult clients through new technologies, for the purpose of connecting and serving them.

Furthermore, this study has revealed the importance of personal variables, such as rooted personal characteristics, in both counselors and clients, which act as a navigation map directing the use of mobile phones and texting technologies. These variables also interact and interfere in the purpose of connecting and serving young adult clients of PCC through text messaging.

5.4.References

- Banks, K. (2011, May 10). Safe motherhood: Mobile healthcare in the Philippines. National Geographic Emerging Explorer. Retrieved from: <http://newswatch.nationalgeographic.com/2011/05/10/safe-motherhood-mobile-healthcare-in-the-philippines>
- Caronia, L. (2009). Mobile phones in peer culture: Teenagers' messaging as a metalinguistic performance. *Paper presented at the 59th Annual International Communication Association, ICA, Conference, Chicago, IL*. Retrieved from: http://citation.allacademic.com/meta/p_mla_apa_research_citation/2/9/7/6/0/p297600_index.html?phpsessid=9efc4866a07807b76b2060336509acb4
- Cherubini, M., de Oliveira, R., Hiltunen, A., & Oliver, N. (2011). Barriers and bridges in the adoption of today's mobile phone contextual services. *Proceedings of MobileHCI '11: 13th International Conference on Human Computer Interaction with Mobile Devices and Services* (pp. 167-176). New York, NY: Association for Computing Machinery (ACM).
- Coyne, S.M., Stockdale, L., Busby, D., Iverson, B., & Grant, D.M (2011). "I luv u :)!": A descriptive study of the media Use of individuals in romantic relationships. *Family Relations, 60*(2), 150–162. doi:10.1111/j.1741-3729.2010.00639.x
- Davis , F.D., Bagozzi, R.P., & Warshaw, P.R. (1992). Extrinsic and intrinsic motivation

- to use computers in the workplace. *Journal of Applied Social Psychology*, 22 (14), 1111-1132. doi: 10.1111/j.1559-1816.1992.tb00945.x
- García-Montes, J.M., Caballero-Muñoz, D & Pères-Álvares, M. (2006). Changes in the self resulting from the use of mobile phones. *Media, Culture & Society*, 28(1), 82-67. doi: 10.1177/0163443706059287
- Gergen, K. J. (1999) *An invitation to social construction*. London: Sage
- Green, E., & Singleton, C. (2009). Mobile connections: An exploration of the place of mobile phones in friendship relations. *The Sociological Review*, 57(1), 125-144. doi:10.1111/j.1467-954X.2008.01807
- Haverila, M. (2011) Behavioral aspects of cell phone usage among youth: An exploratory study. *Young Consumers: Insight and Ideas for Responsible Marketers*, 12(4), 310 - 325. doi: 10.1108/17473611111185869
- Holmen, E. (2009). TXTING4HEALTH: The role of the mobile channel in the health care industry and in the sphere of public health. *Social Marketing Quarterly*, 15 (1), S30-S35. doi: 10.1080/15245000902960932
- Jones, C., Ramanau, R., Cross, S., & Healing, G. (2010). Net generation or digital natives: Is there a distinct new generation entering university?. *Computers & Education*, 54(3), 722–732. doi: <http://dx.doi.org/10.1016/j.compedu.2009.09.022>
- Ling, R. (2007). Children, youth and mobile communication. *Journal of Children and Media*, 1(1). Retrieved from: http://www.richardling.com/papers/2007_Journal_of_child_and_media.pdf
- Lemos, A. (2010). Post—mass media functions, locative media, and informational territories: New ways of thinking about territory, place, and mobility in contemporary society. *Space and Culture*, 13 (4), 403-420. doi: 10.1177/1206331210374144
- Lenhart, A. (2012). Teens, smartphones & texting: Texting volume is up while the frequency of voice calling is down. About one in four teens say they own smartphones. *Pew Research Center's Internet & American Life Project*. Retrieved from: <http://pewinternet.org/Reports/2012/Teens-and-smartphones.aspx>
- 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 Research Center's Internet &*

- American Life Project*. Retrieved from:
<http://pewinternet.org/Reports/2010/Teens-and-Mobile-Phones.aspx>
- Malikhao, P., & Servaes, J. (2011) The media use of american youngsters in the age of narcissism: Surviving in a 24/7 media shock and awe – distracted by everything. *Telematics and Informatics*, 28(2), 66–76.
 doi:10.1016/j.tele.2010.09.005
- McEwen, R. (2010). *A world more intimate: Exploring the role of mobile phones in maintaining and extending social networks*. (Doctoral dissertation, University of Toronto). Retrieved September 5, 2011, from Dissertations & Theses: Full Text.(Publication No. AAT NR73152).
- Nesbit, J. (2010, September 27). Maternal health and mobile technology: New tools for an important fight. *Women Deliver*. Retrieved from:
<http://www.womendeliver.org/updates/entry/maternal-health-and-mobile-technology-new-tools-for-an-important-fight>
- Nurullah, A.S. (2009). The cell phone as an agent of social change. *Rocky Mountain Communication Review*, 6 (1), 19-25. Available at SSRN:
<http://ssrn.com/abstract=1482386>
- Pea, R., Nass, C., Meheula, L., Rance, M., Kumar, A., Bamford, H., Nass, M., Simha, A., Stillerman, B., Yang, S., & Zhou, M. (2012, January 23). Media use, face-to-face communication, media multitasking, and social well-being among 8 to 12-year old girls. *Developmental Psychology*. Advance online publication. doi: 10.1037/a0027030
- Rice, R.E., & Hagen, I. (2010). Young adults' perpetual contact, social connection, and social control through the internet and mobile phones (pp. 2-39). In C.T. Salmon (Ed.), *Communication yearbook* (34). New York, NY: Routledge.
- Rheinhold, H. (2000). *The virtual community*. Cambridge, MA: MIT Press.
- Rogers, E.M. (2003). *Diffusion of innovations* (5th Ed.).New York (NY): Free Press
- Sharples, M., Taylor, J., & Vavoula, G. (2007). A Theory of learning for the mobile age (pp. 87-99). In R. Andrews & C. Haythornthwaite (Ed.), *The SAGE Handbook of E-learning Research*. London, UK: Sage Publications
- Silverstone, R., & Haddon, L. (1996). Design and domestication of ICTs: Technical change and everyday life. In R. Silverstone & R. Mansell (Eds). *Communication by design. The politics of information and communication technologies*. Oxford University Press, Oxford.

- Skierkowski, D. & Wood, R.M.(2012). To text or not to text? The importance of text messaging among college-aged youth. *Computers in Human Behavior*, 28(2), 744–756. <http://dx.doi.org/10.1016/j.chb.2011.11.023>
- Söderström, S. (2011). Staying safe while on the move: Exploring differences in disabled and non-disabled young people's perceptions of the mobile phone's significance in daily life. *Young*, 19(1), 91-109.
doi: 10.1177/110330881001900106
- Subrahmanyam, K. & Šmahel, D. (2011). Adolescents' digital worlds: An Introduction (p.1-25). In R. J.R. Levesque (Ed). *Digital youth: Advancing responsible adolescent development*. New York, NY: Springer.
doi: 10.1007/978-1-4419-6278-2_1
- Tapscott, D. (2008) *Grown up digital: how the net generation is changing your world*. New York, NY: McGraw-Hill.
- Thompson, L., & Cupples, J. (2008). Seen and not heard? Text messaging and digital sociality. *Social & Cultural Geography*, 9(1), 95-108.
<http://dx.doi.org/10.1080/14649360701789634>
- Van Biljon, J., & Kotzé, P. (2008). Cultural factors in a mobile phone adoption and usage model. *Journal of Universal Computer Science*, 14 (16), 2650-2679.
doi: 10.3217/jucs-014-16-2650
- Venkatesh, V., & Davis, F.D.(2000). Theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, 46 (2), 186-204.
doi: 10.1287/mnsc.46.2.186.11926
- Wang, Y. K., & Datta, P. (2009). A Technology Commitment Model of Post-Adoption Behavior. *Information Resources Management Journal (IRMJ)*, 22(4), 1-22.
doi:10.4018/irmj.2009061901
- Wixom, B. H., & Todd, P. A. (2005) A theoretical integration of user satisfaction and technology acceptance. *Information Systems Research*, 16 (1), 85-102.
doi: 10.1287/isre.1050.0042
- Zorn, T.E., Flanagin, A.J., & Shoham, M.D. (2011). Institutional and noninstitutional influences on information and communication technology adoption and use among nonprofit organizations. *Human Communication Research*, 37(1), 1-33.
doi: 10.1111/j.1468-2958.2010.01387.x

Chapter 6. Conclusions & Recommendations

6.1. Conclusions

From this study we see that the introduction of a new technology is not a simple process for a non-profit agency, its staff and clients, but a complex system that involves technological, social, economic, cultural, and individual factors that each play an important, distinct yet connected role in the adoption.

The results of this study expose that young adult clients at PCC Edmonton are adopters of text messaging, but most did not like the type of text messages coming from the agency. These findings teach us that introducing a technology to be used with adopters is not simple, especially if little is known about the variables that contributed to their personal adoption and their continuous use.

Furthermore, this study reveals that in Edmonton, the young adult clients in this study belong to the global mobile culture, and their adoption of mobile technologies and the uses of its services are not only a technological discourse about mediated technologies, but overall, an international discourse about a new form of community that has appeared from the digital shift with a particular culture. This information also exposes that their mobile culture has been and is socially constructed by their chosen rituals, artifacts, goals, created language, core values, shared assumptions, and practices. In the case of Edmonton, the cultural representations revealed in this study seem to vary by ethnicity, gender, location, and time; and seem to appear different from the international literature.

Complementarily, these results also show that a technological adoption process can be indirectly or directly threatened by the user's unspoken complex system of beliefs, conceptions, and behaviors that are also based on technological, social, economic, cultural, and individual factors. This was the case of the adoption of texting technologies to be used as a formal communication media at PCC. In the context of this study, the fact is that the PCC entered into a dynamic ritual of rejection and acceptance with their young adult clients and their devices, when they introduced text messaging as a new form of communication, and means of relating with clients. However, their beliefs and approach to text messaging also affected the results of that mediated ritual.

Through these results, the study confirms the great impact that perceptions, behaviors and conceptions have on technology adoption, as the theory in Diffusion of Innovations (DOI) and Technologic Adoption Model (TAM) have described. This result supports the observations of Zorn et al., (2011), van Biljon & Kotzé (2008), and Ford & Kotzé (2005) regarding how socio-cultural factors are applicable to the context of a non-profit with the characteristics of PCC Edmonton. Equally, the study confirms that further research is needed to explore this area in depth, within the larger scope of research in mobile culture, mobile adoption, and usability.

6.2. Unexpected findings

The discussion chapter of this study highlighted what at first seemed to be contradictions in communications and relational practices. For example, it appears contradictory that clients selected a preference to be contacted through texting on the client sheet, but did not take the initiative to contact or respond to the PCC via text. There are also apparent contradictions in the way clients should be contacted or effective communication could be established. An example was the case of one client who preferred to be contacted by text, but then avoided contact with the agency entirely. The client later received the help she needed, but indirectly, through her husband, who only answered the text-messages sent by the PCC. Also, a few clients interacted with counselors through texting in profound ways, and the reasons for these behaviors were not revealed through this study, since these clients were at high risk and for ethical reasons, could not participate in this study.

However, in the light of the cultural factors described by van Biljon & Kotzé (2008) and Ford & Kotzé (2005), the client's contradictions are revealed to be the characteristics of an ethnic culture called mobile culture. Ford & Kotzé's cultural factor theory (2005) suggests no contradictions, but the need to reduce uncertainty by understanding and exploring the role of their cultural representations and how their values towards privacy issues among other abilities and rights, play a role in the texting service. These authors suggest that culture interacts with and influences the process of communication. This study agrees with their argument, but also suggests that, as an 'interactive system', this culture should be monitored and reviewed because at this point we do not know how the context of mobile culture will apply to Canada in the next decade, or how its characteristics will vary locally (from place-to place), if services, such as texting, that has influenced the mobile culture greatly, will evolve into other forms of

sub-culture as the literature is suggesting with the appearance of free Multimedia Messaging Service (MMS) in smartphones (Ghaderi & Keshaw, 2005).

Also, though not directly addressed, but exposed in this study, were indications suggesting that the PCC volunteers and staff have a strong status of professionalism with the clients that they serve, who are experiencing unplanned pregnancies in Edmonton. These preliminary findings suggest a need for understanding how PCC counselors have gained this leadership status in client's lives and how this status could foster, with the correct use of tools such as texting, peer-guidance with their clients.

Also, as a consideration to this point and in the context of supporting young adult clients facing unplanned pregnancies in Edmonton, this study also brings to light the idea that in modern societies with great access and freedom to acquire unlimited resources, the technology has both empowered individuals and at the same time has made relative the importance of actual community by, in some cases, stressing human relationships in a commoditization status⁸⁶ and empowering digital technologies with the status of a companion to their users. This is the case of young adults in Edmonton using Google as a resource to find and validate information, or Smartphone applications that will lead them to digital pregnancy care networks, as was described in Chapter 4.

If the consideration of mobile phones changing both the perception of and the experience of community in this population is valid, then this study suggests these preliminary findings are a doorway to explore the implications of technology in western societies, how it is affecting its social construction and the networks, such as at the PCC and other agencies in Edmonton, that support this construction.

6.3. Recommendations

6.3.1. Recommendations for PCC Edmonton

The results of this study support a recommendation to the agency to explore through further studies or organizational initiatives, their workforce's understanding of their local and national network goals. This recommendation is based on the study findings that revealed that as a consequence of the passive rejection of texting services by counselors at PCC, unexpected and valuable results about the organization were found.

⁸⁶ Commodification refers to those processes through which social relations are reduced to an exchange relation (Goldman, Papson & Kersey, n.d), and individuals or groups become part of our networks as long as they are useful and offer us the best deal.

This research suggests that to foster a communication or informational medium for clients, such as texting, the volunteers and staff at PCC need to first validate how this population communicates or would like to communicate. As well, this study reveals that as in any campaign that includes youth initiatives, text messaging at the PCC needs to be tailored by youth participation in order to foster their active enrollment and keep ahead of the volatile changes involved with technology adoption.

Staff / volunteers need to be taught effective ways of communication through text, and understand texting as a specific type of communication, appropriate in the eyes of the clients in Edmonton, (i.e. initially not necessarily for the purpose of fostering relationships). This study suggests tailoring texting services where communication should not be imposed, but suggested or negotiated on the client's terms. In perspective:

1. Each counselor should always ask what the best way to contact clients is, and preferably, should wait to be contacted by the client to text and not vice versa.
2. Agency efforts to contact clients through texting should follow clients requests, as identified in this study, as being based in the context of prenatal classes, and should be focused on sharing valuable information, always with the confirmation that this is the service that the client wants to receive.
3. Sending long messages to clients, or taking the initiative to establish a close relationship with clients through text, actually jeopardizes the possibility of establishing this kind of relationship in the future, because for the young adult clients of PCC Edmonton, those behaviors are understood as unprofessional and improper.
4. In terms of establishing personal relationships through text, this should be considered as a further step, one on one, in which each counselor will carefully determine when the best time is to introduce texting, based on the development of trust with clients. These services should reflect what clients consider useful on their journeys.
5. The staff needs to understand the wants and beliefs of clients, and how, through the technology, these can be accommodated in association with their own beliefs and desires of how texting should work at the PCC. Some clients may feel they do not require a real person to speak with if they have Google as a peer counselor, can avoid the inconvenience of self-disclosure and enjoy digital disinhibition.
6. The staff need to work with texting for a longer period of time to reveal the factors affecting rejection or acceptance of the technology, whether this has to do with expectations, work-loads, or methods

Fundamentally, the study stresses the importance of recognizing the mobile

culture that the young adult clients are part of. Most importantly, the study suggests the need for the local agency and the national network to learn about the gap that exists between their counselor's beliefs about the young adult's behaviors and uses of technologies, such as mobile phones, and the cultural reality of this population. As the literature has shown, this population is already empowered through the technology, and in some cases, is replacing traditional means of support, such as the physical assistance of sexual health care and pregnancy support institutions (Brown, Halpern & L'Engle, 2005; CWTA, 2012; McEwen, 2010).

The results of the study suggest that the PCC does not know what clients would like to see or not in communication mediums, and also suggests that the effectiveness of a service is correlated with how well the agency understands the clients preferred communication mediums for each of the agencies services, and what their roles are in this dynamic of communication. Using the software is simple, compared to learning how to share information through technologies effectively.

PCC Edmonton & 'Txt Ana'. In response to the young adult clients' expressed need for a special texting support after their babies arrive, and reviewing the statistics of CWTA (2012) that recently stated that recipes and medical support are the health apps most used by Canadian women between 18 and 34 years old (p.7), we suggest the creation of a local text-based network for young adult mothers, who were or are part of the prenatal classes at PCC Edmonton, and who expressed they would like to receive information about parenting safety, and local available resources (e.g. receive a text message when PCC or other agencies have free baby clothes).

This text-based network, that could be called "*Txt Ana*", could be a service where users freely register for a weekly text information bulletin or message, that would include new mother tips, links, reminders, news about baby donations at the PCC, or places in Edmonton, parenting tips, healthy recipes, and other maternal health information based on the experiences and common knowledge of counselors, and on resources of the city. The service could be an app or a series of text messages, according to what would suit the needs of clients. Also, the service could evolve into text-counseling if the clients require and the agency considers it useful.

6.3.2. Implications for the Pregnancy Care Centres in Canada

This study has revealed that volunteers at PCC Edmonton are caring, and care for the wellbeing of their clients. By their behaviors, they have shown a deep and valid concern about the young adult's uses of mobile phones, which needs to be formally communicated and negotiated among the staff and the workforce of these agencies. A national exploration of core beliefs and values shared in the sub-cultures of each Centre will help to understand the specific anxieties that could be present towards new technologies and their cultural interpretations of the youth mobile culture.

Nunamaker (2011), describes organizational relationships as those that give understanding to organizational knowledge and helps in their development and growth. As discussed in Chapter 5, unspoken beliefs and 'conceptions' could limit the growth of their ministries by fostering judgments based in experience and limited knowledge of the mobile culture. In light of these findings, this study suggests that before a technology adoption process takes place at PCC, the national network, or any other Centre, they will need to validate those fears, discuss them, and compare them with their understanding of organizational sustainability. Then, the organization can work formally towards a solution that reflects consensus, and their organizational needs and goals. This work could potentially strengthen the organizational culture of their workforces, and could strategically direct their national network's goal by combining individuals knowledge with organizational knowledge.

