EXPLORING ONLINE SELF-DISCLOSURE:
SYNCHRONICITY, TIME, TRUST AND RELATIONSHIP
CONTEXT

by

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To Chris for faith, Hormoz for inspiration and Mel... for everything.

“This is real, this is me

I’m exactly where I’m supposed to be”

- Demi Lovato
This thesis explored the effect of communication mode on self-disclosure in a mental health context. It is often noted in empirical research that self-disclosure is greater in online than offline conversations (Antheunis, Valkenburg, & Peter, 2007; Christofides, Muise, & Desmarais, 2009; Coleman, Paternite, & Sherman, 1999; Joinson, 2001b; Tidwell & Walther, 2002). Although computer-mediated communication (CMC) theories differ in their explanation for how cyberspace facilitates self-disclosure, this finding of greater online self-disclosure is consistent with theoretical discussions concerning mediated communication. Empirical research, however, has also found greater self-disclosure face-to-face than in computer-mediated communication (Rimondi, 2002; Schiffrin, Edelman, Falkenstern, & Stewart, 2010; Stritzke, Nguyen, & Durkin, 2004). In some instances, no significant differences between CMC and offline interactions (Buote, Wood, & Pratt, 2009; Kiesler, Zubrow, Moses, & Geller, 1985; Mallen, Day, & Green, 2003).

In addition to examining differences between online and offline communication, research is required to assess the effect of synchronicity. Online counselling research noted the necessity of research into email conversations, stating that both counsellors and clients reported a preference for email counselling (DuBois, 2004). This need to examine email interactions is echoed in the lack of research assessing self-disclosure in asynchronous modes of communication.

Synchronicity and medium comparisons are based on the assumption that self-disclosure online is solely influenced by differences in communication medium. Consideration should also be made of factors known to affect self-disclosure online. One such factor is trust. Research has reported a positive correlation between trust and self-disclosure in online and offline environments (Henderson & Gilding, 2004; Metzger, 2004; Steel, 1991; Wheeless & Grotz, 1977). These studies, however, examined either face-to-face FTF
interactions or CMC and therefore did not allow for comparison of the trust-disclosure relationship between online and offline communication. Another factor to consider is time. Since online counselling often spans multiple sessions, and relationships change through time, the trajectory of self-disclosure over several sessions should be examined. Further, self-disclosure is context and audience specific. Social norms governing interactions between friends are different from those of the client-professional relationship. Research into disclosure practices online have primarily been in social or problem solving contexts (Tidwell & Walther, 2002). In each scenario, participants interact as peers. The applicability of these findings to online counselling is questioned. Therefore, considering both medium-based and communication-based factors of self-disclosure, this thesis compared frequency of self-disclosure (divided into question-prompted, reciprocal and unprompted self-disclosure) in a 2 (relationship context: Social or Coaching) x 3 (medium: FTF, IM, Email) x 4 (4 weekly sessions) factorial design. The effect of trust was examined through correlations between a trust rating and frequency of self-disclosure.

Sixty participants completed a demographics questionnaire and were randomly allocated to one of the six between-groups conditions. Participants were instructed to either “get-to-know” their partner (the author of this thesis) or participate in a coaching psychology program led by the author. At the conclusion of each session, participants were asked to rate their trust of the experimenter.

Three-way mixed method ANOVAs showed significantly more self-disclosure in CMC than FTF interactions, more self-disclosure in Email than Instant Messaging IM and more self-disclosure in Coaching compared to Social contexts. Self-disclosure was negatively related to trust, however, when trust-disclosure correlations were examined for each condition, no correlations were significant. Frequency of self-disclosure decreased systematically over the four sessions. Interestingly, the effects of media, synchronicity, time and context
were different for prompted (question-prompted and reciprocal) and unprompted self-disclosure.

Consistent with previous research and CMC theories, the current study found greater frequency of self-disclosure online. This result is, in part, due to the temporal fluidity of the online environment. Without the immediate reactions of communicating partners, individuals reveal greater amounts of personal information. Consistent with this view, greater self-disclosure in email communication than IM conversations was observed in this thesis. Alternative explanations for the effect of synchronicity are posited by the Social Identity Model of Deindividuation, Reduced Cues Theory and Hyperpersonal CMC theory. Further research is required to determine the mechanism by which delays in communication can facilitate self-disclosure.

Theories of relationship development propose an increase in breadth, depth and frequency of self-disclosure over time. The finding of greater spontaneous self-disclosure through time is consistent with this view. Conversely, question-prompted self-disclosure decreased with each session. It could be that, as the relationship developed, fewer questions were asked. Therefore, future research should examine question-prompted self-disclosure as a proportion of the number of questions answered.

The negative correlation between trust and self-disclosure is inconsistent with previous research and CMC theories. This thesis proposes that trust and self-disclosure is mediated by level of visual anonymity. Research has shown that anonymity facilitates self-disclosure (Joinson, 1999; Tanis & Postmes, 2005b). At the same time, lack of visual information about one’s partner (and arguably that partner’s reduced accountability) is not a condition which facilitates trust. Hence, while anonymity increases self-disclosure, it will also decrease trust. Further research explicitly comparing trust and self-disclosure in
anonymous and non-anonymous conditions would enhance understanding of the trust-disclosure relationship, particularly in online counselling contexts.

The absence of significant correlations between trust and self-disclosure in each research condition suggests no relationship between trust and self-disclosure. An alternative explanation is a lack of statistical power. This needs to be addressed in future investigations of the trust-disclosure relationship across different communication modes.

The call for context-specific research was supported by the current results. Coaching contexts yielded significantly greater frequency of self-disclosure than Social contexts. This reflects the trans-media nature of some social norms. For instance, it is expected that both individuals in a social conversation would self-disclose. In contrast, only the client is expected to disclose in Coaching conditions. These differing expectations or social norms may dictate the time available for participants to disclose and their perceived obligation to reveal personal information. From an online counselling perspective, this finding highlights the need for context-specific research. For research to be applicable, it should take into account the unique relationship between clients and professionals.

This thesis examines whether frequency of self-disclosure was affected by communication medium. It explored the medium-based and communication-based factors of self-disclosure and provided insights to CMC theory, contributed to the growing body of empirical CMC research and resulted in knowledge that could be applied to online counselling practice. The findings of this thesis can be explained by multiple theories of online communication, suggesting that refinement of existing CMC theories is needed. Empirical investigations into the processes underlying online counselling are also needed. This thesis is an empirical stepping-stone toward a greater understanding of online self-disclosure and how it is manifested in therapeutic contexts.
DECLARATION

I, Melanie Nguyen, certify that this thesis does not incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any university; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person where due reference is not made in the text.

______________________________
Melanie Nguyen
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Being a fan of musicals, I have always wanted to live in one. I realised recently that there is a soundtrack to my life and it has been sung more loudly in the last four years than previously.

“To sir, with love”
- Don Black and Mark London, recorded by Lulu

On all official documents, Dr. Andrew Campbell, you are my supervisor. In the “real” world, you are my mentor. Thank you for all that you have taught me both within and outside the textbook. For every open door, every urgent email, for your unfailing support and trust in me during the last four years, thank you. I don’t think I could ever say those two words loud enough for you to hear where they are coming from.

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“When you feel the world is crashing all around your feet / come running headlong into my arms”

- Taylor Swift

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“Lean on me, when you’re not strong / I’ll be your friend / I’ll help you carry on”

- Bill Withers

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“What would you do if I sang out of tune?”

- The Beatles

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“Then the snow started falling”
- Bon Iver

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- Hannah Montana

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CHAPTER 1:

AN INTRODUCTION TO ONLINE SELF-DISCLOSURE

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1.1. Overview of Chapter 1

This chapter situates the present research in the context of online counselling, online communication research and theory. It provides an overview of current online counselling practices and notes the importance of self-disclosure in this therapeutic process. A discussion of the key theories that informed this thesis is conducted in this chapter and justification put forward for the theoretical significance of the present research. Chapter 1 also identifies the knowledge gaps in empirical research addressed by this thesis. The outline of current online counselling practice, computer-mediated communication theories and online communication research provides a rationale for the current study. It demonstrates the need to systematically examine self-disclosure in face-to-face, synchronous chat and asynchronous email interactions. In particular, the discussion in this chapter notes the need for research to examine how offline factors of self-disclosure affect online self-disclosure in addition to medium-based differences.

1.2. Online Counselling

Whether it is said that technology has permeated, infiltrated, embedded itself into twenty-first century lifestyle, its influence on human communication must be acknowledged. This is demonstrated in the more than 500 million active Facebook users ("Facebook," 2011), the fact that “Google” is now a verb ("Oxford English Dictionary," 2011) and the widespread use of email in education, workplace and health settings (Branon & Essex, 2001; Chester & Glass, 2006; Jarvenpaa, Tractinsky, & Vitale, 2000; Johnson, 2006; Moon, 2000; Rochlen, Zack, & Speyer, 2004). In a specific health context, the concept of e-Mental Health has emerged (Hayward, MacGregor, Peck, & Wilkes, 2007; Schultze, 2006). This sets the application focus for this thesis.
Health consumers are frequently employing the Internet in their search for mental health information and support programs (Ybarra & Eaton, 2005). Computer-mediated psycho-education (Griffiths, Christensen, Jorm, Evans, & Groves, 2004), online support groups and group therapy (Ellison, Steinfield, & Lampe, 2007; Houston et al., 2001; Winzelberg et al., 2000), online self-directed therapy (Hayward, et al., 2007; Sethi, Campbell, & Ellis, 2010) and online counselling (Fenichel et al., 2002; Kraus, Zack, & Stricker, 2004) are different examples of e-Mental Health initiatives. Bearing in mind this broad spectrum of practices available online, the current thesis will confine its discussions to online counselling. Here, online counselling is defined as the provision of therapy by a trained therapist or psychologist to a client through the Internet.

Research examining the features of online counselling showed that although therapy is conducted through email, instant messaging (IM) or chat, and video-conferencing, email is the most commonly offered mode of communication (Chester & Glass, 2006). Email is also the most preferred communication mode by clients and counsellors (DuBois, 2004). The reported reasons for this include a time-delay that facilitates reflection and greater frequency, ease and depth of client self-disclosure (Rochlen, et al., 2004), better integration of therapy processes into daily life (Ybarra & Eaton, 2005) and geographical, temporal and financial convenience (DuBois, 2004). Online counselling often spanning multiple email exchanges and sessions could range from single sessions to several months. The average number of reported sessions with clients was five (Chester & Glass, 2006). A large proportion of presenting problems in online counselling were relationship issues, and mood and anxiety disorders (Bai, Lin, Chen, & Liu, 2001). Further, research has shown that the majority of individuals utilising online counselling services have not previously consulted with a mental health professional (Bai, et al., 2001). This finding lends support to the argument stating that online counselling is providing psychological help to underserved populations.
In a recent meta-analytic review of the efficacy of e-Mental Health interventions, Barak, Hen, Boniel-Nissim and Shapira (2008) found a medium effect size of computer-mediated interventions on symptom improvement. The studies demonstrated the effectiveness of online interventions for many disorders including depression, anxiety, body image disorders, panic disorder and post-traumatic stress disorder. Although most of the studies reviewed by Barak et al. (2008) assessed the efficacy of self-help programs (for example, Griffiths, et al., 2004; Lange, Ven, Schrieken, Bredeweg, & Emmelkamp, 2000), there is demonstrated evidence for the alleviation of symptoms in online counselling. In addition to research showing a reduction in symptoms following participation in computer-mediated interventions, studies have also shown non-significant differences in symptom reduction between online and offline mental health programs (Cavanagh & Shapiro, 2004). Barak et al. (2008), in particular, found no significant differences in the effect sizes of online and offline psychological programs. These findings provide strong evidence for the effectiveness of online psychological interventions in alleviating symptoms.

Although it is important to ascertain whether online counselling is effective, there has also been a call for research into the processes of online counselling (Rochlen, et al., 2004). Specifically, the communication differences between online and face-to-face (FTF) interactions have been emphasised, in particular, self-disclosure (Chester & Glass, 2006; Ybarra & Eaton, 2005). Chester and Glass (2006) argued that effectiveness of online counselling is dependent upon the clarity of communication between client and counsellor. As such, understanding the factors affecting self-disclosure would further enhance existing practice. This call for self-disclosure study in an online counselling context is echoed in Ybarra and Eaton (2005). They state that previous research has demonstrated an increase in self-disclosure in online interactions (for example, Joinson, 2001b) that may enrich the computer-mediated therapeutic process. Online counselling research also highlights a need for empirical investigation into the differences between synchronous and asynchronous self-disclosure. This specific research agenda arose due to the popularity - amongst both clients and counsellors - of utilising email as their primary
mode of communication. The inherent characteristics of email, especially its time delay, suggest that self-disclosure may be differentially affected by this mode. Therefore, in addition to a need for research into online counselling processes, particular mention is made of the communication and self-disclosure. This thesis will address these issues.

1.3. Defining Self-Disclosure

The current study defines self-disclosure as personal information - including biographical data, thoughts and feelings - an individual voluntarily and verbally communicates to a targeted recipient. This information would not otherwise be known by the recipient (Worthy, Gary, & Kahn, 1969). While there is evidence for a trait-based conception of self-disclosure, these research findings are not consistent (Dindia, Fitzpatrick, & Kenny, 1997). Moreover, there is further research suggesting that the influence of a person’s predisposition to self-disclose is context specific (Worthy, et al., 1969). As such, trait self-disclosure is not systematically examined in the present study.

1.4. Theoretical Discussions of Online Self-Disclosure

Kiesler, Siegel and McGuire (1984) found a greater number of hostile comments exchanged in groups communicating via the Internet than FTF. This finding and others (Sproull & Kiesler, 1986) were collectively explained by the online disinhibition effect (Suler, 2004b). It was argued that the online environment facilitates feelings of disinhibition. Therefore, individuals are less constrained in their behaviour and are more likely to engage in anti-normative behaviour. Anti-normative, however, does not equate to anti-social. While the online disinhibition effect explains anti-social behaviour, it should also be able to account for increased self-disclosure. Individuals may feel disinhibited to disclose - in addition to “act out” - online.
Computer-mediated communication (CMC) theories have been developed to specifically explain online communication. The theories reviewed in this thesis are (i) Deindividuation Theory, (ii) the Social Identity Model of Deindividuation (SIDE model), (iii) Reduced Cues Theory (RCT), (iv) Hyperpersonal CMC Theory and (v) Social Information Processing (SIP) Theory. This thesis argues that since these theories have been developed to account for online communication phenomena, such as increased online self-disclosure, it is difficult to obtain empirical evidence that disentangles each theory. Although the tenets of each theory have been investigated in individual studies, investigation is needed to compare the ability of CMC theories in explaining findings. This endeavour is made more difficult in online self-disclosure research because all theories predict greater online self-disclosure. Therefore, research into new factors of self-disclosure (not explicitly predicted by current theories) is required to test the fundamental tenets of CMC theory. A logical, coherent theoretical base is important both for research and online counselling practice.

1.5. Empirical Investigations into Online Self-Disclosure

Although CMC theories unanimously predict that individuals will reveal more personal information through Internet communication, empirical research into online self-disclosure has yielded inconsistent findings. While some find greater online self-disclosure (Antheunis, et al., 2007; Carballo-Diéguez, Miner, Dolezal, Rosser, & Jacoby, 2006; Christofides, et al., 2009; Coleman, et al., 1999; Joinson, 2001b), others report greater FTF self-disclosure (Chan & Cheng, 2004; Chiou & Wan, 2006; Mallen, et al., 2003; Schiffrin, et al., 2010) and others still find no significant differences (Buote, et al., 2009; Kiesler, et al., 1985; Parks & Roberts, 1998). This calls for research examining differences in self-disclosure between CMC and FTF interactions.

CMC research has primarily examined differences in self-disclosure as a function of differences in the communication media. Prior research has demonstrated an effect of anonymity (Joinson, 1999; Suler, 2005; Tanis & Postmes, 2005b). The present research
does not explicitly examine anonymity, but notes that, both in theoretical discussions and prior research, there is a positive effect of anonymity on self-disclosure.

A factor that has not been as widely debated or researched is synchronicity. Synchronicity is related to the temporal fluidity of conversations in online and offline environments. In this sense, exchanges between communicants may be more or less fluid. For instance, FTF, communication occurs in real-time. That is, one person’s communication is followed by the other person’s verbal response, with little to no temporal delay. FTF, participants are able to easily gauge their partners’ reactions (verbal, paralinguistic and non-verbal cues) to their communication. In this sense, FTF communication is highly synchronous. On the other hand, IM is slightly less synchronous. Although participants still exchange messages in real time, the time taken to read a message and type a response results in more delay in information exchange in IM than FTF communication. Via email, this delay may be even more prominent. A conversation via email is, in most instances, asynchronous. In this sense, there is a temporal delay between messages. From this example, strictly speaking, synchronous and asynchronous is not a straightforward dichotomy. It is, perhaps, better conceived of as being dimensional. Along this scale, FTF and IM are more synchronous than Email conversations. In this thesis, to examine the effects of synchronicity, FTF and IM exchanges will be referred to as synchronous communication and Email will represent asynchronous interactions.

Few studies have examined differences between synchronous and asynchronous communication and research that has, did not control for factors such as group size (for example, Gilat, 2007). The widespread use of email in online counselling, however, suggests that this is an area of much needed research. To provide an effective client-centred treatment program, counsellors are required to effectively move between modes of communication - email included (Fenichel, et al., 2002). As such, research into synchronicity is required.
In addition to determining whether communication medium affects frequency of self-disclosure, online counselling would be better informed through research into factors influencing self-disclosure independent of medium, for instance, trust. Anecdotal and empirical evidence show that self-disclosure is related to trust (Tanis & Postmes, 2005a; Tidwell & Walther, 2002). This is true of online (Henderson & Gilding, 2004; Joinson, Reips, Buchanan, & Paine Schofield, 2010; Metzger, 2004; Paine & Joinson, 2008; Wilson, Straus, & McEvily, 2006) and offline interactions (Steel, 1991; Wheeless & Grotz, 1977). This body of research demonstrates that cyberspace can facilitate trusting relationships. From an online counselling perspective, however, it remains unclear how the relationship between trust and self-disclosure changes - if at all - when a client-counsellor relationship is conducted online.

In experimental CMC research, participants are often asked to communicate in dyads with strangers. These conversations are then transcribed and coded for self-disclosures (Joinson, 2001b; Kiesler, et al., 1985; Mallen, et al., 2003; Tidwell & Walther, 2002). Such research designs are able to control for the effect of relationship intimacy and allow understanding of the initial stages of relationship development in different media. They do not, however, provide much evidence regarding claims of self-disclosure through time. While initial self-disclosure may be higher or lower in online than offline interactions, whether this pattern of disclosure is consistent throughout the relationship requires investigation. Theories of relationship development suggest that individuals will reveal a greater amount of more intimate information with each other as time progresses (Altman & Taylor, 1973). Anecdotally, the type and amount of information a person divulges to a friend changes as the friendship progresses. As such, a thorough understanding of self-disclosure requires its examination through time. This is particularly relevant for online counselling. Although online counselling can range from single sessions to an extended program, it is more often the case that therapy spans between three and six sessions
(Chester & Glass, 2006). This provides further impetus for research designs employing several interactions between communicants.

Communication is audience specific (Barak, Boniel-Nissim, & Suler, 2008; Dindia, et al., 1997; Horton & Spieler, 2007). How an individual communicates with their parents differs from their interactions with friends and in turn differs from their conversations with their health professionals. As such, process research into online counselling should explicitly examine communication - and in particular self-disclosure - in relationships between clients and professionals. There has been a paucity of this research in existing literature. CMC research, to date, has examined self-disclosure between dyads or groups in social contexts (where the instruction to participants has been, “get to know each other”; Kiesler, et al., 1985; Mallen, et al., 2003) or in problem solving contexts (for instance, participants are presented with a moral choice dilemma and asked to discuss their responses; Coleman, et al., 1999; Joinson, 2001b). Alternatively, research has been survey based (Joinson, 2001a; Joinson, et al., 2010; Mesch & Beker, 2010; Parks & Roberts, 1998). Although question asking and the prompting of self-disclosure is an important process within online counselling, the nature of the client-therapist dynamic is quite different to that of a survey or interview. So, for findings to be applicable to the online counselling context, the client-professional relationship should be incorporated into the research design. Moreover, by comparing social and counselling contexts, research could determine the extent to which existing literature is applicable to mental health practices.

The discussion regarding disclosure to surveys above also suggests that research should take into account the immediate antecedent conditions to disclosure. For instance, disclosure could be prompted by questions or by the other person disclosing (a process referred to as reciprocal self-disclosure). On the other hand, self-disclosure can be
spontaneous or unprompted. For counselling contexts, these distinctions are important and need to be considered in research.

1.6. The Present Research: Thesis Outline

If the different facets of the academy - theoretical debate, empirical research and implementation into practice - are conceived of as circles in a Venn diagram, then health research is where these circles overlap. Health research should be grounded in coherent theory, be based on empirical evidence and be examined in contexts that facilitate application of findings to health practice. The study of self-disclosure in an online counselling context lies at this junction. The findings from this thesis are important for disentangling theories of CMC, for addressing conflicts and knowledge gaps in research and for informing the practice of online counselling. In this framework, the current study aimed to explore factors of online self-disclosure. The two research questions addressed in this thesis are:

(a) Is there increased frequency of self-disclosure in computer-mediated environments?
(b) What is the effect of synchronicity, time, trust and relationship context on frequency of self-disclosure?

In examining both medium-based and communication-based factors of self-disclosure, this thesis provides an empirical test of CMC theories and addresses knowledge gaps in existing research. The implications for online counselling are considered by explicitly examining self-disclosure in a client-professional relationship context.

A discussion of online and offline communication theories is provided in Chapter 2. In particular, the theoretical assumptions of theories of relationship development (primarily offline communication theories) and CMC theories are discussed. Evidence cited for these
perspectives is also evaluated. The purpose of this chapter is to provide a theoretical context for this thesis. Empirical research is grounded in theory and the current state of CMC theory is important in situating the findings of this thesis.

Much CMC research is focussed on determining whether self-disclosure is greater in mediated or FTF relationships. Numerous sources cite evidence for more online self-disclosure; however, there is also research to suggest greater offline self-disclosure. In turn, there are also studies that show no significant differences. Chapter 3 presents a systematic review of the literature comparing online and offline self-disclosure. This chapter demonstrates the need to consider research design and operational definitions of the different facets of self-disclosure in drawing conclusions regarding the effect of medium on self-disclosure. The discussion in this chapter also provides a rationale for the need for specific parameters in this thesis.

Chapter 4 discusses findings and literature on the medium-based (synchronicity) and communication-based (trust, time and relationship context) factors examined in this thesis. It provides further detail on the theoretical and empirical relevance for the present research. A rationale for the current study is explicitly provided in this chapter, along with the thesis hypotheses.

The method employed in designing and implementing the empirical research for this thesis is described in Chapter 5. This chapter outlines the design of the current experiment as well as the materials used, procedure and a description of the participants. Detail regarding how self-disclosure was operationalised is noted in this chapter also.

The findings of the current study are presented in Chapter 6. Information on statistical tests utilised and findings from these analyses are reported.
The final chapter of this thesis, Chapter 7, repositions the present findings at the overlap of the academy’s three circles. This chapter discusses the current results in the context of previous research, prior literature and online counselling practice. It outlines limitations of the present research and details directions for future studies.
# CHAPTER 2:

**THEORIES OF SELF-DISCLOSURE**

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2.1 Overview of Chapter 2

Theoretical discussions on self-disclosure in online and offline interactions are reviewed in this chapter. The present research adopts the Social Penetration Theory as its framework for relationship development. This theory views self-disclosure as a factor of relationship development and applies this understanding to the online environment. CMC theories, on the other hand, discuss self-disclosure as an anomaly in human interactions. The online communication theories reviewed in this chapter are the Deindividuation Theory, the Social Identity Model of Deindividuation Effects, Hyperpersonal CMC Theory, Reduced Cues Theory and the Social Information Processing Theory. A discussion of the fundamental tenets of each theory is provided, along with an analysis of the cited empirical support. Of note is the shared assumption of increased self-disclosure in online interactions. Although each theory differs in its explanation of the specific mechanisms by which this occurs, theories of online communication propose greater self-disclosure through CMC.

2.2 Self-Disclosure Theory: An Introduction

Disclosure occurs every day in a plethora of ways. The crucifix around one’s neck, the iPhone one types emails on, the shoe size one tells the store attendant, the Facebook status update, the credit card details one types in for an online (or offline) purchase, the phone calls made on public transport, the Pierre Cardin suit one walks comfortably around the office in all reveal to others something personal about oneself. Self-disclosure can be conscious or unconscious, verbal or non-verbal, voluntary or solicited. It can occur in the context of an interpersonal relationship (family member, friend, partner), to an electronic interface (online surveys or purchasing forms), to a stranger.

The reasons for disclosure are equally varied. Research has shown disclosure resulting from trust for the other person (Cozby, 1973; Dutton & Shepherd, 2006; Green, 2007;
Joinson, Paine, Reips, & Buchanan, 2006; Joinson, et al., 2010; Metzger, 2004; Tanis & Postmes, 2005a), disclosure in response to another’s self-disclosure (Barak & Gluck-Ofri, 2007; Cozby, 1973; Dietz-Uhler, Bishop-Clark, & Howard, 2005; Moon, 2000; Rollman, Krug, & Parente, 2000; Tanis & Postmes, 2005a), disclosure as a consequence of the need for a cathartic experience (Ko & Kuo, 2009), and goal attainment (Berg & Archer, 1982; Cho, 2007).

Self-disclosure scholarship has a long history (Cozby, 1973). Examined in the context of an interpersonal relationship, researchers have investigated its relation to intimacy, relationship development, and marital success (Cozby, 1973). Self-disclosure has been studied in clinical settings where disclosure is an important aspect of the healing process (Strassberg, Roback, Dantonio, & Gabel, 1977; Ybarra & Eaton, 2005). Early research, however, viewed self-disclosure as a factor of relatively long-term interactions, and this is not always the case.

The “stranger-on-the-train” phenomenon is the tendency for individuals to reveal extensive personal information to a stranger they have not met previously and are unlikely to encounter again. (Murdoch, Chenowith, & Rissman, 1969; Rubin, 1975). Its meaning is captured well by travel writer, Paul Theroux (1975):

The conversation, like many others I had with people on trains, derived an easy candour from the shared journey, the comfort of the dining car, and the certain knowledge that neither of us would see each other again. (p. 69)

This phenomenon has been used to explain findings of greater self-disclosure online than offline (Joinson, 2003). The argument posed drew upon similarities between the anonymous contexts of stranger interaction and the online environment.
The stranger-on-the-train phenomenon catalysed the development of a body of theory aimed at explaining intimate self-disclosure to strangers. Some theories viewed self-disclosure as part of an integrated system of relationship development (Altman & Taylor, 1973; L. C. Miller & Read, 1987; Valkenberg & Peter, 2007). As such, to understand the anomalous disclosure behaviours, an understanding of normal disclosure must be established. Other theories, though, conceive of self-disclosure as a discrete behaviour to be studied in relative isolation (Joinson, 2001b; Suler, 2004a; Tidwell & Walther, 2002). Under this view, comparisons between the situational context of normal and abnormal disclosure are conducted to yield clues to the causes of anti-normative self-disclosure. The tenets of these theories and a review of the evidence for them are presented below.

2.2.1 Offline Theories of Self-Disclosure

Theories of offline self-disclosure are premised on the notion of self-disclosure as a necessary precursor to the development of relationship intimacy. These theories assume that disclosure is, to an extent, strategic. Formulated against the backdrop of behaviourism, theories of offline self-disclosure include within the decision-to-disclose process a cost-benefit analysis. They view the “stranger on a train” and increased online self-disclosure phenomena as anomalies in the normal disclosing process. This thesis adopts the framework of Social Penetration Theory (SPT) in its discussions of self-disclosure and relationship development. Although there are other theories of self-disclosure in interpersonal relationships (for example, the Goal-Based Theory of Self-Disclosure; L. C. Miller & Read, 1987), SPT has been the most influential. The tenets of SPT and evidence relating to this theory are presented in detail below.
2.2.2.1. Social Penetration Theory

SPT provides a theoretical explanation for the trajectory of relationship development. It posits that changes in self-disclosure between partners are integral to, and indicative of, relationship growth and decline (Altman & Taylor, 1973). According to SPT, interpersonal interactions are moderated by characteristics of the individual partners, the perceived outcomes of the interaction and the situational context. Social penetration refers to the intimacy of the behaviours, thoughts and processes that occur prior to, during and after an exchange between two people. Relationships are marked by their degree of social penetration.

There are three primary tenets of SPT. First, interpersonal relations progress from non-intimate to intimate. During this process, other people are successively introduced to deeper and more personal aspects of oneself. According to Altman and Taylor (1973) as relationships progress, partners develop a rhythm to their exchanges and share greater breadth and depth of disclosures. Partners have a growing repertoire of behavioural nuances that are specific to, indicative of and understood only by each other. Depending on the degree of social penetration, partners are able to “read” each other through various verbal and non-verbal communication channels. There is greater fluidity and less hesitation in their interactions; the relationship flows more comfortably. Individuals become more receptive to letting their partners in physically, emotionally and cognitively. They are progressively more willing to discuss a wider range of topics and with greater depth. Therefore, as the degree of social penetration and intimacy increases, members of an interpersonal exchange will disclose more personal information on a greater number of topics through a greater variety of verbal and non-verbal avenues.

The second tenet of SPT states that individuals conduct cost-benefit analyses of past, present and future interactions in determining whether (and how to) progress into deeper
levels of intimacy. The results of this analysis determine the rate of relationship development and ensure that it is systematic. This prediction of costs and benefits is more accurate if conducted on a relationship one is familiar with. To reveal highly sensitive information too early in a social exchange is a risk - the costs are therefore high and the benefits not guaranteed. Given this, individuals will gradually and systematically move towards greater intimacy.

Third, relationship development is referred to as the social penetration process where interpersonal exchanges move from the non-intimate to intimate realm. The dissolution of relationships is referred to as depenetration. In this process, social interactions move from being intimate to non-intimate. Since disclosure breadth and depth is indicative of intimacy, the social penetration process involves an increase in degree and range of disclosure topics. Depenetration on the other hand signals a decrease in the scope and level of self-disclosure between partners.

This theory was developed to provide a coherent framework for the development of relationships and to explain empirical evidence showing changes in disclosure depth and breadth at various stages of intimacy (Colson, 1968; Frankfurt, 1965 as cited by Altman & Taylor, 1973). For instance, Frankfurt (1965 as cited by Altman & Taylor, 1973), showed a cumulative increase in the breadth of exchanges for a hypothetical relationship across four weeks. Participants were presented with four interactive scenarios which involved another (hypothetical) female student. A gradual increase in intimacy was integrated into each scenario. The partners met through a chance encounter in the library, their friendship developed through cafeteria meetings and eventually became dorm-mates. Participants were asked to write down conversation topics that would be engaged in at each meeting. Researchers found an overall increase in the breadth of exchanges for both intimate and non-intimate topics suggesting that as intimacy increases, breadth of self-disclosure (or at the very least social interaction) increases. Additionally, researchers
incorporated a “compatibility” element where in one set of scenarios the participant and female student were compatible and enthusiastic about their friendship. In another set of scenarios, the “friends” were compatible but indifferent about the exchanges. Frankfurt (1965 as cited by Altman & Taylor, 1976) found greater breadth of topics in the compatible than non-compatible conditions. This finding was predicted by SPT. Compatible exchanges and enthusiastic responses to one’s communication are rewarding experiences, a positive exchange. Therefore, in the cost benefit analysis, one would be more likely to engage in similar interactions with the same individual again.

Colson (1968 as cited by Altman & Taylor, 1973) provided a more direct test of SPT by measuring disclosure behaviour in a dyad rather than simulated interactions. In this study, US Navy personnel spoke over an intercom to a stranger (research confederate) using pre-selected statements that described them. Each statement varied in intimacy and participants chose when to disclose particular aspects of themselves. Following each disclosure, the confederate either replied with a positive or negative evaluative statement of the friendship or did not address the disclosure. Overall, the frequency of self-disclosure for both intimate and non-intimate items increased over time; however, disclosure was greater after positive than negative evaluations. This is in line with Taylor and Altman’s (1973) postulations.

While these studies showed support for SPT, retrospective evidence is not sufficient; a post-hoc theory might be able to explain existing data, but credibility is established in its ability to predict (and not merely describe) particular findings. There exists recent evidence documenting the relationship between intimacy and disclosure (Bauminger, Finzi-Dottan, Chason, & Har-Even, 2008; Valkenberg & Peter, 2007); however, few studies address the second tenet of SPT. Through research into the differences between computer-mediated communication (CMC) and face-to-face (FTF) interactions, Valkenberg and Peter (2007) provided further support for SPT. Dutch adolescents completed
questionnaires about their feelings of loneliness, social anxiety, perceived breadth and depth of online communication (that is, the breadth and depth of their online disclosures), their online behaviours, online interactions with strangers and closeness to friends (Valkenberg & Peter, 2007). According to SPT, as intimacy develops - that is, as the time spent communicating with people online (online behaviour) and closeness to friends increases - the perceived breadth and depth of online exchanges should also increase. Valkenberg and Peter (2007) found a significant positive correlation between closeness and perceived online depth for adolescents communicating with strangers and friends. However, the frequency and duration of online exchanges was significantly correlated with closeness to friends and disclosure breadth and depth only in friendships. These results lend support to SPT, which can further explain the results when taking into account findings regarding communication with strangers. Altman and Taylor (1973) emphasise the role of environment in relationship development. The online environment (with its absence of non-verbal cues and visual information) reduces the accuracy of a cost-benefits analysis. This accuracy is further decreased if one is interacting with a stranger. Hence, the non-significant findings for online exchanges with a stranger are consistent with the postulations of SPT.

SPT views self-disclosure as a variable operating within the larger system of variables responsible for the development of interpersonal relationships. As such, individuals self-disclose to increase intimacy in a beneficial and positive relationship. With respect to the stranger-on-a-train or increased online self-disclosure phenomena, SPT maintains that these exchanges follow the same systematic - albeit accelerated - process of social penetration. Factors such as anonymity, rewarding affirmations or other elements of the specific physical, temporal, cognitive and emotional context feature in the cost-benefit analysis. The relatively low cost of cathartic disclosure to a stranger an individual is unlikely to encounter again could lead a person to divulge relatively personal information early in the “relationship”. According to SPT however, there is still an increase in intimacy with disclosure - individuals will reveal less intimate and then more intimate aspects of
themselves; however, in these situations this process is accelerated. SPT, therefore, highlights the role of time, relationship context and trust on self-disclosure. How these factors affect online self-disclosure requires empirical investigation.