However this study also recommends discussing these internal processes and negotiations in the light of:

- The communities reality (becoming digital), competition (e.g. Planned Parenthood is using texting to support clients in Canada), and needs (most of the clients that these networks are deciding to support are young adults, who communicate through mobile devices). This study suggests using a mediator or interpreter of the young adult client's mobile culture, which in this case could be a previous client who actively plays a role in the organizational consensus about technology adoption.
- The advantages that the technology could bring to the national network, such as community knowledge, information updates, and cost effective communication applications which could foster quick advice, as well as guidelines for a community that faces constant challenges by opponents, with client distress, and with work practices (Zorn, Flanagan, & Shoham, 2011).
- The advantages that the technology could bring to the national OnlineCare counseling service website, by integrating a free text message or SMS delivery system, that

could be accessed through the OnlineCare portal and let counselors manage text messages individually (per client). The advantages of this idea are that it could integrate more services if required, and since many clients expressed concerns about not contacting PCC through texting because they would not know who would be texting them, this solution would ensure that clients receive peer-established contact. Also, the issue of sufficient tools will be addressed by providing counselors with the ability to send text messages to cell phones across Canada though the convenience of a website. Since web availability in Canadian cities is not limited, this will guarantee that counselors will be able to access this service in the Centre computer, their own devices, if they have access to the internet, and even in the comfort of their homes.

The WHO (2011) called this mHealth interoperability a wise strategy to include in all health services. The CAPPS network could benefit from such a strategy to improve the personal and collective wellbeing of its internal networks.

6.3.3. Implications for the Academia

This study raised more questions than it answered, and highlights the need for future longitudinal case studies and research that address these questions in order to understand the phenomena in Edmonton and Canada.

At PCC, the FLSMS software implemented by the University of Alberta, proved the feasibility of financially supporting projects / pilots in the first stage of an adoption, but also proved the lack of readiness present to take on complex technologies in a society that highly values that which is simple and expedient, as is the case in Edmonton, Alberta and possibly all of Canada. The technologies implementation could not be fully understood in the short-term because of other factors affecting its limited adoption.

Also, several variables, associated with the Technology Adoption Model (TAM), Diffusion of Innovations (DOI), and socio-cultural factors influencing adoption, were exposed. However, limitations of the study such as time and number of participants, suggest that extended studies are needed to review the characteristics that emerged and that could vary and affect future results. This phenomenon needs to be reviewed under the lens of different disciplines, perspectives, and quantitative and qualitative methodologies, to grasp the phenomenon from its different complex angles.

The academia, society and institutions in Canada would benefit with such research because:

- In the scope of technology adoption, a need was identified for studies that look to

- understand the social technology adoption, to explain and explore variables, such as use and usefulness, that affects both Edmonton adopters and their organizations.
- From the community-based research scope, a need was identified for local studies in mobile culture that could bring light to questions of culture representations, social capital, and individual behavior, related to client's cultural backgrounds, age, sex, device use, and sense of doing community, that government and economic reports in the field are not explaining completely. This study suggests that there are a great field of interesting variables to review, since Canada, as a multicultural community, represents an area of new research in the 'mobile culture', taking into account that the local environment of multicultural heritage and immigration influences the youth culture.
 - From the organizational communication standpoint, this study also suggests a review of the impact of technology in small organizations, according to the culture, values, and perspectives of these groups. It is recommended that Canadian scholars undertake a further study to respond to questions of organizational cultural behavior related to organizational cultural backgrounds, and individual factors that affect the intake of technological advancement in these organizations.
 - There is a great area in cultural communication that could be investigated, by revealing the effects of mobile culture in the little niche that this study explored, specifically for the health care and sexual health care networks in Edmonton, and potentially Canada.
 - Some affects of incorporating new technologies in local educational strategies were also identified. Some clients referred to teachers as peers. Further local in-depth research could benefit national initiatives to understand the trends and effects of mobile devices for education.

Also, in order to identify more variables that apply to the specific context (local and national) in the usability of mobile phone initiatives, this study and its limitations (see chapter 3) identify the need for research guidelines that incorporate digital rituals (to what is acceptable or not), since the way digital culture occurs and is affected digitally is not the same as the way traditional societies work. For example, interviewing only digital clients without a signed form of consent would permit anonymous disclosure, allowing them to speak more freely, which might increase the quality of data, and research.

Particularly, this study suggests specific support as a factor that seems to influence the client's use of texting, in the specific case of the PCC Edmonton, where

clients have specific needs for the uses of communication with the agency. However, more research is needed in terms of minorities differentiation in the mobile community, to confirm if this is indeed a factor that could foster the use of the service with the agency.

6.4. Final Conclusion

Using an exploratory descriptive methodology as the framework, this case study endeavored to more deeply understand the experiences of the participants and the phenomenon that the research was looking to explore. Interpretations were based on the descriptions shared by participants, secondary data, personal observations, and reflections.

The subjective perceptions of each participant, including the researcher, and the data extracted from the pilot results and secondary literature review has brought light to a micro-system that seems to determine the young adult use of texting at PCC, and the staff adoption of the texting system at the agency. This micro-system, composed of human, technological, and cultural determinants, seems to interact jointly as a network, influencing the practices and experiences of texting services at the agency.

Also highlighted are the importance of practices, strategies, and relationships where the construction of solutions is negotiated in partnership. As Van Biljon & Kotzé (2008), express, “understanding and being aware of the cultural priorities and the value system of users and others” (p.2654), in this case counselors, staff, volunteers, and clients, is relevant and guarantees a path to solutions that have high levels of commitment in any individual or group initiative because they are sensitive to the social and cultural differences of each part.

Recognizing that most Canadians live in what is called globally “an urban society”, and acknowledging the rapid adoption of Smartphone technologies as one of the major forms of communication of the young population of the country (CTWA, 2012) led this study to suggest what Levine (2009) described about using technologies to promote youth sexual health in the U.S.: even though keeping up with youth culture and changing technology is not easy for organizations that work towards community support goals, such as PCC or CAPSS, ignoring the changing culture would be a disservice to the community that these organizations are intending to support (pp. 63-64). The reasons that support these suggestions are:

- In Canada, youth especially, are interested in actively participating in their own health care (Blanchet-Cohen, McMillan & Greenwood, 2011; Woodgate, 2010; Denis et al., 2009).
- In Canada, more and more, youth are finding and looking for support through digital networks. This year the CTWA (2012) published that Canadians are more likely to receive counseling and support from health providers through mobile services such as SMS or MMS.
- In Canada, the health care system is investing in strategies that empower its citizens to take responsibility of their own health, such as those mediated by digital mediums (Flicker, et. al. 2008; Terry, 2008).
- It is predicted that in less than 10 years, the world will be connected through mobiles and health care will become mobile (Fogg, 2009; Jenkis, 2006; Boulos et al., 2011).
- If healthy development happens in youth through quality relationships, as recognized by the PCC, these valuable networks need to be reachable in a digital world, where the presence of supportive, well informed relationships that empower sexual health for youth are becoming less present (Levine, 2009; Brown et al., 2005)

This case study has responded to the main research question, by describing how mobile phones mediate the relationships of the young adult clients and the agency. This study shows the great impact that mobile phone services have in young peoples lives, and suggests that in the case of PCC clients in Edmonton, this impact is stronger than any other medium or communication resource, because mobile phones are ever present with them

However, this study is preliminary and much can be built on the foundation of its results. In responding specifically to how text messaging mediates the relationship between young adult clients and counselors at PCC, this study shows that currently this is not known because of the unexpected direction of the pilot project and this research. This exploratory study presents a guide to understand the mediating and cultural factors that affect the phenomena.

6.5. References

Blanchet-Cohen, N., McMillan, Z., & Greenwood, M. (2011). Indigenous youth engagement in Canada's health care. *Pimatisiwin: A Journal of Aboriginal and Indigenous Community Health*, 9(1). Retrieved from:

<http://www.pimatisiwin.com/online/wp-content/uploads/2011/08/05Blanchett-Cohen3.pdf>

- Boulos, M.N.K., Wheeler, S., Tavares, C., & Jones, R. (2011). How smartphones are changing the face of mobile and participatory healthcare: an overview, with example from eCAALYX. *BioMedical Engineering OnLine*, 10 (24).
doi:10.1186/1475-925X-10-24
- Brown, J.D., Halpern, C.T., & L'Engle, K.L. (2005). Mass media as a sexual super peer for early maturing girls. *J Adolesc Health.*, 36(5), 420-427.
doi:10.1016/j.jadohealth.2004.06.003
- CWTA, Canadian Wireless Telecommunications Association (2012, June 1). *2012 Cell Phone Consumer Attitudes Study* (Report). Retrieved from:
<http://cwta.ca/wordpress/wp-content/uploads/2011/08/CWTA-2012ConsumerAttitudes1.pdf>
- Dennis, S.F. Jr., Gaulocher, S., Carpiano, R.M., & Brown, D. (2009). Participatory photo mapping (PPM): Exploring an integrated method for health and place research with young people. *Health & Place*, 15 (2), 466–473.
doi: <http://dx.doi.org/10.1016/j.healthplace.2008.08.004>
- Flicker, S., Savan, B., McGrath, M., Kolenda, B., & Mildenberger, M. (2008). If you could change one thing... what community-based researchers wish they could have done differently. *Community Development Journal*, 43(2), 239-239.
- Fogg, B.J. (2009). Why texting 4 health? (pp. 3- 8). In B.J. Fogg, & R. Adler (Eds.). *Texting 4 health: A simple, powerful way to change lives*. Stanford, CA: Captology media
- Ford, G., & Kotzé, P. (2005) Researching culture and usability: A conceptual model of usability (pp. 317-333). In T. McEwan, J. Gulliksen & D. Benyon (Eds.). *People and computers XIX — The bigger picture: Proceedings of HCI 2005 (BCS Conference)*. Springer London. doi: 10.1007/1-84628-249-7_20
- Ghaderi, M., & Keshav, S. (2005) Multimedia messaging service: System description and performance analysis. *Proceedings of the First International Conference on Wireless Internet*, 198–205. doi: 10.1109/WICON.2005.22
- Goldman, R.; Papsan, S. & Kersey, N. (No Date). Global capital. In: *Landscapes of capital: Representing time, space, & globalization in corporate advertising*. Canton, NY : St. Lawrence University (online book initiative). Retrieved from:
<http://it.stlawu.edu/~global/pagescapital/commodification.html>

- Jenkis, H (2006). *Convergence culture: Where old and new media collide*. New York & London: New York University Press.
- Lemos, A. (2010). Post—mass media functions, locative media, and informational territories: New ways of thinking about territory, place, and mobility in contemporary society. *Space and Culture*, 13 (4), 403-420. doi: 10.1177/1206331210374144
- Levine, D. (2009). Using technology to promote youth sexual health (pp. 57-65). In B.J. Fogg, & R. Adler (Eds.). *Texting 4 health: A simple, powerful way to change lives*. Stanford, CA: Captology media
- McEwen, R. (2010). A world more intimate: Exploring the role of mobile phones in maintaining and extending social networks. (Doctoral dissertation, University of Toronto). Retrieved September 5, 2011, from Dissertations & Theses: Full Text.(Publication No. AAT NR73152).
- Nunamaker, J.F., Romano, N.C., & Briggs, R.O. (2001). A framework for collaboration and knowledge management. *Proceeding of HICSS '01: 34th Annual Hawaii International Conference on System Sciences*, 101, doi: 10.1109/HICSS.2001.926241
- Terry, M. (2008). Text messaging in healthcare: The elephant knocking at the door. *Telemedicine and e-Health*, 14(6), 520-524. doi: 10.1089/tmj.2008.8495.
- Van Biljon, J., & Kotzé, P. (2008). Cultural factors in a mobile phone adoption and usage model. *Journal of Universal Computer Science*, 14(16), 2650–2679. doi: 10.3217/jucs-014-16-2650
- WHO, World Health Organization (2011). mHealth: New horizons for health through mobile technologies: second global survey on eHealth. Global Observatory for eHealth series (Vol. 3) (NLM classification: W 26.5) Geneva, Switzerland: WHO Library Cataloguing
- Woodgate, R.L. (2010) .Youth’s perspectives on the determinants of health. *Qual Health Res.*, 20 (9), 1173-1182. doi: 10.1177/1049732310370213
- Zorn, T.E., Flanagan, A.J., & Shoham, M.D. (2011). Institutional and noninstitutional influences on information and communication technology adoption and use among nonprofit organizations. *Human Communication Research*, 37(1), 1-33. doi: 10.1111/j.1468-2958.2010.01387.x

APPENDICES

Appendix 1. Interview Consent Form

Title of Study: mSexual-Health Networks: Learning what connects Young Adults, Text-Messaging and Community Support

Principal Investigator: Angela Keller, Masters Student in the Master in Communication and Technology (MACT) Program, Faculty of Extension, University of Alberta.

Co-Investigator/Supervisor: Dr. Gordon Gow, Professor and Director of the Master in Communication and Technology (MACT) Program, Faculty of Extension, University of Alberta.

Background: In Canada, use of mobile phones are increasing, especially text messaging uses between youth and young adults. Uses of texting vary from voting in reality show to sexual health campaigns. We know very little about how young Canadians are really using text messaging, especially text messaging, and how their uses could affect public sexual health care campaigns and activities.

Purpose: I would like to find out how the uses of text messaging on a daily basis, affects your relationship or work with agencies that provides sexual health care support, such as PCC.

Procedures: I will initially conduct one interview with you. You can decide where you would like the interview to take place. This could be PCC, your home or another place. Each interview will take 1 hour. I will tape record interviews so that I don't miss anything we talk about. At the end of the interview, I will share my understanding of what we discussed and you can correct any misunderstandings.

If I need more information, I might ask you to take part in one or more interviews. You don't have to agree if you don't want to.

Possible Benefits: If you take part, you will have the chance to tell me about your experiences using text-messaging for sexual health care. This will help me learn how this communication tool could be used for your support and needs.

Possible Risks: The risks of taking part in this study are small. The interviews might take time away from the other things you do.

Confidentiality: The only people who will listen to the interviews are the typist and me. We will type up what we talked about. Your name will not be in the typed version of the interview. Only my supervisors, staff of the agency and I will read the typed interview.

I will share the things that I learned in this study with others. This will be through presentations and articles. Your name will not be given in any of these and the topics related to PCC will be not addressed in this study.

Any information that you tell me will be kept confidential except if professional ethics or law require me to tell someone. The Health Research Ethics Board at the University may have access to the interviews to monitor the research.

The tapes and the written version of the interviews will be kept in a locked filing cabinet at the University of Alberta for five years, after this period of time they will be destroyed.

Voluntary Participation: You do not have to take part in this study. You can stop any time. You don't have to answer the questions if you don't want to. However, once the study is complete (after submitting to University approval), data of interviews will not be withdrawn.

Reimbursement of Expenses: You will be given a \$10 gift certificate from Wal-Mart for each interview. This is to cover expenses and for any troubles.

Contact Names and Telephone Numbers:

Please contact the people below if you have any questions or concerns:

Name and title: Angela Keller, Master Student Phone Number(s): 780- 492-6111
 Email: arenas@ualberta.ca

Name and title: Supervisor: Dr. Gordon Gow, Professor Phone Number(s): 780- 492-6111
 and Director of the graduate Program in Communication
 and Technology at University of Alberta
 Email: g.gow@ualberta.ca

I agree to take part in this study: YES <input type="checkbox"/> NO <input type="checkbox"/>
Signature of Participant _____ (Printed Name) _____
Date: _____ Signature of Witness _____
I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate.
Signature of Investigator or Designee _____ Date _____

A HARD COPY MUST BE GIVEN TO THE PARTICIPANT

Appendix 2. Consent Form

Part 1 (to be completed by the Principal Investigator):

Title of Project: mSexual-Health Networks: Learning what connects Young Adults, Text-Messaging and Community Support

Principal Investigator(s): Angela Keller, Master Student

Phone Number(s): 780- 492-6111

Co-Investigator/Supervisor: Dr. Gordon Gow, Professor and Director Phone Number(s): 780- 492-6111

of the graduate Program in Communication and Technology at
University of Alberta

Part 2 (to be completed by the Participant):

	<u>Yes</u>	<u>No</u>
Do you understand that you have been asked to be in a research study?	<input type="checkbox"/>	<input type="checkbox"/>
Have you read and received a copy of the attached Information Sheet?	<input type="checkbox"/>	<input type="checkbox"/>
Do you understand the benefits and risks involved in taking part in this research study?	<input type="checkbox"/>	<input type="checkbox"/>
Have you had an opportunity to ask questions and discuss this study?	<input type="checkbox"/>	<input type="checkbox"/>
Do you understand that you are free to withdraw from the study at any time without having to give a reason and without affecting your future medical care?	<input type="checkbox"/>	<input type="checkbox"/>
Do you understand that your personal information (name, address and reasons of contacting PCC) will NOT be disclosure under any circumstance in this study?	<input type="checkbox"/>	<input type="checkbox"/>
Has the issue of confidentiality been explained to you?	<input type="checkbox"/>	<input type="checkbox"/>
Do you understand who will have access to your records?	<input type="checkbox"/>	<input type="checkbox"/>
Would you agree to be contacted in case more in-depth information will be necessary, such as further interviews?		

Part 3 (to be completed by the Clients Participants only):

	<u>Yes</u>	<u>No</u>
Do you use text messaging in daily bases?	<input type="checkbox"/>	<input type="checkbox"/>

Do you feel familiar and comfortable using text messaging?	<input type="checkbox"/>	<input type="checkbox"/>
Do you need training using text messaging?	<input type="checkbox"/>	<input type="checkbox"/>
Who explained this study to you? _____		
I agree to take part in this study:	YES <input type="checkbox"/>	NO <input type="checkbox"/>
Signature of Participant _____		
(Printed Name) _____		
Date: _____		
Signature of Witness _____		
I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate.		
Signature of Investigator or Designee _____ Date _____		
A HARD COPY MUST BE GIVEN TO THE PARTICIPANT		

Appendix 3. Demographic Questionnaire

Date of Interview: _____

Last 4 digits of your mobile: _____

City / town of residence: _____ Postal Code: _____

What is your date of birth? _____

Do you self-identify as a certain ethnicity? _____

If yes, what ethnicity do you identify with? (e.g., Caucasian, First Nations, Métis, Inuit, Chinese, Southeast Asian, European, Latin American, other) _____

Do you have any difficulty hearing, seeing or communicating? Yes _____ No _____

If so, please describe:

How often do you use the following communication services?:

	All the time (more than once at day)	Often (more than once at week)	Sometimes (more than once a month)	Rarely (monthly or less)	Never
Text-message					
Facebook					
Twitter					
E-mail					
Phone calls					

Other social media (please specify) : _____					
One-on-one					
Mail					

How often do you use the following communication services with PCC?:

	All the time (more than once at day)	Often (more than once at week)	Sometimes (more than once a month)	Rarely (monthly or less)	Never
Text-message					
Facebook					
Twitter					
E-mail					
Phone calls					
Blog					
One-on-one (counselling)					
Mail					

Do you own your own mobile? Yes_____ No_____

Do you share it? If yes, with who?

Do you have an unlimited text plan?

Yes_____ No_____

How much do you usually pay for text per month?

- don't know
- nothing
- less than \$10
- between \$10 and \$20
- more than \$20
-

How much do you pay for your monthly plan?

- don't know
- nothing
- less than \$25
- between \$25 and \$50
- more than \$50

Thank you!

Appendix 4. Semi-Structured Interview Questions for Young Adult Client Participants

(Adapted from McEwen, 2010).

Title of Study: mSexual-Health Networks: Learning what connects Young Adults, Text-Messaging, and Community Support

Principal Investigator: Angela Keller, Masters Student in the Master in Communication and Technology (MACT) Program, Faculty of Extension, University of Alberta. Contact information: arenas@ualberta.ca; 780- 492-6111

Co-Investigator/Supervisor: Dr. Gordon Gow, Professor and Director of the Master in Communication and Technology (MACT) Program, Faculty of Extension, University of Alberta. Contact information: g.gow@ualberta.ca; 780- 492-6111

Before the interview starts:

- Record participant number on Consent Form before interview
- Go over consent form and get signature
- Go over demographic questionnaire, while you prepare for interview
- Ask about involvement with PCC and disclosure about your involvement with PCC if it is necessary
- Test the recording device
- Record/announce participant number
- Record/announce date and your name
- Give them the Wal-Mart thank you card

Interview Information:

Participant #:

Interview #: 1 (), 2 (), 3 ()

Date: ()2010, () 2011

Interviewer: Angela Keller

*Note: Does the Participant have a mobile phone present?

Yes, (if so, is the phone on?) _____

No

*Note: Where is the interview being held?

Location: _____

Start time: _____:_____

Section One: SMS as chosen communication by youth

1. What is something that you don't enjoy about your phone or texting (eg. price, weird messages, propaganda and advertising, being connected all the time). If yes, how do you deal with this? PROBE: how does it feel to receive a text message? (eg. Pressure, fun, excitement to open messages right away..etc). *ask to describe the 'feeling'*

2 . During the last months, please describe to me how you use text messaging on a typical day. What do you use texting for most, in your daily routine? When? (In classes, free time, household duties, socializing, train, bus stop, in the car). *If they respond while they are driving, please remind them about the new Albertan law about prohibited use of mobiles in the car.*

Section Two: SMS and sexual health care support for youth

3. *(Depending of his/her answer):* Has your phone changed the way you access help during your pregnancy? If yes, how in this agency? What kind of help you have received? How outside this agency? Why? Would you give me an example? *If no*, ask why, and how could it work or why would it not work?

4. How could this texting service during your time in the agency, be more personalized? *Ask her/him to give you ideas of services that they would like to have during this time on their phones.*

Section Three: SMS creating human capital

5. Before the pilot, what good do you find about using text messaging or using mobile? If any, how? Or why not? PROBE: Did you meet any important people, or become aware of help of the agency because of the texting service?

Section Four: SMS creating social capital

6. If something came up during the day, and you needed to contact someone (like emergency), what would you do? Would you go call/text on then mobile phone, go online? Other way? Which way?

7. How do you feel about using your mobile phone number as a general contact for you?, what about text? In which context is OK to be contacted through txt? Why? Why not?

PROBE:. Who would you not give your mobile phone number to? (eg. Government, school - professors, strangers, work, coworkers, parents, ex-boyfriend/girlfriend?) Why?

8. Was there any cool or funny experience texting this agency that you would like to share with me? *(Here you could disclose an experience about teaching the counsellors about the lingo)* *If they mention this*, ask if the lingo was appropriate. How does it make them feel to be connected through SMS for this purpose?

[INTERVIEWER MARK TIME ON THE RECORDING _____:_____]

Appendix 5. Semi-Structured Interview Questions for Staff Participants

(Adapted from McEwen, 2010).

Title of Study: mSexual-Health Networks: Learning what connects Young Adults, Text-Messaging, and Community Support

Principal Investigator: Angela Keller, Masters Student in the Master in Communication and Technology (MACT) Program, Faculty of Extension, University of Alberta. Contact information: arenas@ualberta.ca; 780- 492-6111

Co-Investigator/Supervisor: Dr. Gordon Gow, Professor and Director of the Master in Communication and Technology (MACT) Program, Faculty of Extension, University of Alberta. Contact information: g.gow@ualberta.ca; 780- 492-6111

Before the interview starts:

- Record participant number on Consent Form before interview
- Go over consent form and get signature
- Ask about involvement with the agency and disclosure about your involvement with the agency if it is necessary
- Test the recording device
- Record/announce participant number
- Record/announce date and your name
- Give them the Second Cup thank you card

Interview Information:

Participant #:

Interview #: 1 (), 2 (), 3 ()

Date: () 2010, () 2011

Interviewer: Angela Keller

*Note: Does the Participant have a mobile phone?

Yes, (if so, is the phone with her and on?) _____

No

*Note: Does the Participant have text messaging service in her mobile phone?

Yes, (if so, what kind of plan?) _____

No

*Note: Where is the interview being held?

Location: _____

Start time: _____:_____

Section One: SMS as chosen communication by youth

1. Tell me about your experience with the agency and the clients. Do you see clients phoning or texting during their visits to the agency? Do they receive calls/text during counselling / o support groups? What is your reaction, if you have any, if that happen in your session? Please give me some examples PROBE: How do you feel when clients are texting or phoning while they are in the agency or in a session with you or another counsellor? Did you discuss with your clients and others about their uses of the mobile phone? What do they said to you?

Section Two: SMS and sexual health care support for youth

2. How do you feel using FLSMS software for the agency? PROBE: How it was to learn this program? What was the most challenge experience, if any?

PROBE 1: Did you use the lingo for your services in FLSMS, if any? Why? Any experiences that you would like to share? *If the participant doesn't understand the meaning of lingo, please explain.* It was helpful having the lexicon document for the use of lingo? Why yes or why not? Do you think other agencies may benefit from some document – guide like that? Please share ideas

3. Now using FLSMS in the agency, as a service, How does it make it feel to be connected through texting? (eg. It is good, bad, don't know), Why? What do you think about it, in terms of how it works?

4. How using texting adds, if does, to the support that you use to offer to your clients? Please describe why? PROBE: How could texting services in the agency could be more personalized for your clients? *Ask her to give you ideas of services that they would like to offer if they could.*

Section Three: SMS creating human capital

5. Before the pilot, Where you familiar using text messaging? PROBE: It was you first time using texting services? If yes, How do you feel about it? Were there any interesting, amazing, funny or disappointed experiences during the texting time with your training and with clients that you would like to share with me?

6. How text messaging or mobile has change, if has, your volunteer experience in this agency? PROBE: Did having a mobile phone affect how you felt around / about your peer and clients? Why? Has the mobile phone change the way you are communicating with people at PCC? If yes, How? What kinds of discussions /topics you spend more time with clients or people on the mobile phone / text messaging?

Section Four: SMS creating social capital

7. Did you feel texting helped clients to meet or connect any important people, or services, or vital information using this service from the agency? Please explain or give some examples.

PROBE: Did you become aware of help, information that your clients or relatives needs through the texting service?

8. We know by it has been discussed in the agency, that some people only comes once to the Centre and basically you, as counsellor, just have one opportunity to make their minds to come back and receive help and support if that is what they need. Does text messaging as an agency service have change, affect this reality? How? Please give me some examples. PROBE: Has the mobile phone, and texting, made communicating with your clients easier or more difficult?

[INTERVIEWER MARK TIME ON THE RECORDING _____:_____]

Appendix 6. Informative sheet for Client Participants

We want to learn from you!

What is this study about? After counselors at PCC Edmonton had observed that clients use cellphones and specific texting services during their visits to the Centre, they decided to partnership with the University of Alberta to create a service that provides text messaging alternatives from PCC to clients and vice versa.

Now that PCC has introduced text-messaging as a new communication medium for the Centre, we would like to learn:

- about your experience texting counselors at PCC (if you had any experience, is not necessary)
- Ideas about how to make texting at PCC helpful for your needs

The goal of this study is to explore the possible benefits of text messaging in your relationship with the agency that offers you prenatal health promotion and education.

We're also interested in looking ahead at other ways you can suggest that it might be helpful to you during your pregnancy and after your baby is born.

Your responses to these questions will be kept confidential. We can guarantee that no one will know any details (related to your identity or topics of consult) of what you said in the interviews or what text messages you sent.

The results will be pulled together into a study (thesis) for the University of Alberta and the PCC. It's also possible that the findings may be presented at academic conferences and published in journals or newsletters. Again, none of the reports will have your name in them and any information that may identify you will be removed. No reports will be published or presented without consent from you.

You are free to withdraw from the interview at any time or to refuse to answer any questions that you are not comfortable with. The certificate gift will be provided to you before the interview; but **it is not compromise to stay in the interview if you receive the gif card.**

If you chose to withdraw from the study, the messaging data and information that you have shared during the interviews (up until you withdraw) cannot be removed as it is difficult to identify individuals and it is possible that your comments are important to understanding others' contributions.

If you choose to participate, thank you so much in behalf of myself (the researcher) and the PCC Edmonton!

Appendix 7. MARS Lab | Pregnancy Care Centre Edmonton Pilot Program Campaign Plan

Following the initial consultation meeting on June 7 at PCC Edmonton, the following campaign plan has been developed for the pilot program.

Mobile phones, SIM card, mobile phone accounts

MARS Lab will provide a mobile phone and SIM card for the campaign. Both mobile phone and SIM card will be transferred to PCC Edmonton at end of campaign should PCC Edmonton decide to continue with the text messaging program.

A prepaid (pay-as-you-go) mobile phone service account has been created for the pilot program:

- wireless carrier: XX
- phone number: 780-XX
- account name: XX
- password: XX

Cost of SMS service will be underwritten by MARS Lab for the duration of the initial testing period. Thereafter the cost of SMS service will be responsibility of PCC Edmonton after the duration of the Pilot Program.

Use of text messaging software

PCC Edmonton will use FrontlineSMS installed on a laptop owned and maintained by PCC Edmonton. The laptop is to be kept on premise at PCC Edmonton's office for the duration of the Pilot Program.

FrontlineSMS will be used for both incoming and outgoing SMS service. The following functions will be implemented for the campaign:

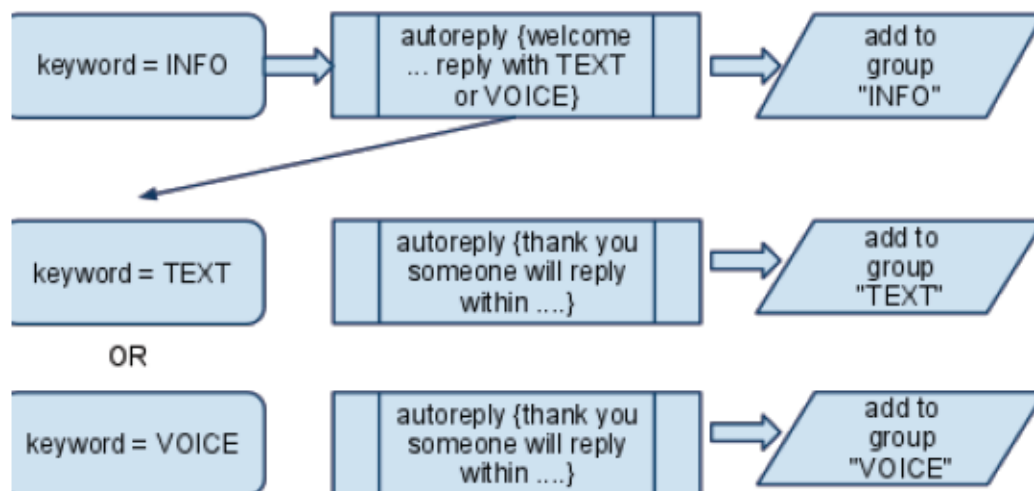
New Client Support

New clients will be invited to text in a keyword "INFOPCC" and receive an autoreply with welcome note. The reply will also ask if they wish to be contacted by a counsellor through either text (keyword TEXT) message or voice call (keyword VOICE).

Several groups will be created in the Contact list on FLSMS:

- INFO (all incoming SMS from clients containing keyword INFO)
- TEXT (all reply SMS from clients requesting follow up from a counsellor by SMS)

- VOICE (all reply SMS from clients requesting follow up from a counsellor by voice call)



Groups will also be created for each PCC Edmonton counsellor who will be involved in the pilot program. New clients will be assigned to counsellors by the Volunteer Coordinator.

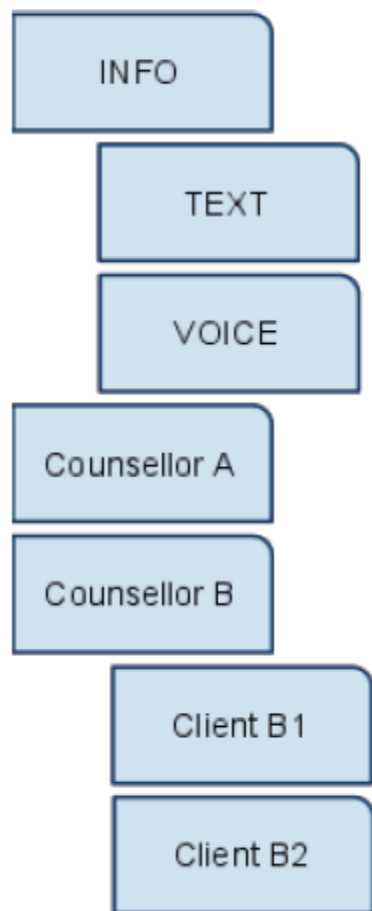
It is anticipated that FLSMS will be used to enable counsellors to participate in real-time SMS exchanges with clients.

Existing Client Support

Existing clients will be invited to use SMS as an alternate/complementary means to communicate with their PCC counsellors.

PCC counsellors can ask for the client's cell phone number and enter it into FLSMS, adding the client to the counsellor's Group folder. Clients or Counsellors may then choose to initiate communications. Counsellors can filter their incoming and outgoing messages using "Messages" tab and then filter by Groups.

See below for a suggested Group structure for Contacts in FLSMS. Individual clients can be assigned to their own folder (Group) within each Counsellor's Group.



Administrative roles and responsibilities

The volunteer coordinator will be primary contact for the pilot program at PCC Edmonton. This coordinator will manage and oversee access rights for PCC staff and volunteers to FLSMS and associated records. Also, this coordinator will oversee use of the FLSMS and be the first point of contact for PCC staff or volunteers with questions or concerns about the pilot program.

The principal investigator from MARS Lab and/or his graduate student will make best effort to provide technical and other support in response to requests from the volunteer coordinator concerning the text message system or other aspects of the pilot project. The principal investigator and/or his graduate student will arrange occasional meetings with PCC Edmonton to review and discuss the Pilot Program during the campaign period.

Training will be required for PCC staff and volunteers who will use the system. The principal investigator and/or his graduate student will oversee the training and preparation of any related training material. A training session will be scheduled

at an mutually convenient time during or after the initial testing period and before the start of campaign.

Retention and disclosure of data

The agency should consider the creation of an information privacy policy on the use and disclosure of data from FLSMS with regard to PCC staff and volunteers.

Contact lists and message records will be exported from FLSMS on a bi-weekly basis and saved as separate Excel spreadsheet files on a secure computer or external memory device (e.g., USB key) to remain in possession of PCC Edmonton.

In addition, one copy of each file will also be sent as an email attachment to the principal investigator to XX@ualberta.ca. The principal investigator will maintain a copy of the records in secure location for research and data backup purposes for the duration of the campaign.

Procedures for addressing emergency or safety concerns

Incoming text messages appearing on FLSMS that may raise concerns with PCC staff and volunteers about client life safety or other urgent matters will be handled as per PCC Edmonton's usual procedures for incoming voice telephone calls with clients.

Evaluation criteria

PCC Edmonton has identified the following criteria as important consideration in the evaluation of the Pilot Program:

- use of SMS service option by existing clients
- number of existing clients who express a preference for using SMS
- number of new client contacts established through SMS
- number of in-person appointments with new clients made using SMS
- experience of PCC counsellors in using SMS with clients
- ease of use/other technical factors with FLSMS platform
- cost of SMS service

Structure and scope of final report

The final report will be confined to observations and evidence generated during the pilot program from initial consultation through to end of campaign. The final report will contain the following sections (subject to change):

- Objective of the Pilot Program

- Design of the SMS service
- Training consideration
- Cost considerations
- Evaluation of the pilot program (see Evaluation Criteria above)
- General Observations
- Recommendations

Delivery date of final report

The principal investigator will aim to deliver a draft of the final report within one month of the end of Campaign.

Graduate student rights and responsibilities

The graduate student will be granted full access to FLSMS for the duration of the Pilot Program. PCC Edmonton staff and volunteers will make best effort to be available to the graduate student for interviews or consultation about the Pilot Program. PCC Edmonton will work with the graduate student to support her thesis research and make a reasonable effort to respond to her requests for interviews with staff, volunteers, and clients.

Start of campaign date

Initial testing of FLSMS will commence on or about June 10. Testing with PCC staff and volunteers will take place starting on or about June 16. A start date for the campaign date will be decided upon once initial testing is complete.

End of campaign date

To be determined following completion of initial testing period.

Handover plan

To be determined; however, discussion about handover plan should commence early enough to ensure that PCC staff and volunteers are adequately trained in the use and maintenance of FLSMS, laptop computer, and mobile phone.

Appendix 8. Protocol for uses of texting at PCC

**Using Text Messaging at a Pregnancy Care Agency
in Edmonton, Alberta, Canada**



Pregnancy Care Centre
Edmonton, AB T5K 0J1

The Mobile Applications
for Research Support
[MARS Lab] at the
Faculty of Extension,
University of Alberta



**FACULTY OF
EXTENSION**

University of Alberta



FRONTLINES **SMS**

Texting is a new service at the agency. It could be used for staff, such as counsellors and volunteers to contact and store information about their:

- New contacts
- New clients, including those who are pregnant, who have aborted, and new moms
- Existing clients, including those who participate in programs, groups, etc.