2.2.2 Online Theories of Self-Disclosure

A notable difference between traditional self-disclosure theories and those theories purporting to explain increased online self-disclosure is how disclosure is conceptualised. Specifically, these theories differ in the context in which self-disclosure is studied. Offline theories view disclosure as an integral part of relationship development; to CMC theories, self-disclosure is one of a constellation of aberrant behaviours facilitated through the online environment. To online researchers, studies into self-disclosure are investigating the online disinhibition effect.

2.2.2.1. The Online Disinhibition Effect

When Australian Prime Minister John Howard (1996 - 2007) released his Global Warming Policy speech on YouTube, there was a wave of defamatory remarks that would not have been voiced in the offline environment. When participants were asked to group problem-solve, it was found that teams communicating online demonstrated more flaming than offline groups (Kiesler, et al., 1984). Flaming refers to negative verbal behaviour exhibited online. It commonly takes the form of insults and unsympathetic comments. Also observed, was greater equality of participation in online discussion (Kiesler, et al., 1984). Online, individuals exhibit greater disclosure, leading to self-exploration and understanding (Joinson, 2003; Suler, 2004a).

The online disinhibition effect contributes to both the communal effects of online interaction (for example, increased self-disclosure) and its harsher ‘reality’ (cyber-
bullying, increased negative behaviours). Yet, research exploring the online disinhibition effect, has focussed on its negative manifestations (Bellamy & Hanewicz, 1999; Denegri-Knott & Taylor, 2005; Hinduja, 2008; Kiesler, et al., 1984). Disinhibition, by definition, refers to unrestrained behaviours. These behaviours have no valence and can be either vice or virtue. Theories of disinhibition and explanations for the online disinhibition effect therefore, must be able to account for positive, uninhibited behaviours, including self-disclosure. Five influential theories of online communication are addressed below. Although each predicts greater self-disclosure in CMC, the proposed mechanism by which this occurs differs between each theory. A discussion of each theory and the evidence cited in favour of them is presented below.

2.2.2.2. Deindividuation Theory

Deindividuation Theory originated from research into deviant behaviours observed in individuals immersed in a group. LeBon (1903), credited with the inception of Deindividuation Theory, stated that a group context reduces both internal and external behavioural constraints leaving individuals susceptible to outside influences. In this environment the most salient influence is that of the group an individual surrounded by. Therefore, deindividuation is defined as the process by which being submerged in a group induces a state of reduced restraints and increased disinhibited behaviours.

Empirically, this view is supported by a significant correlation between disinhibition (indexed by the frequency of negative statements made by individuals in a group setting) and deindividuation (operationalised as the ability to recall what statements were made by which members of the group; Festinger, Pepitone, & Newcomb, 1952). The researchers argued that deindividuation allows individuals to remember what happened and what they did, but not details regarding the behaviours of others. Under this state, individuals are not perceived as individuals.
Extending on this original work, Zimbardo (1969) reconceptualised Deindividuation Theory to facilitate its application to wider contexts. According to this revised view, deindividuation is an internal process. The process of deindividuation is catalysed by specific antecedent conditions and leads to the experience of a subjective mental state. This subjective mental state is characterised by a loss of the individual’s sense of self. This is manifested in a reduced awareness of social and personal standards, reduced metacognition and self-regulation, and a reduced concern for the evaluations and opinions of others. Such a state would lead to decreased attention to an individual’s inhibitory mechanisms thereby facilitating greater frequency of disinhibited behaviours. The “input variables” hypothesised by Zimbardo (1969) were anonymity, reduced responsibility, arousal, group size, altered temporal perspectives, novelty of the situation, sensory overload, degree of physical involvement in the situation, and substance induced states. Although used initially to explain the “herd mentality”, when viewed as an input-subjective changes-output process, deindividuation could be applied to situations of disinhibited behaviour without a group context.

The online environment is a relatively novel situation where communicating individuals are anonymous, where there is a reduced sense of responsibility (“it’s not the real me”), and where the perception of time changes (an email which spans days or weeks may give participants the sense of an extended present-time). Deindividuation applied in this context is not immersion in a group but immersion in the communication medium. A subjective mental state of reduced awareness and the lowered sense of individuality is induced in online communicators. As such, awareness of social norms and etiquette is reduced and behaviours become more reflexive, less restricted.

Research investigating the validity of the Deindividuation Theory has examined either one or both of its fundamental postulations: (a) the existence of a subjective deindividuated
state and (b) whilst in this state, normally restrained behaviour will be disinhibited. Investigating the latter, Cannavale, Scarr and Pepitone (1970) found a correlation between disinhibition and deindividuation in a group discussion setting. Disinhibition was operationalised as the frequency of negative statements and deindividuation was measured by the participant’s ability to recall which individual in their group made particular statements. This is premised on the idea that details of an individuals’ behaviour and the general chronology of events that occurred during the deindividuated state can be recalled, but the specific details of other people’s behaviours cannot (since in a deindividuated state, one does not see oneself or others as discrete individuals). Various studies have also supported the Deindividuation Theory and found relations between deindividuation and disinhibition (Diener, 1977; Hinduja, 2008; Prentice-Dunn & Rogers, 1980).

The relationship observed in the above studies however, cannot be used to infer causation. According to Deindividuation Theory, self-awareness (as a facet of the deindividuated state) has a causal role in the disinhibition of behaviour. Explicitly testing this tenet, Diener and Wallbom (1976) randomly allocated participants to either a self-aware or non self-aware condition and noted how often they cheated at an anagram task. In the former condition, participants listened to a self recording of their name, eye and hair colour, and the educational institution they attended. These participants were also seated in front of a mirror so that upon looking up, participants would see their own reflection. Students in the non self-aware condition were not subjected to these manipulations. The results obtained showed a significantly greater frequency of cheating behaviour in the non self-aware than self-aware group. This study, therefore, provided a demonstration of anti-normative behaviour resulting from decreased self-consciousness in the absence of a group setting.
It could be argued, however, that Diener and Wallbom’s (1976) findings reflect the role of identifiability not self-awareness. Perhaps it is not that participants were more aware of themselves that they refrained from cheating but that they were more aware of the fact that they could be identified. Jorgenson and Dukes (1976) showed that being in a group was not sufficient for disinhibited behaviour; this required a heightened sense of identifiability. These authors made a distinction between social aggregates and social groups. The former is a collection of non-interacting individuals without a structural organisation and the latter refers to an interacting collection of inter-dependent individuals claiming membership. Individuals part of a large social aggregate felt more deindividuated and engaged in more disinhibited behaviours than those of smaller social aggregates (Jorgenson & Dukes, 1976). Members of a social group, however, reported feeling more individuated than solitary, anonymous individuals. Hence it was argued that identifiability is more fundamental than the presence of other individuals in explaining disinhibition. Individuals in a group are more identifiable because of their group membership and hence less likely to feel deindividuated and engage in anti-normative behaviour.

Evidence for the hypothesised subjective state of deindividuation has been inconclusive (Diener, 1976; Diener, Dineen, Endresen, Beaman, & Fraser, 1975; Matheson, 1992; Matheson & Zanna, 1989; Prentice-Dunn & Rogers, 1980). Whilst many studies have shown a relationship between anti-normative behaviour and self-awareness (Diener, 1976; Diener, et al., 1975), others have found no relationship (Matheson, 1992; Matheson & Zanna, 1989). Despite reporting correlations between aggressive behaviour and self-awareness / errors in time perceptions, Diener (1976)’s factor analysis showed no single unified state of deindividuation.

Prentice-Dunn and Rogers (1982) applied the notion of a private and public self-awareness to resolve these discrepancies. These authors stated that a person’s self-awareness can be
either publically or privately focussed. Whilst engaged in public self-awareness, an individual is concerned with their self as a social object, an individual interacting with, and working within, a social context. Private self-awareness refers to a person’s thoughts, feelings and self-regulatory mechanisms. It was argued that lowered public self-awareness would lead to disinhibition not due to a deindividuated state but rather a reduced sense of responsibility and accountability. Moreover, an individual with lowered private self-awareness has directed attention away from their own feelings and metacognition. As such, they experience reduced self-regulation and increased disinhibition. Experimental evidence has supported these claims (Matheson, 1992; Matheson & Zanna, 1989; Prentice-Dunn & Rogers, 1980).

Deindividuation Theory paved the way for research into online self-disclosure. According to this theory, increased online self-disclosure occurs as the result of immersion into the online environment and the development of a subjective deindividuated state. However, discrepancies in the empirical evidence used to support the primary tenets of Deindividuation Theory suggest either a flaw in the framework, or the need for more explicit investigations. Perhaps more fundamental is the development of a single theory of deindividuation. Throughout the 1970’s postulations have been added and removed from Zimbardo’s (1976) theory, yet no formal theory encapsulating these assertions has emerged (Joinson, 2003). Thus, whilst there is research emerging from the deindividuation tradition (Joinson, Reips, Buchanan, & Paine Schofield, in press), it does not strictly assess the Deindividuation Theory. An empirically and theoretically more cohesive theory has emerged from the deindividuation framework: the Social Identity Model of Deindividuation Effects (Reicher, Spears, & Postmes, 1995). This theory will be used in the present research to assess the deindividuation tradition.
2.2.2.3. Social Identity Model for Deindividuation Effects

The Social Identity Model of Deindividuation Effects (SIDE model) posits that the self consists of two identities: (i) personal identity and (ii) social identity (Reicher et al., 1995). Personal identity speaks to the unique characteristics (and pattern of attributes) of a particular individual. Social identity, on the other hand, refers to the groups to which a person belongs - for example, family, friends, workplace, and religious affiliation. Depending upon the context, a particular identity will become salient and with this, its associated norms and codes of conduct. So, when an individual becomes part of a salient group, rather than losing their sense of self, their social identity becomes dominant and this dictates their behaviour. If the individual is in a group situation where the group identity is not salient, the person’s social identity may not become dominant. In fact, the absence of group boundaries or a clear group norm may lead to a dominant personal identity since the individual may not feel as though they can or do belong to this group. Deindividuation, therefore, is a situation-specific process of self-categorisation.

According to a meta-analysis by Postmes and Spears (1993), the SIDE model is able to account for research into deindividuation and disinhibition. A review of 60 studies showed limited support for the existence of a subjective deindividuated state and the hypothesis that this state causes anti-normative behaviour. Conversely, the SIDE model, as a situation-specific model which posited that individual behaviour is dependent upon context-specific (group) norms (rather than general social norms) was better able to account for the results.

Studies investigating the SIDE model have primarily examined the changes in conformity to group norms (indicative of the salience of an individual’s social identity) resulting from manipulations of the social context (for instance, anonymity, group size). For example, Reicher et al. (1995) found that the effect of anonymity on deindividuation is moderated
by the group context. Non-anonymous individuals and anonymous group members both expressed enhanced conformity to group norms. Consistent with the postulates of the SIDE model, these findings suggested that under anonymous conditions, a clear group identity is required for participants’ social identity to become salient. These results could not be explained by the Deindividuation Theory.

Applied to the online environment, the SIDE model states that disinhibition occurs as a result of perceived group norms. The visual anonymity and lack of individuating cues of cyberspace dilute the perception of difference between partners engaged in a social exchange. Without visual cues indicating differences between people (for example, gender, age, cultural background), the idiosyncrasies of each person are not as noticeable. This allows individuals to believe that the behaviours of the person they are interacting with are indicative of group norms (Walther, 2006). Supporting this view, Lee (2006) found that participants in groups without individuating information (that is, group members’ demographic information such as name, age and gender were kept from other members) believed they had more in common with their peers than members of individuated groups (who were provided with a picture and demographic details of their group members). Group norms were also perceived as being more severe by deindividuated participants. Although the hypothesis that the dominance of social identity results in disinhibition is not explicitly tested, support is provided for the situation specific nature of disclosure and deindividuation espoused by the SIDE model.

Consistent with the SIDE model, Postmes, Spears, Sakhel and de Groot (2001) found greater adherence to group norms when participants were anonymous compared to when they were identified. Participants in the identifiable condition had a picture taken of them. Pro-social and anti-social models were provided for participants as they were completing a problem solving task. It was found that social norms were adhered to in
anonymous conditions but not identifiable conditions. This lends further support to the SIDE model.

The SIDE model also draws on reciprocal self-disclosure as part of its explanation for increased online self-disclosure. It states that being the recipient of self-disclosure, an individual may perceive that divulging personal information is the group norm and thus participates in it. Disclosure read in online discussion boards may also represent to a new member the norm of disclosure. Barak and Gluck-Ofri (2007) found greater disclosure in forums with a history of disclosure than ones without. What of the initial disclosure? If an individual is not posting to an online discussion board, if the individual is not responding to an initial disclosure, why would they disclose? “ASL?” (age, sex, location) is a common opening question to online interactions. This and other necessary disclosures (since these attributes are not easily discernable without visual cues) may facilitate the development of a norm of disclosure in the perceived group, hence - increased online self-disclosure.

Despite this, the SIDE model explains self-disclosure as context specific, as is the salience of personal or social identity. Using the SPT’s dimensions of self-disclosure, the SIDE model, therefore, does not present any a priori predictions of frequency, breadth and depth of disclosure in online versus offline environments. It states that within each medium there are social contexts that dictate the influences of perceived norms of self-disclosure.

The SIDE model provides a cohesive model of deindividuation and disinhibition. There is a strong body of evidence for the SIDE model’s explanation of online disinhibition and it is able to account for both negative and positive anti-normative behaviour.
2.2.2.4. Hyperpersonal CMC Theory

Hyperpersonal CMC Theory belongs to the group of theories formed specifically to account for the nuances of online exchanges. Where the Deindividuation Theory and SIDE model were rooted in offline research into group processes, Hyperpersonal CMC Theory was developed to explain online behaviour. It aimed to provide a wider framework for understanding online interpersonal interactions, not simply to explain the online disinhibition effect. This theory is similar to the SIDE model in that it views computer-mediated behaviour as being based on the absence of individuating or personalising information. However, it states that group norms are not responsible for the (experimentally and anecdotally) observed effects of online communication. Rather, they are based on exaggerated or idealised impressions of an individual’s communicating partner (Tidwell & Walther, 2002; Walther, 1996, 2006). Due to the paucity of individuating cues online, this online partner is - to an extent - who they are interpreted to be. As such, an exaggerated intimacy may be present where the individual feels that they are able to act without restraint in the presence of this other person; hence, disinhibition. The Hyperpersonal CMC Theory also states that the cognitive energy normally used to discern non-verbal cues in FTF communication can be redirected to presenting a particular persona to others online using the available cues. In other words, the online environment allows participants greater control in their self-presentation.

Suler (2005) also argues that online communication offers an incomplete profile of its participants. There exist idiosyncrasies discernable best through FTF interactions. As such, consciously or otherwise, a person will add their interpretations of their online partner’s character to the received communication (for instance, email, instant message, discussion board post). The example Suler (2005) provides concerns email communication. He states that in reading an email, a voice or vague visual image may be assigned to the other person. This person is therefore an amalgam of what they reveal and how this information is interpreted. Suler (2005) goes on to say that this person becomes perceived as a
character within the individual’s psyche. In this light, disclosure is not risky. After all, it feels as though one is simply talking to oneself (Suler, 2005). Suler’s (2005) theoretical claims, however, require further empirical support, specifically, studies examining how individuals perceive their online partners (especially their ontological status).

Research on the Hyperpersonal CMC Theory provides evidence for each tenet of the framework. Hancock and Dunham (2001) found that participants engaging in CMC formed less detailed but more intense impressions of their partners than individuals communicating FTF. After interacting with their partners either online or FTF, participants were asked to complete the NEO-FFI (NEO-Five Factor Inventory) about their partner. CMC participants used more extreme values than FTF interactants, lending support to the Hyperpersonal CMC Theory.

Walther, Slovacek and Tidwell (2001) and Nowak, Watt and Walther (2005) investigated the relationship between and the perceptions of communicating partners. Evidence was obtained for the Hyperpersonal CMC Theory. Walther et al. (2001) examined the effect of communication medium (online or FTF) and partner’s visual presence (presented with partner’s photo or not) on a person’s rating of their partner’s social attractiveness and their affection for this partner. It was found that participants who were not presented with their partner’s photo reported greater affection for their partner and rated them as being more socially attractive. Nowak et al. (2005) on the other hand used a five-week, task oriented set-up to assess online impression formation. Again, CMC participants reported greater social attraction for their partners. Also, group members were rated as being credible and involved in the task by more people in the online than offline conditions.
The second tenet of the Hyperpersonal CMC Theory (concerning greater focus on, and control of, self-presentation) has also received empirical support (Walther, 2007). Participants were asked to compose an initial (written) communication either to teach high school students how to use a particular conferencing system or to demonstrate their knowledge of how to use this system to college professors. Linguistic and composition analyses of the texts showed that consistent with the Hyperpersonal CMC Theory, CMC users spent a greater amount of time composing and editing communications and that this was directly related to perceptions of intimacy. Language was more personalised in communications to high school students than college professors. Greater grammatical complexity was also observed in the latter condition. Together, the results of this investigation show differential use of CMC cues according to the target audience and purpose of communication in line with the postulates of the Hyperpersonal CMC Theory.

In summary, the Hyperpersonal CMC Theory is a proposed theory for understanding online behaviour. In particular, it is able to account for both positive and negative disinhibition effects.

2.2.2.5. Reduced Cues Theory

Another theory proposed specifically to explain the online disinhibition effect is the Reduced Cues Theory (RCT; Joinson, 2003). According to this theory, cues are indicative of the social context and its associated norms and behavioural etiquette. That is, the situational, non-verbal cues surrounding an individual moderate their behaviour. In absence of these cues, people will become either more self or task oriented. In such cases, with decreased attention to social norms, individuals will become disinhibited.

Though often cited as an explanation for negative, anti-normative behaviour (Kiesler, et al., 1984; Mallen, et al., 2003), the RCT has also been applied to increased online self-
disclosure albeit indirectly (Suler, 2005). The notion of cues as reminders of behavioural restrains underpins Suler’s (2005) invisibility (visual anonymity to others and of others to oneself), solipsistic introjection (viewing others as a character of one’s mental world) and minimisation of status and authority factors. Of note is the case of asynchronous CMC. Here an individual is not inhibited by the immediate reactions (ascertained through non-verbal cues) of their communicating partner. Hence they are more likely to engage in cathartic expressions and self-disclosures. In a FTF conversation, the non-verbal moment-by-moment dialogue of participants will inhibit each others’ responses. A frown, a smile, a distant glaze over the eyes will affect how a person responds to their partner. Online, these inhibitory cues are removed. Additionally, the scarcity of cues in CMC allows more flexibility for a person to reflect upon communications and create a partner that is part-interpretation, part-truth (Suler’s (2005) solipsistic introjection). In turn, partners are characters of each other’s mental world and conversation feels like talking with oneself. Thus, disclosure occurs more freely. The minimisation of status and authority online occurs through the reduction of cues indicating status and authority (such as dress or posture). In turn, authority is inhibitory and the reduction of reminders of authority increases self-disclosure. Joinson, Woodley and Reips (2004) found that the status of the individual requesting personal information affected participants’ willingness to disclose and amount of disclosure, supporting Suler’s (2005) proposal.

The inception of RCT stemmed from empirical evidence of an increased frequency of aggressive, anti-normative behaviour in CMC. Kiesler, et al. (1984) asked participants to reach consensus in a choice-dilemma task. In groups of three, participants either communicated via IM or FTF. Greater disinhibition (indicated by frequency of hostile remarks) was observed in CMC than FTF interactions. The authors posited that the reduction of social cues (for example, cues indicative of authority or leadership) could account for the results obtained. Without a clear authority (and with this person, an explicit set of behaviour norms), CMC participants are not reminded of the rules concerning social etiquette. As such, these online groups are more likely to exhibit
disinhibited, unrestrained behaviour. Sproull and Kiesler (1986) also found that in a workplace setting, more individuals preferred to send emails up the hierarchy rather than to subordinates. It was suggested that in the absence of authority-indicating cues in CMC, communication with superiors would be more equal. On the other hand, when one is the authority, one may not want to be seen as equal. However, the data obtained were unable to confirm or disconfirm this hypothesised explanation. The anti-hierarchical nature of CMC is also discussed as a possible factor in eliciting deviant behaviour online (Denegri-Knott & Taylor, 2005).

The other fundamental postulate of the RCT is that online, participants will show a reduced awareness of social norms. This is usually evidenced in studies demonstrating a lowered sense of responsibility, decreased emphasis on the evaluations of others and an increased self-focus (Joinson, 1999, 2001b). Despite this, the assumption that these effects are caused by (or at the very least related to) a decreased awareness of social norms has not been explicitly examined.

The RCT is a medium-based explanation of the online disinhibition effect. Able to account for aggressive and non-aggressive anti-normative behaviours, the RCT has received empirical support for its key tenets. However, although support for the individual postulates of the RCT is required, it is also important that the RCT can adequately account for the different factors of online self-disclosure. This is necessary for any theory of online communication.

2.2.2.6. Social Information Processing Theory

The Social Information Processing (SIP) Theory (Walther, 1992) is also a cues-based theory developed to account for the online disinhibition effect. In contrast to previous theories, the SIP Theory is premised on the notion of cues as conduits for communication, not
representatives of social norms or indicators of individuality. Offline, an individual is able to utilise a variety of verbal and non-verbal cues simultaneously to convey particular messages. Individuals communicating via the internet are limited in the number and type of cues available to them. A message sent FTF may only require a short interaction because the recipient is able to discern from the sender’s tone, body language, facial expression and verbal information what the message is. Online, the interaction may be prolonged. For instance, information normally communicated through intonation, gestures and facial expression needs to be “translated” into words (assuming one is engaging in text-based CMC). The amount of information remains constant but the avenues for communicating it have become limited. Therefore, it will take a longer amount of time for the message to be completely transmitted. It also suggests that the words used in online communication will be more precise than FTF interactions where words are complemented by an array of non-verbal information. Additionally, the SIP Theory argues for the functional equivalency of online and offline communication. It states that what can be communicated FTF can be exchanged through CMC provided there is sufficient time.

According to the SIP Theory, increased online disclosure occurs because there are no other means for an individual to communicate information about oneself. Theoretically, CMC should exhibit a higher frequency of self-disclosure statements than FTF exchanges. Information such as gender and age needs to be explicitly communicated online. In the “real” world, this information can be relatively easily ascertained. Hence, there should be increased disclosure online. Tidwell and Walther (2002) assessed differences in peripheral (demographic data), intermediate (attitudes, values, opinions), and core (personal beliefs, needs, fears) disclosures between online and offline dyads. It was found that CMC participants asked a greater number of intimate questions and exhibited a greater proportion of disclosures than individuals involved in FTF exchanges. Consistent with the postulates of the SIP Theory, it was argued that these findings provided support for the notion that non-verbal information is translated into a verbal code (richer because it is the only available avenue for communication) in CMC.
Evidence for the equivalency of online and offline communication, as proposed by the SIP Theory, has been found in numerous studies (Walther & Parks, 2002). Research examining communication developments in CMC and FTF relationships through time has shown that they follow a very similar trajectory (Walther & Burgoon, 1992). Mallen, et al. (2003) found that the level of emotional understanding of partners communicating online did not differ significantly from FTF participants. A follow-up phone call also showed no differences between the communication media on the levels of processing of the participants. Walther, Loh and Granka (2005) showed that partner ratings of affect in FTF conversations were best predicted by non-verbal cues (mainly vocalic cues more than kinesic cues). Offline, verbal cues did not significantly predict liking. On the other hand, verbal cues in CMC predicted affect ratings to the same degree as non-verbal cues in FTF exchanges. This suggests a compensatory mechanism whereby verbal cues in CMC serve the same role as non-verbal cues in offline conversations. In turn, the notion that online and offline communication are equivalent is supported.

Positing that online communication is functionally equivalent to FTF interactions, the SIP theory has received much empirical support. Theoretically, it is able to account for increased online self-disclosures and increased negative anti-normative behaviour (just as with self-disclosure, when the avenues for communicating are limited, the means that is available is used with greater precision and potency), thereby providing a sound theory for the online disinhibition effect.

2.2.2.7. Explaining online self-disclosure

Offline theories of communication view self-disclosure as one variable within a network of variables contributing to relationship development. SPT argues that disclosure occurs to increase intimacy, that online self-disclosure occurs as the result of a cost-benefit analysis
indicating that it is more favourable to disclose online. On the other hand, increased self-disclosure is interpreted by CMC theories as an anomaly in human interaction.

Deindividuation Theory views disclosure as a disinhibited behaviour resulting from a loss of the sense of oneself as an individual. The SIDE model posits that the paucity of individuating cues online leads individuals to see others’ behaviour as representative of a group norm and act accordingly. Online self-disclosure therefore occurs because of a perceived norm of disclosure. Hyperpersonal CMC Theory put forward the idea that exaggerated and idealised impressions of others are formed online due to the lack of cues to individuality. This perceived intimacy, therefore, facilitates self-disclosure. The RCT argues that cues represent social norms. The online environment, without the non-verbal cues to etiquette, facilitates anti-normative behaviour. Finally, the SIP Theory views increased online self-disclosure as a necessary consequence of the reduced cues of CMC. Cues are avenues for communicating information and with a smaller number of cues available online, the communication channels that are present are used more frequently and with greater precision. Table 1 summarises the predictions of each theory according to each dimension of self-disclosure.

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Breadth</th>
<th>Depth</th>
<th>Reasons for prediction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SIDE Model</strong></td>
<td></td>
<td></td>
<td></td>
<td>Disclosure is context-specific, depends on whether norms of disclosure are present rather than the communication medium.</td>
</tr>
<tr>
<td><strong>Hyperpersonal CMC Theory</strong></td>
<td>CMC&gt;FTF</td>
<td>CMC&gt;FTF</td>
<td>CMC&gt;FTF</td>
<td>Exaggerated intimacy formed as a result of idealised perception of partner. This is due to the paucity of individuating cues.</td>
</tr>
<tr>
<td><strong>RCT</strong></td>
<td>CMC&gt;FTF</td>
<td>CMC&gt;FTF</td>
<td>CMC&gt;FTF</td>
<td>Cues represent social norms for behaviour. Absent these cues, individuals are disinhibited and will disclose more freely.</td>
</tr>
<tr>
<td><strong>SIP</strong></td>
<td>CMC&gt;FTF</td>
<td>CMC&gt;FTF</td>
<td></td>
<td>Absence of non-verbal information necessitates greater self-disclosure. Information that can be visually ascertained needs to be communicated verbally online.</td>
</tr>
</tbody>
</table>
In summary, the hypothesised factors responsible for increased online self-disclosure relate either to the goal of the interaction (offline functional theories), reduced cues (SIDE model, RCT, Hyperpersonal CMC Theory, SIP Theory) and a subjective mental state characterised by a loss of one’s sense of self (Deindividuation Theory). Whilst supported by empirical research, no one theory is accepted over the others. Although there is evidence supporting the individual tenets of each theory, there is a shared assumption of greater disclosure in online than offline conversations. There is evidence to support this view (Antheunis, et al., 2007; Christofides, et al., 2009; Coleman, et al., 1999); there are also many studies that do not (Buote, et al., 2009; Chan & Cheng, 2004; Chiou & Wan, 2006; Kiesler, et al., 1985; Mallen, et al., 2003; Parks & Roberts, 1998). The following chapter presents a systematic review assessing this assumption of greater online than offline self-disclosure.
CHAPTER 3:

A REVIEW OF ONLINE AND OFFLINE SELF-DISCLOSURE RESEARCH

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3.1. Overview of Chapter 3

The review of CMC theories in Chapter 2 highlighted shared assumptions concerning online relationship development. That is, there is greater self-disclosure over the Internet than through FTF interactions. This chapter presents a systematic review of quantitative research comparing online and offline self-disclosure to address the shared assumption of CMC theories. Fifteen studies met the inclusion criteria and reported mixed results concerning disclosure frequency, depth, breadth and willingness to disclose. It was found that research design - particularly whether disclosure was investigated experimentally or through a cross-sectional survey - affected whether greater online or offline disclosure was observed. This finding informed the research design of the present study. Moreover, discrepancies in results between studies could be attributable to relationship intimacy and duration effects. Therefore, time was implicated as a key factor of self-disclosure. It was also noted that these studies did not include analyses of synchronicity (that is, no experiment had an asynchronous communication condition), trust or relationship context.

3.2. Systematic Review of Self-Disclosure Research

Theories of online communication all propose greater self-disclosure in mediated than FTF interactions. The SIDE model states that disclosure occurs as a result of a perceived norm of self-disclosure. Specifically, it posits that the visually anonymous conditions of cyberspace lead individuals to interpret their partner's behaviour as indicative of social norms. Therefore, if the other person discloses, an individual would also disclose. Self-disclosure, under the SIDE model, is also a result of greater feelings of closeness - since differences between an individual and their partner are not perceivable - and hence, disclosure.
The Hyperpersonal CMC Theory also notes the importance of exaggerated intimacy in online conversations. It states that without visual and non-verbal cues to the other person’s identity, they are who they are interpreted to be. Therefore, participants may feel more intimate with their partners online than FTF. This in turn is conducive to self-disclosure.

In contrast, the RCT states that an individual’s self-disclosure is moderated by visual cues and the anticipated reactions of their partner (Joinson, 2003; Suler, 2004a). Remove non-verbal cues, and in an asynchronous environment such as email, there are few immediate indicators of the other person’s response. In such cases, an individual may feel able to disclose with greater depth and frequency on a wider range of topics.

Finally, the SIP Theory predicts increased frequency and breadth of online self-disclosure as a practical consequence of CMC (Walther, 1992). Participants need to verbally disclose, and seek disclosure, to ascertain information normally communicated through visual or paralinguistic cues (for instance, gender, age). Therefore, greater online self-disclosure is expected.

Empirical evidence has been cited in favour of each of these theories. However, they also all share an assumption of greater self-disclosure in computer-mediated environments. Although this premise has been examined empirically, the findings are inconsistent. The following sections present, and discuss, the methods and findings of a systematic review of studies comparing online and offline self-disclosure.
3.2.1. Methods

This systematic review examined literature explicitly comparing self-disclosure in online and offline relationships. It considered differences in frequency, depth and breadth of self-disclosure.

3.2.1.1. Data sources and search strategy

Five databases (PsycInfo, Scopus, Medline, CINAHL, and Dissertations and Theses) and a manual search of bibliographies of articles, as well as systematic reviews, were employed for gathering literature. Using the keywords “internet”, “online”, “computer”, “computer-mediated communication”, “human-computer interaction”, “disclosure” and “self-disclosure”, 1266 articles were found. All abstracts were examined by one reviewer and a random selection of 20% of abstracts by a second reviewer. Inter-rater reliability was calculated using the Kappa statistic and found to be 0.675 (p<0.001), 95% CI (0.463, 0.887).

3.2.1.2. Study selection

Studies included were explicitly comparing FTF interaction and CMC with disclosure or intent-to-disclose as an outcome variable. There were no restrictions on disclosure content or interaction type (task oriented or social).

Reviewers excluded articles not published in English and any data published twice. This systematic review is concerned with person-to-person disclosure and while surveys are important, responses on a survey do not directly inform the therapeutic communication process. Therefore, studies comparing differences in disclosure between electronic and
pen-and-paper surveys were also excluded. Since there was no indication of significance, qualitative research was excluded.

Forty-six abstracts met the above criteria. Upon review of the complete articles by the first author, 15 studies were included in this review. For some research, it was only clear when reading the article (as opposed to the abstract alone) that it included data published twice (Schouten, Valkenburg, & Peter, 2007), was written in a language other than English (Dias & Teixeira, 2008) or that it did not compare self-disclosure as a dependent variable. For instance, Rosen et al. (Rosen, Cheever, Cummings, & Felt, 2008) examined emotionality and self-disclosure in online and offline dating but only compared emotionality. The emotionality-disclosure relationship was investigated but not disclosure in online and offline dating relationships. Data was extracted according to the pre-defined fields in Table 2.

### 3.2.2. Results

The 15 studies made 24 comparisons between online and offline self-disclosure. Of these, seven studies (8 results) found significantly greater disclosure in FTF conversations (Chan & Cheng, 2004; Chiu & Wan, 2006; Ponder, 2009; Rimondi, 2002; Schiffrin, et al., 2010; Stritzke, et al., 2004; Tidwell & Walther, 2002). Five studies (8 results) showed greater CMC disclosure (Antheunis, et al., 2007; Carballo-Diéguez, et al., 2006; Coleman, et al., 1999; Joinson, 2001b; Tidwell & Walther, 2002). A further five studies (7 results) showed no significant differences between CMC and FTF disclosure (Buote, et al., 2009; Chiou & Wan, 2006; Kiesler, et al., 1985; Mallen, et al., 2003; Parks & Roberts, 1998). Therefore, there is an almost equal number of findings showing greater CMC disclosure, greater FTF disclosure and no differences between online and offline disclosure. For a summary of the research methods and findings, see Table 1.
<table>
<thead>
<tr>
<th>Article</th>
<th>Summary</th>
<th>Country</th>
<th>Measure of disclosure</th>
<th>Disclosure Facet</th>
<th>Findings: Comparing FTF and CMC disclosure</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antheunis et al. (2007)</td>
<td>Experiment: 81 cross-sex dyads were randomly assigned to either a text-only CMC (IM without webcam), visual CMC (IM with webcam) or FTF condition. Participants rated the amount of partner disclosure on five intimate topics.</td>
<td>The Netherlands</td>
<td>Partner disclosure</td>
<td>Depth</td>
<td>Greater CMC disclosure (with webcam)</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Greater CMC disclosure (without webcam)</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>Buote et al. (2009)</td>
<td>Surveyed 141 participants on their attachment styles, computer comfort, friendship quality and self-disclosure to a nominated online and offline friend.</td>
<td>Canada</td>
<td>Self-report of own disclosure</td>
<td>Depth</td>
<td>No significant differences</td>
<td></td>
</tr>
<tr>
<td>Carballo-Dieguez et al. (2006)</td>
<td>Surveyed 250 men on their sexual self-disclosure practices (HIV-status disclosure and sexual negotiation) online, FTF and via telephone.</td>
<td>United States of America</td>
<td>Self-report of own disclosure</td>
<td>N/A</td>
<td>Greater disclosure of HIV-status and sexual negotiation in CMC</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>Chan and Cheng (2004)</td>
<td>Surveyed 162 participants on the relationship quality (interdependence, breadth, depth, code change, understanding, commitment and network convergence) of a nominated online and offline friendship.</td>
<td>China</td>
<td>Self-report of willingness and history of disclosure</td>
<td>Depth</td>
<td>Deeper FTF disclosure</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Chiu and Wan (2006)</td>
<td>Surveyed 207 adolescents on the depth and breadth of their sexual self-disclosures in the online and offline context.</td>
<td>Taiwan</td>
<td>Willingness to disclose</td>
<td>Depth</td>
<td>Willing to disclose deeper FTF</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No significant differences in breadth of self-disclosure</td>
<td></td>
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<tr>
<td>Coleman et al. (1999)</td>
<td>Experiment: 117 undergraduate students participated in either an online or FTF task-based discussion. Depth of disclosure was coded by independent raters.</td>
<td>United States of America</td>
<td>Actual disclosure</td>
<td>Depth</td>
<td>Deeper CMC disclosure</td>
<td>p&lt;0.05</td>
</tr>
<tr>
<td>Joinson (2001) - Study 1</td>
<td>Experiment: 20 dyads were randomly assigned to a FTF or synchronous CMC condition. Frequency and depth of disclosures were coded by two trained raters.</td>
<td>United Kingdom</td>
<td>Actual disclosure</td>
<td>Depth</td>
<td>Deeper CMC disclosure Greater proportion of online disclosures</td>
<td>p&lt;0.02</td>
</tr>
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<td></td>
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<td></td>
<td></td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Kiesler et al. (1985)</td>
<td>Experiment: 40 stranger pairs (dyads where participants were unfamiliar with each other) were randomly allocated to a condition within the 2 (FTF vs synchronous CMC) x 2 (high vs low evaluation anxiety) factorial design. Measured physiological arousal, subjective affect and disclosure frequency and intimacy.</td>
<td>United States of America</td>
<td>Actual disclosure</td>
<td>Frequency</td>
<td>No significant differences</td>
<td></td>
</tr>
<tr>
<td>Article</td>
<td>Summary</td>
<td>Country</td>
<td>Measure of disclosure</td>
<td>Disclosure Facet</td>
<td>Findings: Comparing FTF and CMC disclosure</td>
<td>Significance</td>
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<td>--------------------------------</td>
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<tr>
<td>Mallen et al. (2003)</td>
<td>Experiment: 32 stranger dyads were randomly assigned to FTF or synchronous MC condition. Own and partner’s disclosure was rated on a 6-point scale (no disclosure to extreme disclosure) by each participant.</td>
<td>United States of America</td>
<td>Self-report of own disclosure; partner disclosure</td>
<td>Level</td>
<td>No significant differences in self-report of disclosure No significant differences in reports of partner disclosure</td>
<td></td>
</tr>
<tr>
<td>Parks and Roberts (1998)</td>
<td>Surveyed 235 MOO (Multi-User Dimensions, Object Oriented) users on the relationship quality (interdependence, breadth, depth, code change, understanding, commitment and network convergence) of a nominated MOO and offline friendship.</td>
<td>United States of America, Canada, Australia</td>
<td>Self-report of willingness and history of disclosure</td>
<td>Depth</td>
<td>No significant differences</td>
<td></td>
</tr>
<tr>
<td>Ponder (2009)</td>
<td>Miller Self-Disclosure Index was completed by 145 participants in relation to a nominated online and offline friend.</td>
<td>Not specified</td>
<td>Willingness to disclose</td>
<td>Depth</td>
<td>Willing to disclose deeper FTF</td>
<td>p=0.01</td>
</tr>
<tr>
<td>Rimondi (2002)</td>
<td>Surveyed 69 participants on their self-disclosure to a nominated online and offline friend.</td>
<td>United States of America</td>
<td>Self report actual</td>
<td>Depth</td>
<td>Deeper FTF disclosure</td>
<td>p&lt;0.05</td>
</tr>
<tr>
<td>Schiffrin et al. (2010)</td>
<td>Surveyed 99 undergraduate students on their internet use, subjective well-being, self-disclosure to a nominated online and offline friend, perception of social support in each medium and extraversion.</td>
<td>United States of America</td>
<td>Perceived actual</td>
<td>Depth</td>
<td>Deeper FTF disclosure</td>
<td>p=0.001</td>
</tr>
<tr>
<td>Stritzke et al. (2004)</td>
<td>Surveyed 134 participants on interpersonal competence (including online and offline disclosure patterns), rejection sensitivity and shyness.</td>
<td>Australia</td>
<td>Willingness to disclose</td>
<td>N/A</td>
<td>Greater willingness to disclose FTF</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>Tidwell and Walther (2002)</td>
<td>Experiment: 2 (FTF vs semi-synchronous CMC) x 2 (social vs task-oriented) x 3 (peripheral, intermediate, core) between-groups and within-subjects factorial design on disclosure frequency.</td>
<td>United States of America</td>
<td>Actual</td>
<td>Frequency</td>
<td>Greater proportion of disclosures in CMC</td>
<td>p&lt;0.001</td>
</tr>
</tbody>
</table>
Methodologically, these studies varied in the research design employed (6 experimental, 9 survey), disclosure measures (actual disclosure, degree of disclosure, likelihood of disclosure, self-report of actual disclosure, perceived disclosure, willingness to disclose), the facet of disclosure investigated (frequency, breadth, depth, “level”), disclosure recipient (stranger, friend) and sample size (40 to 235 participants). It was found that differences in self-disclosure across communication medium could - at least in part - be attributable to study design and operational definitions of self-disclosure.

Experimental studies that measured actual self-disclosure - in contrast to self-report of disclosure behaviours - showed a significantly greater proportion of disclosure in CMC compared to offline interactions (Joinson, 2001b; Tidwell & Walther, 2002). Kiesler, et al. (1985) used the same research design but showed no significant differences in the proportion of disclosure statements between CMC and FTF interactions. Given this, examination of the means demonstrated a trend towards greater online disclosure.

Coleman, et al. (1999) and Joinson (2001) rated the depth of disclosure from transcripts of online and offline communications. Both found significantly more intimate disclosure in CMC.

As an alternative to identifying disclosure from transcripts, researchers have also measured disclosure depth by asking participants to indicate their own (Mallen, et al., 2003), or their partner’s (Antheunis, et al., 2007; Mallen, et al., 2003) depth of disclosure following an online or offline interaction. Consistent with findings from objective ratings of disclosure depth (Coleman, et al., 1999; Joinson, 2001b), Antheunis, et al. (2007) found peer-reports of significantly deeper disclosure online. Mallen, et al. (2003), however, showed no significant differences in ratings of partner’s depth of disclosure and
examination of the means show more intimate FTF interactions. This pattern was also observed for self-report of disclosure depth (Mallen, et al., 2003).

In addition to experimental designs, cross-sectional surveys have also been used to investigate differences in online and offline disclosure. Buote, et al. (2009), Rimondi, (2002) and Schiffrin, et al. (2010) asked participants to rate the extent to which they had discussed a list of intimate topics with a nominated online and offline friend. Both Rimondi (2002) and Schiffrin, et al. (2010) showed significantly greater discussion of intimate topics with offline compared to online friends. Although Buote, et al. (2009) found no significant overall differences in disclosure between online and offline friends, there was a significant interaction between communication media and attachment style. Specifically, there was a significantly greater extent of disclosure between offline friends for participants reporting secure, dismissing and preoccupied attachment styles. However, there was no difference in the extent of disclosure between online and offline friends for participants with a fearful attachment style.

Parks and Floyd’s (1996) measure of interpersonal relationship development was used to examine differences in disclosure depth between online and online friendships (Chan & Cheng, 2004; Parks & Roberts, 1998). The disclosure subscale of this questionnaire asked participants to report on their actual disclosure and willingness to disclose to a nominated online and offline friend. Chan and Cheng (2004) found significantly higher scores on this subscale for offline compared to online friendships. Parks and Roberts (1998) asked participants to compare friendships made offline with Multi-user dimensions Object Oriented (MOO) friendships. MOOs are online, virtual worlds created through text-based, synchronous interactions. Similar to instant messaging, MOOs allow individuals to communicate with each other in “real time”. However, in the MOO environment, individuals are represented by characters created through text. A person would type in a description of a character and this character would represent them in the virtual world.
The virtual world is also created via text. Again, a description of the virtual environs is provided and sets the “physical” context of the interaction. The emphasis of MOOs is social interactions, not competitive ones. As such, it is an environment that facilitates friendship development. In this context, Parks and Roberts (1998) found no significant differences between online MOO friendships and offline friendships on the disclosure scale despite using the same survey as Chan and Cheng (2004).

Three studies assessing depth of self-disclosure found significantly greater willingness to disclose to a nominated offline - compared to online - friend (Chiou & Wan, 2006; Ponder, 2009; Stritzke, et al., 2004). Chiou and Wan (2006) also asked participants to report the breadth of disclosure to their online and offline friends. Results showed no significant differences in the range of disclosure topics between friendships across communication media.

Carballo-Diéguez, et al. (2006) found that participants reported significantly greater sexual negotiation with, and HIV-status disclosure to, potential partners met online than FTF. In contrast to previously mentioned studies (Buote, et al., 2009; Chan & Cheng, 2004; Chiou & Wan, 2006; Parks & Roberts, 1998; Ponder, 2009; Rimondi, 2002; Schiffrin, et al., 2010; Stritzke, et al., 2004), Carballo-Diéguez, et al. (2006) did not require participants to identify, or think of, a specific person when completing the survey.

3.2.3. Discussion

Theories of online relationship development are premised on the notion of greater online - compared to offline - disclosure (Joinson, et al., 2004; Reicher, et al., 1995; Suler, 2004a; Walther, 1992, 1996, 2006). This assumption was supported in studies where the proportion and depth of disclosure was ascertained through coding transcripts of CMC and
FTF interactions. Evidence against this premise, however, was found in studies that compared self-reports of disclosure depth and willingness to disclose to nominated online and offline friends. These showed greater willingness to disclose and deeper disclosure in FTF communication.

This disconnect between disclosing behaviours and perceptions suggests the need to refine theories and models of CMC, particularly regarding the individual’s relationship with the disclosure recipient. The experimental studies reviewed here examined disclosure in the interaction between strangers. In contrast, self-report studies asked participants to indicate their disclosure patterns to friends. This suggests that relationship duration or intimacy could perhaps mediate the effect of communication medium on disclosure.

This review supports the idea that online and offline relationships converge over time (consistent with the SIP Theory). Despite using the same survey, Chan and Cheng (2004) found significantly greater offline disclosure, whereas Parks and Roberts (1998) found no significant differences in disclosure depth between online and offline relationships. Chan and Cheng (2004) investigated relatively recent relationships. In contrast, Parks and Roberts (1998) examined relationships that were usually at least 12 months in duration. This possible convergence of perceived disclosure depth lends support to the SIP Theory and SPT as a general theory of communication.

It is worth noting that the studies reviewed in this chapter examined disclosure after one interaction. Although similarities have been drawn between the stranger-on-the-train effect and online communication (Joinson, 2003), CMC is increasingly being used to facilitate ongoing interactions. Additionally, online counselling often involves more than one session. Therefore, research is needed to examine how self-disclosure changes - if at all - over time.
The SIP Theory posits that with sufficient time, online relationships will be equivalent to offline ones. The studies utilising a survey design in this review show this convergence. These findings could be strengthened with empirical investigations of disclosure changes over a series of communications.

Theories of online communication also suggest that the visual anonymity afforded by the online environment facilitates greater disclosure (Joinson, et al., 2004; Reicher, et al., 1995; Suler, 2004a; Walther, 1992, 1996, 2006). Although there is evidence to support this supposition (for example, Henderson & Gilding, 2004; Joinson, 2001b), Antheunis, et al. (2007) found no significant difference between visual and text-only CMC. Moreover, contrary to the predictions of SIDE, Kiesler, et al. (1985) found no significant difference in self-awareness between synchronous CMC and FTF interaction. Combined, these results suggest that visual anonymity is not sufficient to induce changes in self-awareness. It could be that despite the visual anonymity, participants are still engaged in real-time communication. Thus, the immediate reactions of an individual’s communicating partner could moderate their responses and hence, disclosure. This calls for research into the effect of synchronicity on self-disclosure.

The studies in this review compared FTF interaction with synchronous CMC. It is suggested that asynchronous CMC - particularly email - should also be investigated. This is due to the extensive use of email in modern communication (across social and work domains) and its asynchronicity. It has been proposed that asynchronous communication would facilitate greater introspection and disclosure - since an individual’s responses are not subject to the immediate reactions of their partner (Suler, 2005). Research is therefore required to systematically compare disclosure in FTF interactions and synchronous and asynchronous CMC.
That disclosure is greater offline for individuals reporting a secure, dismissing or preoccupied attachment style (Buote, et al., 2009) suggests that differences in the properties of each medium are not sufficient to explain differences in disclosure. Furthermore, findings suggesting a predisposition to disclose (Chiou & Wan, 2006) and an effect of shyness (Stritzke, et al., 2004) on disclosure support the argument for investigations into personality characteristics as a mediating variable.

Statistically, experimental investigations of online self-disclosure have used disclosures of dyads - as opposed to individuals - as the unit of measurement. As such, the distinction between prompted and spontaneous disclosures could not be made. In particular, the SIDE and SPT prediction of reciprocal self-disclosure could not be investigated. Studies into self-disclosure should note the distinction between disclosures in response to questions, the other person’s disclosures and spontaneous, unsolicited divulgence of personal information.

In addition to differences between modes of interaction, communication theory needs to take into account communication-based factors of self-disclosure. These factors are proposed to affect self-disclosure independent of whether interactions are mediated or not. One such factor is trust. This variable has not been examined in the studies assessed in this review.

In summary, supporting the premise of online communication theories, there is a greater proportion of disclosure identified in transcripts of CMC and FTF interactions. Conversely, self-report studies show greater willingness to disclose FTF. With respect to theories of online disclosure, and particularly the ODE, there is insufficient evidence in this review to support the thesis of one theory over and above another. In examining the predictions of
each theory concerning breadth, depth and frequency of disclosure, there is minimal
difference between each theory.

A further criticism of each of these theories is that they focus primarily on what is absent
in online communication rather than what is different. Moreover, there is little room for
the role of general principles of human interaction. A more complete account of the
online disinhibition effect should encapsulate fundamental differences in the
communication media (for example, synchronicity) and general psychological principles
that may operate independent of media (for instance, time and trust). An analysis of the
effects of these variables on self-disclosure in different communication contexts could
help disentangle the theories of online disinhibition.

Another issue with the current self-disclosure literature is its lack of consistency in
measuring self-disclosure. This is highlighted in the systematic review presented in this
chapter. Amongst the survey studies, only two studies used the same survey (Chan &
Cheng, 2004; Parks & Roberts, 1998). Even then, this survey was designed to investigate
friendship quality, not self-disclosure per se. The wording of other self-report measures of
disclosure is not easily mapped onto one of the three dimensions of self-disclosure. For
instance, the “level” of self-disclosure could refer to the frequency, breadth or depth of
personal information revealed. Even the disclosure dimensions themselves are measured in
different ways. Take, for example, depth of self-disclosure. This has been examined as
how “personal” the information revealed is (Kiesler, et al., 1985), the extent to which
participants discussed a list of preset “intimate” topics (Rimondi, 2002) and the amount of
detail in which individuals have discussed a list of topics of varied intimacy (Schiffrin, et
al., 2010). A coherent theoretical framework would provide adequate justification for the
decision to operationalise self-disclosure in particular ways. So, in addition to the
empirical work that is required in this area, theoretical discussions are also needed.
Chapter 4 will provide a review of the literature on the effect of both medium-based and communication factors on self-disclosure in online communication. This has informed the hypotheses and methodology employed in the current study.
CHAPTER 4:
FACTORS AFFECTING SELF-DISCLOSURE:
A LITERATURE REVIEW

4.1. Overview of Chapter 4
4.2. Factors Affecting Self-Disclosure
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   4.2.2.1. Time
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4.1. Overview of Chapter 4

A review of the literature on factors affecting self-disclosure and the rationale for the current study is presented in this chapter. An often cited explanation for greater online self-disclosure is anonymity. It is argued that since participants are unable to visually perceive their communicating partners, they will become more likely to self-disclose. The proposed reasons are: reduced influence of social norms, an increased perceived intimacy as a result of idealising partners, and reduced cues to negative feedback. However, research and theory need also to consider the role of synchronicity. Even though participants cannot see the immediate reactions of their communicating partner, in synchronous CMC, these reactions can also be perceived without delay. This is not the case with asynchronous modes, such as email. Therefore, an investigation into the role of synchronicity is required. These proposed factors of online self-disclosure, however, focus on the differences between online and offline communication. While these are important, it could be argued that self-disclosure in FTF conversations and CMC may be influenced by the same factors, though to differing degrees. The factors proposed in the current study are time, trust and relationship context. This chapter reviews the evidence and theoretical discussions on these issues and their relationship to self-disclosure, particularly, self-disclosure in different modes of communication. Based on this, a rationale for the current study is presented, as well as its aims and hypotheses.

4.2. Factors Affecting Self-Disclosure

The observation of greater online self-disclosure is explained by differences between FTF interactions and CMC, for example, the reduced number of visual cues in mediated environments. However, factors influencing self-disclosure offline may also account for how disclosure is manifested in online relationships. Thus, explanations for self-disclosure should include both. This chapter presents a discussion of the evidence for four factors proposed to influence self-disclosure. These are anonymity, synchronicity, trust and time.
Existing research does not take into account the immediate antecedents to self-disclosure. Therefore, there is also a discussion on the role of reciprocity in eliciting self-disclosure.

4.2.1. Medium-based factors of self-disclosure

In assessing differences between online and offline communication, researchers and theorists point to differences in the mode of communication. For instance, FTF conversations are verbal. There is also an array of non-verbal cues - for example, visual cues or paralinguistic cues - that provide additional channels to convey information. Online however, the majority of communication is text-based. There are minimal cues other than those an individual chooses to provide. Explanations of changes in self-disclosure across media often cite fundamental differences between mediated conversations and offline interactions. Mediated conversations are communications occurring through a tool, that is, they are mediated. Examples of mediated communication include telephone conversations, letters, emails and short messaging services. The distinction between mediated communication and CMC is that the latter is conducted via the Internet. CMC is a subset of mediated communication. The subsections of Section 4.2.1 present a review of two factors - anonymity and synchronicity - proposed to account for self-disclosure. Although anonymity was not investigated as an independent variable in this study - as there is already compelling evidence for its role in facilitating self-disclosure [see the analysis below] - a discussion of factors influencing online self-disclosure would be incomplete without a review of theory and research into anonymity. Synchronicity, on the other hand, has not been empirically examined. Upon review of the research, though, synchronicity could be argued to be an integral factor of self-disclosure practices.
4.2.1.1. Anonymity

CNN sports writer, Jeff Pearlman, reports of the profanity-laden “tweets” he receives on Twitter, an online social networking tool where “tweeters” can express their current thoughts in 150 characters or less. In explaining their behaviour, one individual stated, “I got caught up in the anonymity of the Internet” (Pearlman, 2011). There is a public perception that online communication is largely influenced by not being able to see the other person. This is evident in media reports. For example, *The Sydney Morning Herald* writes of confessions and comments expressed under the anonymity of the Internet (Hooton, 2011), while *The Times Online* shows how anonymity can facilitate anti-social behaviour (Weber, 2006). Thought mostly negative, these reports suggest that while anonymous, individuals will more frequently communicate their thoughts and feelings.

Applied to a clinical setting, the benefits of complete anonymity - for example, increased self-disclosure (Chiou & Wan, 2006; Joinson, 2001b; Joinson, Woodley, & Reips, 2007) and reduced social desirability biases (Joinson, 1999) - need to be evaluated against ethical, legal and practical concerns (Rochlen, et al., 2004). The increased risk of miscommunication occurring from reduced non-verbal cues is noted by Beel and Court (1999). While multimedia online communication is available - for instance, Skype, a program designed for real-time communication with web cameras via the Internet - text-based communication remains dominant, particularly in counselling contexts (Chester & Glass, 2006). In light of these discussions, anonymity may not provide an ideal environment for the provision of mental health interventions. Moreover, clinicians, according to where they are licensed to practise, may also have a duty to notify authorities if their client is likely to cause harm to themselves or others (APS, 2007; Kagle & Kopels, 1994; Shaw & Shaw, 2006). If pseudonyms are employed and identifiable information not sought, mental health professionals may be legally liable. While the information may be ascertained through other avenues - for instance, internet service providers - the risks of anonymity must be recognised.
Anonymity is often cited as an antecedent condition for online self-disclosure (Brunet & Schmidt, 2008; Fullwood, Galbraith, & Morris, 2006; Joinson, 1998, 2001b; Reicher, et al., 1995; Suler, 2004a; Walther, 1996; Zimbardo, 1969). Although this is important in the therapeutic process, the concerns outlined above must be taken into account. The following sections evaluate theoretical discussions on - and empirical evidence suggesting - the role of anonymity in online self-disclosure. This can be used to determine the extent to which it can be employed in clinical settings and other properties of CMC - applicable to counselling - that may influence self-disclosure.

4.2.1.1.1. Defining anonymity

Anonymity, broadly speaking, refers to a state of being unidentifiable. In CMC research, claims regarding anonymity specifically refer to visual anonymity (Joinson, 2003). If an individual is visually anonymous, their identity cannot be ascertained through visual cues. That is, they cannot be seen, for example, when interacting via email. However, despite being ‘invisible’, individuals can be identified by other means, for instance, the email address of the sender (Herring, 2002; Joinson, 2003). This distinction between visual anonymity and anonymity per se will be maintained throughout this thesis.

4.2.1.1.2. Visual anonymity and CMC self-disclosure

Comparisons of CMC and FTF interactions have employed a synchronous, text-based communication channel for the online conditions (Antheunis, et al., 2007; Coleman, et al., 1999; Kiesler, et al., 1985; Mallen, et al., 2003; Tidwell & Walther, 2002). As such, examination of the role of visual anonymity on self-disclosure is more appropriate for the CMC context. The following sections provide an evaluation of theoretical discussions and empirical evidence for the relationship between visual anonymity and self-disclosure.
4.2.1.1.3. **Theoretical discussions**

Explanations of online self-disclosure that stem from offline theories - such as the Deindividuation and SIDE theories - argue that the effect of anonymity on individual behaviour transcends medium. Moreover, anonymity affects the individual and through that, increases self-disclosure. For instance, Deindividuation Theory argues that in a situation where a person cannot be identified - be that in a group or online - that person would not feel responsible for their behaviour as an individual. As such, they are more likely to engage in disinhibited behaviour (Festinger, et al., 1952; Joinson, 2003; LeBon, 1903; Suler, 2004a; Zimbardo, 1969). According to the SIDE model, anonymous situations give rise to increased self-awareness. This leads to greater introspection and, in turn, facilitates increased self-disclosure.

Theories proposed to specifically explain online communication - Hyperpersonal CMC Theory, RCT, SIP Theory - state that visual anonymity affects the relationship between communicants and thereby increases self-disclosure. Hyperpersonal CMC Theory posits that anonymous, an individual is as much who their partner perceives them to be as they are whom they portray themselves to be. The formation of an idealised partner occurs in visually anonymous communication and the exaggerated intimacy that results leads to increased self-disclosure (Suler, 2004a; Tidwell & Walther, 2002; Walther, 1996). RCT argues that when visually anonymous, the reactions of a person’s communicating partner cannot be perceived and therefore cannot moderate their discourse, thus facilitating increased self-disclosure (Joinson, 2003; Suler, 2004a). Finally, SIP Theory proposes that the objective of communication is to reduce uncertainty about the other person. Online, an individual is visually anonymous. Therefore, there are less non-verbal avenues for discerning information. As such, more questions are asked and more self-disclosures made (Tidwell & Walther, 2002; Walther, 1992).
Though each theory proposes a different mechanism by which online visual anonymity affects self-disclosure, there is a shared claim of lack of identifiability leading to increased disclosure. An examination of research in the area, however, is required.

4.2.1.1.4. Empirical investigations

Research shows that participants are more inclined to disclose sensitive information in anonymous environments. Palestinian web-users, for instance, prefer to have political discussions via anonymous discussion boards than maintain non-anonymous social networking accounts such as those on Facebook and Twitter (Schanzer, 2011). Chiou (2006) examined adolescents’ willingness to self-disclose online in varied levels of anonymity. Participants were provided 15 sexual topics and indicated the percentage of people they would disclose to on each topic with a web camera, photo or nickname present (low to high anonymity, respectively). Willingness to sexually self-disclose decreased linearly from highest to lowest levels of anonymity. Therefore, the subjective experiences of individuals are such that disclosure seems to be facilitated by anonymity.

Anonymity - or, conversely, the perception of identifiability - also has an effect on active non-disclosure through online surveys (Joinson, et al., 2007). Active non-disclosure is an explicit statement of a preference to not disclose, for example, “I prefer not to say”. Joinson et al. (2007) used frequency of active non-disclosure to examine the effect of anonymity on survey disclosure. In manipulating perceived anonymity, participants completed the survey either by clicking on an emailed link where their identifier was encrypted or logging on using their student ID and password. The survey asked participants for sensitive, personal information such as income. Where identifiability was more explicit, that is, the log-on process, a significantly greater percentage of participants indicated that they preferred not to disclose sensitive information.
When examining health disclosure practices, however, Verhoeven et al. (2007) found that most participants would disclose sexual practices for sexually transmitted infections surveillance. Patients, however, preferred to disclose to a GP than an online form, but in turn preferred the online form to telephone interviews or postal forms. This is consistent with research indicating a preference for FTF therapy over online counselling in young adults (Rogers, Griffin, Wykle, & Fitzpatrick, 2009). Therefore, while the proposal that anonymity facilitates increased online self-disclosure is empirically supported, other factors should be explored to ensure appropriate adaptation of CMC research findings into the therapeutic context.

A further objection to the above studies is that they are based on self-report measures. Joinson (2001) compared the actual frequency of unprompted self-disclosure in dyads communicating via IM either with or without a web camera. Participants disclosed more in the visually anonymous condition. This suggests that, controlling for differences between FTF interactions and CMC, there is increased self-disclosure in visually anonymous situations. Further, by examining unprompted self-disclosure, this study pre-empted the objection that participants in the visually anonymous conditions disclosed more because there was more to disclose. Uncertainty reducing information is usually prompted (Joinson, 2001b; Walther, Anderson, & Park, 1994; Walther & Burgoon, 1992) and this was not included in Joinson (2001). This finding, however, is not supported by a later study showing no significant differences in self-disclosure between visual and text-only IM conversations (Antheunis, et al., 2007). A possible explanation for this discrepancy is the operationalised definition of self-disclosure. Where Joinson (2001) examined unprompted self-disclosure, Antheunis et al. (2007) looked at disclosures in response to direct questioning. This distinction between disclosure types requires further investigation. While direct statistical comparisons between visual and text-only CMC showed no differences, Antheunis et al. (2007) found that text-only CMC facilitated the relationship between self-disclosure and interpersonal attraction where visual CMC did not. This is still
consistent with the proposal that visual anonymity does affect self-disclosure, and is particularly applicable to the therapeutic relationship.

Theoretical discussions and empirical evidence, therefore, suggest an effect of anonymity on increased online self-disclosure. Participants’ preference for disclosing in visually anonymous environments (Chiou & Wan, 2006; Schanzer, 2011) is mirrored by objective evidence showing greater proportions of unprompted self-disclosure when partners could not see each other (Joinson, 2001b). This preference is also evident in survey prompted self-disclosure of sensitive information (Joinson, et al., 2007). Visual anonymity, it seems, can promote self-disclosure.

An objection to claims regarding visual anonymity lies in the stranger-on-the-train effect. This describes the disclosure of intimately personal information to a previously unknown person. This phenomenon was originally observed in an offline context (Rubin, 1975; Simmel, 1950). In such settings, there is no visual anonymity. It has been argued that strangers are the recipient of such disclosures because, despite being visible, both individuals are anonymous. That is, their identities are unknown to the other person (Rubin, 1975; Simmel, 1950). While it does not contradict the findings of CMC research, it does present a situation in which visually anonymous participants will self-disclose. From a counselling perspective, these findings, combined, suggest different facets of anonymity that could be applied to facilitate the therapeutic process.

It is also worth noting though that experimental studies investigating anonymity have compared self-disclosure in FTF and IM interactions. In the online conditions of these studies, participants are visually anonymous. However, the reactions of their communicating partner remain perceivable. It has been argued that the anticipated immediate responses of other people in real-time communication may inhibit one’s
discourse (Suler, 2004a). For instance, an individual may choose not to disclose their religious beliefs if the person they have been conversing with has expressed atheist sentiments. Therefore, while anonymity is an important factor of online self-disclosure, demonstrated particularly by Joinson (2001b), the effect of synchronicity should also be examined. Moreover, from a clinical perspective, while it may facilitate self-disclosure, anonymous interactions with clients could lead to ethical dilemmas, legal complications and practical constraints. An examination of other factors contributing to online self-disclosure would provide further guidance on the effective use of CMC in mental health programs.

4.2.1.2. Synchronicity

Another medium-based difference between FTF communication and CMC is synchronicity. Synchronicity is related to the temporal fluidity of conversations - online or offline (Suler, 2004b). Synchronous communication occurs in real time where the reactions of an individual's communication partner are immediately perceivable. FTF conversations, for instance, are synchronous. Online, synchronous communication is often in the form of IM or Chat. While communicants cannot see the reactions of their partner, these reactions are still immediately perceivable through text; the individuals are having a conversation in real time. On the other hand, asynchronous communication involves a delay between messages being sent, received and replied to. Hence an asynchronous communication can span days, weeks or months. Synchronous communication has a more discrete timeframe. Examples of asynchronous interactions are email, online discussion boards or traditional pen-and-paper letter writing.

In the online therapy context, it is important for a mental health professional to effectively negotiate both synchronous and asynchronous modes of communication (Fenichel, et al., 2002). Fenichel et al (2002) wrote that the online health professional
should employ the mode that best suits the patient’s conversational style and needs at every particular point during the therapeutic relationship. This may involve using one mode throughout the therapy - for example, email or IM exclusively - or switching between modes. Their case studies, in particular, demonstrated that therapy is better facilitated through the use of mixed media since self-expression is different in different modes. Therefore, investigations into the communication practices of, and self-disclosure in, the therapeutic relationship should encompass both synchronous and asynchronous communication.

4.2.1.2.1. Theoretical discussions

Broadly speaking, there are two opposing arguments concerning the effect of synchronicity on online self-disclosure. Some argue that the delay in messages in asynchronous conversations could facilitate a deeper, more reflective communication with greater self-disclosure (Johnson, 2006; Joinson, 2001b, 2003; McCoyd & Kerson, 2006; Schultze, 2006; Suler, 2004a, 2004b). On the other hand, this expectation of delay and asynchronicity provides individuals with the opportunity to edit their messages and remove unflattering disclosures. If self-disclosure presents a risk, that is, revealing intimate information to another person who may misuse it (Bane, Cornish, Erspamer, & Kampman, 2010; Joinson, et al., 2006; Metzger, 2006; Schultze, 2006), then it possible that upon review of an asynchronous communication, for example, email, discussion board post, people may remove it. The resulting message, then, would be more task-oriented and contain fewer unprompted self-disclosures. Individuals may disclose information that is asked for by direct questioning but not volunteer unsolicited information.

CMC theories do not make explicit predictions on the role of synchronicity in self-disclosure. Drawing from their premises, however, Hyperpersonal CMC Theory and RCT would predict greater disclosure in asynchronous settings. Hyperpersonal CMC Theory
states that the online environment allows people to idealise their partners. Absent nonverbal cues to the contrary, the person one is communicating with is - to an extent - a product of how one interprets them to be. As such, greater intimacy would develop, thereby facilitating greater disclosure. Again, asynchronous communication, such as email, contains fewer cues and allows more creative licence in the construction of a communicating partner. Therefore, evidence showing greater self-disclosure in asynchronous compared to synchronous CMC would be consistent with Hyperpersonal CMC Theory. Common to both these arguments is the role of decreased visual and paralinguistic cues. Similarly, RCT would predict greater asynchronous self-disclosure due to reduced cues indicative of social norms. The role of etiquette in moderating behaviour decreases as the number of cues indicating social conventions decrease. Online, these cues are greater in synchronous than asynchronous communication modes - by virtue of the immediacy of responses - and therefore less self-disclosure is predicted in the former.

On the surface, it seems that the SIDE model would predict greater self-disclosure in synchronous exchanges. The SIDE model states that self-disclosure is facilitated by a perceived norm of self-disclosure. If this norm exists online, it would be more salient via IM. Arguably, this is due to the greater number of cues to social norms in this medium, including the real-time responses of an individual’s partner. However, the SIDE model states that communication dynamics are context-specific and the above argument assumes a norm of self-disclosure. It could be equally argued that in asynchronous communication, there are fewer cues to social norms. As such, this may facilitate an increase in private self-awareness. From this greater focus on oneself, messages composed would be more introspective and reflective, that is, they would contain more self-disclosure.

There is no clear prediction on the effect of synchronicity made by Deindividuation Theory. On the one hand, it could be argued that the disconnect between online and offline personas would facilitate self-disclosure. This is more evident in asynchronous
communication since there is greater distance between behaviour and consequence in the
delayed message exchanges. Deindividuation Theory, however, also posits that disclosure
is facilitated through group norms. Though a person may be more deindividuated via
e-mail, due to the reduced social cues - and therefore disclose more - the effect of social
conventions on behaviour is also diluted. As such, less disclosure in asynchronous
communication is also consistent with Deindividuation Theory. Hence, further theoretical
discussion is required to construct a coherent theory of deindividuation in the online
communication context.

SIP Theory also has no specific predictions regarding synchronicity and self-disclosure. It is
argued that relationship development will be slower in asynchronous communication
because the exchange of personal information is slower. Synchronous conversations have a
discrete time frame. Asynchronous interactions, however, by definition blur temporal
boundaries and have been found to span years (McCoyd & Kerson, 2006). So, while rate of
disclosure would be slower in asynchronous exchanges - according to SIP Theory -
particular predictions regarding frequency and depth of disclosure are not made.

Decreased self-disclosure in asynchronous compared to synchronous communication would
be consistent with most CMC theories. This is attributed to the reduced cues online - be
these cues to social norms (RCT) or partner identity (Hyperpersonal CMC Theory). Other
theories are ambiguous in their explanation of synchronicity and self-disclosure
(Deindividuation Theory; SIDE model). Empirical research is thus needed to ascertain the
effect of time delay on self-disclosure.
4.2.1.2.2. Empirical evidence

Writing letters is an inherently different experience from other forms of communication. Suler (2004b) writes that asynchronous communication - be it through a pen-and-paper letter or an email - provides its participants with a zone of reflection. Since immediate responses are not required, individuals are able to reflect upon their messages and, perhaps, write with greater introspection. This line of thinking suggests that there is greater frequency and depth of self-disclosure in asynchronous communications. Examining previous literature, however, there is currently no study systematically comparing disclosure frequencies between FTF, synchronous CMC and asynchronous CMC.