FLSMS Guide for Counsellors

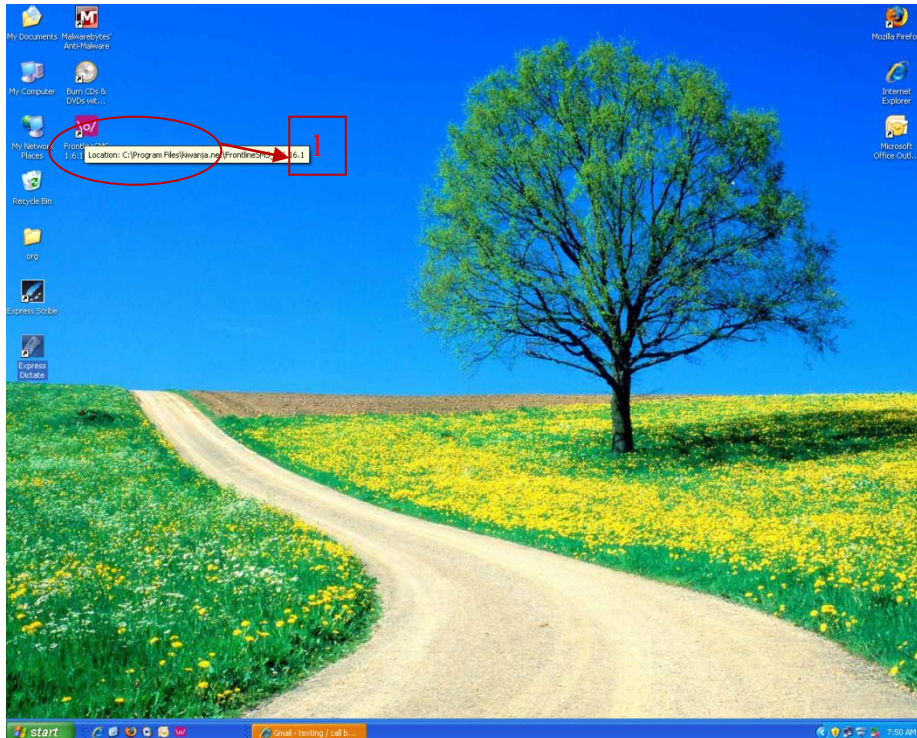
Remember, new contacts will be contacted by the Volunteer Coordinator only. You will be contacting your new and existing clients.

The service provided through text messaging is the same as client call backs. Every week you will review your folder in the FLSMS Program on the laptop and see if your clients have contacted you through text messaging.

The way to text is:

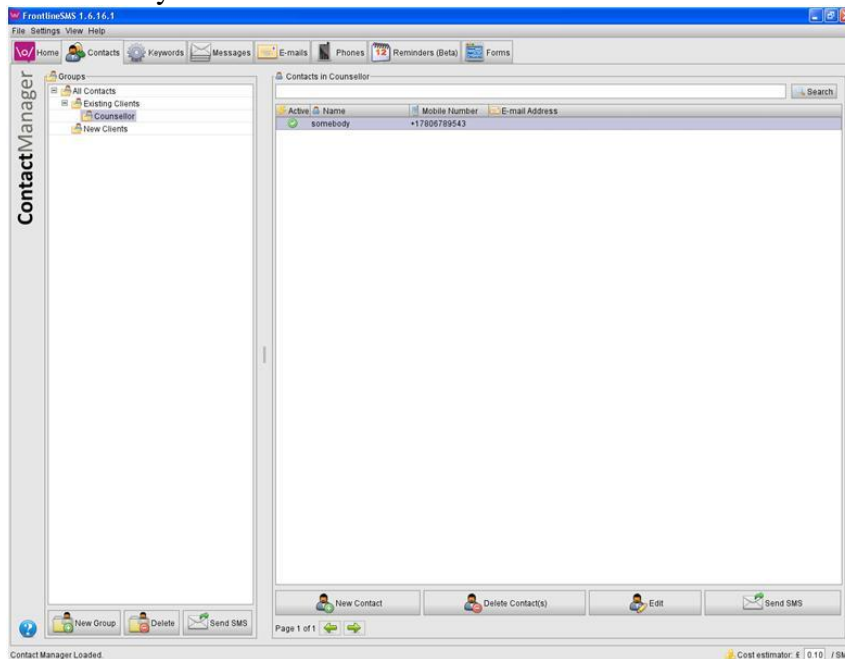
- Each text message only contains 160 characters. Be specific in your use of texting, especially if you are not sure what kind of plan your client has (the concern is not to burden them, financially). The program shows you when you have entered 160 characters (please see description on page 6).
- The text message should look like: “*Hi, this is _____. I just wanted to touch base with you and see how things are going. Please call me at 780-xxx-xxxx or text me back. I'd love to hear from you.*” When texting, please never identify yourself with the name of the agency. Only in the case of prenatal classes, should you use the name of the prenatal class in your message.
- You are free to use text lingo with your clients (please see the end of this document), if you feel comfortable. Do not use abbreviations or lingo that contains foul language, even if your client does.
- Do not send many messages to your client unless it is a back and forth conversation. Always let them lead the use of texting.

To start, counsellors should go to the agency Laptop in ----- office, and open the program FrontlineSMS:

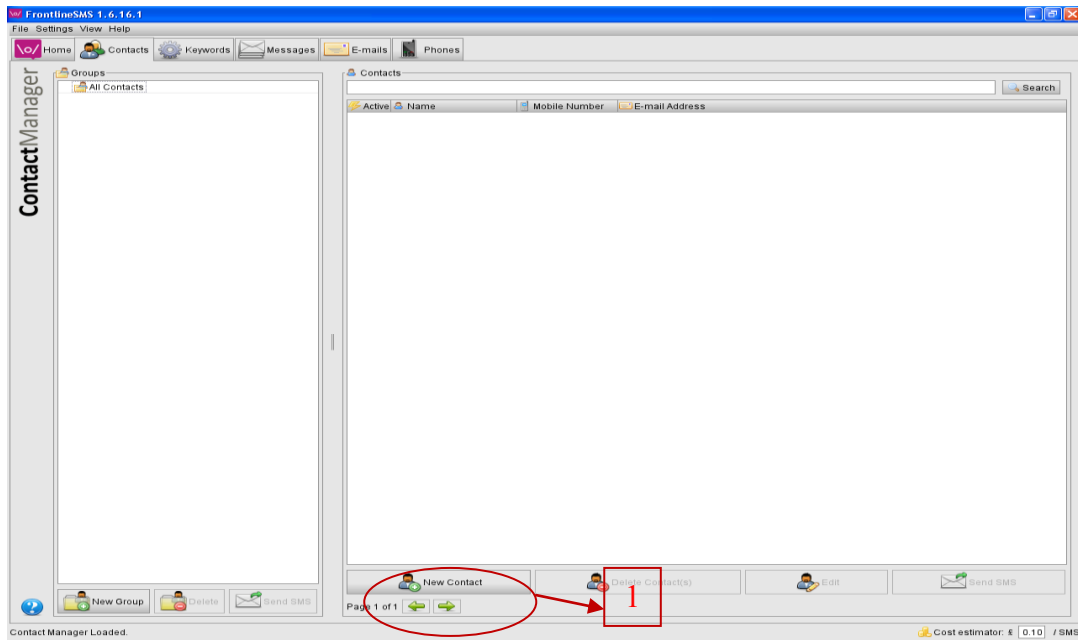


1. Icon of FrontlineSMS. Double click to start the program

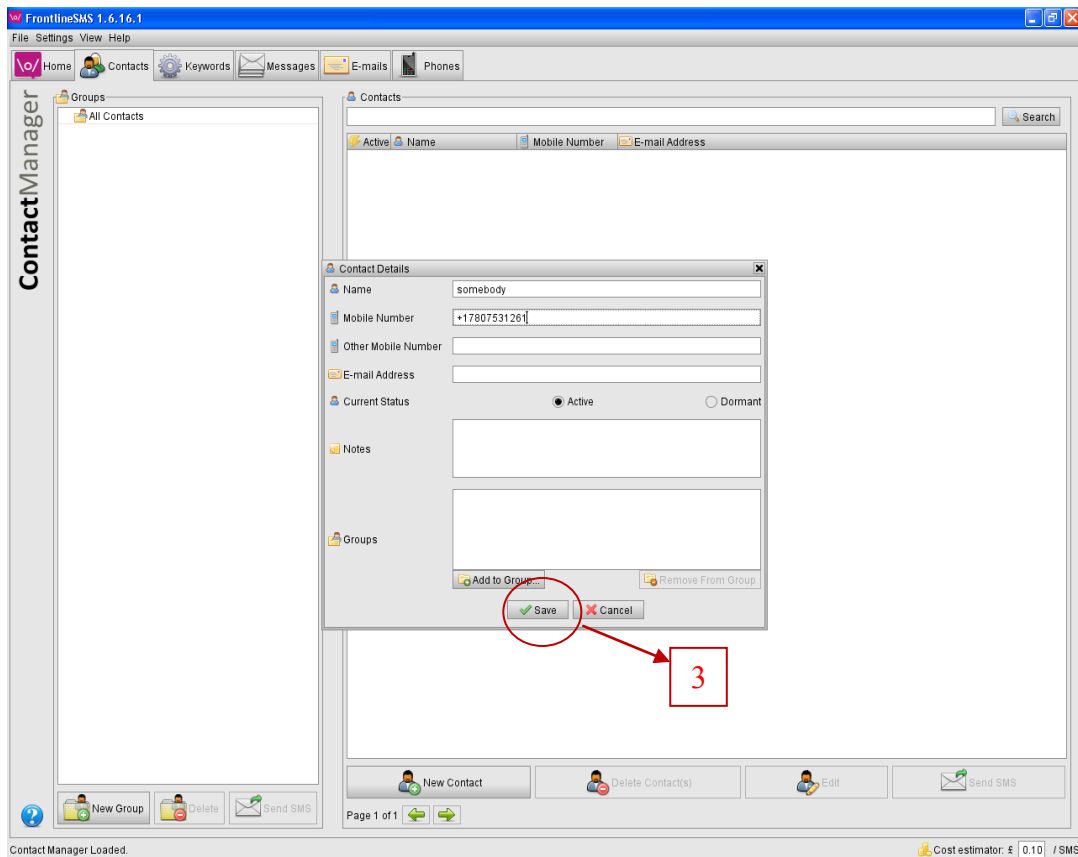
Next, click on the contacts tab, and at the right side look for and click on the folder with your name:



This area works as a virtual client's file. A list of your clients will appear. You can add new clients using the tool "new contact":



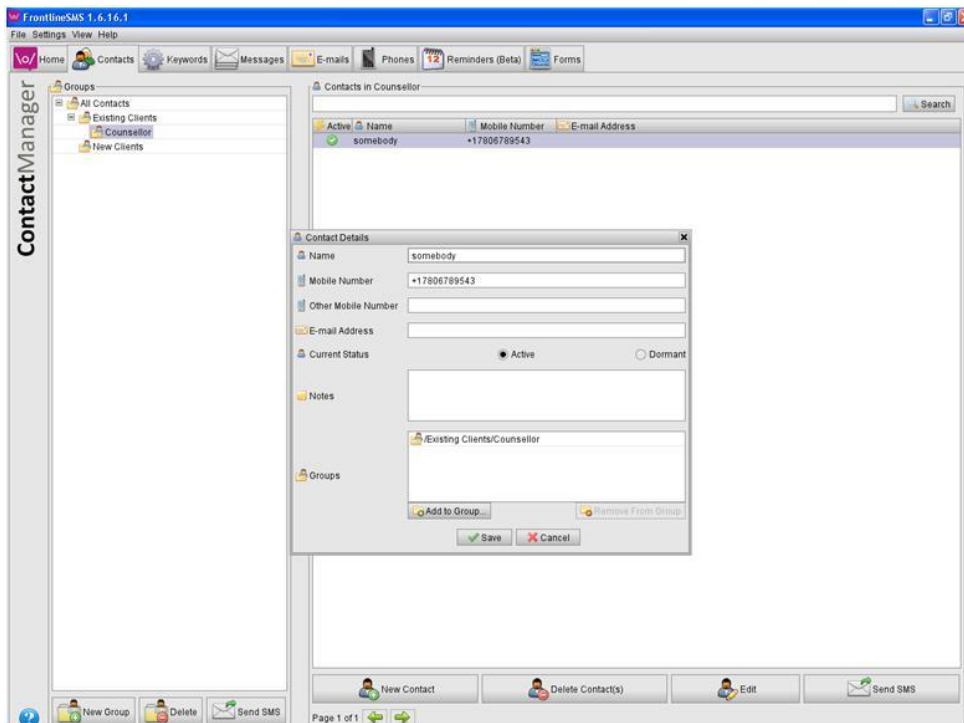
1. Select “new contact”
2. Complete contact details:

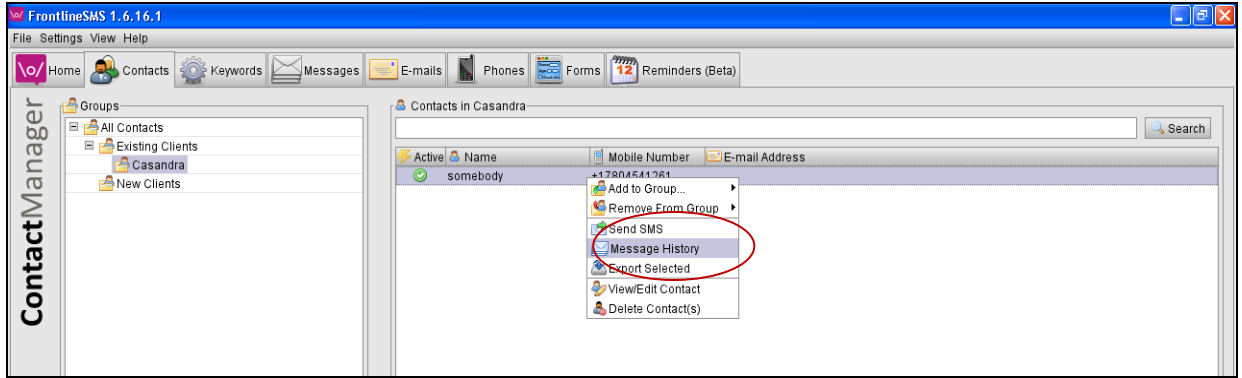


- Name: the four last digits of their cellphone or your client number
- ID Phone Number: +1 780 number (note: *always use country code-area code-mobile number, without spaces*)
- Other Mobile Number: Their home phone number for your own information notes
Here you can add reminders for yourself about the client. Eg. Called "Somebody" and she told me she had a baby boy on May 21. I need to text her October 22th.
- Groups: Should always appear as a client under your folder. Eg. Contacts / existing clients / Somebody

3. Select Save

Every week check the virtual file of your client by double clicking your client's ID. You can also click the right side of your mouse on your client's ID and it should open a window with quick services, such as *client history* and other quick tools. If you click *history*, you will be able to read the last texting that you had with your client. Remember, the messages in green are the agency (yourself) and the messages on blue are the clients (your client).

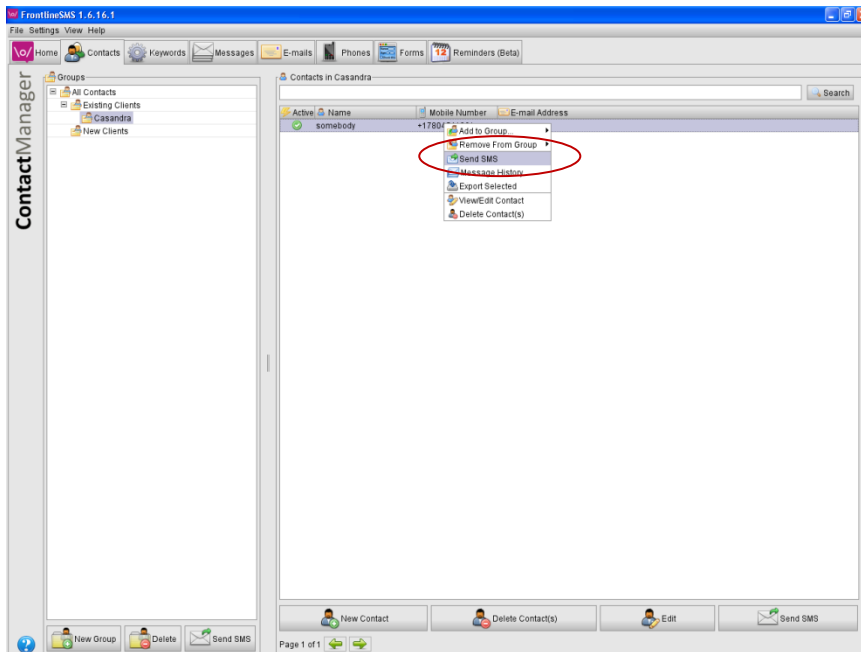




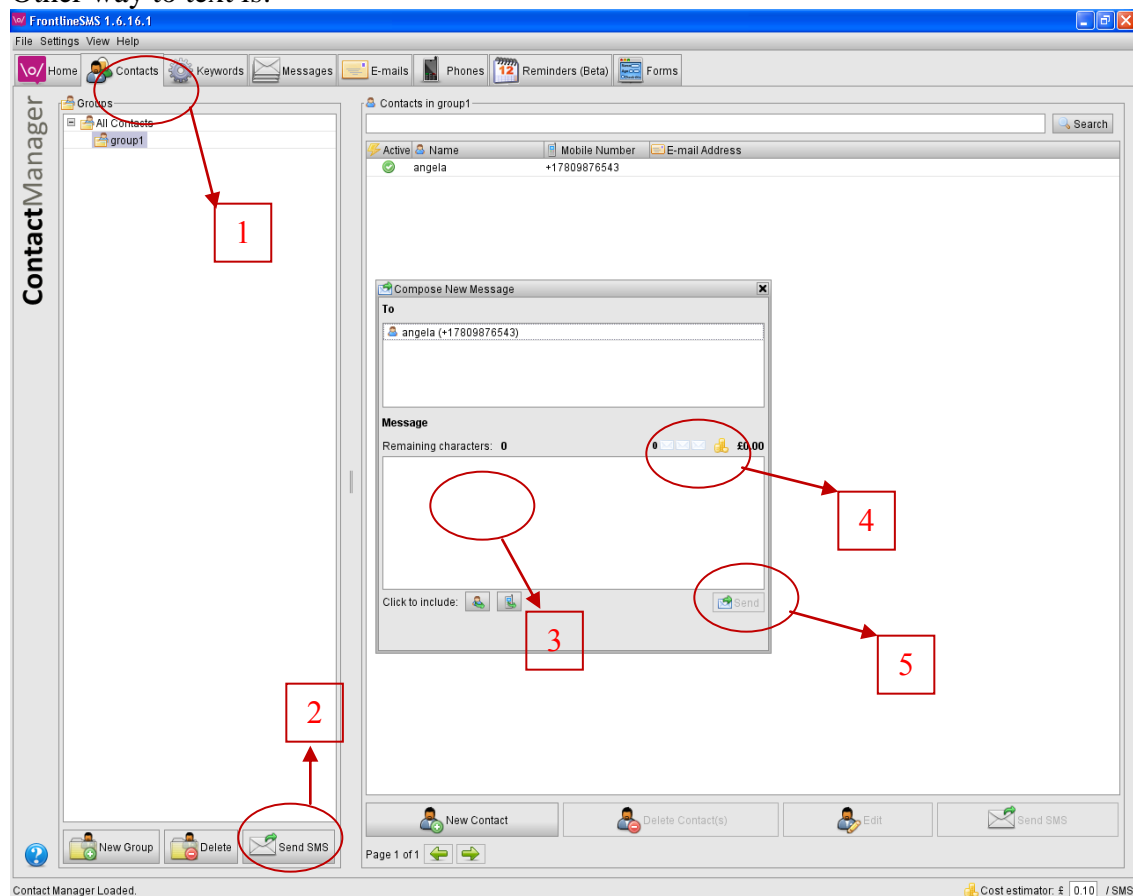
To start texting,

Remember to let your clients know that they only can text with you one day of the week (depending on your schedule at the agency) and let them know which day. If they need to contact the agency before this day they should text the keyword CRISIS and the Volunteer Coordinator or the agency will get in contact with them as soon as possible.

Stay in the contacts tab and double click the right side of your mouse on your client's name (the one that you want to send a text message to). Click *sendSMS* and start texting!

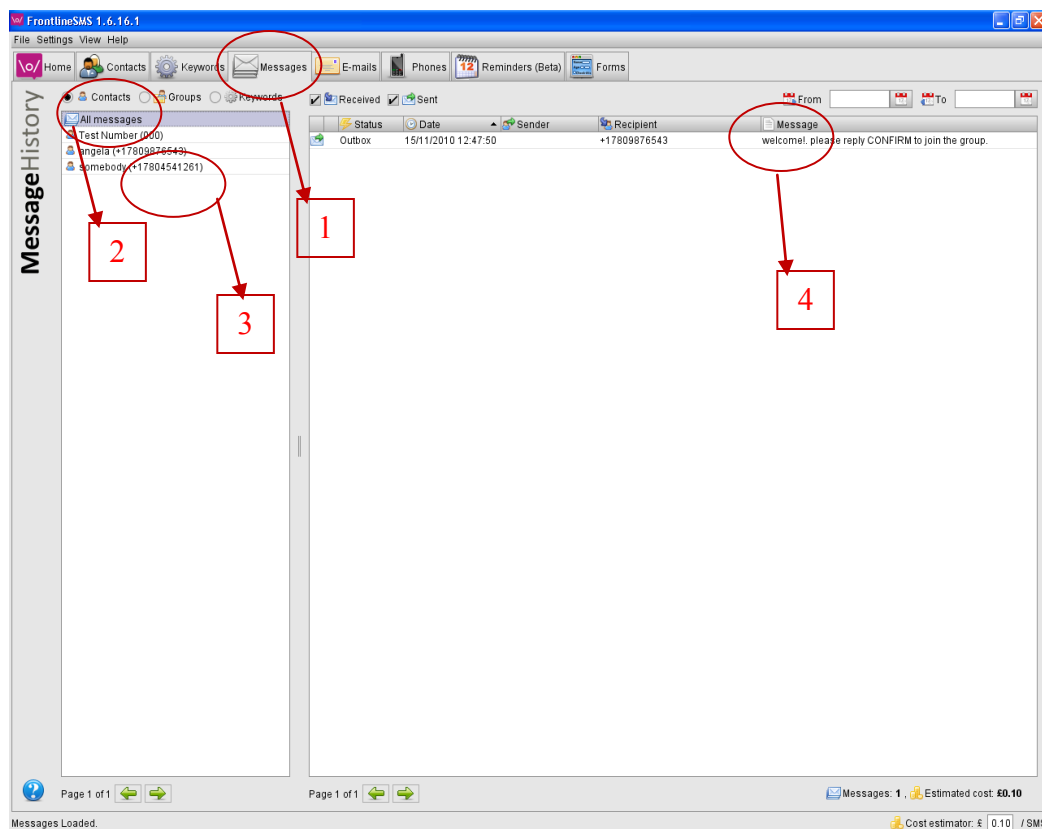


Other way to text is:



1. Select Contact tab in FLSMS
2. Select Send SMS button
3. Enter your message. Ask the recipient to respond with the keyword (eg. JOIN, LEAVE).
4. Here, you can see if your message have more than 160 characters
5. Select Send

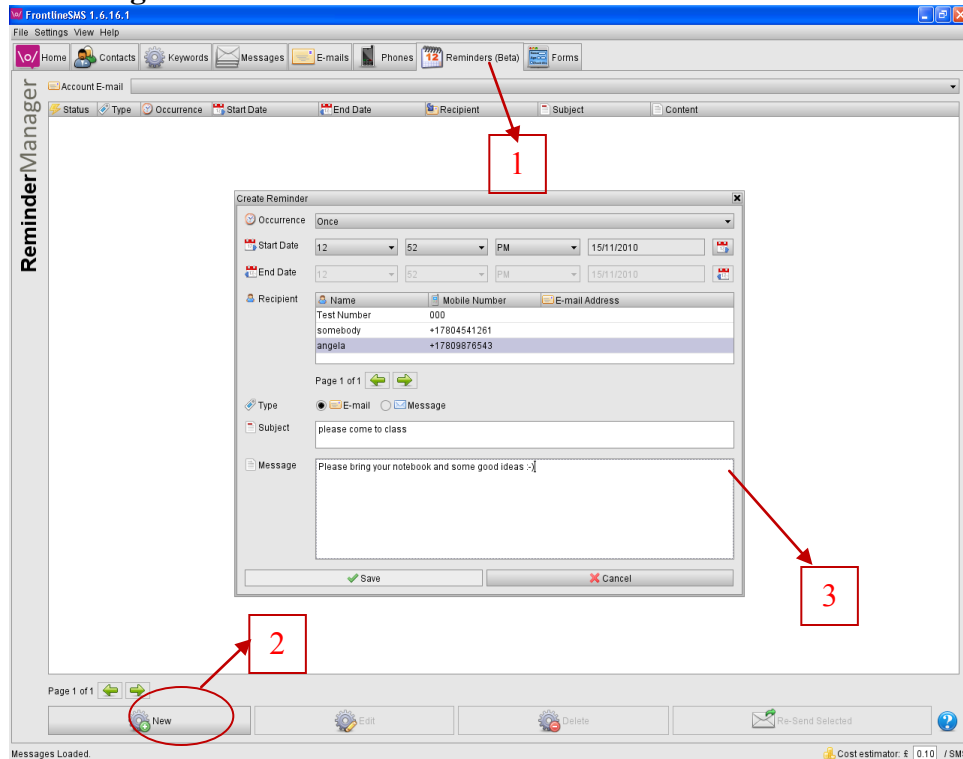
Another way to check your client's activity or responses:



1. Select Messages tab in FLSMS
2. Select All Messages, you will need to look up your client's ID or 4 last digits of their cell phone number to be able to identify it, since it will appear under all counselors clients
3. Click on your clients ID or number
4. Response will appear on the right hand side of the screen

How to send a reminder about the next appointment, in advance:

Creating a Reminder...

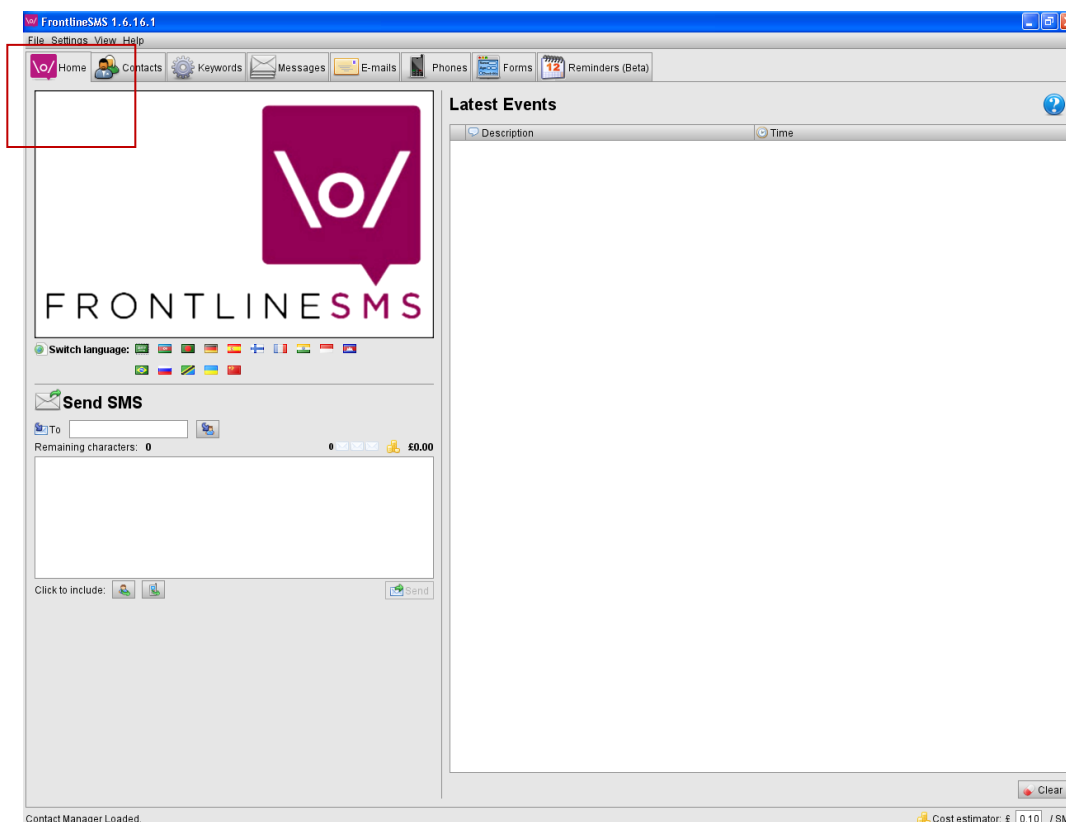


1. Select Reminder tab in FLSMS
2. Select your New reminder
3. A box will appear in screen on the right hand side called “create reminder”. Please fill in the info.

Occurrence	How many times do you want your client receive this reminder? Once, once a week, once a month?
Start Date	The three boxes are for the time and the calendar icon is for the day of the reminder. You can create your reminder in advance
End Date	This area is used when you need to create more than one reminder and you can select when to start and when to finish by clicking the calendar icon
Recipient	elect your client or your group, if they belong to the prenatal classes
Type	select message
Message	Your reminder message, signed with your name and with the prenatal class’s name only in the case of the prenatal classes
Save	

To finish:

Please do not close the program so other counsellors can use it when they want to text during their shift. The easy way to finish with your texting session is to select Home tab in FLSMS. Once you are in Home, please leave it open and on!



Important to remember:

- The phone needs to always be connected and the computer needs to be on.
- The number that is used (phone number) for texting is not listed in the Canadian directory or any service. This number is under XX (Canadian provider) and is a prepaid plan. Currently the account is held by the University of Alberta and it is understood that the provider will expose the account information only to the police. Only clients familiar with the service will know that the number belongs to the agency. If they have a caller ID service on their phones, it will be identified as the number.
- **Never answer the phone connected to the laptop**
- You don't need to have a cellphone to use this service. If you have a cellphone, you should not give your phone number to the client and you do not need to have your cellphone with you in your counselling time. The phone number to use the texting service at the agency is 780-X00-0000, and this is the number that you should give to your clients if they lose your contact in their cellphones.
- Always answer "Thank you so much for contacting us", provide information, contact, and reply within 24 hours
- Ask if they need a counsellor immediately

How to address issues of confidentiality through text messaging:

- Always ask and confirm with your clients if it is OK to phone back or if it's OK to text back by text message, before starting any conversation.
- Explain to clients that the number will not display the agency name on their phones as a caller ID. It will only display the agency name if this is the way that they save the number in their contact list. Suggest that if they have concerns or are not comfortable with other people knowing about their relationship with the agency, they should not save the contact with the name of the agency.
- Blackberry phones have the advantage and disadvantage of using and receiving text messages as an email. Always ask your client what kind of cellphone they have. If they have a Blackberry, ask them if they receive their message as an email, and if they want to receive messages from the agency as an email. (This means, to store them). If they don't want this service, tell them to contact their provider to set up their phone in a way that the agency messages are received as text messages and not as emails.
- Some people, especially teens, share their cellphones with partners, boyfriends, girlfriends, friends, etc. Always ask your client if she/he shares their plan with someone else. In this case, ask them:
 - how they would like to be contacted through texting,
 - what kind of information and conversations are OK and NOT OK to talk with them through texting and
 - What is the best time to contact them through texting.
- If one of your text messages is seen by parents or partners by mistake and they contact you by text message or they pretend to be the client, never give any information about your client or the agency and respond: "ask your daughter / girl-friend / wife about me".

Appendix 9. Lexicon Developed for the Pilot

Media Glossary: Texting Lingo
Source: adopted from Focus on the Family Canada & techdictionary.com.

Sexting (sex through texting)

420	is the equivalent of asking if the other person has pot - or wants to get high
1174	is a declaration that you're part of the so-called "Nude Club"
8	is a request for oral sex
GYPO	Get your pants off
LMIRL	the abbreviated way of saying, "Let's meet in real life"

Alerts

P911	translates to a "Parent Alert"
POS	alert that there's a "parent over [their] shoulder"

Texting codes

02	Your (or my) two cents worth.
10X	Thanks
2MI	Too much information
2U2	To You Too
4COL	For Crying Out Loud
420	let's get high
420	got weed?
<chuckle>	the speaker chuckles
<frown>	the speaker is frowning
<g>	Grin

A

A-OLs	Administrators On-Line
AAMOF	As A Matter Of Fact
ADN	Any Day Now
AFAIC	As Far As I'm Concerned
AFAIK	As Far As I Know
AFAIR	As Far As I Remember
AFJ	April Fools Joke
AFK	Away From the Keyboard
AISI	As I See It
ANFAWFOS	And Now For A Word From Our Sponsor
ANFSCD	And Now For Something Completely Different
AS	Another Subject
ASAP	As Soon As Possible
ASAYGT	As Soon As You Get This
ASL	Age, Sex, Location

ASLA	Age, Sex, Location, Availability
ATSL	Along The Same Line
AV	Audio Visual
AV	Anti-Virus
AWC	After While, Crocodile
AWGTHGTGTTA	Are We Going To Have To Go Through This Again?
AWHFY	Are We Having Fun Yet?
AWTTW	A Word To The Wise
AYOR	At Your Own Risk

B

B4N	Bye For Now
BAC	Bad A**ed Chick
BAK	Back At Keyboard
BBFN	Bye Bye For Now
BBIAB	Be Back In A Bit
BBIAF	Be Back In A Few
BBL	Be Back Later
BBR	Burnt Beyond Repair
BC	Because
BCNU	Be seein' you
BEG	Big Evil Grin
BF	Boy Friend
BFN	Bye For Now
BFD	Big Frickin Deal
BFF	Best Friends Forever
BIF	Before I Forget
BION	Believe it or not
BOBFOC	Body Off Baywatch, Face Off Crimewatch
BOHICA	Bend Over, Here It Comes Again
BOT	Back on Topic
BRB	Be Right Back
BRS	Big Red Switch
BTA	But then Again
BTAIM	Be That As It May
BTHOM	Beats the Hell Outta Me
BTOBD	Be There Or Be Dead
BTW	By The Way
BWL	Bursting With Laughter
BWQ	Buzz Word Quotient
BYE	Response to BYE?
BYE?	Are you ready to say goodbye?
BYKT	But You Knew That
BYOB	Bring Your Own Bottle
BYOM	Bring Your Own Mac

C

C&G	Chuckle and Grin
CADET	Can't Add, Doesn't Even Try
CID	Crying in Disgrace
CMIIW	Correct me If I'm Wrong
CO	Conference or Company
CPP	C Plus Plus or C++
CRS	Can't Remember Sh**
CSG	Chuckle, Snicker, Grin
CU	See You
CU2	See You, Too
CUL	See you later
CUL8R	See You Later
CULA	See You Later, Alligator
CWYL	Chat With You Later
CYA	See Ya or Cover Your Ass
CYAL8R	See You All Later
CYOA	Cover Your Own Ass

D

D8	Date
DAC	Duck and Cover
DAU	Dosen't Add Up
DIIK	Damned If I Know
DIKU?	Do I Know You?
DILLIGAD	Do I Look Like I Give A Darnn?
DIY	Do It Yourself
DK	Don't Know
DLTBBB	Don't Let the Bed Bugs Bite
DNFTT	Do Not Feed The Trolls
DTRT	Do The Right Thing
DWIMC	Do What I Mean, Correctly
DWIMNWIS	Do What I Mean, Not What I Say

E

EG or <eg>	Evil Grin
EOL	End of Life
EPIF	Epic Failure
ESAD	Eat Sh** and Die
ETLA	Extended Three Letter Acronym

F

F2F	Face To Face
FCFS	First Come, First Served
FISH	First In, Still Here
FICAR	Forget It, Cut And Run
FITB	Fill In The Blank
FOAD	F*** off and die
FOAF	Friend Of A Friend
FOAG	**** Off And Google
FOMC	Fell Off My Chair
FS	For Sale
FTASB	Faster Than A Speeding Bullet
F2F	Face to Face
FTF	Face To Face
FTL	Faster Than Light
FUBAR	Fouled Up Beyond All Repair
FUBB	Fouled Up Beyond Belief
FUD	Fear, Uncertainty and Doubt
FURTB	Full Up Ready To Burst
FWIW	For What It's Worth
FYA	For Your Amusement
FYI	For Your Information
 G	
G	Grin, or Giggle
G1	Good One
G2G	Got to Go
GA	Go Ahead
GAL	Get A Life
GD&R	Grinning, Ducking and Running
GD&RF	Grinning, Ducking and Running Fast
GD&WVF	Grinning, Ducking, and Walking Very Fast
GDW	Grin, Duck and Weave
GF	Girl Friend
GFN	Gone For Now
GFR	Grim File Reaper
GG	Good Game
GGP	Gotta Go Pee
GIDK	Gee I Don't Know
GIWIST	Gee, I Wish I'd Said That
GJ	Good Job
GL	Good Luck
GLGH	Good Luck and Good Hunting
GLWTN	Guffawing loudly waking up the neighborhood
GMTA	Great Minds Think Alike
GNU	Good, N' You?

GO	Get Out or Get Off
GOYFA	Get Off Your Fat Ass
GOWI	Get On With It
GR8	Great
GR&D	Grinning, Running and Ducking
GTFO	Get The F*** Out or Off
GTG	Got To Go
GTSY	Great To See You

H

H&K	Hugs and Kisses
H4U	Hot For You
HAGD	Have A Great Day
HAK	Hugs And Kisses
HAND	Have A Nice Day
HDYLT A	How Do You Like Them Apples?
HHIS	Hanging Head In Shame
HHOJ	Ha Ha Only Joking
HHOK	Ha Ha Only Kidding
HHOS	Ha Ha Only Serious
HHTYAY	Happy Holidays to You and Yours
HNY	Happy New Year
HOAS	Hang On A Sec (Second)
HOYEW	Hanging On Your Every Word
HSIK	How Should I Know
HT	Hi There
HBASTD	Hitting Bottom and Starting to Dig
HTH	Hope That Helps!