The systematic review presented in Chapter 3 found six experimental studies comparing online and offline self-disclosure (Antheunis, et al., 2007; Coleman, et al., 1999; Joinson, 2001b; Kiesler, et al., 1985; Mallen, et al., 2003; Tidwell & Walther, 2002). This research examined differences between FTF interactions and synchronous CMC. From a research design perspective, these studies effectively controlled for the possible confound of synchronicity. However, they do not present a complete picture of online communication by omitting asynchronous modes such as email. Moreover, from a communications point of view, the convenience of email and discussion boards has facilitated their widespread use. While IM is quite popular, email is used in a wider variety of contexts - workplace, education, social, e-commerce - than synchronous communication. Additionally, online therapy is likely to employ both modes of interaction and empirical research is required to examine disclosure in asynchronous contexts.

Looking outside studies explicitly measuring self-disclosure in different communication modes, there is research comparing synchronous and asynchronous interactions. These studies have particularly focussed on the role of synchronicity in the delivery of
educational programs (Johnson, 2006), as data collection tools (Bowker & Tuffin, 2004; McCoyd & Kerson, 2006) and in the delivery of crisis interventions (Gilat, 2007).

Due to the nature of educational research, comparisons between synchronous and asynchronous communication have not employed a true experiment design. Often, IM, email or discussion boards, and occasionally FTF instruction would be made available to students and their adoption of each mode examined (Abrams, 2003; Hrastinski, 2006; Ohlund, Yu, Jannasch-Pennell, & DiGangi, 2000). Students were neither randomly allocated nor the use of different modes counter-balanced. The primary objective of these studies, though, was to facilitate learning, not conduct an experimental investigation into the dynamics of synchronous and asynchronous communication. Thus, these studies do not explicitly examine self-disclosure but focus more on educational outcomes and student satisfaction (Johnson, Howell, & Code, 2005; Koory, 2003). On the other hand, research analysing discussion board posts and IM transcripts showed more reflective messages that contained greater critical analysis and synthesis of concepts, ideas and arguments in asynchronous exchanges than synchronous discussions (Branon & Essex, 2001; Johnson, 2006). While this is consistent with the notion of greater introspection and disclosure in delayed communications, it does not provide definitive evidence for greater asynchronous self-disclosure. Moreover, the higher education context and teacher-student dynamic is different from the casual, social interactions of cyberspace and the more formal professional-client relationship.

McCoyd and Kerson (2006) compared the use of FTF, telephone and email in interviewing participants for a study exploring the bereavement process of women who terminated a pregnancy due to foetal anomaly. Interviews were designed to be conducted FTF but several participants suggested, and stated a preference for, communication via email. Researchers found that email responses contained deeper reflections. They noted that messages were written in a stream-of-consciousness style and included disclosures of
thoughts and feelings regarding personal and deeply private topics. This suggests greater disclosure online and via asynchronous communication. Since other interview modes were not text-based, the exact role of synchronicity could not be ascertained. Variations in message content could be attributed to other differences between the media and not specifically the timing. Since participants suggested employing email as an interview tool, biases in self-selection were also not controlled for. Individuals communicating via email may be more comfortable, and proficient, in asynchronous, written communication. The interview design is also constructed to prompt self-disclosure. There was no reported information on the degree to which disclosures were prompted or spontaneous. Thus, email may have more disclosures because more questions were asked. It should be noted that the duration of interviews varied across media. Email interviews could span up to a year, whereas FTF and phone interviews often concluded after two to three hours. Whether this was reflected in differences in the number of questions asked, rapport built - and hence disclosure facilitated - was not recorded. Finally, while McCoyd and Kerson (2006) commented on differences in disclosure, it was not an a priori dependent variable so conclusions should be drawn bearing this in mind, as well as the other limitations of the research.

One examined the effect of synchronicity on self-disclosure in a therapeutic context by comparing the frequency of suicide threats in a telephone-based hotline, synchronous chat and an online support group (Gilat, 2007). Noting that suicide threats made up 3.7% of overall communications received during the project, there was a significantly greater frequency, and proportion, of suicide threats expressed in the support groups (15.3% of messages compared to 0.03% of synchronous chat communications and 1.5% of telephone calls). Taking suicide threats as self-disclosure, Gilat (2007) showed greater self-disclosure in asynchronous settings. The context of this study - crisis intervention - is particularly relevant to online therapy. It demonstrates the opportunity and scope for mental health practitioners to support clients - through both synchronous and asynchronous modes - in crisis situations. Moreover, it highlights the importance for professionals to successfully
navigate both temporal modes of communication. These services were administered by trained volunteers and a key difference between the synchronous and asynchronous exchanges was that the online support groups involved communication in a group context whereas synchronous conversations were one-on-one. Therefore, the number of disclosure recipients could be a confounder. The greater proportion of suicide threats in time-delayed support groups could be a result of the one-to-many nature of this communication mode. It is also interesting to note that while the preference for online support groups is clear, there is significantly greater disclosure via the telephone than through synchronous chat. Controlling for synchronicity and group context, it seems that self-disclosure of suicide threats is more likely in mediated but not online - and text-based - modes. Systematic comparisons of prompted and unprompted self-disclosure between FTF interactions, synchronous CMC and asynchronous CMC are required.

4.2.1.2.3. Summary

It is argued that though an individual is visually anonymous, the reactions of their online partner are still immediately available to them through communication modes such as synchronous chat. CMC theories are divided in their predictions regarding synchronicity. Some, such as the SIDE model, Hyperpersonal CMC Theory and RCT posit increased self-disclosure in asynchronous communication. Others are able to explain greater evidence of self-disclosure in both synchronous and asynchronous modes (for example, Deindividuation Theory) and others still make no specific predictions.

Empirical evidence seems to suggest greater self-disclosure in asynchronous settings - particularly in therapeutic contexts (Gilat, 2007). However, there are alternative explanations, such as the role of peer support. Education research has also found greater depth of student responses in asynchronous settings. While these are unable to provide definitive conclusions, they do offer a starting point for future research. Systematic, experimental investigations are required to compare the differences in synchronous and asynchronous exchanges. Since the effectiveness of online therapy requires proficiency in
both types of communication (Fenichel, et al., 2002), it is important to obtain an understanding of how self-disclosure differs in each context.

4.2.2. Communication-based factors of self-disclosure

It can be argued that if self-disclosure is different in online and offline interactions, then this must be attributed to fundamental differences in the communication channel. This is the argument employed for invoking factors such as anonymity and synchronicity in explaining increased frequency of online self-disclosure. While these differences may account for some of the variations in self-disclosure, it could be equally argued that some factors facilitating self-disclosure transcend the tool used to self-disclose, that is, the telephone, the social networking site, the email or the FTF lunch date. In examining previous literature, three such factors are most commonly proposed: time, trust and relationship context. The following sections present a review of theories and research evidence for the effect these factors have on self-disclosure trans-medium.

4.2.2.1. Time

Time changes relationships - and the pattern of self-disclosure between two people. This is evident anecdotally and formulated more explicitly in theories of relationship development. According to SPT, disclosure increases in intimacy and breadth over time due to shared experiences and an increase in relationship quality (Altman & Taylor, 1973). More than this, the mere expectation of future interaction would also affect behaviour. A fundamental tenet of the SPT is a cost-benefit analysis. Individuals will engage in self-disclosure - or some other behaviour pertaining to the relationship - if they feel that the benefits of such an action outweigh the costs. The anticipation of future interaction would be a major contributor to this analysis. While rewards may not be immediate, the
likelihood of further communication increases the chances of a positive act being reciprocated. Thus, time would have a positive effect on self-disclosure.

The effect of future interaction is also evident in the stranger-on-a-train phenomenon (Rubin, 1975). If further communication with a particular stranger is not expected, individuals may experience a degree of security in disclosing personal information to that stranger. With no anticipated future interaction, the individual need not be concerned with the repercussions of their disclosure. This notion is echoed in Dindia et al. (1997).

From a counselling perspective, time is also an important factor to be considered. Therapeutic interventions are rarely one-off sessions. Rapport is developed and a working alliance is established for effective mental health interventions. This process requires time. Theories of relationship development - and the practicalities of clinical programs - suggest that for a complete understanding of self-disclosure in relationships, an examination of changes in self-disclosure through time is required.

Offline theories of relationship development propose the same effect of time on disclosure independent of mode of communication. However, since time may be differently conceptualised and/or perceived online - it could be argued that asynchronous communication occurs in a slowed time setting - the effect of time on self-disclosure may follow the same pattern in CMC and FTF interactions but manifest at a slower rate via the Internet. The following section presents online communication theories and their discussions of how disclosure is affected by time.
4.2.2.1.1. **Theoretical discussions**

The only CMC theory that explicitly addresses time as a fundamental aspect of relationship development - and factor in self-disclosure - is the SIP Theory. It posits that relationships progress the same way but since information exchange is slower online - due to the fewer channels available for communication - relationship development will be slower. It follows from this that though self-disclosure will increase over time, the rate of increase - and initial levels of self-disclosure - will be greater FTF.

While other theories do not predict that time has no effect, there is also no reference to the effect of time on self-disclosure. If it is assumed that computer mediated relationships progress in a similar - if not identical - manner to FTF relations then arguments could be made for greater initial self-disclosure online (particularly by RCT, SIDE model, Deindividuation Theory and Hyperpersonal CMC Theory) which would then create a greater number of online self-disclosures. However, this assumption is not made by these theories. In terms of examining theoretical predictions on time and self-disclosure, research should determine whether the pattern of self-disclosure over time progresses slower online. If this is not the case, theories of online communication should be revised.

4.2.2.1.2. **Empirical evidence**

Empirical research into the effect of time on self-disclosure has yielded inconsistent findings in both online and offline contexts. Dindia et al. (1997) investigated the consistency of participants’ self-disclosure over three x 10-minute sessions. Participants’ divulgence of highly intimate information did change over time. This suggests that there is a difference in disclosure across time but the direction was not specified. The researchers also compared self-disclosure amongst spouses and strangers. Though not explicit, this is also a comparison of disclosure at two time-points. It was found that spouses shared more intimate information than strangers, while strangers exchanged more non-intimate
information. This suggests that the effect of time on self-disclosure is dependent on the level of disclosure intimacy.

Similarly, Won-Doornink (1985) assessed differences in self-disclosure across different relationship stages – early (where partners had met within 30 days of the study), middle (where the relationship spanned between 3 to 12 months) and advanced (where the relationship was longer than 12 months). These comparisons are also indicative of differences in self-disclosure across time. There was no significant effect of relationship stage on self-disclosure; however, consistent with Dindia et al. (1997), when disclosures were separated according to intimacy level, differences arose. Low intimacy disclosures decreased as the length of relationship increased. That is, participants in early stages of their relationships were more likely to communicate information of low intimacy. On the other hand, participants in the middle stage of their relationship were most likely to exchange highly intimate disclosures and participants in an advanced relationship exchanged mostly moderately intimate information. However, the effect of time on self-disclosure in these studies is implied, not explicitly examined. The nature of the design is such that definitive conclusions regarding time and self-disclosure cannot be drawn. Moreover, the findings are not aligned with other research in the area.

Ehrlich and Graeven (1971) looked at the effect of time on self-disclosure over four intervals of two-minute exchanges (two minutes per conversant). A general increase in the number of both high and low intimacy self-disclosures was shown. This is inconsistent with the findings reported above. Furthermore, Sprecher and Hendrick (2004) surveyed dating couples at six-month intervals five times. There were no significant changes in self-disclosure between partners over time. Again, these findings do not conform to those of earlier studies. This could be attributed to the longitudinal nature of the study – participants were surveyed for a longer amount of time compared to the cross-sectional sampling of earlier research. The temporal distance between time points was also larger -
six months compared to the two (Ehrlich & Graeven, 1971) or 10 minutes (Dindia, et al., 1997) of experimental studies. The findings of Sprecher and Hendrick, however, need to be considered in light of several issues. Firstly, it is based on self-report measures of couples that remained together throughout the study. There is no contrasting information on the disclosures of couples whose romantic relationships did not last. This might be able to provide further evidence for the claims of SPT, particularly the notion of depenetration (as discussed in Chapter 2).

The findings of offline research into the relationship between time and self-disclosure do not present a coherent picture. While some demonstrate increases in self-disclosure across time, others show that this only occurs in certain conditions of intimacy. Others still report no differences in disclosure across time. Further empirical investigations into changes in self-disclosure - assuming there are changes - across time are needed.

CMC research is also inconsistent. Dietz-Uhler et al. (2005) assessed disclosure frequency in a 60-minute asynchronous chat on the stigma of mental illness. Time was indexed by the number of posts and a significant correlation between the number of self-disclosing statements and the number of posts was interpreted as a significant positive relationship between time and self-disclosure. However, this may not be an indication of disclosure increasing over time. It could just be that participants who post more are also posting more messages containing personal information. However, Dietz-Uhler et al. (2005) also looked at differences in disclosure rates across four time periods. Time was marked by segmenting messages into four equal blocks. There was a significant effect of time. Specifically, self-disclosure decreased from time 1 to time 2, then increased in time 3 and decreased at time 4. The authors suggested that disclosure depended on positive reinforcement since this pattern of disclosure matched the pattern of statements supportive of self-disclosure. It is, however, the opposite of that observed by Ehrlich and Graeven (1971). Further, it should be noted that only ten percent of messages contained
self-disclosures. So, the reader should bear in mind that the reported differences concern a small number of overall self-disclosures. Also, the division of time was arbitrary - the total number of messages counted and divided by four. A more informative method could have been to check the timestamps of each message and mark time in that manner. Finally, 60 minutes of asynchronous interaction may not be applicable to many scenarios.

Adolescents were surveyed twice, six months apart, on changes in the quality of their friendships (Valkenburg & Peter, 2009). It was found that quality of friendships increased over time and this was attributed to greater increases in the disclosure of personal information. This lends support to SIP Theory which proposes greater self-disclosure over time. In addition to issues associated with survey data, the measures of self-disclosure employed in this study did not have a target audience. That is, participants were not required to nominate an individual - for instance, close friend, parent, friend - and describe their disclosure patterns to this person. There is evidence to suggest that self-disclosure is dependent on the intended recipient (Boyd & Buckingham, 2008; Christofides, et al., 2009; Rubin, 1975). As such, consideration of - or control for - disclosure target is required.

Chan and Cheng (2004) also compared changes in depth of self-disclosure, however, in specific online and offline friendships. Participants completed surveys about a nominated online and equivalent offline friend. The duration of relationships were either between 1-4 months, 5-12 months or over a year. Collapsing medium, there was an effect of time on disclosure depth. Depth of self-disclosure increased as the friendships progressed. Consistent with SIP Theory, disclosure depth was greater initially in FTF friendships but there were no significant differences in friendships that had lasted over one year. This suggests a convergence of disclosure depth through time where the progression of relationships in CMC was slower than offline. Therefore, while there are limitations to studies of online self-disclosure and time, there is evidence to suggest a link. Moreover,
the only study to compare the temporal trajectory of self-disclosure across communication modes suggests an eventual equivalence in depth of self-disclosure between online and offline relationships. However, depth of disclosure was measured as part of friendship quality and not examined specifically. Additionally, there is evidence that participants perceive greater disclosure in FTF friendships when actually there is greater frequency of disclosure online (see Chapter 3). Thus, conclusions based solely upon self-report comparisons of online and offline friendships should be made with caution. Despite this, a broad analysis of CMC and FTF relationships does provide meaningful preliminary findings. A more detailed look into disclosure differences in conversations across time would further add to knowledge on how medium changes the disclosure-time relationship.

4.2.2.1.3. Summary

Theories of relationship development predict that self-disclosure increases across time (Altman & Taylor, 1973). Regarding online self-disclosure, SIP Theory states that since relationship development via the Internet occurs at a slower rate, so too will the divulgence of personal information. That is, while FTF interactions will demonstrate greater initial self-disclosure, any differences present will decrease over time. Other CMC theories of self-disclosure do not make specific predictions regarding the effect of time.

Empirical research into this issue has found inconsistent results. This may be due to major differences in research design, in particular, how time is operationalised. Experimental studies examine time in two- or ten-minute intervals, at most, messages from a discussion board made within 60 minutes. Survey data, however, assesses differences in self-disclosure over months and years. Since time was explicitly examined in only one study (Chan & Cheng, 2004), other findings have been inferred from studies where the primary aim was to investigate a different independent variable.
There has only been one study to examine how time affects self-disclosure in different media. However, this study relied on self-report and did not provide a controlled comparison of differences in self-disclosure. Further research is required not only to examine the relationship between time and self-disclosure but also whether this relationship is, in turn, affected by mode of communication.

4.2.2.2. Trust

Trust is of fundamental importance to the therapeutic alliance (Ackerman & Hilsenroth, 2003; Jourard, 1971b). Trust of the mental health professional facilitates an effective working relationship where the client feels secure in disclosing personal information and working collaboratively with their health professional (Horvath, 2000). This collaborative working alliance has, in turn, been shown to be a predictor of treatment outcome (Horvath & Symonds, 1991). Therefore, from a therapeutic perspective, changes in trust - and the trust-disclosure relationship - as a function of communication medium should also be investigated.

4.2.2.2.1. Defining trust

Trust is a multi-dimensional concept encompassing generalised trust (Beldad, de Jong, & Steehouder, 2010; Paine & Joinson, 2008; Wheeless & Grotz, 1977), situational trust (Joinson, et al., 2010), and audience-based trust (Green, 2007; Riegelsberger, Sasse, & McCarthy, 2007; Tanis & Postmes, 2005a; Wheeless & Grotz, 1977). Generalised trust refers to an individual’s predisposition to engage in trusting behaviours. It stems from the notion that some people are more likely to expect positive outcomes from others and act on these beliefs. The research on trait-based trust, however, is inconsistent and there is no compelling evidence to suggest that trust is solely a personality variable (Beldad, et al., 2010; Gefen, 2000; Koufaris & Hampton-Sosa, 2004).
Another factor proposed to explain an individual’s decision to trust is the context of the relationship and expectant behaviour. For instance, Joinson, et al. (2010) manipulated the online trust context and privacy to measure their effects on perceived trust. High trust contexts contained surveys hosted on an educational domain with the institutional logo and no typographical errors or advertisements. Low trust contexts, on the other hand, contained advertisements and spelling mistakes. The researchers found that in the high trust conditions, reported trust was greater in low privacy than high privacy conditions. This difference was reversed in low trust conditions. These findings are consistent with the notion that trust can be situation-based.

A third conceptualisation of trust is that it is audience-specific. That is, an individual is more likely to trust a particular person - by virtue of their shared relationship or past behaviours - than another (Green, 2007; Tanis & Postmes, 2005a; Wheeless & Grotz, 1977). The two aspects of trust identified by Tanis and Postmes (2005) both refer to trust in relation to a target recipient. They note that trust consists of a) the perceived trustfulness of the other person, and b) the willingness to hand over to another person control of the situation - as embodied in the word, “entrust”. Both notions suggest that the recipient of trust is a factor in determining whether trust is experienced and acted upon.

Numerous other researchers have introduced additional facets of trust. Wilson, Straus and McEvily (2006) investigated cognitive and affective trust. The former encompasses beliefs that facilitate trust, for example, the other person’s reliability and competence. The latter refers to trust as an expectation resulting from emotional ties. Bhattacherjee (2002), on the other hand, writes of three other dimensions of trust. These are ability (the skills and knowledge that are required for the person being trusted to perform the task entrusted), integrity (confidence that the recipient of trust will behave honourably), and benevolence (the belief that the person entrusted is behaving in the best interests of the
person who trusts them). Meyerson, Weick and Kramer (1996) introduced the swift-slow trust dichotomy to describe the different stages of trust. Swift trust refers to the initial willingness to engage in risk-taking behaviours with a partner, whereas slow-trust is trust built upon a foundation of shared experiences, knowledge and time spent together.

In reviewing the different conceptualisations of trust, several authors have noted common elements: expectation, uncertainty, risk and vulnerability (Beldad, et al., 2010; Bos, Olson, Gergle, Olson, & Wright, 2002; Dutton & Shepherd, 2006; Green, 2007; Paine & Joinson, 2008; Wilson, et al., 2006). Trust involves the expectation that the intended outcome, which is dependent on the person being trusted, will occur as a result of that person’s behaviour. Moreover, this expectation occurs in a situation of uncertainty, the argument being made that if one is certain of the outcome, then trust is rendered unnecessary. This trust requires an individual to put themselves at risk (of unmet expectations) and vulnerable (to the consequences of the unmet expectations). From this perspective, trust is integral to the client-therapist relationship and examined in the current study as a combination of the perceived trustfulness of an individual’s communicating partner and the expectation of a positive outcome in light of a situation of uncertainty.

4.2.2.2. Trust and self-disclosure

Common sense dictates that self-disclosure follows from trust. After all, an individual would not disclose their credit card details on a website if they did not trust that it was secure. They would also not disclose their anxieties unless they trusted a friend to accept and understand, and the ability of a psychologist to help. This everyday view of the trust-disclosure relationship is consistent with theories of relationship development, such as SPT (Altman & Taylor, 1973). Altman and Taylor (1973) proposed that both trust and self-disclosure increase as a relationship progresses. That is, trust increases as disclosure increases. When looking at their explanation of the decision to self-disclose - see Chapter 2 -
the cost-benefit analysis invoked relies on trust. It relies on the expectation that the other individual will behave accordingly. So, trust grows over time and grows with self-disclosure.

A counter-example to this proposal is the stranger-on-the-train phenomenon. By definition, an individual does not have a relationship with an initial stranger. It can be argued, then, that sufficient time has not elapsed - nor an array of experiences or conversations shared - to justify trust. Yet, high accounts of self-disclosure are observed (Rubin, 1975). It seems, therefore, that disclosure does occur without trust, that trust is a necessary but not sufficient condition for self-disclosure.

However, these discussions concerning the relationship between trust and self-disclosure are forged in the offline environment. It can be argued that since trust and trusting behaviours have been demonstrated to be context-specific (Joinson, et al., 2010), the relationship between trust and self-disclosure would be different online. In applying findings to a therapeutic context, then, research is required comparing this relationship across media. The next sections examine the perspective of CMC theories on the trust-disclosure relationship and the available empirical evidence.

4.2.2.2.3. **Theoretical discussions**

Online theories of self-disclosure are divided in their predictions of how trust - and its relationship with self-disclosure - is manifested in different communication modes. On the one hand, RCT predicts less trust online than FTF. According to this theory, the absent non-verbal - and in particular, visual - cues to social norms creates greater uncertainty in CMC. Communicants are provided fewer guides to accepted behaviour and expected outcomes. Moreover, there is also evidence to suggest a prevalence of online deception (Hancock, 2007; Joinson, 2003). This, in turn, leads to reduced trust as trust is directly
related to uncertainty. However, in predicting less trust online, RCT is implying a negative relationship between trust and self-disclosure. That is, while conditions in CMC facilitate disclosure, they are not as conducive to fostering trust as the offline environment.

Hyperpersonal CMC Theory is premised on the notion that the lack of non-verbal cues on the Internet allows an individual to idealise their partner. As such, trust is more likely to occur. According to this view, trust and self-disclosure are related in the same way across media - as trust increases, so too does self-disclosure.

As in the case of synchronicity, the SIDE model and Deindividuation Theory are able to account for increased trust online or increased trust FTF. Similarly to RCT, the reduction in individuating cues in CMC would result in greater uncertainty, and therefore decrease trust. Consistent with this view, Handy (1995) reports that trust is difficult when there is little information about group members and, in a task-based activity, their work-ethic and abilities. However, deindividuation accounts of online behaviour also highlight the salience of group membership in CMC. People may be the recipient of trust by virtue of their in-group status. At the very least, there should be evidence of trusting behaviour since in-group members would anticipate reciprocity of good works. Since the SIDE model and Deindividuation Theory present no clear stance on the effect of medium on trust, a proposed relationship between trust and self-disclosure cannot be inferred.

According to SIP Theory, relationship development follows the same trajectory independent of communication medium. It does posit, though, that relationships progress more slowly online because it takes more time to exchange messages with a partner (as a result of the reduced channels for communication). Therefore, if differences in online and offline trust were examined in the initial stage of a relationship, there would be greater
trust offline. Yet, as the relationship matures, these differences will be minimal, if not non-existent. The same predictions are made of self-disclosure.

In terms of the effect of medium on the relationship between trust and self-disclosure, theoretical discussions have been centred on two issues. The first is whether the mode of communication affects trust in interpersonal relationships. It is argued that trust may increase since partners are idealised online (Hyperpersonal CMC Theory). Conversely, the increased uncertainty arising from reduced social and individuating cues may lead to less trust in CMC (RCT). Other theories are either equivocal (SIDE model, Deindividuation Theory) or propose that the effect of mode on self-disclosure is mediated by time (SIP Theory). The second issue is how the relationship between trust and self-disclosure is affected by communication medium. While the theories presented do not have explicit statements regarding this area, it can be inferred that some maintain that the effect of trust on self-disclosure is independent of medium (SIP Theory, Hyperpersonal CMC Theory). Specifically, as in the offline theory and research, trust facilitates self-disclosure. On the other hand, findings that trust is unrelated or negatively correlated with self-disclosure on the Internet - while positively related offline - would be consistent with RCT. The following section presents a review of empirical research related to trust, self-disclosure and communication medium.

\textbf{4.2.2.2.4. Empirical evidence}

To date, no study has systematically compared the relationship between trust and self-disclosure in different media. The two research areas presented above have been addressed separately in empirical studies.
4.2.2.2.4.1. The trust-disclosure relationship

In examining how online trust and self-disclosure are related, both online and offline studies often employ a survey design (for example, Steel, 1991; Wheeless & Grotz, 1977; Yum & Hara, 2005). Here, participants complete surveys on their perceived trust or trusting behaviours and self-disclosing practices. The scores on these scales are then correlated. Consistent with offline theories of trust and self-disclosure, these studies have shown a positive correlation between trust and self-disclosure. This is true of measures of generalised trust and self-disclosure (Steel, 1991) and instruments capturing trust of, and self-disclosure to, a specific recipient (Wheeless & Grotz, 1977). Both these studies, however, were investigating the relationship between trust and self-disclosure offline. Yum and Hara (2005) explored cultural differences in the online trust and self-disclosure relationship. Participants were surveyed about the relationship quality and self-disclosing practices in their online relationship (mean relationship length was 2.5 years). A significant negative correlation between trust and self-disclosure was reported for participants from Korea, but a positive correlation for participants recruited in the U.S. Yum and Hara (2005) attributed this to differences in cultural conceptions of appropriate disclosure. Together, these studies suggest that trust and self-disclosure increase and decrease with each other independent of communication medium (at least for western cultures).

Other research has investigated trust in, and disclosure to, websites. Joinson, et al. (2010) examined the relationship between trust and the decision to disclose in online surveys. Participants answered sensitive questions - such as sexual history - through an Internet-based survey. Answer options were provided, one of which was an explicit statement of preference for non-disclosure, “I prefer not to say” (Joinson, et al., 2010, p. 9). Results showed that trust was the largest predictor of non-disclosure, suggesting that reduced trust could lead to a decision to withhold personal information. Similarly, Metzger (2004) reported a significant positive correlation between trust of a particular website and self-
disclosure through the website. The findings of these studies are consistent with earlier research demonstrating increased self-disclosure with increased trust in both online and offline settings. However, disclosure to a website or survey is, arguably, different from person-to-person self-disclosure. So while this research supports the argument for a trans-medium relationship between trust and self-disclosure, its applicability to the therapeutic relationship should be made with caution. Moreover, disclosures through surveys or websites are prompted. A clinician may ask questions but a client’s spontaneous disclosure would be equally important to facilitating an effective working alliance.

Although these studies shed some light on the dynamics of the trust-disclosure relationship across mode of communication, methodologically they do not allow for definitive conclusions. Firstly, the research is based on correlations. Not discounting the value of this method or these findings, the exact nature of the trust-disclosure dynamic cannot be determined. It is worth noting, however, that Joinson et al. (2010) did show the predictive value of trust in online survey disclosure. This may not be immediately applicable to interpersonal relationships; however, it does demonstrate the role of trust in facilitating disclosure in an online setting. This is consistent with the predictions of the Hyperpersonal CMC Theory and, to an extent, the SIP Theory. A second concern is that each study examined the trust-disclosure relationship in only one communication mode. Again, although important for understanding, in isolation, how trust and self-disclosure are related in different contexts, it does not allow for reliable inter-media comparisons. Further research systematically investigating differences in the trust-disclosure relationship in online and offline conversations is required.

4.2.2.2.4.2. Trust in different communication modes

The other issue raised previously was whether interpersonal trust differed in online and offline conversations. There has been research comparing differences in trust across
media. Bos et al. (2002) for instance examined differences in the development of trust through FTF, video, audio and text-based communication. Participants played 30 rounds of a social dilemma game where they were able to invest tokens as an individual or group. However, group investments only yield a return when all other group members invest simultaneously. Trust was measured by the decision to invest with the group, premised on the assumption that cooperation results from a degree of trust. The results showed significantly less trust in the text-only condition compared to other modes. This trust increased over the 30 trials. As the rounds continued, trust in video and audio conditions converged with FTF trust - initially the condition exhibiting greatest trust - however, text-only communication did not reach this stage. Bos et al. (2002) posited this as an example of delayed trust online, consistent with the SIP Theory. That is, online communication is similar to - but slower than - offline communication.

In line with Bos et al. (2002) and the SIP Theory, Wilson et al. (2006) found greatest trust in FTF compared to online settings. They compared FTF interactions, synchronous CMC and mixed media relationships in a social dilemma game over three weekly sessions. FTF had consistently higher trust and the synchronous CMC condition yielded consistently lowest trust. Combined, these findings suggest that there is an effect of communication medium on trust. The task-based interactions in these studies, however, formed a highly contrived scenario. Participants were instructed against engaging in social conversation (in the Bos, et al., 2002 study) and social dilemma games have been critiqued in terms of their ecological validity. Further, these studies were conducted in group settings. Relationship dynamics in a dyad differ from group interactions. Thus, to increase applicability to clinical settings - where treatment can be offered in a one-to-one setting in addition to group therapy or support - further research is required into differences in medium-specific trust, specifically in dyads. Also, comparisons should also be made between synchronous and asynchronous online modes of communication.
Tanis and Postmes (2005a) did not compare media but looked specifically at the role of individuating cues in facilitating trust. They examined the relationship between individuating cues, perceived trustworthiness of another individual and trusting behaviour. It was found that cues to identity increased perceived trustworthiness. This is consistent with the above cross-media comparisons in that lowered trust was observed in conditions with fewer cues to identity - that is, the online environment. However, the effect of cues on trusting behaviour was mediated by group status. Individuating cues significantly predicted perceived trustworthiness but not trusting behaviours for in-group participants. On the other hand, for out-group participants, cues affected both trusting behaviours and perceived trustworthiness. Thus, in communicating with an initial stranger, cues to identity are important in facilitating trust. This is consistent with previous research showing that online environments - with reduced cues to identity - are not conducive to facilitating trust (Bos, et al., 2002; Short, Williams, & Christie, 1976; Wilson, et al., 2006).

To determine whether differences in trust between online and offline interactions converge over time, Walther (1995) compared trust in FTF interactions and asynchronous CMC in three group sessions. There were no significant differences in trust according to media, time and no evidence of a convergence over time. This conflicts with previous findings. One possible explanation is that it did not control for synchronicity, a factor this thesis considers important in understanding online communication. Secondly, trust and receptivity were conceptualised as a combined variable. It was conceived of as relating to the openness and rapport of the group dynamic and thus does not examine trust in the same manner as other research. Finally, these findings pertain to group interactions. Therefore, research - controlling for group factors, definition of trust and synchronicity - is required to further elucidate the role of media and time on trust. However, at present, there is much evidence suggesting reduced trust online.
4.2.2.2.5. Summary

Theoretical discussions and empirical research point to two specific research questions relating trust, self-disclosure and communication medium. The first asks if trust differs across modes of communication. Consistent with the cues-filtered-out approaches, research has shown significantly less trust online (Bos, et al., 2002; Tanis & Postmes, 2005a; Wilson, et al., 2006). However, these studies were conducted in highly contrived group situations and did not compare synchronous communication modes.

The research question concerns the relationship between trust and self-disclosure. Research has shown a positive relationship between trust and self-disclosure in both online and offline relationships (Joinson, et al., 2010; Metzger, 2006; Steel, 1991; Wheeless & Grotz, 1977). This suggests that independent of communication medium, trust is able to significantly predict self-disclosure. These findings are predicted by Hyperpersonal CMC Theory and SIP Theory.

Of particular interest to the field of online counselling, however, is whether the nature of this trust-disclosure relationship is dependent upon the mode of communication. That is, is the relationship between trust and self-disclosure different for online and offline conversations? A review of the literature suggests that differences in the relationship between trust and self-disclosure across media have not been systematically examined. In looking at existing research, it is interesting to note that studies investigating only trust show decreased trust online, whereas studies that measure self-disclosure alone show increased self-disclosure in CMC. This implies an inversely proportional relationship between these variables. In contrast, research explicitly examining the trust-disclosure relationship has shown that as trust increases, so too does self-disclosure. This occurs both online and offline. In order to disentangle these findings and shed further light on the veracity of CMC theories, what is required is a systematic investigation into the
relationship between trust and self-disclosure in FTF conversations, synchronous CMC and asynchronous CMC. The current study aimed to do this.

4.2.2.3. **Relationship context**

The notion that communication is audience specific is not new. Anecdotally, how an individual communicates to their partner is different from how they would speak to their child or converse with their parent. Audience, however, is only one aspect of a social situation. Interactions between two people - say a parent and their child - will be different when they are at home than at a parent-teacher interview. The context of an interaction moderates the communication that two people engage in.

This concept of social context is particularly relevant to online counselling. Interaction with a counsellor is inherently different from communication amongst peers. One pertinent example concerns reciprocity. In a counselling context, a person is expected to disclose even if the counsellor does not reveal any personal information about themself. Conversely, individuals interacting in a social context will reciprocate self-disclosures. Therefore, relationship context is an important communication-based factor that needs to be addressed in more detail in CMC theories and empirical research. The sections below discuss this issue.

4.2.2.3.1. **Theoretical discussions**

The SPT framework states that social penetration, specifically the decision to progress to deeper and more intimate levels of a relationship, is context specific. Considering its conception of self-disclosure, SPT states that self-disclosure occurs as the result of a cost-benefit analysis. The factors contributing to the resulting decision explicitly include the social context.
The importance of context in self-disclosure is also noted by the SIDE model. According to this theory, the salience of particular identities - social or personal - is context dependent. The salient identity then facilitates certain behaviours in line with the norms of that context. In online communication, the SIDE model states that the social identity is salient. As such, any cues to social behaviour are taken as indicators of social norms. It is, therefore, predicted that in situations where a norm of disclosure is present, online participants will engage in greater disclosure than offline participants. Applied to online counselling then, the SIDE model posits greater reciprocal self-disclosure in social relationships than the interactions between a client and health professional.