I

IAC	In Any Case
IAE	In Any Event
IAW	In Accordance With
IBK	Idiot Behind Keyboard
IBTD	I Beg To Differ
IC	I See
IDK	I Don't Know
IDKTMWIM	I Don't Know Tell Me What It Means
IDR	I Don't Remember
IIABDFI	If It Ain't Broke, Don't Fix It
IIRC	If I Remember Correctly
IIWM	If It Were Me
IJWTK	I Just Want To Know
IJWTS	I Just Want To Say

IKWR	I Know What's Right
IKWUM	I Know What You Mean
IKYABWAI	I Know You Are But What Am I?
IMA	I Might Add
IMAO	In My Arrogant Opinion
IMCO	In My Considered Opinion
IME	In My Experience
IMHO	In My Humble Opinion
IMN2U	I'm Into You
IMNSHO	In My Not So Humble Opinion
IMO	In My Opinion
IMPOV	In My Point Of View
IMS	In a Manner of Speaking
INPO	In No Particular Order
IOH	I'm Outta Here
IOHE4U	I Only Have Eyes For You
IOW	In Other Words
IRL	In Real Life
ISS	I'm So Sure
ISSYGTI	I'm So Sure You Get The Idea!
ISWYM	I See What You Mean
ITFA	In The Final Analysis
ITSFWI	If The Shoe Fits Wear It
IWALU	I Will Always Love You
IWBNI	It Would Be Nice If
IWTAAQ	I Want To Ask A Question
IYFEG	Insert Your Favorite Ethnic Group
IYSS	If You Say So
IYSWIM	If You See What I Mean

J

J4F	Just For Fun
JAM	Just A Minute
JAS	Just A Second
JC	Just Chilling
JFI	Just For Information
JIC	Just In Case
JK	Just Kidding
JMO	Just My Opinion
JTLYK	Just To Let You Know
JWK	Just Wondering

K

K	Okay
KHYF	Know How You Feel
KIBO	Knowledge In, Bullshit Out
KISS	Keep It Simple, Stupid
KIT	Keep In Touch
KMA	Kiss My Ass
KMIA	Kiss My Italian Ass
KPC	Keep Parents Clueless
KWIM	Know What I Mean?
KWL	Cool
KYFC	Keep Your Fingers Crossed

L

L	Laugh
L8R	Later
LABATYD	Life's A Bitch And Then You Die
LAB&TYD	Life's A Bitch And Then You Die
LJBF	Let's Just Be Friends
LLTA	Lots and Lots of Thunderous Applause
LMA	Leave Me Alone
LMAO	Laughing My Ass Off
LMBO	Laugh My Butt Off
LMHO	Laughing My Head Off
LMK	Let Me Know
LMS	Let Me See
LOLV	Lot's Of LoVe
LOL	Lots Of Luck
LOL	Laughing Out Loud
LOM	Laugh Out Major
LOML	Love Of My Life
LQL	Laughing Quite Loudly
LSHMBH	Laughing So Hard My Belly Hurts
LTHTT	Laughing Too Hard To Type
LTM	Laughing To Myself
LTNS	Long Time No See
LTNT	Long Time, No Type
LQTM	Laughing Quietly To Myself
LTS	Laughing to Self
LUWAMH	Love You With All My Heart
LY	Love You
LYLAB	Love You Like A Brother
LYLAS	Love You Like A Sister
LYMY	Love You Miss You
M	

M8	Mate
MEGO	My Eyes Glaze Over
\M/	Heavy Metal Music
MLA	Multiple Letter Acronym
MOF	Matter Of Fact
MOS	Mom Over Shoulder
MOSS	Member Of Same Sex
MOTAS	Member Of The Appropriate Sex
MOTD	Message of the day
MOTOS	Member Of The Opposite Sex
MOTSS	Member Of The Same Sex
MRA	Moving Right Along
MTFBWY	May The Force Be With You
MYOB	Mind Your Own Business

N

NAC	Not A Clue
NAVY	Never Again Voluneer Yourself
NBD	No Big Deal
NE14KFC?	Anyone for KFC?
NFW	No Freakin Way
NFW	No Friggin Way
NHOH	Never Heard Of Him/Her
NIH	Not Invented Here
NIMBY	Not In My Back Yard
NINO	Nothing In, Nothing Out or No Input, No Output
NITL	Not In This Lifetime
NM	Never Mind
NOYB	None Of Your Business
NP	No Problem
NQA	No Questions Asked
NRN	No Response Necessary
NTIM	Not That It Matters
NTIMM	Not That It Matters Much
NTW	Not To Worry
NTYMI	Now That You Mention It

O

O	Over (indicates the end of a communication)
OATUS	On A Totally Unrelated Subject
OAUS	On An Unrelated Subject
OB	Obligatory
OBO	Or Best Offer

OBTW	Oh, By The Way
OIC	Oh, I See
OMFG	Oh My Friggin God
OMG	Oh My God
ONNA	Oh No, Not Again
ONNTA	Oh No, Not This Again
ONYD	Oh No, You Didn't
OO	Over and Out (end of communication)
OOTC	Obligatory On-Topic Comment
OST	On Second Thought
OTF	On the Floor (laughing)
OTFL	On the Floor Laughing
OTL	Out To Lunch
OTOH	On The Other Hand
OTOOH	On The Other Other Hand
OTT	Over The Top
OTTH	On The Third Hand
OTTOMH	Off The Top Of My Head
OWTTE	Or Words To That Effect

P

P911	Parent Alert Change Subject
PABG	Packing a Big Gun
PCMCIA	People Can't Memorize Computer Industry Acronyms
PCT	Podcasting
PD	Public Domain
PDS	Please Don't Shout. (typing all in capital letters is rude)
PEBCAK	Problem Exists Between Chair And Keyboard
PITA	Pain In The Ass
PLOKTA	Press Lots Of Keys To Abort
PMBI	Pardon My Butting In
PMF	Pardon My French or Pure Freaking Magic
PMFBI	Pardon Me For Butting In
PMFJI	Pardon Me For Jumping In
PMIGBOM	Put Mind In Gear, Before Opening Mouth
PMJI	Pardon My Jumping In
PMP	Peeing My Pants
PNCAH	Please, No Cursing Allowed Here
POC	Piece Of Crap
POS	Parent Over Shoulder
POS	Piece of S**t
POSSLQ	Person Of Opposite Sex Sharing Living Quarters
PPL	People
PTMM	Please Tell Me More

Q

QT

Cutie

R

R U THERE?

Are you there?

RAEBNC

Read And Enjoyed, But No Comment

RE

Hello again or In Regard To

REHI

Hi again

RHIP

Rank Has Its Privileges

RL

Real Life

RLCO

Real Life Conference

ROFL

Rolling On Floor Laughing

ROFLAS

Rolling On Floor Laughing And Screaming

ROFLMAO

Roll On Floor Laughing My Ass Off

ROFLOL

Roll On Floor Laughing Out Loud

ROTF

Rolling On The Floor

ROI

Return on Investment

ROTFL

Rolling On The Floor Laughing

ROTFLMAOTID

Rolling On The Floor Laughing My Ass Off Till I Die

ROTFLLOL

Rolling On The Floor Laughing Out Loud

ROTFLLOLAPMP

Rolling On The Floor Laughing Out Loud And Peeing My

Pants

ROTFLTIC

Rolling On The Floor Laughing Till I Cry

RRQ

Return Receipt Request

RSN

Real Soon Now

RSVP

Repondez S'il Vous Plait - please reply

RTBM

Read The Bloody Manual

RTFAQ

Read The Frequently Asked Questions

RTFF

Read The Freaking FAQ

RTFM

Read The F----- Manual

RTM

Read The Manual

RTSM

Read The Silly Manual

RTWFQ

Read The Whole Friggin' Question

RTWT

Read The Whole Thing (blog term)

RYFM

Read Your Friendly Manual

RYS

Read Your Screen

S

S

Smile

SAPFU

Surpassing All Previous Foul Ups

SCNR

Sorry, Could Not Resist

SEC

Wait a second

SETE

Smiling Ear To Ear

SFLA	Stupid Four Letter Acronym
SICS	Sitting In Chair Snickering
SLM	See Last Mail
SMOP	Small Matter of Programming
SNAFU	Situation Normal: All Fouled Up
SO	Significant Other
SOB	Stressd Out Bigtime
SOL SH	** Out Of Luck
SOS	Same Old Stuff or Help!
SOW	Speaking Of Which
SSDD	Same Stuff Different Day
STN	Spend The Night
SUFID	Screwing Up Face In Disgust
SUL	Snooze You Loose
SWAK	Sealed With A Kiss
SWIM	See What I Mean?
SWL	Screaming With Laughter
SYS	See You Soon

T

TAF	That's All, Folks!
TAFN	That's All For Now
TAKS	That's a knee slapper
TANJ	There Ain't No Justice
TANSTAAFL	There Ain't No Such Thing As A Free Lunch
TARFU	Things Are Really Fouled Up
TBD	To Be Decided
TBYB	Try Before You Buy
TCO	Total Cost of Ownership
TDM	Too Darn Many
TFS	Three Finger Salute (Ctl-Alt-Del)
TFTHAOT	Thanks For The Help Ahead Of Time
TFTT	Thanks For The Thought
TGAL	Think Globally, Act Locally
THX	Thanks
TIA	Thanks In Advance
TIC	Tongue In Cheek
TINWIS	That Is Not What I Said
TMI	Too Much Information
TNSTAAFL	There's No Such Thing As A Free Lunch
TNTL	Trying Not To Laugh
TNX	Thanks
TNXE6	Thanks A Million
TOBAL	There Oughta Be A Law
TOBG	This Oughta Be Good

TOMA	Take Over My Arse/Ass
TOY	Thinking Of You
TPTB	The Powers That Be
TRDMC	Tears Running Down My Cheeks
TS	Totally Stinks
TSR	Totally Stupid Rules
TTBOMK	To The Best Of My Knowledge
TTFN	Ta Ta For Now
TTKSF	Trying To Keep a Straight Face
TTUL	Talk To You Later
TTTT	To Tell The Truth
TTYAWFN	Talk To You A While From Now
TTYL	Talk To You Later
TTYS	Talk To You Soon
TTYT	Talk To You Tomorrow
TYCLO	Turn Your CAPS LOCK Off (Stop Shouting)
TYVM	Thank You Very Much

U

UOK	Are You OK?
UOM	You Owe Me
UOMBT	You Owe Me Big Time
UR	Your, You're (You Are)

W

WAEF	When All Else Fails
WAG	Wild Assed Guess
WAYD	What Are You Doing?
WB	Welcome Back
WDALYIC	Who died and left you in charge?
WDYMBT	What Do You Mean By That?
WDYT	What Do You Think?
WE	Whatever
WHT	What Happened To
WHT	Whatever Happened To
WIBAMU	Well, I'll Be A Monkey's Uncle
WIBNI	Wouldn't It Be Nice If
WMMOWS	Wash My Mouth Out With Soap
WNOHGB	Where No One Has Gone Before
WOA	Work Of Art
W00T	We Owned the Other Team
WOTAM	Waste Of Time And Money
WRT	With Regard To, or With Respect To
WRUD	What Are You Doing

WT	Without Thinking
WTB	Want To Buy
WTF	What The F***?
WTFIYP	What The F*** Is Your Problem?
WTG	Way To Go!
WTGP	Want To Go Private?
WTH	What the heck/hell?
WTMI	Way Too Much Information
WTN	What then now?
WTN	Who then now?
WTTM	Without Thinking Too Much
WUM	Watch Your Mouth
WWJD	What Would Jesus Do?
WWYD	What Would You Do?
WYM	Watch Your Mouth
X	
XOXOXO	Kisses and hugs
Y	
YABA	Yet Another Bloody Acronym
YAOTM	Yet Another Off-Topic Message
YAUN	Yet Another Unix Nerd
YBYSA	You Bet Your Sweet A**
YGLT	You're Gonna Love This
YGTI	You Get The Idea?
YGTBK	You've Got To Be Kidding
YGWYPF	You Get What You Pay For
YIU	Yes, I Understand
YIWGP	Yes, I Will Go Private
YKYARW	You Know You're A Redneck When
YKWIM	You know what I mean
YMMV	Your Mileage May Vary (or your experience could be
different)	

Appendix 10. Background Interview – PCC

1. How long are you been volunteering at the Centre?

October 2010, will be 4 years

2. How communication channel have been changing internally and externally during this years?

Not a lot, I guess this will be new, texting is a new way, other than that, we have been using mostly the phone and sometimes email for them but not to often; but usually the phone.

3. Email was a way to communicate with clients when you came?

If the client wanted us, usually if they left their email to us, usually is last resource, we will phone first and sometimes if the phone is out of order or not working then we will try to send them and email.

4. Do you use outlook?

Depending what are we working on. I think the comfortable is called World Client web mail, there is a company, and goes through that, I use Mozilla, or otherwise Internet explorer.

5. The system used for email?

We use to use Internet explore but we change t something local called World client, because we were having some problems and stuff, so as far as I know is just Word Client and I think they keep all the information there

6. Currently, you are the frontline person to contact clients that want to commit themselves with the prenatal group. Please tell me about this experience.

a. What happen after clients are counseled by counselors?,

Then they usually will come if they are going to rebook a counseling appointment again or if they are in a prenatal group they will usually stop and let me know if they are coming next week or not,

b. In which ways you contact them and how?

So when they say that they want to be in the group list I will call them every week to remind them of their class and I do that with all the clients, doesn't matter if they are in a group or not, I do it with all the clients, I call the day before or two days before to remind them. And is for any one who has an appointment,

I contact them through phone. No email, not usually, at least again, if I have one or two where the phone is out of service and I have an email address, then I will try to contact them by email. An one respond, just because her phone is not been

working or something, and we were just concern so I try to mail her, so she did response, but usually doesn't work this way.

- c. What do they say about that? They don't like to be contacted by email?

No, they just are use to, usually is always have been on phone, you know because we have to write down on the book, the number, right? So is way easy to write down the number than an email, because usually you don't have the space in the agenda for that.

- d. How many times do you contact them?

Usually, I phone every day to who has an appointment for next day.

- e. What is the best way to get a hold of them?

The phone is usually good. I usually get them and talk to them or other way I will left a message and ask me to call me back, sometimes they call back and sometimes not

7.As you know, FrontlineSMS is the new program used at the agency for texting with clients. Would you see any use of this program for the role, task that you do contacting the clients for the prenatal group? If yes, how? Which other ways you consider will be helpful?

Yea, we were just talking about that some weeks ago, saying that you know, probably will be really nice to do that specially for the groups, because most of them know that they have that, but sometimes is just good to have a reminder in case they forgotten, so for the groups will be very good, so we could just have everything there and automatically sent them, because I know that they are coming for a certain number of weeks and then, we could just programming there to remind them once a week, I think that would be very good.

It will be good to text them instead of calling them for reminders because sometimes they are not available, or sometimes they don't want to answer the phone, I think usually they are not available. So you just leave them a message, and sometimes they call back and sometimes they don't but, sometimes you cannot even leave a message, sometimes they don't have that service or they change their phone.. That happen a lot and they don't tell us. They just don't think in that.. once a girl really wanted to take the classes, and she came to the party, and the number that she left we cannot get a holder anymore. I try to contact her through other people who knew her, but I couldn't get a hold of her, because of the confidentiality issue, so sometimes they change phones and they move around a lot, so sometimes is hard to keep up with them, but I think that with phones, most people has phones this days, so if we can text them or phone them I think that is probably the best way, because some of them sometimes don't even have access to the computer so email is not always the great either, but I think most of them have phone, so if we could text them or call, I think that would be good.

Appendix 11. Results extracted from the Pilot's report

Results

This partnership was possible because of the previous relationship built between the volunteer / graduate student and the agency. Developing a strategy with a community agency demands trust before knowledge: *I use it (the software) because I like you, and I want to help you in your studies* (Counselor PCC, 2012, personal communication).

Implementing a new technology, such as texting in PCC Edmonton and adapting their services to text services was new ground for PCC staff and the MARS Lab because of the nature of the agency and their clients, and the sensitivity of their services.

Indeed, counselors experienced excitement because of their enrolment in the pilot combined with concerns that followed during the training process and the length of the pilot. This is reflected in expressed questions and comments such as:

How much should we share through text? When do we go live in Edmonton with the campaign? How will we respond to this campaign (in terms of capacity) when it becomes public? Nobody has replied yet, why? I did not text for a while; I hope she remembers who I am. Do you think texting is evil? Do I need to have a cell phone with me to send a text in FLSMS? Is texting going to replace other medias? I feel more comfortable using the phone to contact clients. What if it does not work? I am going to call her if you do not mind. I think I might put her in a spot if she talks, so I am going to text her. I want to learn because my daughter texts all the time, even when she is sleeping, and I want to understand her behavior (PCC Counselors, personal communication, 2011- 2012).

Expectations and roles work and are understood differently in an NGO and in academia. For example, concepts such as time, responsibilities with the technologies' success, implementation of technologies, organizational change, and learning curve are different. As an example, it was planned and expected in the MOU that counselors would store information about the clients interested in texting in their FLSMS folders. It was also expected that they would use the tab called "Reminders" as a tool to remind their existing clients about appointments. However, no counselors included information about their clients in the software. This information was included by the student researcher as a volunteer duty required by the volunteer coordinator. As well, for the period of October 2011 to March 2012 only four reminder messages were sent to clients.

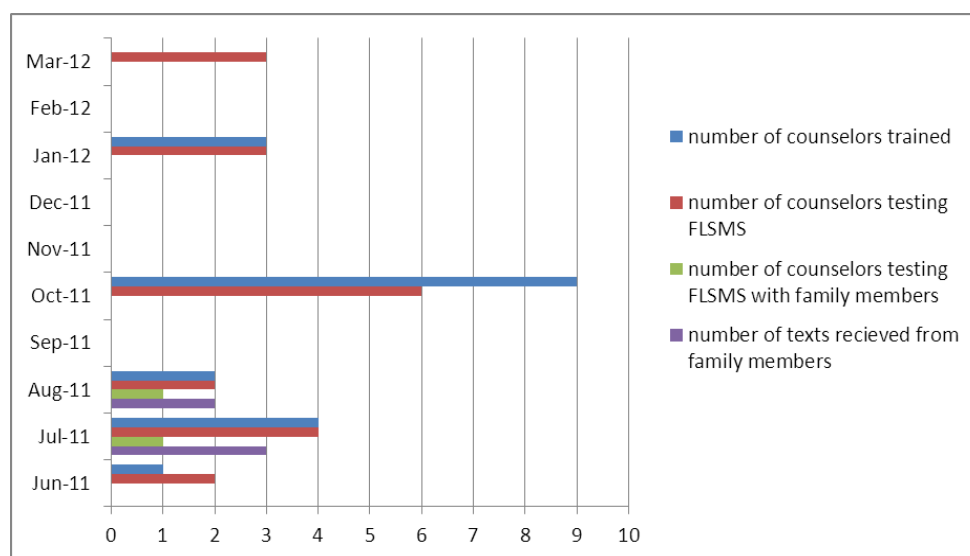
A reason for this may be explained by several comments of counselors when the one-on-one training was followed: *This is easy, you know, the thing is getting in to do it. I am very busy when I am here and I have lots of things to do* (Counselor at PCC, personal communication, February 2012).

Even when counselors received the same training on how to create clients in the contacts area, specifically in each counselor folder or group; on how to send an SMS to each client, how to check for the messages, how to delete a contact, and how to set up reminders for their appointments; some counselors, especially those over 40 years old, required more training, but did not always request it. They were also more reluctant to use FLSMS on the basis of their volunteer experience.

Though a number of clients wrote in the client sheet that “text” was the best way to get a hold of them, of 20 counselors trained no one took initiative, without the researcher, to include this information on the FLSMS. Also, some counselors did not follow the instructions on how to use the software or on promoting this service with clients⁸⁷, especially those over 40. This is reflected in many errors which occurred during the pilot, such as misspelling the phone number⁸⁸, disconnecting the phone that was connected to the laptop⁸⁹, sending long text messages⁹⁰, and by some of their comments: *phoning is so much better than texting for me; I refuse to text unless it is necessary; it is very good that you are doing it with me today, otherwise I will not do it* (Counsellors at PCC, personal communication, 2012).

Some counselors, however, showed a lot of interest in the program and were really keen to learn to use it because were interested in using it with family members or because were really interested in communicating with clients in this way. *Some of them say text is best, so I want to text them* (Counselors at PCC, personal communication, 2012). Little training was necessary for these counselors whose ages varied between 20 and 40 years old. In one case, a counselor tested the program with her family members and in another case; a counselor took extra notes on how to use FLSMS in her notebook.

Figure 1. Adoption FLSMS technology by the PCC Edmonton.



Even when no contact was made by clients texting the Centre initially, counsellors were able to support clients and make contact with the partner of clients in a

⁸⁷ Some client contact sheets appear without a communication channel chosen by the client to be contacted. Counselors do not always follow up with clients for this information.

⁸⁸ For the system to recognize the phone number and be able to send the text, a +1 must be included in the phone number area. This is because FLSMS was developed to be an international software (see Appendix 9 for more information).

⁸⁹ In order to send text messages, FLSMS always has to be connected to a phone. This happens by connecting a phone to a laptop or PC and starting the software.

⁹⁰ In the MOU it was agreed that messages would not be longer than 160 characters. Some counselors sent three text messages at a time to contact a client because their messages were so long.

new way (this did not happen before through phone calls or emails)⁹¹. Most messages were related to support through appointments, housing, pregnancies, and difficult situation support.

Figure 2. Average length of time between counsellor texting clients and their responses

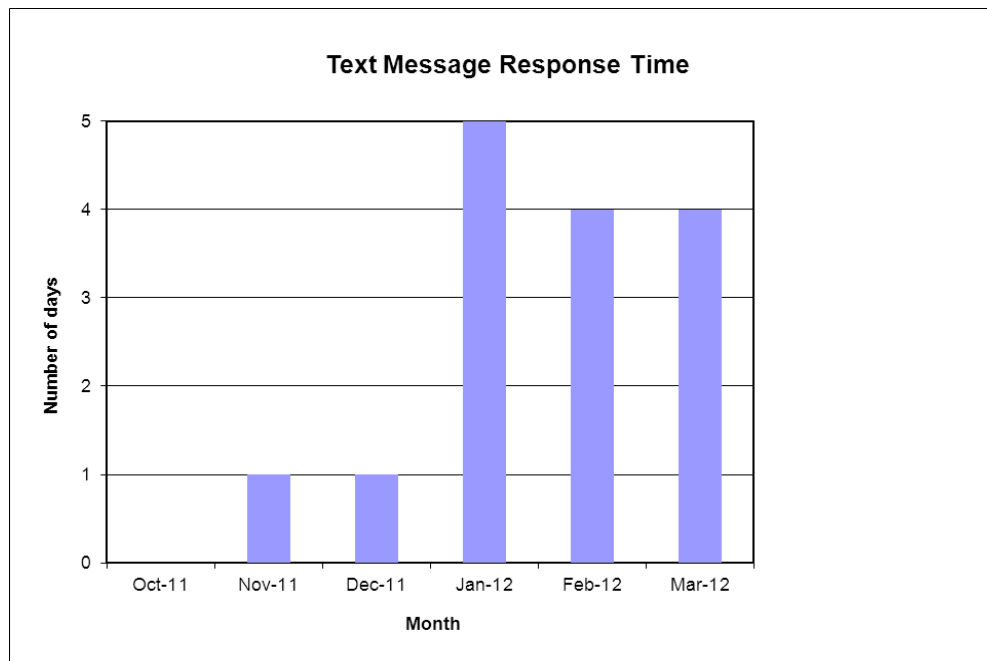
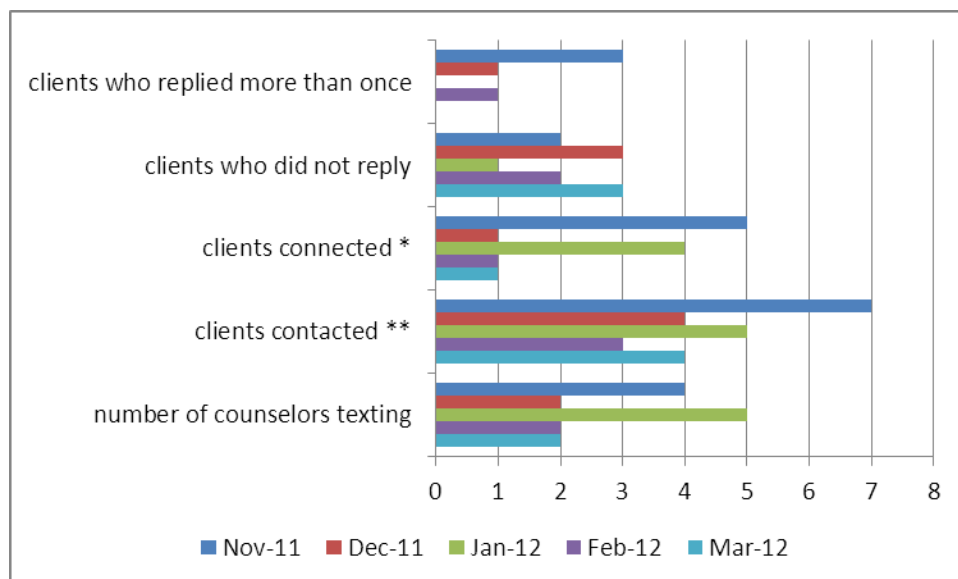


Table 1. Analysis Log from FLSMS at PCC Edmonton

Messages	#
Total from June 16, 2011 to March 19, 2012	303
FLSMS Errors	11
Texts between PCC staff	218
Texts between PCC staff and family	9
Texts sent to clients	35
Text responses from clients	20
Text responses from people who were not clients	1
Texts not received by clients because of errors (missing or wrong phone number)	4
Total test reminders	34
Total error reminders	16
Reminder tests between PCC staff members	17
Reminders sent to clients	1

⁹¹ For example, a counsellor was able to contact the male partner instead of the client, and another counsellor was able follow through text an abortion procedure with a client, offering support and words of encourage during her experience.

Figure 3. FLSMS report of interactions between clients & staff.



* Clients contacted refers to the number of clients that received a text message from PCC

** Clients connected refer to clients who replied to those messages and made contact successfully with counselors through text messages.

Differences were noted in the relationship of different staff members with text messaging. Some of the staff were very familiar with texting, and others were not even familiar with how to use the laptop. It was also difficult to evaluate the success of the technology in the five month trial period given. *It is too soon to know and say if does work for us* (Counsellors at PCC, personal communication, 2012).

It was a significant challenge for PCC staff to figure out how to combine their roles as counselors and their approach to texting technologies. This was exemplified in the fact that most of the messages reported in the software are related to testing between the volunteer coordinator and the counselors.

Additionally, learning the lingo that teens use was one of the first changes in counselor's work practices, though some of them learned how to use it with great enthusiasm. However, through testing with young family members, counselors and members of this pilot learned that the lingo adapted for the pilot should not be used with clients. Lingo is not seen as a professional way to approach clients: its use is not appropriate with members outside of close relationships and could give a wrong impression of the level of intellectuality of counsellors (Counsellor at PCC, personal communication, 2012).

Several errors with the software also frightened some counselors that were inexperienced with current common technologies, such as PCs or laptops. This is reflected in comments such as:

I try to erase a message after I checked and it appears as I sent it already. If this happens again I will not use text with my client anymore. The system should be

more friendly and keep it simple. This laptop frustrates me. This computer is hard to check and is not very functional (Counsellors at PCC, personal communication, 2012).

Figure 4. FLSMS errors during the length of the pilot.

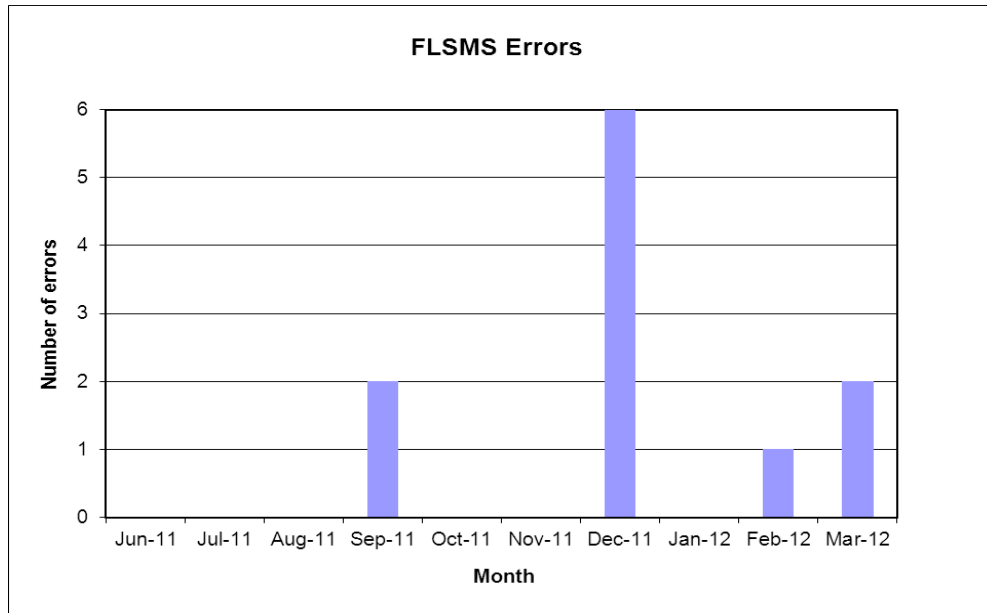
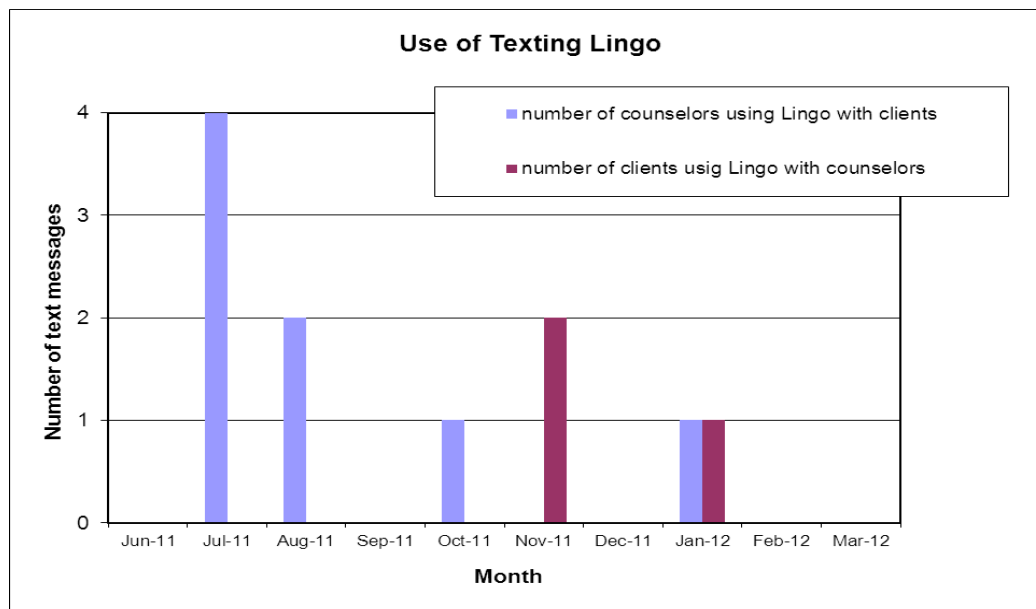


Figure 5. Report of uses of 'lingo' between clients and staff



Lessons learned and recommendations

Tension and confusion in how to intervene or how to share knowledge rose between the volunteer / researcher and affected the results of the pilot. Initially her research was set up to review the relationships of the clients / future clients, texting through FLSMS software, and the agency. After the training, some counselors expressed great interest in learn about texting not only because will be used at the agency but because personal interest, such as been able to communicate with their family members; other members showed little interest and frustration because they were not familiar with new technologies. These results were included in her research.

Working with open source technologies and community of practices has advantages and disadvantages, as well as is developing a pilot with an NGO with financial challenges. Initially, the software did not work with a new phone recommended by the FLSMS community, resulting in numerous software errors (the phone was a Motorola V235 with Fido). It was necessary to exchange this for a probed phone. PCC and the MARS lab viewed these problems as simply a learning process involved with research into new technologies.

Through this, it was recognized that open source software like FLSMS, produced in developing countries, has difficulties adapting properly in developed countries, ironically because of its simplicity. The software actually supports and fits the needs of NGOs in “both worlds”, but does not take advantage of the technological advances and differences of each part. For example, one of the challenges in Canada and in Edmonton was finding the right phone to work with the software since most of the phones that would work are obsolete in Canada (this is reported by other sources in the community of practice, FrontlineSMS, 2011). Also, advanced computer systems such as iPhones, Androids, Blackberry, MAC phones, and computers are not compatibles with FLSMS software.

The software is user friendly, but it requires specific functions for the use in counseling organizations, such as the PCC. In general there is a need to translate counselor recommendations into actions such as:

- Developing of a plug-in such as “chat” when messages are received
- Functionality similar to Microsoft Word
- Individual logins will clarify how to review messages. Currently messages are stored in conjunction with other messages and this confused the individual users.
- Software needs to be combined with other media, such as email, so it can be accessed wirelessly by counselors and not restricting it to use on a single device (PC laptop).
- Logistics of coordination of how to use the laptop, when to use it, connecting the phone to the laptop and FLSMS contributed to the difficult acceptance of the software for the inexperienced counselors. Combining old technologies with the software would help them in their transition.

Preliminary evaluation from the nine month pilot pointed to the importance of more time for this kind of pilot research, since the way that this kind of NGO works delays real understanding of the phenomena. For example, during October and March of 2012, when the system was live, some counselors resigned their volunteer commitment with PCC and new counselors were trained. Since clients are contacted by only one counselor, this delayed the process of connection between them and clients. As well, counselors only volunteer at the Centre one day a week.

Some counselors also experienced an increase in a sense of leadership with technological advances and knowledge learned from the MARS Lab, and involvement in

the use of texting technologies. Others experienced a decreased effectiveness during their time volunteering at the Centre, since learning the technology demanded time.

Despite this, the MARS Lab felt comfortable with the learning curve of FLSMS at PCC, since this is the normal way research occurs, but the experience was new for PCC staff and was adopted through the development of the pilot: *I guess we are figuring out how it works. I think it is for sure going to change the way that we work here and who knows, maybe we will not need to even come to do counseling here, and we could do it from home* (PCC Counselor, 2011, personal communication).

Preliminary data highlights a number of issues related to the volunteer group at PCC and their adaptation to and adoption of new technologies. It also suggests that even when there does not seem to be a massive need for clients to be texting with counselors, a few clients expressed a preference to communicate only through text messaging. This supports the proposal that text messaging should be included as an additional communication service at the PCC after this pilot.

Table 2. Pilot budget 2011-2012

Product – Action	Cost
Customized software for the pilot	CA \$ 0.00
Set up the pilot: this cost includes the purchase of a laptop, a cell phone, and a pay as you go annual plan	CA \$700.00
Marketing and evaluating plan: assumed by the University of Alberta as part of the research	CA \$ 0.00
Maintenance: FLSMS community of practice offered this support for free as it is a collaboration, where the users expect that this service will be ‘paid’ through knowledge transfer / shared practices in their community	CAS 0.00

This pilot highlights the feasibility of FLSMS as a permanent resource for organizations in Canada and suggests it is perfect for the use of pilots and for more elaborate services, such as those required at PCC Edmonton, requiring expertise and tailoring of functions that could be developed by a volunteer service from the community of practice of FLSMS in Canada or through new software.

The twenty first century NGO, such as the PCC, does not need a ridiculously big budget to include new technologies in their communication strategies. The implementation of FLSMS at the PCC in Edmonton cost a grant total of CA \$700 for a year of work.

Appendix 12. Image of the literature review strategy

The image shows two screenshots of a Windows Explorer window. The top screenshot shows the 'thesis literature review' folder containing a list of files and folders. The bottom screenshot shows the '1. txt and the choose communication tool by teens' folder containing a list of files and folders.

thesis literature review

File Edit View Favorites Tools Help

Back Forward Refresh Search Folders

Address C:\Documents and Settings\Angela\My Documents\Dropbox\thesis literature review

File and Folder Tasks

- Rename this folder
- Move this folder
- Copy this folder
- Publish this folder to the Web
- Share this folder
- E-mail this folder's files
- Delete this folder

Other Places

- Dropbox
- My Documents
- Shared Documents
- My Computer
- My Network Places

Details

1. txt and the choose communication tool by teens
File Folder
Date Modified: Thursday, May 17, 2012, 3:13 PM

1. txt and the choose communication tool by teens
2. text and sexual health care suport for the youngest generation
3. text support human capital
4. text support social capital
5. mobile health
6. Mobile background
7. health communication
8. sexual health-teenage pregnancy
communication theory
Methodology
sexual health-teenage pregnancy
theory comm
Thesis example
Thesis reference same topic

1. txt and the choose communication tool by teens

File Edit View Favorites Tools Help

Back Forward Refresh Search Folders

Address C:\Documents and Settings\Angela\My Documents\Dropbox\thesis literature review\1. txt and the choose communication tool by teens

Name	Size	Type	Date Modified
2001		File Folder	2/6/2012 1:10 PM
2002		File Folder	5/17/2012 2:32 PM
2003		File Folder	5/8/2012 10:05 AM
2004		File Folder	2/2/2012 3:11 PM
2005		File Folder	2/6/2012 12:32 PM
2006		File Folder	6/19/2012 2:54 PM
2007		File Folder	5/15/2012 10:10 AM
2008		File Folder	5/15/2012 1:20 PM
2009		File Folder	5/15/2012 10:10 AM
2010		File Folder	2/3/2012 2:17 PM
2011		File Folder	2/3/2012 2:19 PM
2012		File Folder	2/14/2012 9:48 AM
TEENS AND CEL LR COMPLET...	500 KB	Microsoft Office Wo...	5/17/2012 3:13 PM
teens-mobiles	50 KB	Microsoft Office Wo...	12/12/2011 3:51 PM

File and Folder Tasks

- Make a new folder
- Publish this folder to the Web
- Share this folder

Other Places

- thesis literature review
- My Documents
- Shared Documents
- My Computer
- My Network Places

Details

1. txt and the choose communication tool by teens
File Folder
Date Modified: Thursday, May 17, 2012, 3:13 PM

Appendix 13. Copy of the email sent to local agencies (secondary documents)

x Google Search More >>
 Favorites Web Slice Gallery
 University of Alberta Mail - Information

Information
 2 messages

Angela Keller <arenas@ualberta.ca>
 To: options@optionssexualhealth.ca

Good morning,

My name is Angela Keller and I am a graduate student at University of Alberta, with the Masters in Communications and Technology (MACT) Program. Currently I am doing my thesis research, which is focused on uses of texting promoting sexual public health or supporting sexual public health - parenting support for youth and for that reason, since you are one of the NGOs in Edmonton providing that kind of community support, I would like to approach your organization to ask some information for my research:

1. Is you organization currently using texting services (SMS or short message) ?,
2. if you are, with what purposes? (ie. for internal purposes, re: between colleagues or for external purposes, re: for clients, and what kind of services do you provide to clients trough txt?)
3. if you do not, why?