On the other hand, it could be argued, as in the case of RCT, that social norms do not exist online. Suler (2004a) speaks of cyberspace as an environment in which all participants are of equal social standing. There are no authorities since the cues to authority - an individual’s dress, tone of voice, their demeanour - are not present online. Without authority, scripts for certain social interactions no longer moderate individual behaviour. This suggests that in online counselling, the perceived differences between a counsellor and their client are diminished. RCT also states that without cues to social norms, individuals will be more disinhibited. Therefore, greater self-disclosure would be expected online than offline. Moreover, the suggested equality between social contexts online predicts greater differences between relationship contexts FTF than those online.

The view presented by RCT is also consistent with the perspectives of the Hyperpersonal CMC Theory. According to this theory, an exaggerated intimacy develops between online communicants. Therefore, the distinction between counsellor and friend would be diluted online since both are subject to this process of hyperpersonalisation. Clients may assign attributes and feelings to the counsellor that are not present. As such, the difference in self-disclosure between clients and their mental health professionals, and friends, is reduced in CMC.
SIP Theory again mentions the mediating role of time. It states that an effective therapeutic relationship can be developed online; however, this requires more time than offline relationship development. There is a premise that online relationships mirror offline ones, yet SPT does not explicitly state how offline relationships develop. If SPT is adopted as the theoretical framework for relationship development, as this thesis does, then SPT would predict that any differences between online and offline self-disclosure would be removed with time. It would also be consistent with this view if differences between relationship contexts were observed (in line with SPT).

In sum, the offline theory adopted in the present study considers social context as a fundamental influence on the decision to disclose. This is echoed by the SIDE model. Other CMC theories (specifically the Hyperpersonal CMC Theory and the RCT) state that if there is an effect of context, this effect is not present online. Finally, the SIP Theory posits that any effect of context observed in offline contexts will also be manifest online. A discussion of the empirical evidence for context-based differences in self-disclosure is discussed below.

4.2.2.3.2. Empirical evidence

Consistent with SPT, the SIDE model and the SIP Theory, empirical evidence suggests a role of context in disclosure practices. The notion of audience-specific communication mentioned earlier has been studied recently in the context of one-to-many modes of communication. A particularly popular example is Facebook (Boyd & Buckingham, 2008; Christofides, et al., 2009; Ellison, et al., 2007). The complexity of self-disclosure to social networking sites - the factors contributing to disclosure, the different types of disclosure and its relationship with other issues such as privacy - are beyond the scope of the present research. It must be noted, however, that online social networking sites provide an
example of how audience affects self-presentation goals and, in turn, the decision to disclose.

Horton and Spieler (2007) showed evidence for the adaptation of speech to different audiences. Dyads were composed of one younger speaker (mean age of 19 years) and one older speaker (mean age of 73 years). Participants were required to engage in a card-matching task with their partner. Through this interaction, participants developed a shared lexicon for describing the cards present. After participants became familiar with each other and the task, they were asked to describe cards to either the partner they had in phase one or to a new partner. For younger participants, descriptions targeted towards their previous partners were briefer than descriptions for new partners. This information was also communicated within a shorter timeframe and contained a greater frequency of words and phrases employed in the familiarisation phase of the study. These findings highlight the importance of context in facilitating communication. Evidence of audience design was not observed for older participants; however, this was attributed to memory effects.

Although Horten and Spieler (2007) present recent evidence in favour of context-based differences, this research does not examine the role of context in CMC. The importance of context in online communication was demonstrated by Barak and Gluck-Ofri (2007). The researchers examined self-disclosure and disclosure reciprocity in online support groups and discussion boards. Greater frequency of self-disclosure was reported in the former context. It was suggested that this finding is a direct result of the social norms governing each type of online forum. In particular, the nature of support groups facilitates self-disclosure through its emphasis on emotional sharing and, through that, support. In contrast, discussion boards function as means of communicating information and sharing interest. The emotional investment is of a different nature in this context. From an online counselling perspective, these findings once again demonstrate the need for context-
specific research. It also supports the argument for investigation into communication-specific factors of self-disclosure. This is particularly relevant since reciprocity - an offline factor of self-disclosure - was demonstrated in online communication (Barak & Gluck-Ofri, 2007).

In contrast to these findings, Tidwell and Walther (2002) found no differences in self-disclosure by participants engaging in social interactions or a problem-solving task. This evidence suggests that context does not affect self-disclosure. It could be argued, however, that in both social interactions and the problem-solving task, participants were interacting as peers. There was no “authority” as is the case in counselling contexts. This argument could be met with criticism stating that the online discussion boards examined by Barak and Gluck-Ofri (2007) also did not have authorities. This argument is untrue. In support groups, the individuals with experiences concerning the issue (cancer, mental illness, bereavement) are authorities. This authority is not a result of qualifications but of experience. As such, the dynamic of the relationship is different. An alternative explanation could be that social and task-based interactions do not differ significantly in experimental paradigms. Even the get-to-know-each-other exercise is a task in the context of an experiment. Moreover, groups engaging in problem solving may also, simultaneously, engage in non-task related conversation. Therefore, research examining contextual differences should include comparisons between two emotionally disparate contexts, one of which involves a client-professional relationship. This is especially relevant if the aim of the research is to apply findings to online counselling contexts.

Empirical research provides support for SPT, the SIDE model and SIP Theory in so far as there is evidence for the effect of context on self-disclosure in online settings. These studies, however, have not systematically compared different social or relationship contexts in both online and offline settings. More than that, the contexts examined are different emotionally from counselling scenarios. Previous research in online interactions
has been either social (Kiesler, et al., 1985; Mallen, et al., 2003) or problem-solving (Coleman, et al., 1999; Joinson, 2001b). The applicability of these findings to the online counselling context is questioned and requires further investigation.

4.2.3. Prompted and Unprompted Self-Disclosure

Throughout the literature review presented in this thesis, the issue of prompted and unprompted self-disclosure consistently arose. Previous research into self-disclosure has examined self-disclosure to websites or questionnaires (Joinson, 1999; Kiesler & Sproull, 1986; Metzger, 2004; Paine & Joinson, 2008; Verhoeven, et al., 2007). Moon (2000) even examined self-disclosure to a computer that read out survey questions. Clients will be required to answer questions in an online counselling context. However, the process of ascertaining information through questions, particularly in verbal conversation, is not always through an interview-like manner. As such, the applicability of research on question-prompted self-disclosure to the online counselling context is questionable. Any investigation into self-disclosure should distinguish between prompted and unprompted self-disclosure.

This distinction was made by Joinson (2001b). In this study, differences in unprompted self-disclosure between online and offline conversations were observed. This was to provide a more accurate measure of self-disclosure, that is, that which an individual voluntarily discloses without prompting. However, further research noting this difference is required. This is especially relevant for enhancing the ecological validity of studies for counselling contexts.

In addition to question prompts, self-disclosure can be prompted by other disclosure. This phenomenon is referred to as reciprocal self-disclosure and is discussed in detail below.
4.2.3.1. Reciprocal self-disclosure

Reciprocity, also termed the dyadic effect (Jourard, 1971a), is another example of prompted self-disclosure. SPT states that disclosure reciprocity is the positive result of a cost-benefit analysis. It states that an individual chooses to disclose after predicting a positive outcome (or a less negative outcome). The recipient of this disclosure chooses to reciprocate because receiving personal information is rewarding - it signals that they are trusted and liked (Altman & Taylor, 1973). Though there are costs involved in divulging information, benefits in the form of reciprocated trust, intimacy and expected reciprocity, as well as the increased accuracy of the analysis (based on the newly disclosed information), lead the individual to respond to disclosure with disclosure (Worthy, et al., 1969).

An alternative explanation for disclosure reciprocity states that individuals feel an obligation to reciprocate self-disclosure (Berger, 1986; Henderson & Gilding, 2004; Moon, 2000). In a qualitative study exploring online friendships of chat room users, Henderson and Gilding (2004) reported that being the recipient of disclosure fosters a sense of obligation to disclose in return, to maintain relationship equality and to reassure the other person that you can be trusted by making yourself vulnerable. From this, it seems that reciprocity is the result of a perceived social obligation.

These proposed mechanisms underlying reciprocal self-disclosure suggest that this process is not specific to FTF interactions. Rather, it is an element of human communication and therefore likely to be present in online conversations. The following sections review the theoretical predictions regarding reciprocal self-disclosure and current evidence for online and offline disclosure reciprocity.
4.2.3.1.1. **Theoretical discussions**

Reciprocity, by definition, requires an initial instance of self-disclosure. There is some evidence demonstrating greater frequency of self-disclosure in CMC. This was presented in Chapter 3. This evidence suggests that should the disclosure of personal information be reciprocated, there would be a greater frequency of this online. Most CMC theories argue in favour of this notion. The SIDE model, for example, argues that since social identity is more salient online, a perceived norm of reciprocity would instil a greater sense of obligation to return self-disclosure with self-disclosure. Moreover, the combination of visual anonymity and the immediate availability of the reactions of an individual’s communicating partner in synchronous CMC, social identity would be more salient in IM or Chat conversations than asynchronous or FTF interactions. Hyperpersonal CMC Theory also posits greater reciprocity in online communication. In idealising a partner, there would be an exaggerated intimacy and therefore a greater sense of obligation to self-disclose in response to the other person’s self-disclosure.

On the other hand, RCT posits less reciprocal self-disclosure in Internet-based communication. Since the non-verbal cues absent in the online environment represent social norms, the effect of the norm of self-disclosure is diluted online. Participants would not feel a need to reciprocate self-disclosure with self-disclosure. Moreover, in asynchronous communication, there would be even fewer cues to social norms - particularly since the responses of the other person cannot be immediately perceived - and hence less evidence of disclosure reciprocity would be expected.

Finally, Deindividuation Theory and SIP Theory, while able to account for reciprocal self-disclosure online, make no specific claims regarding which communication mode would yield greater accounts of disclosure reciprocity. Like the SIDE model, Deindividuation Theory explains reciprocity as a result of reduced self-awareness. In this context,
participants are more likely to engage in herd behaviour and perform actions consistent with the group norm. If a norm of reciprocal self-disclosure is established, participants will subscribe to it. Yet, predictions are not made regarding reciprocity of disclosures in different modes. SIP Theory states that people communicate to reduce uncertainty. As such, the most effective way to facilitate the exchange of information - thereby reducing uncertainty - is to ask questions. This signals a willingness to self-disclose on particular topics without the risks associated with being the initial discloser. Invoking a sense of obligation to disclose in one’s partner by first divulging personal information is another form of uncertainty reduction. Thus, while SIP Theory is able to accommodate for reciprocity as a means of reducing uncertainty, no specific predictions are made regarding differences in reciprocal self-disclosure between media.

In sum, CMC theories are able to account for the presence of disclosure reciprocity in online communication; however, few comment on whether reciprocity is greater in CMC or FTF interactions. The next section presents a discussion of research examining reciprocity in both online and offline communication.

4.2.3.1.2. Empirical evidence

“Disclosure begets disclosure” was a phrase coined by Jourard (1971b) to describe the pattern of self-disclosure in conversations. There is a plethora of research supporting this notion (Barak & Gluck-Ofri, 2007; Dietz-Uhler, et al., 2005; Henderson & Gilding, 2004; Joinson, 2001a; Moon, 2000). Early studies conducted in offline settings found a significant correlation between the intimacy and number of self-disclosures received and made (Derlega, Harris, & Chaikin, 1973; Jourard, 1971a; Jourard & Resnick, 1970; Shaffer, Ogden, & Wu, 1987). This was used to support the notion that the intimacy and topics disclosed are reciprocated.
While the correlation between the self-disclosures an individual makes and is the recipient of is consistent with the notion of reciprocal self-disclosure, such measures could be confounded by an individual’s tendency to disclose and elicit disclosure. However, even controlling for these base rates of self-disclosure and openness - the extent to which an individual elicits self-disclosure from others - Dindia, Fitzpatrick and Kenny (1997) found reciprocal self-disclosure for high and low intimacy topics.

Employing an experimental design, Shaffer et al. (1987) found disclosures of significantly greater intimacy among participants in high intimacy conditions - where the confederate they were conversing with engaged in high intimacy disclosures - than low intimacy conditions - where the confederates disclosed personal information of lower intimacy. From this, reciprocity of disclosure intimacy was inferred. Similarly, Ehrlich and Graeven (1971) found that participants reciprocated the intimacy level of the confederate in their self-descriptions.

This research, however, was conducted in contrived scenarios. For instance, Worthy et al. (1969) asked groups of participants to sit around a table with partitions. They were provided with a set of questions to ask and answer, and communicated by exchanging notes. Similarly, Ehrlich and Graeven (1971) explicitly told participants to describe themselves to a confederate who was separated from them by a partition. Each person spoke at intervals of two minutes each (conversations were timed and told to stop at the two-minute mark). The two-minute turn-taking design was also employed by Won-Doornink (1985). These situations are unlikely to occur in social or professional - be that between colleagues or health professionals and their clients - contexts.

Moreover, in each of the studies reviewed, participants were explicitly told to self-disclose; usually the topic of self-disclosure was provided (Derlega, et al., 1973; Dindia, et
al., 1997; Ehrlich & Graeven, 1971; Shaffer, et al., 1987; Won-Doornink, 1985; Worthy, et al., 1969). Again, while study of prompted self-disclosure is important - since in all interactions, questions are asked and answered - there is also a need to investigate differences in unprompted self-disclosures. An exploration of factors facilitating spontaneous self-disclosure would be valuable for the therapeutic context. Thus, issues of ecological validity and prompted self-disclosure should be addressed by future research. Finally, while they demonstrate evidence for the presence of disclosure reciprocity offline, the applicability of these findings to online communication needs to be investigated.

Previous research has examined, and discussed, the utility of therapist self-disclosure in clinical settings (Edwards & Murdock, 1994; Gaines, 2003; Goldfried, Burckell, & Eubanks-Carter, 2003). Studies have shown a positive effect of limited self-disclosure by the mental health professional, in particular in strengthening the client-therapist relationship - by drawing on similarities and contextualising the client reactions and experiences - and creating a sense of security for the client (Edwards & Murdock, 1994; Goldfried, et al., 2003). Therapist self-disclosure could be used to capitalise on the dyadic effect. That is, in addition to the survey and case study findings presented above, research could examine the pattern of topical reciprocity - when the other person discloses with personal information on the same topic, not the same level of intimacy - of received disclosures.

Of particular interest to e-Mental Health initiatives is the translation of the dyadic effect to online, text-based communication. Though little research has been conducted specifically examining the role of reciprocity in online therapeutic relationships, studies have shown evidence of disclosure reciprocity on the Internet.
Moon (2000) investigated methods for soliciting self-disclosure by a computer. Participants completed a survey administered by a computer. In one condition, the computer revealed information about itself - topically related to the information it was soliciting - prior to asking the question. One example is, commenting on its physical appearance (for example, colour of the computer) then asking the participant to comment on theirs. Greater breadth and depth of self-disclosure were observed in conditions where the computer had disclosed personal information. It was suggested that this increased depth and breadth of disclosure occurred as a result of the dyadic effect.

Building on these findings, Joinson (2001a) further explored the effect of reciprocity on self-disclosure in online surveys. It was posited that Moon’s (2000) reciprocity with the computer could be conceived of, and observed as, disclosure between the experimenter and participant in Internet surveys. Joinson (2001a) argued that while greater candour and disclosure is important for research - his particular interest being surveys - it would be impractical for the experimenter to disclose before each question. This is especially true in extended questionnaires. Breadth and depth of self-disclosure were compared - operationalised as the length of disclosure and the intimacy of disclosure content, respectively - in reciprocation and no reciprocation conditions. Greater breadth of self-disclosure was found when participants received information about the experimenter prior to completing the survey. This lends further support to arguments for the existence of disclosure reciprocity online. It also suggests that clinically, therapists need not self-disclose on every issue to invoke the dyadic effect to facilitate client self-disclosure. Again, however, disclosure in the current study - especially on intimate topics - was prompted. Future research should take into account differences in prompted and unprompted self-disclosure.

Chat room conversations also demonstrate a norm of reciprocal communication (Rollman, et al., 2000; Rollman & Parente, 2001) and in particular, self-disclosure (Barak & Gluck-
Reciprocation of disclosure frequency and intimacy was examined in online support groups and discussion forums. Researchers found a significant correlation between the level of self-disclosure of an initial posting and that of the subsequent responses to the original post. Moreover, there was a significantly greater level of disclosure in support forums than special interest groups. Specifically, a greater percentage of individuals in the support forums shared their thoughts, feelings and personal information. In contrast, participants of discussion forums were more likely to engage in no self-disclosure (83.3% of first messages) than low (15%) or high (1.7%) self-disclosures. This suggests a role for context in the manifestation of disclosure, and more specifically, reciprocity of self-disclosure. It also highlights the need for research to take into account the context of interactions before generalising claims.

Qualitative evidence further supports the existence of online disclosure reciprocity. Henderson and Gilding (2004) interviewed chat room users on their online relationship experiences. Participants reported that reciprocity was a means of reassuring their partner that their trust in divulging personal information was not misplaced. This again provides further evidence for reciprocated self-disclosure in CMC.

Together, the research presented above show that the norm of reciprocal self-disclosure is also present online. However, evidence of reciprocity in online and offline contexts without systematically comparing the two does not allow for conclusions regarding the effect of communication mode on self-disclosure. Theoretical predictions regarding these differences have not been empirically tested. Furthermore, CMC studies into reciprocated self-disclosure have focused on surveys (Joinson, 2001a) or chat rooms (Barak & Gluck-Ofri, 2007; Rollman, et al., 2000; Rollman & Parente, 2001). These contexts are different from one-on-one social conversations since chat rooms involve one-to-many communications or the client-therapist relationship. For applicability to the therapeutic context, further research is required systematically examining the differences in
reciprocal self-disclosure between FTF interactions, synchronous and asynchronous CMC in different contexts.

4.2.3.1.3. Summary

CMC theories suggest, and empirical research has shown, that reciprocity of self-disclosure does occur independently of communication mode. Reciprocated disclosure has been observed in offline studies; however, this research was conducted in highly contrived scenarios. Online, disclosure reciprocity has been noted in discussion forum contexts (Barak & Gluck-Ofri, 2007; Rollman, et al., 2000; Rollman & Parente, 2001) and in surveys (Joinson, 2001a; Moon, 2000). Thus, conclusions of online and offline reciprocity can be drawn. It should be noted, though, that most studies explicitly asked participants to disclose - usually in the form of a question or experimental task design. So, the ecological validity of such conclusions is questioned. Research into self-disclosure needs to distinguish between disclosures in response to a question or instruction, disclosure in response to a partner’s self-disclosure and unsolicited self-disclosure.

So, while evidence for reciprocal self-disclosure has been found through CMC and FTF interactions, further study is required to systematically examine how this changes according to mode of communication.

4.3. The Current Study: Rationale

The broad aim of the current study was to explore factors affecting self-disclosure in the environment. It is hoped that this would provide a better understanding of the client-therapist relationship in mediated environments. Specifically, this research sought to compare differences in self-disclosure across communication mode (that is, FTF,
synchronous CMC and asynchronous CMC), relationship context (social interactions and a coaching psychology program) and time (four weekly sessions).

4.3.1. Types of self-disclosure

The literature shows a dearth of research on conditions immediately preceding self-disclosure. Findings from survey and interview-based research (Chan & Cheng, 2004; Joinson, 2001a; Valkenburg & Peter, 2009) have been used to make claims about disclosure in general. Especially from an e-counselling perspective, these results can only be strictly applied. Therapists use questions to prompt thought and conversation. So, while it is an essential tool in the therapeutic context, research investigating factors that facilitate unprompted, or spontaneous, self-disclosure is required.

In addition to question-prompted self-disclosure, the other commonly investigated factor for soliciting self-disclosure is partner disclosure. As discussed earlier, reciprocity of self-disclosure should be further investigated for its role in online counselling to be better understood.

The current study will, therefore, examine differences in prompted (by question and partner disclosure) and unprompted (spontaneous) self-disclosure as a result of experimental manipulations of synchronicity, media, context and time.

4.3.2. Self-disclosure, communication mode and synchronicity

Synchronicity is raised as an issue to be investigated based on a review of CMC literature on anonymity and self-disclosure. While visual anonymity may be a factor of online self-
disclosure, research comparing online and offline communication has not examined self-disclosure in asynchronous interactions.

Theories that made explicit predictions regarding synchronicity and self-disclosure posit more frequent self-disclosure in asynchronous conditions. According to Hyperpersonal CMC Theory, individuals would have a more idealised perception of their partner because of the fewer identifying cues in asynchronous communication. Hence, they would share greater intimacy and self-disclosure. RCT states that the reduced cues in email, particularly the absence of immediate reactions of partners, decreases the influence of social norms and increases self-disclosure.

Though there have been no experimental studies comparing self-disclosure in synchronous and asynchronous communication modes, support does exist for the above predictions. Explorations of the use of email as a research tool have shown email responses to be more reflective and the communication style more stream-of-consciousness in nature (McCoyd & Kerson, 2006). This is echoed in e-learning research where discussion board posts show greater thought and reflection than synchronous chat transcripts (Abrams, 2003; Hrastinski, 2006; Ohlund, et al., 2000). However, educational research is focussed on achievement of student learning outcomes and comments on the nature of students’ responses in either mode, and while it can be used to infer greater self-disclosure, the research does not provide sufficient evidence for it. Moreover, disclosures in both research domains are prompted and, arguably, the student-teacher and participant-researcher relationships differ from the dynamics present in social CMC and the client-therapist relationship.

Gilat (2007) found a greater proportion of suicide threats - an example of self-disclosure - in asynchronous support group discussions than telephone calls and synchronous chat.
Though it is suggested that asynchronous modes of communication better facilitate self-disclosure, this study confounds the effect of peer and professional support. The asynchronous condition was group-based, whereas the other two support channels were facilitated by a trained professional in a one-on-one context.

The current study aimed to investigate the effect of synchronicity on self-disclosure by comparing the proportion of self-disclosures in FTF conversations, synchronous IM interactions and asynchronous email exchanges. Based on previous research and theory, it was hypothesised that self-disclosure would be greater in asynchronous conditions, that is, email compared to IM. Moreover, in online to offline comparisons, there would be a higher frequency of self-disclosing statements in CMC.

4.3.3. Self-disclosure and time

While it is a common experience for relationships to change and progress through time, research comparing these changes in online and offline self-disclosure over time has been limited. Studies examining how online self-disclosure is affected by time have been inconsistent in research design and results. Some have surveyed participants at six-month intervals and found no significant changes in self-disclosure (Sprecher & Hendrick, 2004). Others have explored self-disclosure in 8-60 minute conversations and found greater disclosure over time (Dindia, et al., 1997), a cubic trend where disclosure decreased then increased then decreased again (Dietz-Uhler, et al., 2005), a cubic trend in the opposite direction (Ehrlich & Graeven, 1971) and an interaction between time and intimacy of the self-disclosure (Won-Doornink, 1985).

The one study that contrasted self-disclosure across medium and time found that differences in the depth of self-disclosures between online and offline friendships
decreased over time. Depth of disclosure was initially greater in FTF friendships. However, Chan and Cheng (2004) used surveys administered twice, six months apart, and research has shown that individuals are biased in their perceptions of online and offline self-disclosure. Participants report greater perceived self-disclosure offline when objective evidence shows greater frequency of self-disclosure via the Internet (review presented in Chapter 3). It is argued that a more detailed analysis of self-disclosure across time, and in different modes of communication, is required.

The current study aimed to achieve this. It compared self-disclosure in three communication modes and two relationship contexts across four weekly interactions. Based on the research presented above, and SIP Theory - the only CMC theory to explicitly predict the effect of time on relationship development - it was hypothesised that self-disclosure would increase across time. Moreover, there would be an interaction between time and media such that, while initially self-disclosure would be significantly greater FTF, this difference would decrease as the relationship progressed. This effect would be consistent across contexts (that is, social and coaching).

4.3.4. Self-disclosure and trust

As a key component to an effective therapeutic relationship and working alliance, trust is investigated in the current study. Moreover, trust, and its relationship to self-disclosure, is examined in light of differences in communication medium, relationship context and time. The two issues at play are (i) how trust changes across mode of communication, and (ii) how the relationship between trust and self-disclosure changes across mode of communication.
CMC theories discussing trust either predict a decrease in trust in the online environment—by virtue of the greater uncertainty there—and hence a negative relationship between trust and self-disclosure in CMC, for example, RCT, or an increase in trust and self-disclosure via the Internet as stated by Hyperpersonal CMC Theory. The latter argues that the increased intimacy of people online—due to their positive constructions of their partner—will facilitate greater trust and self-disclosure despite the paucity of cues to identity. SIP Theory states that relationship development online is identical to offline relationship progression, only at a slower rate. As such, the trust-disclosure relationship should not change between media.

Empirical evidence has examined the changes in trust across mode of communication and, separately, the relationship between trust and self-disclosure in either online settings or offline relationships. As such, there is no study currently comparing the trust-disclosure relationship in CMC and FTF interactions. Previous research, however, has found significant, positive correlations between trust and self-disclosure in online (Joinson, et al., 2010; Metzger, 2006; Yum & Hara, 2005) and offline (Steel, 1991; Wheeless & Grotz, 1977) settings. This suggests a role for trust in online relationship development, and moreover, a similar relationship between trust and self-disclosure across communication modes. Yet, the conclusions that can be drawn from correlations are limited. Furthermore, disclosures to a survey or website are notably different from disclosures between friends or within a client-therapist relationship.

Comparisons of trust in different media consistently showed significantly less trust in text-based CMC settings (Bos, et al., 2002; Tanis & Postmes, 2005a; Wilson, et al., 2006). Taken with reports of greater frequency of self-disclosure in online environments, these findings suggest a negative relationship between trust and self-disclosure. This is inconsistent with the correlation studies presented above. Research is therefore required to disentangle these findings and provide clarity on this discussion.
The current study compared trust, and its correlation with self-disclosure, in FTF communication, synchronous and asynchronous CMC. It was hypothesised that trust would be greatest FTF and least in email conditions. Since empirical research is unclear on how communication medium affects the disclosure-trust relationship, and only SIP Theory makes a specific prediction, it was hypothesised that the relationship between trust and self-disclosure will be stronger FTF than online and the two variables would be proportionally related. Regarding context, it was predicted that trust would be greater in the coaching psychology context, since there is less uncertainty regarding the identity and qualifications of the coach. No specific hypotheses were formed around the relationship between trust and self-disclosure in coaching and social contexts. Although participants are expected to self-disclose - in order to facilitate the coaching process - in therapy-based contexts, they may be less wary to do so in casual, social interactions.

4.3.5. Self-disclosure and the relationship context

The review of previous research into self-disclosure and relationship development has highlighted the importance of context. For instance, self-disclosure in groups is inherently different from self-disclosure in one-on-one interactions (Dindia, et al., 1997). Self-disclosure is greater in support forums than special interest discussion forums (Barak & Gluck-Ofri, 2007).

Studies investigating self-disclosure, and particularly online self-disclosure, have not systematically compared the divulgence of intimate information in social and intervention-based relationships. Research has either asked participants to get-to-know each other or work on a task together as peers. This author argues that the relationship dynamics in these interactions is different from that observed between a trained mental health professional and their client. Therefore, an explicit comparison between the two contexts is required to ascertain the validity in applying findings from research investigating
peer-to-peer self-disclosure to therapeutic contexts. Moreover, research into the client-
professional relationship is required.

The current study investigated self-disclosure differences between social conversations
and interactions between a client and professional in a coaching psychology context.
No specific predictions are made regarding overall self-disclosure in each context since
participants may feel more comfortable disclosing in a casual, social interaction but
understand that self-disclosure is necessary to the effectiveness of the coaching program.
However, it was hypothesised that coaching psychology conditions would demonstrate
greater question-prompted self-disclosure and less reciprocal self-disclosure. This research
will also explore the interaction between Context and Media on self-disclosure. Since
there is no existing empirical evidence on this issue and CMC theories have not discussed
the differences in social and professional exchanges, no specific predictions are
formulated regarding this interaction.

4.3.6. This project

In summary, the current study will compare the effect of communication mode - and
hence, synchronicity - as well as relationship context, time and trust on self-disclosure.
This will include an examination of prompted and unprompted self-disclosure. In line with
prior research and the theories presented, it was hypothesised that:
1. There will be a higher proportion of self-disclosure in online than offline interactions.
2. There will be a higher proportion of self-disclosure in asynchronous than synchronous
   interactions.
3. There will be significant differences in self-disclosure between Social and Coaching
   interactions.
4. There will be an increase in self-disclosure across time.
5. There will be a positive correlation between trust and self-disclosure.
Details regarding research design and methods are presented in the following chapter.
CHAPTER 5:

METHODS

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5.1. Overview of Chapter 5

The experimental design adopted, and research method employed, in the present study is detailed in Chapter 5. A 3 x 2 x (4) factorial design was used to investigate the role of communication medium (IM, email, FTF), relationship context (Social versus Coaching psychology interactions) and time (four weekly sessions) on frequency of self-disclosure. Participants completed a demographics questionnaire and were randomly allocated to one of six conditions. They communicated with the researcher for an hour per week over four weeks. Participants in the Email conditions exchanged at least four emails a week. At the conclusion of each session, participants indicated their trust towards the researcher on an 11-point Likert scale. IM transcripts, printed emails and FTF conversations were coded for self-disclosure in response to a question, self-disclosure following the disclosure of the researcher, unsolicited self-disclosure and non-personally relevant information units.

5.2. Design

A 3 x 2 x (4) factorial design was employed to examine the role of communication medium (FTF, Chat, Email), relationship context (social, coaching psychology) and time (sessions 1-4) on the frequency of self-disclosure. The self-disclosure dependent variables were subdivided into three categories: question-prompted self-disclosure, reciprocal self-disclosure and spontaneous or unprompted self-disclosure. Disclosure frequency was coded by the researcher. The participants’ trust for the experimenter was examined through a non-standardised survey.

5.3. Participants

The 60 participants in this study (41 female) were aged between 18 and 45 years old (median = 21 years). Recruitment spanned from November 2007 to May 2010. Participants
were recruited through recruitment flyers on The University of Sydney Camperdown/Darlington and Cumberland campuses, City of Sydney libraries, the online social networking site Facebook (www.facebook.com) and the research website (www.prometheus.net.au/onlineinteractions). Participants recruited via Facebook or the research website were informed that allocation to experimental conditions was random. As such, they had to be available for FTF interactions also. These flyers stated that participants had to have reasonable confidence in spoken and written English (as communication would be in this language), normal or corrected-to-normal vision (for possible interaction via a computer screen) and reasonable confidence in typing. Participation in the study was in exchange for course credit or a gift voucher. Participants were either native English speakers (70% of participants) or had spoken English by 15 years of age. Participants' years of computer experience ranged from four to 25 years (median = 10 years). Participants also reported a median confidence in computer use of 6 (from a scale of 1 - 6 where 1 = no confidence and 6 = complete confidence).

5.3.1. The Experimenter

The experimenter was aged 23-25 years old throughout the data collection process. She is of Asian descent and is a female graduate student of The University of Sydney. She possesses a Bachelor of Psychology (Honours 1) from The University of Sydney. This training included Coaching psychology, the framework employed in this thesis. The experimenter completed the IPIP-NEO inventory, a measure of her scores on the Big Five Factors of personality. She scored high on Extraversion, average on Agreeableness, high on Conscientiousness, average on Neuroticism and high on Openness to Experience.

Prior research used dyads of participants; however, due to the logistics of recruitment, it was not possible to organise participants to speak with each other. The 60 participants in this thesis were recruited over two years. In controlling for relationship intimacy, participants had to be strangers to each other. The problems of recruitment made this
process difficult. It was also challenging to organise multiple experimenters. As such, the decision was made to use one single experimenter to interact with each participant. This would control for any differences in interaction pattern. Previous research suggested possible effects of gender in communication (Dehkordi, Zarei, & Dehkordi, 2008). By virtue of the experimenter’s gender, this study included both single sex and cross sex dyads. Section 6.3 presents results showing no significant gender effects on self-disclosure.

5.4. Apparatus

FTF conditions were conducted in an on-campus observation room with a wall mounted colour CCTV camera and microphone system (model no.: WV-CP244E; Panasonic System Solutions, Suzhou Co. Ltd. China), video cassette recorder (model no.: VHR-VT221A; Sanyo Electric Co. Ltd. Thailand) and television (model no.: CP29AF2T; Sanyo Electric Co. Ltd. Indonesia).

The on-campus observation room was a private room located in a quiet corridor. The surrounding rooms were offices so there was minimal noise. There were no windows but the room was brightly lit. It was furnished with several chairs and a large desk. The participant sat on one side of the table and the experimenter on the other in all FTF conditions. No wall furnishings were present except for the wall mounted camera, television and video cassette recorder. A picture of the room from the doorway is presented in Figure 1. Figure 2 presents the view from the participant’s seat and Figure 3 presents the view from the experimenter’s seat. The television was switched off and designed to be behind the participant to reduce any effects of the perception of being observed.
Figure 1: Observation room - view from the doorway

Figure 2: Observation room - participant's view
The IM conditions were text-based for each participant on all occasions. Figure 4 is a picture of the interface used in the experiment.

Gmail is a commonly used email system with support available for individuals experiencing difficulty. Participants were able to navigate the Gmail email system and did not report challenges with the usability of the program. A picture of the Gmail interface is provided in Figure 5.

Online conditions were conducted through a web-based email/Instant Messenger (IM) system called Gmail (www.gmail.com). Participants used their own computers to access this system.
Figure 4: Gmail email interface

Figure 5: Gmail Chat interface
5.5. Dependent Variable Measures

This study utilised two non-standardised questionnaires to obtain demographics information and ascertain participant trust levels. Further information is available in the sections below. The process for coding self-disclosure is also provided below.

5.5.1. Demographics Questionnaire

A non-standardised Demographics Questionnaire was created by experimenters to ascertain general characteristics of the sample. The Demographics Questionnaire was comprised of six questions which asked participants to indicate their gender, age, experience with English (whether they were a native English speaker and if not, the age at which they commenced speaking English), vision (whether participants’ had normal or corrected-to-normal vision), confidence in CMC and the number of years of experience they had in using computers. This questionnaire is included as Appendix D.