I would not need a lot of detailed information, but enough to complete a background in the city of Edmonton. I really appreciate any information that you could share with me.

If you ORG needs more information about my research please do not hesitate in contact me through my email (arenas@ualberta.ca and angimaria.keller@gmail.com), or in case you need references from the university, please contact my supervisor at:


Gordon Gow
 Associate Professor and Program Director,
 Graduate Program in Communication and Technology (MACT), University of Alberta
gordon.gow@ualberta.ca
 (780) 492-6111

Thanks in advance for your help,

Angela Keller
 MA. student at the Faculty of Extension
 University of Alberta

Done

Appendix 14. Research ethical approval

		RESEARCH ETHICS BOARD	
		<small>308 Campus Tower Edmonton, AB, Canada T6G 1K8 Tel: 780.492.0459 Fax: 780.492.9429 www.reo.ualberta.ca</small>	
Notification of Approval			
Date:	December 12, 2011		
Study ID:	Pro00022778		
Principal Investigator:	Angela Keller		
Study Supervisor:	Gordon Gow		
Study Title:	Mobile Sexual-Health Networks: Learning what connects Young Adults, Text-Messaging, and Community Support		
Approval Expiry Date:	December 10, 2012		
Approved Consent Form:	Approval Date	Approved Document	
	12/12/2011	Interview Consent Form	
	12/12/2011	Consent Form	
	12/12/2011	Mobile Sexual Health Form	
<p>Thank you for submitting the above study to the Research Ethics Board 1. Your application has been reviewed and approved on behalf of the committee.</p> <p>A renewal report must be submitted next year prior to the expiry of this approval if your study still requires ethics approval. If you do not renew on or before the renewal expiry date, you will have to re-submit an ethics application.</p> <p>Approval by the Research Ethics Board does not encompass authorization to access the staff, students, facilities or resources of local institutions for the purposes of the research.</p> <p>Sincerely,</p> <p>Dr. William Dunn Chair, Research Ethics Board 1</p> <p><i>Note: This correspondence includes an electronic signature (validation and approval via an online system).</i></p>			

Appendix 15. Tables of coding and analysis

Table A 15-1. Pilot results and the main research question: How could text messaging improve the relationship between young adults in Edmonton facing unplanned pregnancies and an agency that provides pregnancy health information support?

Categories	Category 1: texting services at PCC provided a new resource for the technological need of the agency and the community and this was achieved because they trusted the researchers		Category 2: texting provided support in unexpected ways	Category 3: Measure of success and technology uses were different for each participant
Subcategories	Alternative to address technological / communication gap	A non-profit committed to the community and with limited capacity	Contact and support to unexpected populations	Notable differences in work practices and expectations
Codes or thematic phrases	Pilot added value to the agency, the university group, and the community	Passion to serve the community facing unplanned pregnancies	Contact with male clients/partners through text	The roles and responsibilities expected of staff participants with the technology were not followed, resulting in disruption of project goals
		Competition and capability limitations	Contact and support in distress	Notable differences regarding measuring success of the project between participants
		Commitment to embrace new strategies is related to trust in the researcher		

Table A 15-2. Pilot results and the research question: How is the introduction of text messaging at PCC in Edmonton perceived by it young adult clients?

Categories	Category 1: The young adult clients of PCC Edmonton recognize texting as their chosen communication channel	Category 2: The young adult clients of PCC Edmonton have boundaries in the uses of texting and their mobiles phones
Subcategories	Preference to be contacted through the mobile phone	Understanding how they should be contacted through texting is defined by the young adult clients, not by the agency
Codes or thematic phrases	Best or only way to contact them is texting	Clients did not take the lead to contact the agency through text
		Lingo is not accepted by this group for communication with an agency

Table A 15-3. Pilot results and the research question: How does the introduction of text messaging impact staff capacity and work practices at a pregnancy support agency?

Categories	Category 1: a pilot using new technologies establishes the standard of use and can be disruptive	Category 2: the technology learning was a barrier	Category 3: the training in texting created tangible knowledge
Subcategories	Short time to learn about the technology and the pilot practices	Notable differences in technology knowledge amongst users	Learning the technology added to the professional value of the staff
Codes or thematic phrases	Software used with success with university pilots and projects	The software learning was challenging	Reactions towards the technology were observed in the staff
	Software has errors because it is in development, as is the pilot	The learning process with the new technology frightened some volunteers at PCC Edmonton	Growing in knowledge caused comfort and discomfort

Table A 15-4. Young adult client's participants and the main research question: How could text messaging improve the relationship between young adults in Edmonton facing unplanned pregnancies and an agency that provides pregnancy health information support?

Categories	Category 1: text-message at the PCC provide a new access to local information and services		Category 2: Mobile phone and texting provides the tools for client's specific needs				
Subcategories	No local agencies supports clients through text	Reminders, info about pregnancy and after care text could be useful	Clients have access	Clients have control	Clients like inexpensive services	Clients are PROSUMERS: producer and consumer	Clients use varying degrees of text message shorthand (short-it)
Codes or thematic phrases	I know this agency, but I never text them	A little text is easier than calling to remember	I found valuable information for pregnancy on my phone	I take care of the bills through mBanking (mobile Banking)	Texting does not cost extra	It allows me to find and share information about pregnancy	Most choose not to use it because they like spell words properly
		I want reminders	Usually young adults only have texting on their phones	I am ahead with the house bills: it is empowering	For long distance is usually the thing to do, is unlimited	I choose the options that I want, when and how	Few use it all the time to keep messages short
	We do not know other agencies supporting through texting	I want privacy	Texting saves time	Receiving text reminders keeps me organized	I do no pay for the information, I pay for internet		
		If it is information, I WANT that	Text is handy and quick with friends				
		A support after the baby arrives					

Table A 15-5. Young adult client's participants and the research question: How is the introduction of text messaging at a pregnancy support agency in Edmonton perceived by its young adult clients?

Categories	Category 1: Text messaging and mobile phones are a familiar means of communication for young adults in Edmonton				Category 2: Text messaging with the PCC or any formal institution on the client's terms			
Subcategories	It is a way of life	It is a means of communication	Having a mobile phone IS very important	We live in a digital society	Land lines and voicemail are obsolete	I do not want PCC to text me to 'chat'	I want to choose when to text with the PCC	No texting with formal institutions or strangers
Codes or thematic phrases	Is something in my everyday life	It is just for communication with family and friends		Institutions give you an electronic number instead of receipts	I only have a cellphone number	No way. I use text to say hi to family and friends only	We do not have that relationship yet	It would be weird: I would not know what they want
	It is so handy	I feel connected to my loved ones	Oh my God! You don't have a cellphone?	Work practices have changed: I text my boss	Most of my friends only have a cellphone number	It just seems better to call or talk one on one	If somebody from here texted me to say "hi", that would be WEIRD	I only text with those that I know
	It feels normal	It is the only way of communication		It doesn't matter if the agency is in Canada, the information that I find, matters	My cellphone number is my contact number for everything	I do not see or have the need to chat by text	It is unprofessional	I will not answer or I will block the number
	I use my phone for everything		Everyone has a cellphone	Nowadays you can text Bus-Link	I will not leave a voicemail, I will text	I don't know who will have my phone number and reply back	I would receive a text but I do not know if I would want to reply	
	People do not really check their voicemail	I will decide at the end of the classes if I will text						

Table A 15-6. Young adult client's participants and the research question: How does the mobile phone affect perceptions and attitudes among young adults in Edmonton toward sexual health care networks?

Categories	Category 1: Mobile phones are connected to personal relationships, perceptions, choices and behaviours							Category 2: Google and iPhones are connected to behavioural change toward information access	
Subcategories	My behaviour is affected by the message content	I choose where to use it	I LOVE to be connected	Texting is always fun	Texting is a back up in emergencies	Texting is convenient for multitasking	Extends ties with family	I trust Google on my phone for everything	The iPhone is revolutionary
Codes or thematic phrases	I read messages right away but depending on the time and who it is, I may answer later	I text anywhere I am allowed	I wake up to text	I like to SHARE memories with family and friends	If it is really important I will call first	Texting helps if you are busy because it is quick and silent	My family text me often	If I am not sure, I find helpful information about everything on Google	I have an app for pregnancy information
									I found online support for pregnancy on my iPhone
	If it is something I want to receive I feel excited	I text anywhere it is safe	My phone is always on me	I like to gossip through texting	If you cannot call you can text in an emergency	I can text any time no matter what I am doing	My parents pay my cell bill	I found helpful information about local health support on Google	Internet and downloads are FREE
				I use the phone until I go to bed					I like when I learn how to use the mobile
						Family and friends are usually busy so we text during the day		The iPhone is really –really FAST	
								I share and access more information with my iPhone	

Table A 15-7. Staff participants and the main research question: How could text messaging improve the relationship between young adults in Edmonton facing unplanned pregnancies and an agency that provides pregnancy health information support?

Categories	Category 1: Texting could LINK some clients who are always connected to their mobile devices to the PCC				Category 2: The nature of the centre work and their clients, demands a specific use of texting at PCC			
Subcategories	Text is a form of communication at PCC that produces attention from some clients	Depending on the client and the staff, texting at PCC can promote connection	Through cellphones, PCC could connect with young adult clients because it is confidential and accessible	Some staff belief about texting are starting to be challenged by the first results of the pilot at PCC	Texting at the PCC could focus on contacting & bringing new clients to the centre	The way texting works at PCC needs to incorporate the immediacy of technology and work practices	The software and the training need to be more personalized	Most clients at PCC only reply to text messages when they are close-ended questions
Codes or thematic phrases	Not many clients say they want to text, but they reply sooner by text	Some staff were disappointed because their clients did not respond to their texts	Young adult clients are connected to their cell phones at all times	I have no answers through email or voice messages, but some through text	Texting is not for conversation but to REMIND clients about the Centre	Texting at PCC needs to be in real time, personal, accessible and portable, and currently that is a challenge	The way the software is set up doesn't make texting interactive at PCC	Clients are more prompt to reply to texts when they have specific questions
	Text is a form of communication for clients	Opened PCC's eyes to clients that get support only through texting	One client communicates through text exclusively	I do not believe any media worked to get them calling back, but I had some success with text	Texting is convenient, portable, and accessible	The current way the software works at PCC is not useful for immediate response	Training in texting one on one is helpful and required for the long term	Staff who sent lengthy messages received no replies and assumed there was no connection
	Clients don't get back to the Centre by other communication mediums	Staff needs more time to know if text connects / supports clients	Text has a great potential to develop trust because it is confidential and the	It works but not all of them want to text us back	I cannot spend the whole hour texting, I have other stuff to do		The software and instructions sheet need to be more user friendly for newcomers	

	Text promotes communication with clients because they respond	Some new clients don't know staff enough to open a personal conversation through text	issues that bring clients to the centre are confidential		Texting can help do follow up with regular clients		of texting	I do not know why they don't reply but I do not ask them either
--	---	---	--	--	--	--	------------	---

Table A 15-8. Staff participants and the research question: How does the introduction of text messaging impact staff capacity and work practices at a pregnancy support agency?

Categories	Category 1: Depending on staff familiarity with texting, some are disturbed by client's uses and others feel okay, but all staff feel they are competing with the client's phone for the client's attention			Category 2: Texting has impacted the agency directly and the staff users indirectly because of differing degrees of knowledge in the technology and the learning curve				
Subcategories	I don't mind if they text quickly	I do not allow texting or phoning	I feel competition for their attention with the phone	The software was hard to learn or to use	Differences in ages and work practices contribute to the learning curve	Learning texting at PCC has impacted the agency but not the counsellors	Texting knowledge varies according to personal experience	'The thing is getting to use it'
Codes thematic phrases	I don't mind if it is a short text	They have to leave the session-room if they answer the phone	If they are texting while listening to me, I feel disrespected and frustrated	For some counsellors it was easy to learn the program but there were issues using it	Participants recognized they were learning the "technology of the century"	Learning texting has been neutral	I never texted before and it feels a privilege to learn at PCC	It is a matter of practice
	I do text myself everywhere	For the safety of the counselling session, if they are texting longer, I will ask them to stop	If they are texting the whole time of the counselling session I feel they are not listening		Learning a new technology is a challenge for mature participants	Learning texting at PCC means learning a new way of communication	I do not text that often because my phone is frustrating	It is a matter of grasping the idea and taking responsibility

	I am not to concerned if they text quickly during the session	We do not have to much time to talk	I feel that they are not serious about the session	For some counsellors, there were issues learning how to use the software	Some need more one-on-one coaching	I am older and I am sticking with familiarity	I am used to text and use it for my personal life and work	It is a matter of getting familiar
	It is fine to text while they are waiting for me		I feel it is a challenge to come back to the conversation when they text			It has not change my experience because I do not use it		It is a matter of making it part of the work routine

Table A 15-9. Staff participants and the research question: How does the introduction of text messaging impact staff capacity and work practices at a pregnancy support agency? (CONT. Table A 15-8)

Categories	Category 3: Depending on staff familiarity with texting, they feel comfortable or uncomfortable texting clients and with clients response, but all staff feel that the way the service is set up does not support their clients reality and their work practices			Category 4: the short-hand guide has added value to the knowledge that PCC has of the “new generation”		Category 5: Staff are not interested and have resisted using texting at PCC because most prefer to use the phone		
Subcategories	Depending on the counsellor an their relationship with cellphones, texting at PCC feels okay or wrong	Levels of disappointment with texting at PCC varies with levels of expectation and understating of clients relationship with texting, and texting at PCC	Work practices at PCC & client’s realities don’t mach texting practices	The short-hand is valuable as a reference, not for use	Short-hand is not popular or useful for texting at PCC	Using texting at PCC is not appealing for counselors	Staff at PCC expresses resistance to the software in various ways	Most staff prefer use the phone to reconnect with clients after the first visit because is common, comfortable and works to connect
Codes or thematic phrases	I believe texting for connecting with clients is not professional, it is okay for personal matters	I am disappointed that not many counselors really connected with clients through text	Counsellors just work once a week and they do not check text messages immediately	For the professional image of the agency, it is important to spell messages properly	I do not use it because I think it is unprofessional	I am not against it but I am not inclined to use it either	Resistance to the software expressed by passive neglecton	I do prefer the phone to connect with clients because it works and I feel more normal using it
	I believe texting for business is okay, but not for use in my personal life	I am disappointed that I learned to use it, and few clients texted me back	Mostly, everything is communicated with clients in their initial visit and they do not come back	Learning short-hand is valuable to the Centre and other PCCs to connect with the secular world	I do not use it because I am not use to it	I use text at PCC because of my relationship with you	Resistance to the software expressed by “no having time and is not easy to use”	I feel more professional using the phone with clients
	I believe texting for corporate messages is okay	I don’t expect clients will text back, it is socially accepted to not reply. I am disappointed in the fact that no	How can we be effective for clients if we reply to their messages every week?	Some young adult staff at the PCC are not comfortable using short-hand	I use few of the common short-hand		Resistance to the software expressed as “it is a defeatist attitude”	Connecting often happens mostly on the phone and not through text

	I feel horrible texting clients for personal matters because it doesn't feel respectful	client responded in any way	Most clients just come one time to the Centre so is not useful to text asking how they are	Some staff are not ready to use it and do not understand how it works	I do not use it because there is no need for it		Resistance to the software because it is a big change in how staff already know how to work at PCC and that is uncomfortable	Some clients prefer phone calls to contact them instead of texting
		I expect you will reply to any message to say you got it, but it depends on the person... I guess	The time length between a message and a response is to much				Resistance to the software because they do not believe it could help clients in a difficult situation	If the message is quite long I prefer to call. If it is short, I text
								Personally, I prefer to call, because it is difficult to text with my phone

Table A 15-10. Staff participants and the research question: How does the mobile phone affect perceptions and attitudes among young adults in Edmonton toward sexual health care networks?

Categories	Category 1: Beliefs about texting and its relationship with the new generation varies		Category 2: Texting and young adults uses for it, concerns the staff of PCC	Category 3: Most staff at PCC don't believe texting can make a difference in the client's difficult situation, or improve communication with them			
Subcategories	Young adults are always connected	Most clients are aware of turning off their phones in the counselling session	Most counsellors at PCC believe that texting or mobile phones are unhealthy, trivial, and promote anti-social and addictive behaviours	Most clients had the mindset that text is only helpful at prenatal classes	Re-connection with clients after the first visit only happens if the staff/centre are helpful	Texting is not the means for better communication with clients	
Codes or thematic phrases	In the counselling room they don't often text but their phone always ring	It depends on the client's personality	Being in contact all the time is unhealthy and it shows a deeper hunger and need for relational connection that text cannot provide	Clients had a pre-conceived mindset and text cannot change that, unless they want it to	What brings them back is not texting, but what services we can offer to them	I think face to face is the best way to connect with people in distress	
	Most young adults who are clients, communicate through the mobile phones and we should accept it	It depends on the value clients put on their phones	In my personal life texting is not important and I believe the general use of it is trivial.	Text could be more helpful regarding its use in the prenatal class	Connections with clients happen when we find common ground, and PCC staff are helpful	Texting is another media to contact young adults	
	They are in the age range where they never leave their house without a phone	Mostly, when clients realize the reason of their visit, they become aware of listening	Texting is anti-social, rude and promotes anti-social behaviour				Text helps to get in contact but not to connect
		They are almost embarrassed because it is inappropriate	Texting has become a way of addictive life: an addiction to their cellphones				I don't believe clients only connect through text
							Text could lead to misinterpretation of ideas through written words