Dutton and Shepherd (2006) found that participants who reported greater confidence and experience in using technology also reported a lower perceived risk of online interactions. It follows then that any differences in the perceived risk of online communication would affect disclosure breadth and depth. This claim is supported by evidence showing that perceived privacy significantly predicts online non-disclosure (Joinson, et al., 2010). That is, as the perceived privacy of a website decreases, participants are less likely to disclose to this website. Although evidence provided by the studies cited above relates to online disclosure through web-based forms (for instance, surveys, purchasing forms online), the confidence and experience of participants in the current research were recorded to prevent any possible confounds.


5.5.2. Trust Survey

This non-standardised survey consists of one question on an 11-point Likert scale. Participants were asked to indicate the level of trust they felt towards the experimenter at the conclusion of each session (where 0 is no trust at all and 10 is complete trust; see Appendix E). This single scale measure of trust has been validated in previous research (Miller & Mitamura, 2003). Moreover, it is used in research examining the relationship between trust and online behaviours, particularly e-commerce (Lee & Turban, 2001). In line with previous research, it was employed in this thesis to facilitate comparisons between current findings and prior studies.

5.5.3. Self-disclosure

Previous studies re-formatted all transcripts so that communication medium could not be identified through the transcripts. However, the structure of email conversations was such that this was not possible. IM transcripts and email conversations were printed and coded. Disclosure was identified in FTF conversations through video recordings.

All conversations (FTF conversations, IM transcripts and emails) were coded by the researcher for the number of information units communicated. Information units were defined as utterances aimed at providing knowledge to the recipient. For instance, “I just finished reading ‘The Great Gatzby’” contains two information units: the fact that the individual had recently finished reading the book and the title of the book. This information could concern the participant (that is, self-disclosure) or non-personally relevant facts (for example, ‘the Golden Gate Bridge is in San Francisco’).
Information units were categorised as self-disclosure in response to a question, self-disclosure in response to disclosure by the researcher, unprompted self-disclosure or non self-disclosure. Self-disclosure in response to a question was identified as the personal information revealed by an individual in direct response to a question asked by the experimenter. Only the information unit that directly answered the question was identified as disclosure in response to a question. An example is provided below:

Experimenter: So what course do you do?
Participant: I’m in the fourth year of my physio degree.

The participant’s response contains two information units: how far they are in their degree and their course. Since the question only asked for the course, only “my physio degree” would be identified as self-disclosure in response to a question. The other information unit would be noted as unprompted self-disclosure.

If the experimenter disclosed personal information on a particular topic and this was followed by the participant’s disclosure of personal information on the same topic, then this was counted as reciprocal self-disclosure. An example is provided below:

Experimenter: I went to the Sound Relief concert last weekend
Participant: Me too! Coldplay were awesome!

In this example, the participant’s response contains two information units: the fact that they attended the Sound Relief concert and their opinion of Coldplay’s performance. Only the first was identified as reciprocal self-disclosure (because it was a direct response to the information provided by the researcher).
Unprompted self-disclosure was identified as personal information that was revealed but not in response to a question or the experimenter disclosing. A common example is an extension of existing conversation (as in the examples presented above) or the participant starting a new topic of conversation. These rules and associated examples are presented in Appendix F.

All transcripts were reviewed by the experimenter and 20% of the transcripts in each condition were reviewed a second time by the experimenter. Inter-rater reliability was calculated using the Kappa statistic and found to be 0.906 (p<0.001), 95% CI (0.871, 0.941).

By building on the prompted-unprompted disclosure distinction of previous research (Joinson, 2001b), this design allowed a more detailed understanding of disclosure practices.

5.6. Procedure

The researchers sought and obtained ethical clearance from The University of Sydney to conduct the present study. A copy of the approval letter from the Human Research Ethics Committee of The University of Sydney is included as Appendix A.

To participate in the study, individuals contacted the researcher via email. A Participant Information Statement (Appendix B) and blank Consent Form (Appendix C) were then sent to interested individuals. A reply paid envelope was also posted to those who preferred post to email. Consent to participate was indicated by the return of a signed consent form. Once consent forms were received by the researcher, participants were emailed information on the condition to which they were assigned. Prior to commencing the
interactions, participants were required to complete the demographics questionnaire online at www.prometheus.net/onlineinteractions.dq.htm.

Participants were then randomly allocated to one of two context conditions, Social or Coaching psychology. Using similar instructions to prior studies (Kiesler, et al., 1985; Tidwell & Walther, 2002), participants were directed to converse with a stranger for one hour per week over a four-week period. The aim of the interactions was to develop a friendship and “get-to-know” the other person. As such, it did not follow a set structure or have predetermined discussion topics. The only limits imposed were time-bound.

FTF and through IM, conversations were similar in that they were conducted in real-time and involved the exchange of short messages. In the email conditions, the experimenter sent the first introductory email. This email was conversational and included both questions and self-disclosure. Email correspondence was analogous to traditional, postal pen-pal exchanges. An example of an introductory email (different for each participant) is presented in Appendix G.

This thesis employed the same protocols for social conditions as previous research (Kiesler, et al., 1985; Mallen, et al., 2003; Tidwell & Walther, 2002). Issues concerning equivalence between media were not reported by prior studies using the same instructions to participants. Upon review of the transcripts from conversations in the Social conditions, interactions involved social communication only. In this sense, the exchanges were not task-based or problem-based.

Instructions to participants in the Coaching condition indicated that their task was to partake in a four-week coaching psychology program. This involved the establishment of a goal, development of an action plan for achieving this goal and the execution and
evaluation of the action plan over a four-week period. Participants were also informed that interactions would take place for an hour per week.

Coaching psychology is distinct from therapy in that its aim is to improve existing performance rather than treat mental illness. Despite this difference, it is very similar in structure to goal-based counselling where clients identify a goal, develop an action plan for achieving the goal and execute and evaluate the action plan.

In this study, the first session of the Coaching Psychology program was an introduction to the Coaching processes. During this session, steps were taken to establish a goal. Often, participants would brainstorm ideas for possible goals that they would like to achieve. To narrow down this list of goals, participants were asked to rank their goals, first, in order of what was most important to them and secondly, in order of what they perceived to be most achievable in the four-week timeframe. The documents used during this brainstorming session are included as Appendix H and Appendix I.

During the second session, participants and the experimenter developed a possible action plan. For example, one participant indicated that this would be their goal:

“...increasing my running sessions to 3 x 6km each week. I’m currently doing about 2 x 3km.”

Participant 1, Email and Coaching condition

During the second session, the participant and experimenter discussed what the participant had done previously to achieve this goal and what systems could be put in place to support their attainment of this goal. For this participant, a running contract was developed where each week, the participant would increase their running distance so that by the end of four weeks, they would be running three x 6km sessions per week. To assist
with motivation, rewards were incorporated into the action plan. The participant would be denied chocolate and coffee if they did not complete the required distance in that week and be rewarded if they did.

Between sessions 2 and 3, this participant implemented the action plan. In session 3, the effectiveness and appropriateness of this plan was evaluated. During the evaluation, the participant identified difficulties with implementing the plan:

“So, in review, what’s hard? Finding the time, especially early in the week, where I have work and generally have two or three nights with meetings (next week I’m out Monday, Tuesday and Wednesday evenings). I also find that when I leave a bit of a gap between runs (like this week Sunday to Thursday) then somehow the running experience takes on a ‘bigger than Ben Hur’ image in my head and I think that it will be difficult, cold, painful, etc, etc. I would like to be able to spread the runs out a bit more evenly across the week, eg. Sunday Tuesday, Friday. Rather than Saturday or Sunday, Thursday, Friday.”

Participant 1, Email and Coaching condition

The evaluation involved examining what factors could be changed or removed and included a discussion about the rewards and whether they should be maintained. Following this, the action plan was changed to include a commitment to run on specific days. This amended plan was implemented between sessions 3 and 4.

Session 4, the final session, involved a discussion consolidating long term plans. This included considerations of illness since the participant was diagnosed with the flu during the intervening week. The revised long term plan included:

“So, in summary:

For the long term plan --
1. When not feeling well, will adjust times so that you are able to do 3 runs over 1.5 weeks.

2. When extremely and unavoidably busy, will adjust times so that the 3 runs can be done over 1.5 weeks.

3. If runs aren't completed according to schedule then you will deprive yourself of sweets and coffee.”

    Experimenter to Participant 1, Email and Coaching condition

“I do feel that I'm on target and feel really good about keeping it up. I think I will need to continue to set weekly targets and strategies as I don't think that it comes naturally yet and it may never come naturally.”

    Participant 1, Email and Coaching condition

It should be noted that not every participant followed this specific timeline. For some participants, the process of establishing a goal spanned sessions 1 and 2; for others the process of developing an action plan spanned sessions 2 and 3. However, during the four weeks, each participant identified a goal, developed an action plan, implemented and evaluated this action plan.

At present, coaching psychology is delivered FTF. The process for implementing coaching psychology in the online environment was directed by research into online counselling (Oravec, 2009). The procedures employed during synchronous online coaching psychology (that is, via IM) followed that of FTF counselling. Through email, participants were also directed to send at least two emails each week. The exchanges via email were focussed and task-based. Participants were often prompted with counselling techniques employed FTF. These included direct questioning and reflection (the mirroring of the participant’s cognitions and emotional comments by the counsellor). To ensure equivalency between the different media, the same worksheets were used (Appendix H and Appendix I) and
initial prompting questions were identical. For example, “What steps have you undertaken previously to obtain this goal?” “What challenges did you face implementing the plan this week?” and “What would help you remain motivated to continue with this goal?”

Within each context condition, participants were randomly allocated to either a FTF, IM or email condition. That is, the social or coaching psychology conditions could take place either FTF, through the Gmail IM/Chat system or Gmail email. FTF participants were asked to coordinate times with the experimenter to meet on campus.

Participants were randomly allocated to conditions so that there were 10 participants in each of the six conditions. Table 3 shows the distribution of participants in the experimental conditions and includes information about gender.

Table 3: Distribution of gender according to experimental conditions

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<th>FTF</th>
<th>IM</th>
<th>Email</th>
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<tbody>
<tr>
<td>Social</td>
<td>8 Female; 2 Male</td>
<td>6 Female; 4 Male</td>
<td>8 Female; 2 Male</td>
</tr>
<tr>
<td>Coaching</td>
<td>7 Female; 3 Male</td>
<td>6 Female; 4 Male</td>
<td>6 Female; 4 Male</td>
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Participants in the IM/Chat conditions were provided with instructions to create a Gmail account. Once this was established, participants coordinated times with the experimenter to conduct their interactions via the Gmail IM/Chat system. The same instructions for creating a Gmail account were provided to participants in the email condition. Though participants could have used their personal email accounts, a Gmail account was established and used to encourage anonymity and protect confidentiality. Email participants were informed that the experimenter would send the first email and initiate the interactions. They were also instructed to send at least two emails each week. This stipulation was to ensure that participants spent a minimum amount of time conversing with the experimenter per week. Four email exchanges (two from the participant, two
from the experimenter) were considered the approximate temporal equivalent to a one-hour exchange via IM or FTF. Instructions to participants for each of the six conditions are attached as Appendices J to O.

Due to differences in typing and speaking speed, a greater number of remarks are made per minute in FTF interactions (Siegel, Dubrovsky, Kiesler, & McGuire, 1986; Tidwell & Walther, 2002; Walther, et al., 1994). Tidwell and Walther (2002) argued in favour of research designs allowing temporally longer conversations online than offline to compensate for this observation. However, SPT argues that relationship development is time-dependent (Altman & Taylor, 1973). Whilst the number of words exchanged may be indicative of social penetration, the amount of time two individuals spend interacting with each other facilitates familiarity and provides a foundation for the development of rapport (Altman & Taylor, 1973). Therefore, the current study asked participants to converse for an equal time period independent of communication medium.

At the conclusion of each interaction, participants were required to complete the trust survey and send it to a third party (via email). Participants were informed that the experimenter would not receive the results until the completion of the study and their responses would not affect their progress within the experiment. For FTF participants, the experimenter left the room while they completed this survey and did not return until they had placed the survey into a sealed envelope. This was to ensure an honest response from participants.

At the conclusion of the final interaction, the experimenter presented participants with the gift voucher/course credit and debrief statement (Appendix L). She responded to any of the participants’ questions.


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6.1. Overview of Chapter 6

This chapter presents the findings of the current study. Self-disclosure was operationalised as the percentage of information units that revealed personal details about the individual. It was divided into (i) disclosure in response to a question, (ii) disclosure in response to the experimenter self-disclosing and (iii) unprompted self-disclosure. A 3 x 2 x (4) factorial design was used comparing self-disclosure differences in communication mode (FTF, IM and Email), Context (Social and Coaching Psychology) and time (four weekly sessions). Three-way mixed method ANOVAs showed significantly greater total self-disclosure in CMC than FTF conversations, and greater total self-disclosure in Email than IM. In examining contexts, Coaching contexts showed significantly greater total self-disclosure than Social contexts. There was also a significant decrease in self-disclosure through time. In contrast to self-disclosure, trust was significantly greater offline than online and increased linearly across time. Correlations between trust and self-disclosure in each of the between-groups conditions were not significant. The implications of these findings are discussed in Chapter 7.

6.2. Analyses

The current study found a significantly greater number of information units communicated FTF (M = 1362.00, SD = 540.59) than through CMC (M = 320.10, S.D. = 154.38; t(20.56) = 8.45, p <0.001). This is consistent with previous findings (Siegel, et al., 1986; Tidwell & Walther, 2002; Walther, et al., 1994). To control for differences in the speed of information exchange between online and offline modes of communication, all analyses in the present study were conducted on percentages of information units. The percentage of information units was calculated by:

$$\frac{\text{Number of self-disclosure information units for session } n \text{ by a participant}}{\text{Total number of information units for session } n \text{ by a participant}}$$

where $n = \text{session 1, 2, 3 or 4}$. 
Therefore, a separate denominator was used for each person in each session. This represented the proportion of disclosures that contained personal information. It would control for individual differences in self-disclosure.

Analyses were conducted using the SPSS Statistics 17.0 software package.

Self-disclosure was operationalised as any information unit containing personal information. This could be biographical data, the participants’ thoughts or their feelings. Moreover, since self-disclosure was categorised into prompted, either through questions or partner self-disclosure, or unprompted self-disclosure, there were five major dependent variables (DVs) analysed. First, the percentage of information units categorised as self-disclosure was assessed. Next, the percentage of information units categorised as self-disclosure in response to a question, in response to the experimenter disclosing, and unprompted disclosure was examined. Finally, participant trust ratings were assessed.

All DVs were analysed using 3-way mixed methods ANOVA. Planned orthogonal contrasts were used to examine the between-groups effects of Media (FTF, IM or Email). Specifically, Helmert contrasts were used to compare FTF interactions with online conversations (IM and Email combined) and IM versus Email conditions. Within-participant contrasts assessed the main effect of Time. Since there were four time points, contrasts examining linear, quadratic and polynomial trends were employed. Correlations between disclosure and trust were also explored. A Type I error rate of 0.05 was used for all analyses.

6.3. Gender

To determine whether there was a systematic effect of gender on self-disclosure, independent samples t-tests were conducted on the percentage of information units
categorised as self-disclosure in each session. There were no significant differences between males and females on disclosure frequency in all sessions \( t(58) = -0.45, p = 0.65; \) \( t(58) = 1.73, p = 0.09; \) \( t(58) = -1.98, p = 0.053; \) \( t(58) = 0.65, p = 0.52 \) for sessions 1, 2, 3, and 4 respectively). Responses were collapsed across gender for all subsequent analyses.

6.4. **Synchronicity, Relationship Context and Time on Self-Disclosure**

The effect of synchronicity, relationship context and time on self-disclosure was assessed by comparing disclosure frequencies across media, context and sessions. To further clarify the processes of self-disclosure, the antecedent conditions of divulgences (question, other person disclosing, unprompted) were also noted.

6.4.1. **Total self-disclosure**

Media had a significant effect on self disclosure \( F(2, 54) = 25.49, p < 0.001 \). Planned contrasts showed significantly greater disclosure online \( (M = 76.3\% \) of information units categorised as disclosure) than offline \( (M = 61.1\%, p < 0.001) \). Further, there was significantly higher disclosure in Email conditions \( (M = 79.1\%) \) than IM conditions \( (M = 73.5\%), p = 0.03 \). Figure 6 shows the amount of total disclosure according to Media and Context for each session.
Figure 6: Proportion of self-disclosure according to Media and Context.

Note: n = 10 for each condition

Self-disclosure was significantly greater in Coaching (M = 74.9%) than Social contexts (M = 67.6%; F(1, 54) = 11.84, p = 0.001). The difference in disclosure between these contexts was moderated by time (F(2.64, 142.37) = 2.90, p = 0.04). Specifically, there was a significant quadratic trend for this context by time interaction (F(1, 54) = 5.69, p = 0.02). That is, the differences between Coaching and Social contexts increase in session 2 and decrease over sessions 3 and 4. This interaction is demonstrated in Figure 7 where disclosure in coaching conditions increases between sessions 1 and 2 and decreases between sessions 2 and 4. On the other hand, self-disclosure in social conversations decreased between sessions 1 and 2 and either increase or level out between sessions 2 and 4. No other interactions were significant (all p > 0.25).

Results showed a significant main effect of time (F(2.64, 142.37) = 5.50, p = 0.002). Specifically, time showed a significant linear (F(1, 54) = 12.67, p = 0.001) quadratic trend (F(1, 54) = 5.04, p = 0.03). Disclosure decreased linearly from session 1 to session 3 and increased slightly in session 4.
The Greenhouse-Geisser estimates of sphericity ($\varepsilon = 0.88$) was used to correct degrees of freedom for the mixed methods ANOVA presented above since Mauchly’s test of sphericity was significant ($p = 0.03$).

### 6.4.2. Disclosure in response to a question

Differences in disclosure made in response to a question were examined to provide further clarification on disclosure practices in different contexts and media. According to Mauchly’s test, the assumption of sphericity was not violated ($\chi^2 = 10.29$, $p = 0.07$) in question-prompted self-disclosure data. There was a significant effect of Media ($F(2, 54) = 22.62$, $p < 0.001$) such that question-prompted self-disclosure was greater online ($M = 24.8\%$ of information units) than offline ($M = 9.3\%$; $p < 0.001$). Email ($M = 26.5\%$) and IM ($M = 23.0\%$) did not differ significantly on this variable ($p = 0.20$).
Compared to participants in the Social conditions (M = 12.5%), Coaching participants (M = 26.7%) engaged in significantly greater question-prompted self-disclosure (F(1, 54) = 41.46, p < 0.001). This difference was moderated by Media (F(2, 54) = 5.41, p = 0.01). While disclosure is greater in Coaching conditions, the difference is smallest FTF, slightly larger in IM and largest in Email (see Figure 8).

Figure 8: Question-prompted self-disclosure according to Media and Context. Note: n = 10 for each condition

The relationship between context and question-prompted self-disclosure is also moderated by time (F(3, 162) = 3.03, p = 0.03), such that the differences in disclosure between Social and Coaching conditions decreases with increasing time (see Figure 9 below). No other interactions were significant (p > 0.43). Results also show that disclosure decreases linearly across time (F (3, 162) = 10.78, p < 0.001).
6.4.3. Reciprocal self-disclosure

Results showed an effect of Media ($F(2, 54) = 4.45$, $p = 0.02$; sphericity assumed, Mauchley’s test was not significant; $\chi^2 = 4.47$, $p = 0.48$) on reciprocated self-disclosure (see Figure 10). There was significantly less disclosure FTF than via the Internet ($M = 6.0\%$ and $8.9\%$ respectively, $p = 0.01$). No significant differences between IM and Email were observed ($p = 0.74$).

Participants in Social conditions ($M = 13.6\%$) exhibited greater reciprocal self-disclosure than those in Coaching contexts ($M = 2.3\%$; $F(1, 54) = 146.54$, $p < 0.001$). There was a significant interaction between Media and Context ($F(2, 54) = 5.26$, $p = 0.01$) such that while reciprocated disclosure is greater in Social than Coaching conditions, this difference is smallest FTF, slightly larger in Email, and largest amongst IM participants.
A significant interaction between Time and Context shows the differences between Social and Coaching conditions decreasing linearly over time (F(1, 162) = 5.25. p = 0.03). There was a significant 3-way interaction between time, Media and Context (F(6, 162) = 2.41, p = 0.03) suggesting that the differences between Social and Coaching contexts in each medium decreases across time. Figure 11 shows that, for Social conditions, reciprocal self-disclosure increases over time in FTF interactions and decreases over time in online exchanges (both IM and Email). Conversely, in Coaching conditions, reciprocal self-disclosure decreased over time in FTF interactions and increased over time in CMC. Figure 12 depicts the findings for reciprocal self-disclosure in Coaching conditions according to Time and Media. No other main effects or interactions were significant (all p > 0.12).
Figure 11: Reciprocal self-disclosure in Social conditions according to Time and Media. Note: n = 20 for each medium.

Figure 12: Reciprocal self-disclosure in Coaching conditions according to Time and Media. Note: n = 20 for each medium.
6.4.4. Unprompted self-disclosure

Unprompted self-disclosure is reported as the percentage of information units that reveal personal details about the participant. This information was disclosed without prompting by the experimenter (either through a question or self-disclosure). A mixed ANOVA was used and sphericity assumed (Mauchly’s test of sphericity was not significant; $\chi^2 = 10.29$, $p = 0.07$).

There was no significant main effect of communication mode on unprompted self-disclosure ($F(2, 54) = 1.41$, $p = 0.25$). The difference between Social and Coaching contexts was approaching significance ($F(1, 54) = 3.98$, $p = 0.051$). A significant interaction between Media and Context showed that FTF, unprompted self-disclosure was greater in Coaching than Social interactions ($F(2, 54) = 8.47$, $p = 0.001$). This difference is reduced in IM conversations and reversed in Email (more Social unprompted self-disclosure than Coaching). Figure 13 shows the differences in unprompted self-disclosure according to Media and Context.

![Figure 13: Unprompted self-disclosure according to Media and Context.](image)

Note: $n = 10$ for each condition.
There is a significant effect of time on unprompted self-disclosure ($F(3, 162) = 2.74, p = 0.045$). Planned contrasts show a significant quadratic trend ($F(1, 54) = 4.79, p = 0.03$) such that disclosure decreases from session 1 to session 3 and increases in session 4 (see Figure 14). No other findings were significant (all $p > 0.44$).

Figure 14: Unprompted self-disclosure over Time.
Note: $n = 60$ at each timepoint.

6.5. Trust and Self-Disclosure

There were two research questions relating to trust in the current study. The first was whether trust differed as a function of media, context and time. The second sought to compare the relationship between trust and self-disclosure in different communication modes, relationship contexts and across time. The findings for both are presented below.
6.5.1. Trust according to media, context and time

There is a significant effect of Media on trust (F(2, 54) = 5.43, p = 0.007; Greenhouse-Geisser correction employed since Mauchly's test is significant, χ² = 50.51, p < 0.001). However, contrary to the self-disclosure findings, there is significantly greater trust offline (M = 8.5) than online (M = 6.9; p = 0.005). No significant differences in trust exist between IM and Email (p = 0.15). Figure 15 presents the differences in mean trust ratings between each medium and context.

![Figure 15: Trust ratings according to Media and Context.](Image)

Note: n = 10 for each condition

Trust did not differ significantly between contexts (F (1, 54) = 1.02, p = 0.37) but did increase linearly across Time (F(1, 54) = 67.94, p < 0.001) as shown in Figure 16. There were no other significant main effects or interactions (p > 0.07). However, the interaction between Time and Media just failed to reach significance (F(2, 54) = 2.91, p = 0.06).
6.5.2. The relationship between trust and self-disclosure

The relationship between trust and self-disclosure was examined through Spearman rank order correlations. The four self-disclosure variables were correlated with trust ratings in each session. These self-disclosure measures and trust ratings were collapsed across the six conditions. For each session, 60 pairs were correlated. Here, the aim was to examine the overall relationship between trust and self-disclosure over time. Therefore, no distinction between Media or Context was made.

Significant negative correlations were found between trust and question-prompted self-disclosure in session 1 ($r_s = -0.23$, $n = 60$, $p = 0.04$), session 2 ($r_s = -0.27$, $n = 60$, $p = 0.02$), session 3 ($r_s = -0.38$, $n = 60$, $p = 0.001$) and session 4 ($r_s = -0.32$, $n = 60$, $p = 0.006$). Trust also increased with decreasing total self-disclosure in session 1 ($r_s = -0.25$, $p = 0.03$) and session 3 ($r_s = -0.28$, $p = 0.02$). No other correlations were significant (all $p > 0.06$). These correlations are presented in Table 4 below.
Table 4: Spearman correlation coefficients for the trust-disclosure relationship

<table>
<thead>
<tr>
<th>Session</th>
<th>Total self-disclosure</th>
<th>Question-prompted self-disclosure</th>
<th>Reciprocal self-disclosure</th>
<th>Spontaneous self-disclosure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-0.246*</td>
<td>-0.225*</td>
<td>-0.066</td>
<td>0.117</td>
</tr>
<tr>
<td>2</td>
<td>-0.169</td>
<td>-0.270*</td>
<td>0.149</td>
<td>0.095</td>
</tr>
<tr>
<td>3</td>
<td>-0.277*</td>
<td>-0.377**</td>
<td>0.052</td>
<td>0.160</td>
</tr>
<tr>
<td>4</td>
<td>-0.203</td>
<td>-0.320*</td>
<td>-0.003</td>
<td>-0.009</td>
</tr>
</tbody>
</table>

*p<0.05, **p<0.01; Note: n = 60 for each correlation

To examine the effect of media, context and time, trust and total self-disclosure were correlated for each of the six conditions at the first and final sessions. Spearman’s rank order correlation was used. Correlation coefficients are presented below. No correlations were significant (p>0.01).

Table 5: Spearman correlation coefficients for the trust-disclosure relationship according to Media, Context and Time

<table>
<thead>
<tr>
<th></th>
<th>FTF</th>
<th>IM</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social</td>
<td>0.006</td>
<td>0.456</td>
<td>0.183</td>
</tr>
<tr>
<td>Coaching</td>
<td>0.359</td>
<td>-0.246</td>
<td>-0.179</td>
</tr>
<tr>
<td>Session 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social</td>
<td>-0.242</td>
<td>-0.032</td>
<td>-0.012</td>
</tr>
<tr>
<td>Coaching</td>
<td>0.068</td>
<td>0.068</td>
<td>0.019</td>
</tr>
</tbody>
</table>

Note: n = 10 for each correlation

6.6. Summary of Findings

In summary, an effect of communication medium and context on total self-disclosure was observed. Specifically, frequency of self-disclosure was greater online than offline, and greater through Email than IM. Total self-disclosure was also greater in Coaching than Social contexts and showed significant linear decreases and quadratic changes through time.
The trends observed for total self-disclosure were also found for question-prompted self-disclosure. That is, question-prompted self-disclosure was greater online (no differences between IM and Email were observed) and significantly greater in Coaching than Social contexts. There was also an effect of time on self-disclosures in response to a question.

Reciprocal self-disclosure was greater online than offline (again, no significant differences between IM and Email conversations). Significantly more reciprocal self-disclosure was found for Social than Coaching conditions. There was also significant 3-way interaction among Medium, Context and Time for reciprocal self-disclosure.

There was no significant main effect of medium or context on unprompted self-disclosure. However, a significant interaction between communication mode and relationship context showed that while spontaneous self-disclosure was greater in Coaching conditions for synchronous conversations (that is, IM and FTF), Social conditions showed more spontaneous self-disclosure in Email.

Significantly greater trust was observed for offline conditions and there were no significant differences between Coaching and Social conditions. Trust increased linearly across time. The correlations between trust and self-disclosure according to experimental condition were not significant.

A discussion of the implications of these findings is presented in the following chapter.
CHAPTER 7:

DISCUSSION

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7.1. Overview of Chapter 7

This chapter discusses the findings of the present research in the context of prior literature and theoretical discussions. Key ideas from this thesis are noted. In particular, there is a differential effect of media, synchronicity, time and context on prompted and unprompted self-disclosure. This thesis found significantly greater percentage of self-disclosure in CMC than in FTF interactions. It is suggested that this is attributable to the temporal fluidity of online interactions, particularly for spontaneous self-disclosure. The present research highlights the need for further investigation into the role of time and anticipated future interaction in online communication. Both prompted and unprompted self-disclosure demonstrated changes across time. Moreover, the findings of this thesis suggest that with sufficient time, convergence between online and offline interactions would be observed, especially in the case of interpersonal trust. Trust was identified as a possible factor in accounting for self-disclosure. Given this, the present findings were in contrast to previous research. Alternative explanations for the negative correlation between trust and self-disclosure are offered. Social expectations of specific relationship contexts - in this case, social and coaching relations - were also found in CMC. This finding demonstrates the need for context specific research if findings from online studies are to be applied to online counselling contexts. This chapter also notes the limitations of the current study and draws attention to the research areas that emerge from present findings. In particular, there is a need to develop a general theory of communication that can encompass both online and offline interactions as opposed to theories developed solely to explain online communication phenomena. A need for a foundation of empirical investigations with shared research designs is also identified.

7.2. Contextualising the Present Study

Centred upon observations of online self-disclosure, the current study investigated whether there is increased self-disclosure in CMC and identified factors contributing to
this phenomenon. The literature review in Chapters 1-3 showed that previous studies have neglected the distinction between prompted and unprompted self-disclosure in their examination of online conversations. From a therapeutic point of view, however, research concerning whether mental health professionals are required to explicitly prompt their clients to self-disclose in online counselling scenarios is invaluable to informing clinical practice. Since counsellors are required to be proficient in all forms of text-based, computer-mediated technologies, systematic comparisons between synchronous and asynchronous CMC are necessary. How self-disclosure systematically differs according to each mode of communication has not been examined. Moreover, since therapeutic interventions often span multiple sessions, research is required to follow the trajectory of self-disclosure in online and offline relationships. Single-session experiments reported in earlier research have limited applicability in counselling settings, particularly when studies are not conducted in counselling-like contexts.

This thesis addressed these issues by systematically comparing FTF, IM and email conversations over four sessions. It explicitly examined the effects of both medium-based factors - that is, synchronicity - and communication-based factors - trust, context and time - on question-prompted, reciprocal and unprompted self-disclosure. The two broad research questions explored were: (1) Is there greater self-disclosure in CMC than FTF conversations? (2) What are the roles of synchronicity, relationship context, time and trust in online self-disclosure? The following discussion of the implications of current findings is organised according to these research questions.

7.3. Is There Greater Self-Disclosure In Online Environments?

The simple answer is yes. The present study found a greater proportion of self-disclosure in mediated communications than FTF interactions. This was the hypothesised result and is consistent with previous research employing a similar design (Joinson, 2001b; Tidwell &
Walther, 2002). This finding also provides further support for CMC theories of self-disclosure (Deindividuation Theory, SIDE model, RCT, Hyperpersonal CMC Theory and SIP Theory) and suggests that conditions of the online environment facilitate the divulgence of intimate information. While these results are unable to distinguish between theories - since the CMC theories noted above all predict greater frequency of online self-disclosure - it does provide evidence consistent with a client-therapist relationship online. If self-disclosure can be encouraged - at the very least demonstrated to be present - in computer-mediated environments, online therapeutic relationships could be explored as viable alternatives to FTF interventions.

This simple answer to the above question, however, does not encompass the complexity of self-disclosure research, nor does it capture the intricacy of the nature of self-disclosure itself. Though percentage of self-disclosure was greater in online than offline conversations, this result is not consistent across the three types of self-disclosure examined. The current study found a greater percentage of prompted self-disclosure - both question-prompted and reciprocal - in CMC. On the other hand, the results for spontaneous self-disclosure were more complex. There was a greater proportion of unprompted self-disclosure in synchronous Coaching interactions only. In Social exchanges, there was a greater percentage of unprompted self-disclosure in asynchronous conversations.

Question-prompted self-disclosure has been primarily examined in survey contexts. Yet, research comparing Internet-based and paper-and-pencil surveys has provided inconsistent results. While some studies have found fewer missing responses in electronic surveys (Boyer, Olson, Calantone, & Jackson, 2002; Kiesler & Sproull, 1986), others have reported no significant differences in the disclosure of sensitive information (Knapp & Kirk, 2003; Rosenbaum, Rabenhorst, Reddy, Fleming, & Howells, 2006). Question-prompted self-disclosure through surveys, however, is vastly different from the process of asking and
answering questions in a social or therapeutic context. Kiesler and Sproull’s (1986) survey study, where the survey contained open-ended questions, is closest to the current project in terms of research design. It was found that questions asked via the Internet yielded significantly higher frequencies of self-description and introspective thoughts. This is consistent with findings from the current study where prompted self-disclosure is greater when questions are asked in computer-mediated environments.

Prompted self-disclosure was also assessed through comparison of reciprocal self-disclosure. The current study showed higher rates of reciprocity in online contexts than offline conversations. Both the SIDE model and Hyperpersonal CMC Theory predicted these findings. While the results do not differentiate between the two theories, that is, whether increased reciprocal self-disclosure is due to a perceived norm of reciprocity or an exaggerated intimacy between partners, it does demonstrate that computer-mediated environments facilitate reciprocal self-disclosure. This, in turn, requires that an explanation for the influence of communication-based factors on self-disclosure, in addition to medium-based factors, be provided in theories of online communication.

From the current findings, it seems that the computer-mediated environment facilitates prompted self-disclosure. The findings for unprompted self-disclosure implicate synchronicity as a factor in moderating self-disclosure in different environments. Specifically, the significant Media x Context interaction showed that, in Coaching conditions, there was a greater percentage of unprompted self-disclosure in synchronous (both IM and FTF) than asynchronous interactions. On the other hand, in Social conditions, there was a greater percentage of unprompted self-disclosure in asynchronous exchanges. This finding concerning spontaneous self-disclosure is supported by previous research. Joinson (2001b) asked participants to discuss a moral dilemma and only counted as spontaneous self-disclosure personal information that was not related to the task nor
prompted by a question. He reported significantly more spontaneous self-disclosure in synchronous CMC than FTF.

However, these are the only two studies that have experimentally compared unprompted self-disclosure in online and offline conversations. More research is required before informative conclusions can be drawn, particularly since synchronicity and context have not previously been controlled for.

Regarding the differences in findings for prompted and unprompted self-disclosure, it could be argued that mechanisms for self-disclosure - and possibly disinhibition as well - operate differently on prompted and unprompted divulgences. Perhaps it is easier to solicit self-disclosure via text-based communication, but this also depends on the temporal pacing of the exchanges outside a task context. Consistent with the SIDE model, individuals may be more likely to respond to prompts for self-disclosure in online environments. Perhaps prompts provide individuals with direction and an outlet. On the other hand, spontaneous self-disclosure is, by definition, not affected by external factors. Therefore, it is perhaps better predicted by an individual’s predisposition to self-disclose than by communication medium, social norms or perceived intimacy (as proposed by CMC theories). However, there is only a small number of studies that have employed an experimental design to investigate prompted and unprompted self-disclosure in online and offline conversations. Further research is required to explore these suggestions.

In summation, this thesis has shown a significantly greater proportion of overall self-disclosure in computer-mediated than FTF interactions. This is also true of both question-prompted and reciprocal self-disclosure and is consistent with previous research and explanations espoused by the SIDE model and Hyperpersonal CMC Theory. The findings also suggest that unprompted self-disclosure is context and medium dependent. Synchronous
exchanges elicited greater spontaneous self-disclosure in Coaching conditions, whereas asynchronous interactions facilitated unprompted self-disclosure in Social conditions. This highlights the role of medium-based and context-based factors in self-disclosure. Further research is required to substantiate these claims, particularly given the importance of soliciting personal information from clients in a clinical setting.

Given the strong evidence for greater self-disclosure in online environments, this thesis also explored factors contributing to this phenomenon. The findings regarding these factors are discussed below.

7.4. What Factors Contribute to Greater Online Disclosure?

This thesis examined both media-based and communication-based factors affecting self-disclosure. While CMC theories, and to an extent, CMC empirical research, focus on the differences between mediated and FTF interactions, the current study noted that communication is an exchange between two or more people. This transcends mode of communication. It was therefore hypothesised that factors affecting offline self-disclosure may also contribute to explaining how self-disclosure is manifested online. These factors are referred to as communication-based factors. Based on the review of previous research, the present research examined the role of synchronicity (media-based) and time, trust and context (all communication-based) in online self-disclosure.

7.4.1. Synchronicity

Synchronous and asynchronous communication technologies are available, and widely engaged with, in online interactions. To develop a counselling program tailored to individual clients, online mental health professionals are required to be proficient users of
these temporally different modes of communication (Fenichel, et al., 2002). Moreover, a theoretical understanding - supported by empirical research - of practitioner-client conversations in synchronous and asynchronous interactions is needed to inform current practice. This has not been provided by previous research.

The current study aimed to shed light on this issue by systematically comparing self-disclosure in synchronous (FTF and IM) and asynchronous (Email) communications. The present research found that the percentage of total self-disclosure was significantly greater in Email conversations than IM ones. Delving deeper, it was found that although Coaching conditions yielded greater proportions of question-prompted self-disclosure, this difference between Coaching and Social interactions was exacerbated in online conditions. That is, unprompted self-disclosure in Coaching conditions was higher than in Social exchanges, but this difference is greatest when conducted via Email, then IM and least FTF. This suggests that as communication becomes more asynchronous, there is a greater percentage of question-prompted self-disclosure in Coaching than Social conditions. One possible explanation is the task-based nature of Coaching interactions. The fluidity of email communication requires highly focussed interactions and this is facilitated through directed questioning. For online counselling, it suggests that Email is more conducive towards question-prompted self-disclosure. One possible criticism of this explanation is that it does not account for the number of questions asked. For instance, one interpretation is that participants are more willing to answer questions via email. Conversely, it could also be argued that perhaps fewer questions are asked FTF or via IM. The inability for the present data to distinguish between these explanations warrants further investigation.

Finding greater total self-disclosure in Email than IM supports the hypotheses of Hyperpersonal CMC Theory and RCT. This suggests that delayed message exchanges facilitate self-disclosure. However, the specific mechanism by which this occurs requires
further investigation. This finding extends previous research on crisis intervention in telephone hotlines, IM consultations and asynchronous group discussion. Although Gilat (2007) showed significantly greater self-disclosure (in the form of suicide threats) in support groups, group size was a possible confounding variable. Telephone and synchronous IM interactions were between two people: the trained volunteer and the “caller”. Asynchronous communication in Gilat (2007), however, was among many people. Therefore, findings of greater self-disclosure in discussion groups could have been as a result of group size rather than the temporal fluidity of the interaction. The current study controlled for this possible confounder by examining self-disclosure in dyads only. Still, the findings align with Gilat (2007). Asynchronous communication yields a greater percentage of self-disclosure.

A significant Media by Context interaction in spontaneous self-disclosure could be explained by synchronicity. Specifically, in synchronous communication, self-disclosure was greater in Coaching contexts than Social ones. The reverse was true in asynchronous exchanges.

On the other hand, temporal fluidity can be used to explain a significant interaction between Media and Context in unprompted self-disclosure. The results of the current study show that in synchronous communication - that is, FTF and IM interactions - self-disclosure is greater in Coaching than Social contexts. Conversely, there is more self-disclosure in Social than Coaching contexts in asynchronous - Email - communication. This could be explained by the salience and nature of task demands.

Since there is a greater number of social cues present in synchronous communication, it is argued that social norms are also more salient in these conditions (for a discussion, see Chapter 4). According to social norms, there is an expectation of reciprocal self-disclosure.
present in Social conditions that is absent in Coaching contexts. That is, a peer is expected to reciprocate self-disclosure whereas health professionals are not. Logistically, this reciprocal exchange of information in a finite time period – as is the case in synchronous interactions – means that participants have less time to self-disclose in Social conditions. This is due to the time being shared between two communicants, rather than in Coaching conditions where only the participant is expected to disclose. This argument would explain more spontaneous self-disclosure in professional than social, real-time conversations.

The combined influence of social norms can also explain greater unprompted Social than Coaching self-disclosure in asynchronous communication. Where there are few cues to social norms, particular attention is paid - and greater weighting ascribed - to those cues which are present. This is arguably the case in Email interactions. Following from these premises, task demands are more salient in asynchronous coaching than asynchronous social interactions. It could be argued then, that Coaching participants are more task-focused and therefore more likely to make task-relevant self-disclosures. While this does not preclude the possibility of spontaneous self-disclosure, individuals are perhaps only addressing task-related prompts, for example, questions. This would explain the finding of less spontaneous self-disclosure in asynchronous coaching relationships than asynchronous social ones. A second corollary of the significant Media x Context interaction for spontaneous self-disclosure is that there are different processes affecting communication dynamics in synchronous and asynchronous conversations. As was discussed in Section 7.3, synchronous exchanges are more conducive to unprompted self-disclosure in task-based contexts. From the evidence, it seems that different processes are at play in synchronous and asynchronous communication. This is important for online counselling. Despite finding a greater percentage of total self-disclosure in Email communication, findings concerning spontaneous self-disclosure suggests that IM, or at least synchronous interactions, are better facilitators of spontaneous self-disclosure in counselling contexts. To increase the reliability of this finding, further research is required. Again, future research examining
the proportion of questions answered, or partner disclosures responded to, would provide a more comprehensive understanding.

Further to this, the similarity between synchronous coaching and asynchronous social conditions with respect to perceived time could explain the current findings. In both conditions, the influence of temporal boundaries is, arguably, reduced. Despite the finite time available for conversation in synchronous conditions, participants may perceive that they are not constrained by time since only they are expected to self-disclose. Therefore, they perhaps more readily engage in spontaneous, stream-of-consciousness style self-disclosure. This could also be true of asynchronous social conversations. This is an environment in which there are few guides to social norms and prompts to engage in particular behaviours. In addition to this, there are no temporal boundaries. It is this environment that CMC theories describe as the one that facilitates introspection and reflective writing (Suler, 2004). In conjunction with explanations centred upon social norms, perceived time constraints (or lack thereof) would explain the present findings.

These proposed explanations are reminiscent of the tenets of the SIDE model. Specifically, this theory proposes that in a deindividuated environment, any cues to social behaviour have more weighting than would otherwise be the case. Therefore, task demands in asynchronous coaching conditions would be more salient and spontaneous self-disclosure reduced - as was proposed earlier.

This explanation for the present findings, though, is ad hoc, particularly its links to the SIDE model. While findings can be explained by, or rather are consistent with, certain theories, this does not provide an adequate test of that theory. Further research is required. It should also be noted that Deindividuation theory, Hyperpersonal CMC Theory, RCT and SIP Theory do not easily explain these results. A second issue to note is that
synchronous communication included both FTF and IM interactions and analyses of text-based synchronous and asynchronous conversations suggests that synchronicity alone is not sufficient for explaining online self-disclosure.

The present research highlights the role of synchronicity - at the very least, perceived temporal boundaries - in explaining self-disclosure. In particular, its effect on spontaneous self-disclosure should be noted. While there is greater self-disclosure overall in asynchronous conditions, the effect of synchronicity on unprompted self-disclosure is mediated by context. While this could be explained by the SIDE model - in particular, the role of perceived temporal boundaries and social norms - further research is required. From an online counselling perspective, these findings have provided additional reasons to consider asynchronous modes of communication with clients - not simply as a tool for communication but as an area of research that requires further understanding. Email has widespread use in clinical, business and social contexts. Research systematically comparing differences between - and changes in - online and offline relationship dynamics is scarce. The current study is the first to make these comparisons for self-disclosure. Further research is required to inform other aspects of the therapeutic relationship.

7.4.2. Time

The present research examined the trajectory of self-disclosure over time and how this relationship is affected by mode of communication. It argues that since mental health interventions often involve several sessions, the application of findings from research conducted in single sessions to clinical contexts would be inappropriate. Moreover, relationships - including their dynamics and self-disclosure - change over time. As such, research that examined self-disclosure in only one interaction could present a skewed picture of online and offline self-disclosure. Of interest to the online counselling community is whether the effect of time on self-disclosure between two people is
different between FTF interactions and CMC. The findings of the current study with respect to time, self-disclosure and mode are presented below.

7.4.2.1. Time and self-disclosure

A significant decrease in overall self-disclosure was observed across time. Similar to findings regarding media and synchronicity, time had different associations with prompted and unprompted self-disclosure. Specifically, question-prompted self-disclosure decreased across time while spontaneous self-disclosure decreased then increased. However, there was no overall increase or decrease in unprompted self-disclosure over time. There was a significant three-way interaction among Time, Context and Media on reciprocal self-disclosure. It showed that through time, the proportion of reciprocal self-disclosure in Coaching and Social contexts converged. This is explained by the observation that FTF, reciprocal self-disclosure increases over time in Social exchanges but decreases over time in Coaching interactions. The reverse is true in online communication. Specifically, IM and Email Social conversations show a decrease in reciprocal self-disclosure over time but computer-mediated Coaching interactions show an increase in reciprocal self-disclosure over time.

On the surface, these findings do not support the hypotheses of the current study or existing theories of communication, for example, SPT (Altman & Taylor, 1973). SPT posits that through time, two individuals will gradually engage in deeper social penetration as indicated by greater depth, breadth and frequency of self-disclosure (Altman & Taylor, 1973). This thesis examined changes in frequency of self-disclosure over time and found no evidence to support this view. The decrease in prompted self-disclosure over time could be conceived as being consistent with SIP Theory. According to SIP Theory, questions are asked to reduce uncertainty. Over time and the development of a relationship, uncertainty is already reduced. However, the current results do not note whether the decrease in question-prompted self-disclosure is due to a decrease in the number of
questions asked or a decrease in willingness to respond. At present, there is insufficient evidence to support either position.

SPT states that while reciprocal self-disclosure may facilitate social penetration, it is highly situation-specific. The factors proposed to affect an individual’s decision to reciprocate include trust, the intimacy of the information exchanged, anticipated future interactions and rewards and the social situation - for instance, a public forum or one-on-one conversation. This is consistent with the current findings in that changes in reciprocal self-disclosure over time are highly context dependent and medium dependent. However, the SPT, as an overarching theory of relationship development, may also account for other aspects of the significant three-way interaction. That is, that reciprocal self-disclosure increased over time in Social FTF communication but decreased over time in online Social conditions. The reverse pattern was found in Coaching interactions and there is convergence of self-disclosure through time. According to SPT, intimacy increases as the relationship develops in time. With this increasing intimacy, it is expected that reciprocal exchanges, and hence self-disclosure, would also increase. This was found in the present study. It could be argued that, online, there is a limit to the perceived intimacy or social rewards available. In this sense, it would be expected that participants will reduce their reciprocal self-disclosure over time. This proposal is consistent with findings showing a desire for individuals to move their online relationships into the offline world. The transition between computer-mediated exchanges and FTF interactions is perceived to be a sign of increased intimacy and relationship development (Rosen, et al., 2008). So, the current findings are consistent with SPT. Therefore, while the findings from this study do not conform to the stated hypotheses, they can be explained by traditional communication theory.

In counselling, and arguably the Coaching conditions of this thesis, the initial interactions between participants and professionals are relationship building. It may be that this process occurs in a shorter timeframe FTF than online. This explanation is espoused by SIP
Theory. According to this theory, the decrease in reciprocal self-disclosure in FTF Coaching conditions is indicative of a refining of the coach-client relationship following initial rapport building. Online, though, this process of establishing a working relationship takes longer and this observed increase in reciprocal self-disclosure is a snapshot of the early dynamics of FTF relationship building. According to this view, studying self-disclosure over a longer period of time may demonstrate similar trajectories of self-disclosure in online and offline interactions.

With the exception of SIP Theory (Tidwell & Walther, 2002; Walther, 1992, 1995), theories of online communication make no explicit predictions regarding the effect of time on self-disclosure. According to SIP Theory, online relationship development (and therefore self-disclosure practices) follows the same milestones as offline relationships but at a slower pace. Therefore, it could be argued that since the current findings are consistent with SPT - a theory originally conceived to explain offline relationship development and communication - then these findings are also consistent with SIP Theory. This bow, however, should be drawn with caution. Though SIP Theory comments on differences between online and offline relationships through time, it does not state how FTF interactions proceed, simply that they do so faster than computer-mediated relationships. This observation highlights the need for further refinement of CMC theories of relationship development.

Contextualising the current findings in prior literature, alignment is observed between the tenets of SPT, findings from previous research and the results from this thesis. First is the role of intimacy. Won-Doornink (1985) found that while disclosure of low intimacy topics decreased over time, frequency of highly intimate self-disclosure increased. This would be consistent with SPT. Moreover, the findings of the current study could possibly be accounted for if the intimacy of self-disclosure was observed. Secondly, the role of anticipated future interaction has been shown to affect self-disclosure (Dindia, et al.,
Whether or not an individual believes they will encounter another individual in the future affects their current behaviours. According to SPT, this is a contributing factor to the cost-benefit analysis conducted prior to disclosure (Altman & Taylor, 1973). The current study showed that while percentage of self-disclosure – amongst all measures of self-disclosure – decreased between sessions 1 and 3, it increased in the final session. One factor that needs to be considered is the fact that participants knew there were four sessions in the study. This role of anticipated future interaction, or non-interaction as the case may be, could explain the present findings. Participants may have increased their self-disclosure because there was no anticipated future interaction, analogous to the heightened self-disclosure observed in the stranger-on-the-train phenomenon (Rubin, 1975). On the other hand, knowing that it was the final session, participants may have divulged greater amounts of personal information to reward their partner, signal that it had been an amiable interaction or out of a desire for the relationship to “end well”. Therefore, while the exact mechanism for the effect of anticipated self-disclosure requires further research, an argument exists for its role in discourse and disclosure. This is support for the role of communication-based factors in addition to medium-based factors in explaining patterns of self-disclosure in online and offline interactions.

However, close comparison cannot be made between the current study and previous research. Regarding the effect of time on self-disclosure, research designs have varied widely. It is often assessed by comparing the self-disclosure or relationship quality of strangers and people in developed relationships (Chan & Cheng, 2004; Dindia, et al., 1997; Valkenburg & Peter, 2009; Won-Doornink, 1985). The time span being compared in these studies ranges from months to years, depending on the relationship. At the other end of the spectrum, previous empirical research has examined conversations between dyads and groups spanning eight minutes (Ehrlich & Graeven, 1971), 30 minutes (Dindia, et al., 1997) and 60 minutes (Dietz-Uhler, et al., 2005). The current study explored self-disclosure in 4 x 60 minutes sessions over four weeks. While the findings are consistent with SPT and some prior research, further empirical investigation - and theoretical refinement - is
required. This thesis recommends the development of a body of research, consistent in its operational definition of time, examining factors affecting self-disclosure through time. Of note is the role of topic intimacy and anticipated future interactions. This would shed further light on the current understanding of how self-disclosure changes across time.

From an online counselling perspective, it would also be insightful to examine how these differences in self-disclosure through time are manifest in FTF interactions and CMC. The findings of the current study regarding this issue are discussed below.

### 7.4.2.2. Time, self-disclosure and communication media

This study demonstrated an effect of time on self-disclosure; however, it also sought to determine whether there were medium-specific patterns of self-disclosure through time. The only indicator of a statistical interaction between communication medium and time on self-disclosure was a significant interaction between communication medium, relationship context and time on reciprocal self-disclosure. Specifically, the differences in reciprocal self-disclosure between Social and Coaching contexts in each mode of communication differed across time. This is inconsistent with the hypotheses of this thesis and SIP Theory.

The SIP Theory is the only CMC theory to make explicit predictions regarding medium-based differences in self-disclosure across time. It states that while online and offline relationships - and thereby self-disclosures - follow the same pattern of development, online relationships take a longer amount of time to reach each stage. Therefore, it would predict a convergence of self-disclosure in CMC and FTF interactions across time. This was observed in findings for reciprocal self-disclosure but not for total or spontaneous self-disclosure.
This convergence of reciprocal self-disclosure over time is also consistent with previous research. Valkenburg and Peter (2009) showed that friendship quality in online and offline friendships converged over time - where participants had reported initially higher quality in their FTF than computer-mediated relationships. Chan and Cheng (2004) also showed a convergence in self-disclosure depth over time between online and offline interactions. This thesis found no evidence for the convergence of spontaneous and total self-disclosure over time. Two explanations for this discrepancy are proposed. Firstly, it is possible that unprompted and total self-disclosure converges over time but the sample size in this study provides insufficient statistical power to detect this effect. Secondly, it could be argued that these studies assessed long-term relationship development. The current study examined the initial stages of relationship development - between two strangers - through four interactions. Perhaps longitudinal studies of self-disclosure in dyads would yield comparable findings.

The present study also utilised objective data regarding self-disclosure. Previous research employed self-report measures that may not have explicitly measured self-disclosure. An example would be the Parks and Floyd (1996) measure of relationship quality. This scale contains a “depth” dimension that has been used in many studies to make claims regarding depth of self-disclosure (Chan & Cheng, 2004; Parks & Roberts, 1998). The questions of the scale, however, do not specifically align themselves to traditional conceptions of disclosure depth (Altman & Taylor, 1973). Depth of self-disclosure is analogous to the intimacy of the self-disclosure. One question included in the Parks and Floyd (1996) questionnaire is, “I feel I could confide in this person about almost anything”. This question seems to tap into the concept of willingness to disclose and is related more to trust. It examines the decision to reveal personal information rather than the intimacy of the information divulged. This thesis cannot comment on its validity as a measure of relationship quality; however, it seems a slightly inappropriate tool for making conclusions regarding depth self-disclosure. In addition to issues concerning the application of certain scales to self-disclosure research, the review of literature comparing online and offline
disclosure in Chapter 3 showed a discrepancy between perceived and actual self-disclosure. Therefore, the differences between the current findings and previous research could be a result of the measures of self-disclosure employed. Future research should systematically compare participants’ perceptions of their self-disclosure and actual disclosing behaviours. Particularly, as Schiffrin et al. (2010) noted, it is as yet unclear whether it is perceived self-disclosure or participants’ actual divulging of information that is more clinically important.

7.4.2.3. So, what is the effect of time?

One aim of this thesis was to extend the current understanding of relationship development across time. It utilised an experimental design to examine quantitative data on the pattern of self-disclosure through time. The current study has been effective in providing a clear direction for future research in the area. While a significant effect of time was observed, the exact mechanisms by which time influences the decision to self-disclose require further investigation. Issues concerning the intimacy of disclosure topics, the role of anticipated future interaction and the need for consistent temporal parameters in research were highlighted. Findings regarding media differences did not show the convergence between online and offline self-disclosure noted in prior research. Alternative explanations centred on the length of time required for convergence, the distinction between perceived and actual self-disclosure and research designs were provided. Although the current study cannot definitively make recommendations regarding the client-counsellor relationship through time, it does draw attention to the need for further research. Evidence-based practice requires evidence. The lack of consistent research designs - and, logically, conclusions - concerning self-disclosure and time reflects the fact that online counselling is relatively young. As demonstrated in the findings regarding media and synchronicity, there is an important role for internet-based counselling. However, further research on the issues mentioned above is required before a model of best practice can be developed.
7.4.3. Trust

In exploring the factors affecting online self-disclosure, this thesis sought to examine both the differences between FTF and computer-mediated interactions as well as factors specific to the communication process. It is proposed that the effects of these latter factors transcend medium-based differences. The first of these factors was time. The second was trust. The effect of trust on self-disclosure has been demonstrated numerous times in research conducted online and offline (Joinson, et al., 2010; Metzger, 2006; Steel, 1991; Wheeless & Grotz, 1977; Yum & Hara, 2005). This relationship between trust and self-disclosure is also a part of influential theories of relationship and self-disclosure, such as SPT (Altman & Taylor, 1973).

A review of communication theory and previous literature on trust and self-disclosure has identified two key issues. Existing research has focused on ascertaining whether there is a relationship between trust and self-disclosure - and the nature of this relationship - as well as differences in trust across mode of communication. There is, however, a third issue to be considered. Previous research has not compared the relationship between self-disclosure and trust in FTF interactions and CMC. This is important for furthering understanding of the self-disclosure in mediated relationships but particularly for online counselling. Although it is informative that trust exists online and there is a relationship between trust and self-disclosure online, it would be of benefit to determine whether the trust-disclosure relationship is affected by medium. The current study examined these three research areas relating to trust, self-disclosure and mediated communication. The findings are discussed below.

7.4.3.1. The relationship between trust and self-disclosure

Significant negative correlations were observed between trust and total self-disclosure in session 3 as well as trust and question-prompted self-disclosure in sessions 2, 3 and 4 of
the present research. No other correlations were significant. Stated differently, the current study shows that trust is generally not related to self-disclosure; however, in instances where it is, trust decreases as self-disclosure increases. These results are counter-intuitive. That reason alone, though, is not sufficient to dismiss the current findings.

Previous research and communication theories predicted a proportional relationship between trust and self-disclosure. Independent of claims regarding causality - for example, an individual will disclose more to their partner because they trust them - trust and self-disclosure are theorised to be related. SPT, for instance, postulates that trust and self-disclosure are markers of intimacy and social penetration. Both increase together and have a reciprocal relationship in the process of relationship development. The findings of the current study contradict theoretical claims and research demonstrating that trust is positively correlated to divulgence of personal information (Joinson, et al., 2010; Metzger, 2006; Steel, 1991; Wheeless & Grotz, 1977; Yum & Hara, 2005).

Since the present research used correlations, inferences of causation cannot be made. It could be that trust and self-disclosure are differentially affected by a third variable. This thesis proposes that this variable is visual anonymity. In line with previous research and theory, an anonymous individual is less trusted. This occurs because there is greater uncertainty about the person and hence greater risk in trusting them. On the other hand, CMC theories and research - and observations of the stranger-on-the-train phenomenon - state that anonymity increases self-disclosure. This mediating variable of anonymity could explain the current findings.

A possible objection to this explanation is that although it is applicable in CMC interactions, it does not adequately account for the FTF results. This is especially true
since no significant negative correlations were observed in the first session - where, it could be argued, dyads were composed of strangers. To determine the extent to which the trust-disclosure relationships examined here were affected by communication medium, correlations were conducted between trust and self-disclosure for each condition. None of these was significant. It does, however, suggest that further research be conducted to examine the consistency of current findings, particularly exploring the mediating role of anonymity and other possible factors affecting the trust-disclosure relationship.

7.4.3.2. The effect of media, context and time on interpersonal trust

In addition to identifying the existence - and nature - of a relationship between trust and self-disclosure, the current study sought to extend existing understanding of the effects of media, context and time on interpersonal trust. The results showed that trust increased linearly across time and even though offline trust is significantly greater than online trust, these differences are reduced over time. There were no statistical differences in trust between Social and Coaching conditions.

The observation of greater trust in offline conversations confirms the hypotheses of this thesis, and is in line with most previous research (Bos, et al., 2002; Tanis & Postmes, 2005a; Wilson, et al., 2006). Walther (1995), on the other hand, found no effect of medium - online versus offline - on trust. Key differences exist between the design of Walther (1995) and the present study. First, interpersonal trust was measured in the current study from the participants' perspective. Each participant was required to indicate, on a scale of 1 to 10, how much they trusted their partner at the conclusion of each interaction. In contrast, Walther (1995) employed external coders to rate the level of openness and trust of groups from video recordings. The operational definition of trust is different between these studies. The interpretation of trust may be very different from the experience of trust. Moreover, group behaviour is distinct from one-on-one
conversations (Dindia, et al., 1997). How an individual responds in a group situation may not be their reaction in dyadic interactions. Therefore the difference in findings between Walther (1995) and this thesis could be attributable to theoretical conceptions - and operational definitions - of trust and group size. On the whole, the present findings are supported by previous research and demonstrate that the conditions of cyberspace are not conducive towards facilitating - at least initially - trust.

The current results lend further support to CMC theory, particularly RCT and the SIDE model. These theories posit that due to the reduction in cues present in mediated communication, individuals are faced with greater uncertainty about their partner and therefore take greater risk in trusting them. As such, individuals will choose to withhold - or reduce - their trust. Of particular interest for theory is the finding that trust differences between media seem to converge over time. The interaction between time and media was nearing significance and as Figure 16 suggests, trust may not be different between online and offline relationships over time. This is a fundamental tenet of SIP Theory that is not - as stated earlier - accounted for by other CMC theories. Convergence of trust in online and offline interactions was also demonstrated by Bos et al. (2002) and Wilson et al. (2006).

Further evidence for SIP Theory is the increase in trust across time found in this thesis. This result also provides support for SPT as a general theory of relationship development. According to SPT, time is a fundamental factor in facilitating social penetration. As an indicator of social penetration, trust would therefore increase with time. This is demonstrated in previous research (Bos, et al., 2002; Wilson, et al., 2006) and the current study.
In reviewing the present findings in the context of prior literature, it could be argued that it is not time per se that affects trust and mediates the media-trust relationship, but the amount of interaction. For instance, Bos et al. (2002) asked participants to complete 30 consecutive trials. Wilson et al. (2006) required participants to interact in three weekly sessions. In the current study, participants engaged in four weekly conversations. However, participants in Walther (1995) communicated three times over five weeks. Therefore, perhaps Walther (1995) did not observe an effect of time because of the flexibility and irregularity of participant interactions. This is not counterintuitive. Take, for example, two sets of strangers. They have known each other for two months from first contact until present day. The first pair communicated often whereas the second pair has spoken once or twice since they met. While the time elapsed is equivalent for both sets of partners, by virtue of their greater communication, the first pair is expected to exhibit greater trust than the second. Speaking in terms of theory, the individuals in the first pair are less uncertain about each other and experience greater social penetration. Both these conditions facilitate trust. Therefore, future research examining the proposed effect of time should also consider frequency of contact and interaction.

This thesis found no effect of Context on trust. That is, trust is not significantly different between strangers interacting socially and in a client-professional relationship. It is proposed that this is a result of how trust was operationalised in the current study. Participants were asked to rate their trust for a specific person. While context may have an effect on the decision to trust, perhaps the measure of trust utilised in the present research was not sensitive to these issues. It was selected to determine whether trust between two individuals - particularly the health professional and their client - could be facilitated in mediated interactions and whether target-specific trust affected self-disclosure in different modes of communication.
CMC theory, and in particular SIP Theory, has been supported by the findings of the present study. This thesis shows that trust can be developed in online relationships and, over time, online trust may be equivalent to offline trust. Furthermore, consistent with offline communication theories and research, trust is found to increase over time, independent of medium. Together, these results show support for online counselling initiatives and present key issues for future research.

7.4.3.3. The trust-disclosure relationship across media, context and time

To extend on existing understanding of the trust-disclosure relationship, the current study compared the correlation between trust and total self-disclosure at the first and final sessions for each condition. No significant correlations were found. This suggests that when controlling for mode of communication, relationship context and time, there is no relationship between trust and self-disclosure. Although communication theories differ in their predictions of the effect of medium on the trust-disclosure relationship, there is an assumption that trust is related to the divulgence of personal information. This was not supported in the current study.

A possible explanation is the lack of statistical power. Although there is enough power to examine the effects of time, media and context on self-disclosure and trust, it could be argued that a sample size of 60 participants is not sufficient for correlating trust and self-disclosure across six conditions. To appropriately assess the trust-disclosure relationship in different communication modes, particularly if findings are used to inform online counselling practices, several issues should be considered. In extending current knowledge, experimental designs where participants interact through different technologies are required. Trust measures should examine trust of the person participants are interacting with, since previous research has shown that target-specific trust is a better predictor of self-disclosing behaviours than generalised trust or a predisposition to
trust (Wheeless & Grotz, 1977). Also, studies should take into account the development of trust over time. Such designs - as the one employed in this thesis - have a high study burden and may affect willingness to participate. This should be considered in recruiting participants. In short, the current study could not provide definitive answers regarding the trust-disclosure relationship across media, context and time; however clear directions for future research are provided.

7.4.3.4. I trust, therefore I disclose?

The current study showed that trusting relationships can be developed in mediated environments. Moreover, the findings suggest that these relationships may converge in trust over time with FTF dyads. In line with previous research and SIP Theory, trust development is slower in online than offline relationships. For online counsellors, this suggests that an effective working alliance may be developed via the Internet - a finding consistent with case study reports from practitioners (Fenichel, et al., 2002). It is possible that the development of this trusting relationship can be accelerated by employing both FTF meetings and CMC. In interchanging different modes of communication, online counsellors are able to better tailor their intervention program to clients and create a more effective therapeutic process. However, the effect of media switching was not assessed in this thesis and therefore further research is required.

7.4.4. Context

The aim of the current study in exploring online self-disclosure was to apply these findings to an online counselling context. Previous research has not experimentally compared online and offline self-disclosure between health professionals and their clients. Experimental research has assessed self-disclosure amongst groups or dyads interacting in either a social, get-to-know-you scenario (Kiesler, et al., 1985; Mallen, et al., 2003) or task-based situation - usually where they are required to discuss a moral dilemma (for
example, Joinson, 2001b). Studies showing the effect of context in online interactions (for example, Barak & Gluck-Ofri, 2007; Galegher, Sproull, & Kiesler, 1998) highlight the need to examine self-disclosure in a therapeutic context. The current study explored factors affecting self-disclosure in Social and Coaching contexts to assess the degree to which previous research can be applied to counselling contexts, and explicitly examine how self-disclosure is manifested in online client-professional relationships.

This thesis showed that frequency of self-disclosure is context dependent. Specifically, it showed greater total self-disclosure in Coaching conversations than Social ones. Like synchronicity and time, prompted and unprompted self-disclosure was differentially affected by context. Differences between Coaching and Social conditions in prompted self-disclosure - both question-prompted and reciprocal - decreased over time. The only difference between the two prompted self-disclosure variables was as predicted: question-prompted self-disclosure was greater in Coaching conditions and reciprocal self-disclosure was greater in Social conditions. Contextual differences in spontaneous self-disclosure was mediated by synchronicity and discussed in Section 7.4.1.

The present findings supported the hypothesis of greater total self-disclosure in Coaching than Social conditions. It was argued that participants would experience more opportunity, and a greater expectation to reveal personal information in coach-client relationships. Since one half of the dyad - the coach - is not expected to self-disclose, there is, logistically, more time available for participants in Coaching conditions to divulge personal information. In contrast, participants in Social conditions - operating under a norm of reciprocity - would each have less time to disclose. The second argument pertained to social norms. It is expected that in coaching relationships - as in counselling relationships - the coach would not disclose while the client would. This perceived obligation to disclose may also explain the higher frequency of self-disclosures in Coaching than Social conditions.
As predicted, question-prompted self-disclosure was greater in Coaching conditions. Again, it is argued that this is due to the nature of the coach-client relationship and their shared task. To clarify the client’s responses, to determine the appropriateness of goals and strategies, to evaluate the effectiveness of programs and plan for their long-term implementation, coaches are required to explicitly ask clients for their views. Alternatively, perhaps due to the nature of the relationship, clients may feel greater obligation to respond, recognising the importance of communication in facilitating desirable outcomes. To ascertain whether greater question-prompted self-disclosure is a result of the number of questions asked or the perceived obligation to respond, further research is required. Again, the importance of assessing the number of questions answered as a proportion of the number of questions asked is highlighted.

Also consistent with the hypothesis of this thesis, reciprocal self-disclosure was greater in Social than Coaching conditions. Two inferences can be drawn from this finding. Firstly, it contributes to the existing literature demonstrating contextual differences online. That is, online interactions are also subject to the social context in which they are carried out and the norms associated with such contexts. There is a norm of reciprocity present in Social contexts that is absent in Coaching contexts. In fact, clients are expected to disclose with very little - if any - disclosure by the coach. Secondly, these results provide support for a reciprocity norm that transcends mode of communication and complements existing research demonstrating reciprocity in online settings. It provides further justification for the examination of communication-based factors of self-disclosure in online self-disclosure research.

This thesis found greater differences between Coaching and Social contexts in online than offline interactions. The idea that the online environment exacerbates existing differences may explain the current finding. Specifically, the paucity of cues to behaviour online may lead individuals to assign greater weighting to the cues they are provided with. Therefore,
the indicators of reciprocity and culturally appropriate client-professional relationships attract greater attention online and are followed more closely. This is similar to the notion of increased conformity to norms in the SIDE model and Deindividuation Theory. Since participants’ personal identities are salient or they experience deindividuation, they are more likely to adhere to indicators of social norms, however few (specific mechanisms predicted by the SIDE model and Deindividuation Theory, respectively).

Differences in prompted self-disclosure between Coaching and Social conditions decreased over time in the present research. This is consistent with SPT. As the coach-client relationship develops, self-disclosure by the coach is introduced. Additionally, the number of questions required to ascertain and clarify client perspectives lessens as the relationship progresses. According to SPT, through time, the client and coach will have developed other, non-verbal methods of communication and not rely solely on verbal or question-based conversation (Altman & Taylor, 1973). These findings also reiterate the importance of considering time effects in relationship development and lend further credence to SIP Theory.

In summary, the current research demonstrates an effect of context on self-disclosure that is exacerbated by the online environment and - in the case of prompted self-disclosure - decreases over time. These results provide weight to the call for research that distinguishes between prompted and spontaneous self-disclosure. From a scientific perspective, this research would provide more intricate knowledge of factors affecting self-disclosure. In turn, the evidence found would facilitate more evidence-based practice in the development, implementation and evaluation of online mental health interventions. The broad implication for online counselling regarding the findings in this section is a need for context-specific research. While self-disclosure in social or task-based experiments and surveys can inform online counselling practice, the dynamics of an online therapeutic relationship should be explored in an ecologically valid design.
The analysis of current findings in light of previous research also highlights the need for a review of CMC theory. In the results concerning context and self-disclosure alone, there is support for the SIDE model and SIP Theory. Although the explanations posited in this thesis are consistent with CMC theories, they are applied ad hoc. Moreover, these proposed explanations could be applied to multiple theories. Online communication theories were originally formulated to explain observations of increased anti-social behaviour in Internet-based interactions. This led to the development of the concept of online disinhibition. This phrase captures the idea that individuals feel less constrained by social etiquette in the online environment and will react in less social ways. The notion of disinhibition was then applied when reports of greater self-disclosure were made. The CMC theories reviewed did not make specific predictions regarding self-disclosure during their conception and, as demonstrated in the discussions in this thesis, do not explicitly take into account factors known to affect self-disclosure. For instance, with the exception of SIP Theory, the notion of change in relationships over time was not explicitly addressed. There is a need, therefore, for closer examination of the tenets of CMC theory and engagement in theoretical debate independent of empirical research.

7.5. Exploring Online Self-Disclosure

Given the rise of online counselling, there was - and remains - a need for research exploring how the communication dynamics of the client-therapist relationship translates from the offline to the online environment. As a fundamental element of the therapeutic relationship, self-disclosure was the focus of this thesis. In particular, the present research examined the effect of communication medium, synchronicity, time, trust and relationship context on prompted and spontaneous self-disclosure.

This thesis demonstrated the importance of asynchronous communication in online counselling. In addition to its widespread use (Chester & Glass, 2006; Ybarra & Eaton,
Email conversations yield higher frequencies of self-disclosure than IM or FTF interactions. This thesis showed that the relationship between trust and self-disclosure is not as straightforward as suggested by previous research. The interaction-based and target-specific trust measure employed in this thesis, coupled with its cross-media comparison, revealed the complexity of the trust-disclosure relationship. This thesis reiterated the fundamental role of time in relationship development. Self-disclosure and trust vary according to time. Relationship development in mediated environments is, through time, comparable to FTF relations. This thesis notes the importance of relationship context and the implications of this for the application of research to online counselling practice. This thesis identified that prompted and unprompted self-disclosures are differentially affected by factors of self-disclosure. Together, these findings, and the ideas discussed in relation to them, can be used to further understanding of online communication practices between strangers in a social situation and, to an extent, clients and their mental health professionals. In addition to this, they provide impetus for future research and theory development.

Applied to the practice of online counselling, the current findings suggest that much more research is required. This thesis found the highest proportion of total self-disclosure in asynchronous communication. However, when total self-disclosure is broken down into its constituents, a more complex picture emerges. There was a greater proportion of question-prompted self-disclosure in online Coaching conditions. In this same context, reciprocal self-disclosure increased over time. However, spontaneous self-disclosure in Coaching interactions is greater in synchronous conversations. Together, these findings point to different methods for promoting clients’ self-disclosure. What is important, now, is determining which of these types of self-disclosure are clinically meaningful. Once this is established, the findings of the current study can be used to inform the practice of online counselling.
Also of note is the role of time in establishing relationships. The support for SIP Theory in this study suggests that relationship development over the Internet could be occurring at a slower rate than in FTF interactions. This is important to note in the process of establishing rapport and a therapeutic alliance with clients. Since this study only examined the relationship over four weeks, longer studies are required to establish the reliability of these findings.

In drawing together the ideas and findings of the present research, its limitations must be acknowledged. This is presented below.

**7.5.1. Limitations of the present study**

This thesis demonstrated the role of several medium-based and communication-based factors of self-disclosure. The exact mechanism by which synchronicity, trust, time and relationship context affects self-disclosure, however, could not be ascertained. The current study discussed five CMC theories. As noted in Chapter 2, these theories share many predictions regarding differences in self-disclosure between media. Therefore, while the present research was able to provide support for theory, it provided support for several theories. Of note is the SIDE model and SIP Theory. This calls for theoretical discussion and further empirical investigations to examine the tenets of each theory.

The sample size of this thesis also warrants discussion. Sixty participants provided sufficient statistical power to detect differences in self-disclosure in a 3 (medium) x 2 (context) x (4) (time) factorial design. There was not, however, enough to examine the relationship between trust and self-disclosure within each of these six between-groups conditions. Recruitment issues for an experiment with a high study burden aside, statistical power needs to be more carefully addressed in future.
Finally, the researcher was both a universal participant and the sole data collector. Given the close proximity of the experimenter and participants in age, the findings could be explained, at least in part, by the experimenter’s personality and similarity to participants. It could be argued that self-disclosure would be different if the experimenter were older, younger, of a different nationality or had different personality characteristics. Conversely, it could also be argued that while the percentage or frequency of self-disclosure may change, the pattern of self-disclosure may not. Future research could examine the role of personality and age in facilitating self-disclosure.

Reliability of the coding process was established by re-coding a portion of the transcripts by the experimenter. However, in this case, the experimenter is still the sole data collector. Future studies could use two independent coders, neither of whom was a participant in the study.

Despite these limitations, this thesis has contributed to the understanding of online communication. It highlights issues of synchronicity, trust and time for mediated counselling practices and provides a starting ground for experimental research comparing online and offline communication dynamics.

**7.5.2. Directions for future research**

The findings of this thesis have brought to the fore discussion concerning synchronicity, trust, time and relationship context in online communication. This thesis has demonstrated the effect of these factors on self-disclosure - both prompted and unprompted - and raised questions for further research. It has highlighted the need to consider communication-based factors of self-disclosure in addition to medium-based factors when comparing online and offline self-disclosure. This thesis argues that a
thorough understanding of online communication practices - particularly in clinical contexts - can be achieved with empirical research and theoretical discussion.

Future research for the purpose of informing online counselling practice should include asynchronous modes of communication. In addition to its importance in clinical settings - particularly in the therapists’ ability to provide tailored intervention programs - proficiency in asynchronous communication could yield more informative discussions, especially since self-disclosure is greatest in Email. Such research needs to incorporate the combined use of CMC and FTF therapeutic sessions and be conducted over several sessions. Mental health programs require multiple interactions between client and therapist. As this thesis demonstrates, research findings from studies that examine self-disclosure in only one interaction should be applied with caution. Relationships change over time and the evidence suggests a possible convergence between online and offline communicants provided there is sufficient time for relationship development. This thesis also suggests that research on self-disclosure over time should control for the level of intimacy of self-disclosure. An issue that arose from the current study’s investigation of time is the role of anticipated future interaction. Situating the present findings in the context of prior literature, it is suggested that expected future contact could be a better predictor of self-disclosure than time. This factor warrants further investigation.

The complexity of the relationship between trust and self-disclosure is highlighted in this thesis. Anonymity was proposed to facilitate both decreased trust and increased self-disclosure online. Future research could examine this variable. The lack of statistical power in the current study - with respect to correlating trust and self-disclosure in each condition - calls for further study into how the trust-disclosure relationship differs according to mode of communication. To enhance current understanding and provide an empirical investigation of communication theories, it is important that this research
employs an experimental design where trust scores are based on participant interactions and are target specific.

The need for context-specific research is particularly important for online counselling practices. This thesis shows that contextual norms affect behaviour even in mediated interactions. Therefore, research used to inform internet-based therapy should reflect the dynamics of the client-therapist relationship. Of equal importance is the need to differentiate between prompted and unprompted self-disclosure. The current study showed that spontaneous and prompted self-disclosures are differentially affected by both medium-based and communication-based factors. Future research assessing self-disclosure should account for the differences between prompted - question-prompted or reciprocal - self-disclosure and spontaneous self-disclosure. In reviewing the findings of previous research, this thesis noted a discrepancy between perceived and actual self-disclosure. For clinical contexts, research is required to determine whether an individual’s perceived self-disclosure is more meaningful than their actual disclosing behaviours.

Regarding online communication research, this thesis draws attention to the need for a foundation of studies with consistent research designs. Although converging evidence is important, and necessary, in scientific endeavours, without a body of research utilising similar designs, researchers cannot conclude whether the phenomenon observed exists independently of how it is observed. For instance, are the differences between the findings of this thesis and previous research due to differences in research design or is this a reflection of the predicted relationship between self-disclosure and the study’s predictor variables? Further research employing comparable research designs - including the length of time for participant interactions, the facet of self-disclosure measured, the definition of self-disclosure - is required to answer the posed question.
While this thesis has included phrases such as “online communication theories”, “offline theories of communication” and “traditional communication theories”, recognition of the integration of technology in current communication practices calls for a revision of how communication is conceptualised. Instead of differentiating online and offline conversation practices, a holistic theory of communication for the twenty-first century would be multidimensional. It would recognise differences between online and offline interactions as being dimensional while being grounded in the fact that though communication is affected by the tools used to facilitate it, it is fundamentally an exchange between two people. The current study highlights this by demonstrating that in addition to medium-specific factors, online self-disclosure can be explained by factors known to affect it offline. Furthermore, the remarkable overlap in CMC theories has resulted in findings from this thesis being consistent with multiple theories, particularly SIP Theory and the SIDE model. This suggests common elements and assumptions that could be incorporated into a general theory of communication. Therefore, while this thesis has provided groundwork for future research, empirical investigations are still required alongside theoretical discussion concerning self-disclosure and, more broadly, communication.

7.5.3. Concluding remarks

The present research is not an endeavour to validate or discredit the practice of online counselling. This thesis seeks to understand, to explore and to develop existing knowledge and theory on how communication - and in particular client-therapist communication - is changed by mode of delivery. In this light, it has informed current understanding of online self-disclosure. Bringing to the fore discussion on both medium-based factors and communication-based factors, this thesis found that self-disclosure - in both Coaching and Social contexts - is facilitated by asynchronous modes of interaction. It highlights the role of time in relationship development, that to date has been relatively neglected by CMC theory and research. This thesis demonstrated - through an experimental design that
compared target-specific trust across time and media - the complexity of the trust-disclosure relationship. In relation to online counselling, it has shown that the application of self-disclosure research to practice requires context-specific, ecologically valid research design.

Although the findings of this thesis can be used to inform online counselling practices, they initiate important discussion around self-disclosure, and more broadly, communication. There remains much work to be done in the field of online counselling and online communication. Firstly, this thesis calls for the development a communication theory with a priori predictions regarding different facets of human interaction. This communication theory would be formed on the assumption that communication - mediated or not - is the exchange of information between two people. Its tenets would account for the role of technology in a way that enables it to be a unified theory of communication rather than theories proposed to explain interactions in either online or offline environments. In turn, these tenets would be empirically investigated.

In addition to theoretical discussion concerning communication, this thesis highlights the need for further empirical research. This research would not only enhance understanding of the processes underlying communication - particularly in an era where communication is increasingly mediated - but would hopefully also provide key insights into the practice of online counselling. Further research is required to examine the role of intimacy in online self-disclosure. The effect of time should be contrasted with the expectation of future interaction and regularity of interaction. For online counselling, two important issues emerge: the clinical significance of perceived self-disclosure in contrast to actual self-disclosure, and the effect of media switching. The field of online communication research has only recently built momentum. This thesis contributes to that body of knowledge and understanding. However, as discussed, there is much left to do in understanding the intricacies of human communication. So, as they say, let the fun begin.
REFERENCES


APPENDICES

EXPLORING ONLINE SELF-DISCLOSURE: SYNCHRONICITY, TRUST, TIME AND RELATIONSHIP CONTEXT
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Dear Dr Campbell,

Thank you for your correspondence dated 10 September 2007 addressing comments made to you by the Human Research Ethics Committee (HREC). After considering the additional information, the Executive Committee at its meeting on 11 September 2007 approved your protocol entitled “Relationships in different contexts: online self-disclosure and the role of time, context, trust and personality”.
Details of the approval are as follows:

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<th>Ref No.:</th>
<th>09-2007/10125</th>
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<tbody>
<tr>
<td>Approval Period:</td>
<td>September 2007 to September 2008</td>
</tr>
<tr>
<td>Authorised Personnel:</td>
<td>Dr A Campbell, Dr S Cummings, Ms M Nguyen</td>
</tr>
</tbody>
</table>

The HREC is a fully constituted Ethics Committee in accordance with the *National Statement on Ethical Conduct in Research Involving Humans-March 2007* under Section 5.1.29.

The approval of this project is **conditional** upon your continuing compliance with the *National Statement on Ethical Conduct in Research Involving Humans*. We draw to your attention the requirement that a report on this research must be submitted every 12 months from the date of the approval or on completion of the project, whichever occurs first. Failure to submit reports will result in withdrawal of consent for the project to proceed.

**Chief Investigator / Supervisor’s responsibilities to ensure that:**

1. All serious and unexpected adverse events should be reported to the HREC as soon as possible.
2. All unforeseen events that might affect continued ethical acceptability of the project should be reported to the HREC as soon as possible.
3. The HREC must be notified as soon as possible of any changes to the protocol. All changes must be approved by the HREC before continuation of the research project. These include:-
   - If any of the investigators change or leave the University.
   - Any changes to the Participant Information Statement and/or Consent Form.
All research participants are to be provided with a Participant Information Statement and Consent Form, unless otherwise agreed by the Committee. The Participant Information Statement and Consent Form are to be on University of Sydney letterhead and include the full title of the research project and telephone contacts for the researchers, unless otherwise agreed by the Committee and the following statement must appear on the bottom of the Participant Information Statement. *Any person with concerns or complaints about the conduct of a research study can contact the Senior Ethics Officer, University of Sydney, on (02) 9351 4811 (Telephone); (02) 9351 6706 (Facsimile) or gbriody@usyd.edu.au (Email).*

(5) Copies of all signed Consent Forms must be retained and made available to the HREC on request.

(6) It is your responsibility to provide a copy of this letter to any internal/external granting agencies if requested.

(7) The HREC approval is valid for four (4) years from the Approval Period stated in this letter. Investigators are requested to submit a progress report annually.

(8) A report and a copy of any published material should be provided at the completion of the Project.

Yours sincerely

[Signature]

Professor D I Cook  
Chairman  
Human Research Ethics Committee  

cc Ms Melanie Nguyen, Discipline of Behavioural and Community Health Sciences, Faculty of Health Sciences, Cumberland Campus – C42, The University of Sydney
PARTICIPANT INFORMATION STATEMENT

Relationships in Different Contexts

(1) What is the study about?

This study aims to examine how relationships develop via different media. Specifically, it seeks to explore how online and face-to-face relationships differ and whether such differences are mediated by personality variables. If you would like to find out more about the results of the study, papers will be made available for download from the project website www.prometheus.net.au.

(2) Who is carrying out the study?

This study is being conducted by the Faculty of Health Sciences at The University of Sydney. The research team comprises of Dr Andrew Campbell (Chief Investigator), Dr Steve Cummings (Associate Investigator) and Ms. Melanie Nguyen (Ph.D. candidate).

(3) What does the study involve?

If you agree to participate, you will be asked to enter into either an online or face-to-face relationship with the researcher. This will involve engaging in weekly interactions with the researcher and the completion of a trust questionnaire at various intervals throughout the program. You will be allocated into one of 6 groups:
a) Getting-to-know-each-other; face-to-face  
b) Getting-to-know-each-other; online synchronous (chat)  
c) Getting-to-know-each-other; online asynchronous (email)  
d) Coaching psychology; face-to-face  
e) Coaching psychology; online synchronous (chat)  
f) Coaching psychology; online asynchronous (email)  

In the first week, you will complete three questionnaires: a demographics questionnaire, a sensitivity questionnaire and a personality questionnaire. Participants in the getting-to-know-each-other conditions will spend one hour a week speaking to the researcher with the aim of getting to know them. Each session will start with a conversation on how your week has been, followed by a discussion on current affairs or previous topics of interest. This will allow a natural dialogue that can be used to examine relationship development.

Coaching psychology is an evidence-based, solution focussed practice. Over 13 weeks, participants in these conditions will identify a goal (e.g. speak confidently to an audience), put together a plan of action for attaining this goal and implementing this plan. As part of the planning process, participants (with the experimenter) will identify possible obstacles and solutions. This process will focus on building participants skills and goal attainment rather than “fixing a problem”. Additionally, participants will either interact with the experimenter in a face-to-face situation, through synchronous chat or asynchronous email.

In the online conditions, all transcripts of conversations and emails will be retained to examine the development of the relationship across time. For face-to-face interactions, a video and audio recording will be made for the same purpose. You will also be asked to complete two questionnaires assessing personality and seeking your opinions on the sensitivity of certain topics. All participant responses will be kept securely on a 128 bit encrypted University server or in locked filing cabinets.

(4) How much time will the study take?

The study is expected to take approximately 1 hour a week across 13 weeks.
(5) Can I withdraw from the study?

Being in this study is completely voluntary – you are not under any obligation to consent and can withdraw your consent at any time.

(6) Will anyone else know the results?

All aspects of the study, including results, will be strictly confidential and only the researchers will have access to information on participants. A report of the study may be submitted for publication, but individual participants cannot be identified in such reports.

(7) What will be done with my conversations?

The researchers stated above will examine questionnaire responses and conversation transcripts to assess the development and trajectory of each relationship. Specifically, a thematic analysis using NVivo software will be employed.

(8) What if I require further information?

When you have read this information, the researcher will discuss it with you further and answer any questions you may have. If you would like to know more at any stage, please feel free to contact Ms. Melanie Nguyen at the University of Sydney on (02) 9351 9390

Any person with concerns or complaints about the conduct of a research study can contact the Senior Ethics Officer, Ethics Administration, University of Sydney on

(02) 9351 4811 (Telephone); (02) 9351 6706 (Facsimile) or
gbriody@usyd.edu.au (Email)

This information sheet is for you to keep.
Appendix C: Consent Form

PARTICIPANT CONSENT FORM

Relationships in Different Contexts

I, .................................................., give consent to my participation in the project entitled Relationships in Different Contexts.

In giving my consent I acknowledge that:

1. The procedures required for the project and the time involved have been explained to me, and any questions I have about the project have been answered to my satisfaction.

2. I have read the Participant Information Sheet and have been given the opportunity to discuss the information and my involvement in the project with the researcher/s.

3. I understand that I can withdraw from the study at any time, without affecting my relationship with the researcher(s) now or in the future.
4. I understand that my involvement is strictly confidential and no information about me will be used in any way that reveals my identity.

5. I understand that all recordings or transcripts of my session will only be viewed by the researchers and will not be circulated publicly. I also understand that my participation involves strict privacy regulations and my identity will remain anonymous.

Please tick or cross the boxes next to the statements you agree with:

- I give consent to written notes being made during the experiment.
- I give consent to audio recording of the experiment.
- I give consent for researchers to retain transcripts of online discussions pertaining to the study.
- I give consent to video recordings of the experiment.

Signed:                                                                                           

Name:                                                                                             

Date:                                                                                              

Appendix D: Demographics Questionnaire

Participant number: ___________

DEMOGRAPHICS QUESTIONNAIRE

1. Gender (please circle):  Male  Female
2. Age: __________
3. Are you a native English speaker?  Yes  No
   If no, please state the age you commenced speaking English: _____
   What language had you spoken prior to English? __________________
4. Your vision is (please circle):  normal  corrected-to-normal  neither
5. How confident are you in using the computer to communicate (please circle)?
   (no confidence) 1  2  3  4  5  6 (very confident)
6. How much experience (in years) have you had with computers? __________
Appendix E: Trust Survey

TRUST SURVEY

Session number: ______

Participant number: _________

Please indicate the level of trust you feel towards this person after this session where 0 is no trust at all and 10 is complete trust.

0 1 2 3 4 5 6 7 8 9 10
Appendix F: Information Units Coding Instructions

Data analysis:

1. In this study we want to identify different types of information that people communicate in conversation. To do this, we want to differentiate between personal information (self-disclosure information units) and non-personal information. We will identify information units and then categorise them.

2. Identifying information units and self-disclosure:

   Self-disclosure: information the participant provides about themselves. It can also be information that can be used to identify the individual.

Examples:
- I went to the Sound Relief concert last week…
- Going past Strathfield station on the train this morning…
- You know what? I am really scared of heights!
- I do radiation therapy.

Examples that won’t be disclosure:
- That same thing happened to a friend of mine.
- The weather’s been a bit odd lately – like it can’t make up its mind…
- Yeah, no, there are heaps of different types of physio’s.
- Well jobs for OT’s are pretty rare in Sydney

3. Categorise the disclosure as:

   a. Response to experimenter disclosing (R)

Examples:
- Ex: I went to the Sound Relief concert last weekend
  Ps: Me too! Coldplay were awesome!

- Ex: My favourite lecturer for psych was…
  Ps: See, no, I didn’t like so and so that much, I totally preferred X, they were so funny!
b. Response to a question (Q)

Examples:

- Ex: How was your weekend?
  Ps: Pretty good, I had lunch with my mum and then went to see a movie with my friends.

- Ex: So what course do you do?
  Ps: I'm in the fourth year of my physio degree.

c. Unprompted disclosure (U)

Examples:

- Ps: I've been reading the new book by Jodi Picoult and it's great – have you heard of her?

- Ps: It was good to see you yesterday
  Ex: hahahahaha
  Ps: but I didn’t get one of the lollies.

4. Note the frequency of each disclosure type.

Unprompted disclosure is when the participant volunteers information about themselves – it is not in response to a question or the experimenter disclosing. It could be the participant starting a new conversation topic.
Appendix G: Introductory Email for Email Social Conditions

Hyal

Subject: Introductory Email for Email Social Conditions

From: Experimenter
To: Hyal

Date: Mon, Feb 23, 2009 at 3:02 PM

Mailed by: gmail.com

Heya,

How’s it going? I’m sitting here looking around my desk trying to find something that that’ll work as an interesting (I’d try fertility but I don’t think that’s going to happen) spanning. You’d think that having to do this as my research, I’d be better at coming up with introductory emails. Oh well. I’ll learn eventually I guess. Just so you know, my desk is very messy - I work well in mess. Books, boxes, paper, pens all strewn everywhere. But I do know where everything is! I look up and I see three pieces of very large, colourful cardboard with post it notes all over it (various tidbits of information I’ve gotten from all the journal articles I’ve been reading) and I’d also wouldn’t believe it of a 24 year old but yes it’s true! huge coloured cardboard stuck on the ceiling. I just realized that reading that you might think I’m a little insane. Well... more so than the normal person, sure, but it’s fun! I’m just digger a deeper whole huh? I think I’ll stop this rant now.

So, what do you do? How’s your week been? Mine hasn’t been too bad. Though it has just begun so I guess its a little too soon to speak. I had a restful weekend so that’s not too bad I guess and I got in and did work today, chatted with a few work mates, its all been good so far. We have Orientation week this week so students are back on campus, things are getting a lot busier. I’m so glad the sun is out though, I can bring back the summer dresses! What’s it like in Melbourne now?

What kind of stuff are you interested in? I’m a nerd (I’ve been told that once people know you’re doing postgrad studies, you’re automatically in that category, you don’t have to tell people, lol) so I’m a big fan of reading. Just finished a book (novel) about this women’s life and how she came from being a small town girl in the 50s and just wanting to be married and live a quiet life to being the first lady of America. It was really interesting and just offered a different perspective to politics. I guess not everyone wants to be famous but when you choose to walk life with and other decisions that at first seem to have nothing to do with fame may lead you one way or another. Interesting though.

Anyway, can’t have you getting bored so early on, I’ll leave more ranting til next time. Hope you’re doing well.
Appendix H: Coaching Condition Defining Goals Document

Participant number: _____

What are the things you’d like to achieve?
Which do you think is most urgent or important?
What do you think is the most achievable?

<table>
<thead>
<tr>
<th>Goals</th>
<th>Rank - urgent/important</th>
<th>Rank - achievable</th>
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Appendix I: Coaching Condition Establishing Plans Document

Participant number: _____

Possible strategies:
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________

Previous strategies:
1.  ________________________________________________________________

Effectiveness:
(Not effective) 1  2  3  4  5 (Highly effective)

Reasons:
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________
Previous strategies:

2. ____________________________________________________________

Effectiveness:
(Not effective) 1 2 3 4 5 (Highly effective)

Reasons:
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________

Previous strategies:

3. ____________________________________________________________

Effectiveness:
(Not effective) 1 2 3 4 5 (Highly effective)

Reasons:
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________


Appendix J: Instructions for FTF / Social Conditions

The University of Sydney

Melanie Nguyen (Ph.D. Candidate)
Discipline of Behavioural and Community Health Sciences
PO Box 170
Lidcombe, NSW 1825
Telephone: (02) 9351 9390
Facsimile: (02) 9351 9540
Email: melanien@usyd.edu.au

[INSERT DATE]

Relationships in Different Contexts

Dear ....

Thank you for agreeing to participate in our study. Your experimental code is [insert code]. This is to ensure that all your details remain anonymous and confidential. Please find the task instructions below.

Kind regards
Melanie

______________________________________________

Face-to-face Task Instructions

The aim of the current study is to examine how relationships develop in different contexts. Your task is to get to know (and hopefully become friends with) another person face-to-face. You will meet and talk with each other for an hour a week over a five week period. Please email the experimenter your availability for a session.

Before this initial meeting, you must complete a questionnaire.

Please go to the experiment website at www.prometheus.net/onlineinteractions/dq.htm to complete the questionnaire.

Once you have completed the questionnaire, an email will be sent confirming that you have done so. Thank you again for your time.
Appendix K: Instructions for FTF / Coaching Conditions

The University of Sydney

Melanie Nguyen (Ph.D. Candidate)
Discipline of Behavioural and Community Health Sciences
PO Box 170
Lidcombe, NSW 1825
Telephone: (02) 9351 9390
Facsimile: (02) 9351 9540
Email: melanien@usyd.edu.au

[INSERT DATE]

Relationships in Different Contexts

Dear ….

Thank you for agreeing to participate in our study. Your experimental code is [insert code]. This is to ensure that all your details remain anonymous and confidential. Please find the task instructions below.

Kind regards
Melanie

Face-to-face Task Instructions

The aim of the current study is to examine how relationships develop in different contexts. Your task is undergo 5 weeks of a coaching psychology program. You will chat with each other for an hour a week over a five week period. Please email the experimenter your availability for a session.

Before this initial meeting, you must complete a questionnaire.

Please go to the experiment website at www.prometheus.net/onlineinteractions/dq.htm to complete the questionnaire.

Once you have completed the questionnaire, an email will be sent confirming that you have done so. Thank you again for your time.
Appendix L: Instructions for IM / Social Conditions

[INSERT DATE]

Relationships in Different Contexts

Dear ….

Thank you for agreeing to participate in our study. Your experimental code is [insert code]. This is to ensure that all your details remain anonymous and confidential.

Please find the task instructions specified below.

Kind regards
Melanie

-----------------------------------------------------------

IM Task Instructions

The aim of the current study is to examine how relationships develop in different contexts. Your task is to get to know (and hopefully become friends with) another person over the internet. You will chat with each other for an hour a week over a five week period. Please email your availability for these chat sessions. You can log into the Google chat program with the following details:

Email: participantXXXX@gmail.com
Password: experiment

To log onto your account, please follow these instructions:

1. Go to www.gmail.com
2. Enter your ID (participantXXXX)
3. Enter the password provided above
4. Click on “sign in”
Once you have logged on, the experimenter will be able to view your status and initiate conversation.

You may change your password (and are strongly advised to do so) at any time by following these instructions:

1. Log onto your gmail account using the above instructions.
2. On the top right hand corner, there is a link highlighted in blue called “Settings”. Click on that.
3. On the yellow banner, there is a link called “Accounts”. Click on that.
4. In the row labeled “Google account settings”, click on the “Google account settings” link.
5. Click on “Change password” link in the left hand column.
6. Follow the online instructions.

Before this initial chat session, you must complete a questionnaire.

Please go to the experiment website at www.prometheus.net.au/onlineinteractions/dq.htm to complete the questionnaire.

Once you have completed the questionnaire, an email will be sent confirming that you have done so. Thank you again for your time.
Appendix M: Instructions for IM / Coaching Conditions

Relationships in Different Contexts

Dear ….

Thank you for agreeing to participate in our study. Your experimental code is [insert code]. This is to ensure that all your details remain anonymous and confidential.

Please find the task instructions specified below.

Kind regards

Melanie

-----------------------------------------------

IM Task Instructions

The aim of the current study is to examine how relationships develop in different contexts. Your task is undergo 5 weeks of a coaching psychology program. You will chat with each other for an hour a week over a five week period. Please email your availability for these chat sessions. You can log into the Google chat program with the following details:

Email: participantXXXX@gmail.com
Password: experiment

To log onto your account, please follow these instructions:

1. Go to www.gmail.com
2. Enter your ID (participantXXXX)
3. Enter the password provided above
4. Click on “sign in”
Once you have logged on, the experimenter will be able to view your status and initiate conversation.

You may change your password (and are strongly advised to do so) at any time by following these instructions:

5. Log onto your gmail account using the above instructions.
6. On the top right hand corner, there is a link highlighted in blue called “Settings”. Click on that.
7. On the yellow banner, there is a link called “Accounts”. Click on that.
8. In the row labeled “Google account settings”, click on the “Google account settings” link.
9. Click on “Change password” link in the left hand column.
10. Follow the online instructions.

Before this initial chat session, you must complete a questionnaire.

Please go to the experiment website at [www.prometheus.net.au/onlineinteractions/dq.htm](http://www.prometheus.net.au/onlineinteractions/dq.htm) to complete the questionnaire.

Once you have completed the questionnaire, an email will be sent confirming that you have done so. Thank you again for your time.
Appendix N: Instructions for Email / Social Conditions

[INSERT DATE]

Relationships in Different Contexts

Dear ….,

Thank you for agreeing to participate in our study. Your experimental code is [insert code]. This is to ensure that all your details remain anonymous and confidential.

Please find the task instructions specified below.

Kind regards
Melanie

Email Task Instructions

The aim of the current study is to examine how relationships develop in different contexts. Your task is to get to know (and hopefully become friends with) another person over the internet. You will exchange emails with the experimenter over a five week period. You may write as often or as little as you like but you must send at least 2 emails a week. This is to ensure that email and face-to-face conditions are roughly equivalent. The other person will email you first.

To log onto your account, please follow these instructions:

1. Go to www.gmail.com
2. Enter your ID (participantXXXX)
3. Enter the password: experiment
4. Click on “sign in”

You may change your password (and are strongly advised to do so) at any time by following these instructions:
5. Log onto your gmail account using the above instructions.
6. On the top right hand corner, there is a link highlighted in blue called “Settings”. Click on that.
7. On the yellow banner, there is a link called “Accounts”. Click on that.
8. In the row labeled “Google account settings”, click on the “Google account settings” link.
9. Click on “Change password” link in the left hand column.
10. Follow the online instructions.

Before this initial chat session, you must complete a questionnaire.

Please go to the experiment website at www.prometheus.net.au/onlineinteractions/dq.htm to complete the questionnaire.

Once you have completed the questionnaire, an email will be sent confirming that you have done so. Thank you again for your time.
[INSERT DATE]

Relationships in Different Contexts

Dear ….

Thank you for agreeing to participate in our study. Your experimental code is [insert code]. This is to ensure that all your details remain anonymous and confidential.

Please find the task instructions specified below.

Kind regards

Melanie

Email Task Instructions

The aim of the current study is to examine how relationships develop in different contexts. Your task is undergo 5 weeks of a coaching psychology program. You will exchange emails with the experimenter over a five week period. You may write as often or as little as you like but you must send at least 2 emails a week. This is to ensure that email and face-to-face conditions are roughly equivalent. The experimenter will email you first.

To log onto your account, please follow these instructions:

1. Go to www.gmail.com
2. Enter your ID (participantXXXX)
3. Enter the password: experiment
4. Click on "sign in"

You may change your password (and are strongly advised to do so) at any time by following these instructions:
5. Log onto your gmail account using the above instructions.
6. On the top right hand corner, there is a link highlighted in blue called “Settings”. Click on that.
7. On the yellow banner, there is a link called “Accounts”. Click on that.
8. In the row labeled “Google account settings”, click on the “Google account settings” link.
9. Click on “Change password” link in the left hand column.
10. Follow the online instructions.

Before this initial chat session, you must complete a questionnaire.

Please go to the experiment website at www.prometheus.net.au/onlineinteractions/dq.htm to complete the questionnaire.

Once you have completed the questionnaire, an email will be sent confirming that you have done so. Thank you again for your time.
Previous research has found that when people meet others online, they are more likely to disclose personal information about themselves which they wouldn’t in a face-to-face setting. The current study seeks to understand why this happens.

One possible factor is synchronicity. Face-to-face interactions happen in real time. With emails, a conversation can span weeks or months with days between each response. So, to determine whether synchronicity affects how much people self-disclose, we compared interactions in face-to-face, chat and email contexts.

Past studies have suggested that reciprocal self-disclosure may play a role. That is, people will reveal something about themselves to another person if the other person has revealed something personal about themself. However, we argue that the role of reciprocal self-disclosure depends on the context of the relationship. For instance, when you are working on a task with another person, or having a casual conversation with them, how much personal information you disclose is affected by the amount of personal information the other person discloses. However, in counselling situations the client may speak endlessly about their life without the counsellor saying anything about his/her life. Therefore by comparing how much people disclose in these contexts, the role of reciprocal self-disclosure can be ascertained. Therefore, in the current study, we compared “getting-to-know-you” situations with coaching situations.

In addition, the current study hopes to explain the relationship between personality and self-disclosure. Do people who score high (or low) on certain personality attributes have different self-disclosure patterns? Or does personality not affect self-disclosure? These are the questions we seek to answer.

Previous studies have also suggested that trust facilitates self-disclosure: people will disclose personal information to another individual if they trust this other individual. With the internet, it seems that there is self-disclosure on an initial meeting where trust could not have formed. The current study aims to determine how trust is related to self-disclosure and whether this relationship is the same for face-to-face and online settings.
How does my contribution impact the study?

**Sensitivity Questionnaire:** Data from the Sensitivity Questionnaire you completed online will be collated to form a sensitivity index. From this we will be able to rank how sensitive certain issues are and use this information to assess the level and frequency of self-disclosure in each context.

**Personality Questionnaire:** Information from this questionnaire will be used in conjunction with the data from your discussion transcripts to determine how personality affects self-disclosure.

**Weekly interactions:** Transcripts of your weekly emails, chat conversations or face-to-face meetings. These were analysed for frequency of self-disclosure and how personal or sensitive each disclosure was. From this data, we will be able to compare self-disclosure between:

   a) Face-to-face, Chat and Email interactions  
   b) Getting-to-know-each-other situations and coaching psychology contexts.

**Trust Questionnaire:** Your responses to the trust questionnaire throughout the duration of the study will be compared with your pattern of self-disclosure (gathered through the experiment transcripts) to ascertain how trust affects self-disclosure.

Further readings:

If you are interested in more information regarding online self-disclosure, the following references are available:

