Linguistic expression and perception of personality in online dating texts and their effect on attraction

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A thesis submitted in partial fulfilment of the requirements of the University of Wolverhampton for the degree of Doctor of Philosophy

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Abstract

Online daters report difficulties, frustration and anxiety in conveying their desired impression of themselves and from their lack of ability in perceiving another dater's personality accurately. There is a lack of research on how expression of personality traits in profiles impacts on perception and on assessments of attractiveness. This thesis aims to fill this gap by exploring the expression and perception of personality traits in online dating profile texts, and to examine whether textually expressed personality affects attractiveness.

The first two studies employed a linguistic and content analysis approach to determine how personality was expressed in dating profiles across different dating platforms and a comparison creative story text. There was considerable variation in expression indicating that language may not be a reliable indicator of personality.

A lens model approach, using Funder's Realistic Accuracy Model, was taken in the third study where accuracy of personality perception was examined in two contexts to determine whether dating profiles provided more salient trait-related cues to personality. The linguistic and content cues utilised by judges in making personality assessments were investigated. While some accuracy of perception was possible for emotional stability in online dating profiles, it was context dependent and unreliable, and few cues were utilised accurately.

The effects of actual and perceived personality, and similarity of personality, on attractiveness were investigated and had not been examined previously in this context. This research shows that actual traits and similarity only affect attraction when it is perceivable, whereas perceived traits and similarity can affect attraction without accurate perception.

This thesis illustrates the complexity of accuracy of interpersonal perception in text, and how context drives a considerable amount of the variation in achievement of accuracy. Additionally, the results offer some practical implications for online daters.

Keywords: Online dating; Self-presentation; Personality; Language; Interpersonal perception; Attraction; Homophily.

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Chapter one: Introduction to the research

Background and rationale for the research

Online dating is a popular and mainstream way of meeting potential romantic partners that now accounts for a substantial number of newly formed relationships (Hogan, Dutton, & Li, 2011; Smith, 2016). While many daters report positive experiences with online dating (Newett, Churchill, & Robards, 2018; Smith, 2016), many also report considerable frustration, confusion and anxiety in using dating platforms (LeFebvre, 2018; Zytko, Grandhi, & Jones, 2018). These feelings stem in large part from difficulties in conveying their desired impression of themselves to others, and from their lack of ability in perceiving other daters accurately (Fiore et al., 2011; Frost et al., 2008; LeFebvre, 2018; Norton et al., 2007; Zytko et al., 2018; Zytko, Grandhi, et al., 2014).

The desired goal of meeting a new romantic or sexual partner brings with it considerable motivation to self-present a positive but accurate representation of the self in order to attract suitable potential partners. In order to appeal to what they feel others desire, daters display, enhance or omit specific aspects of themselves. The impressions they create are related to how they see themselves, but they may emphasise different aspects of themselves, such as their attractiveness, to achieve their goals (Ellison et al., 2011; Ellison et al., 2006; Emanuel et al., 2014; Vasalou & Joinson, 2009; Whitty, 2008; Zytko, Grandhi, et al., 2014).

The constraints of dating platforms limit the ability of daters to express the complexity and richness of who they are. They report finding that they are often misinterpreted as a result, or they limit the way in which they express themselves in order to avoid misinterpretation. This causes frustration, anxiety and a heightened fear of rejection (Ellison et al., 2011; Ellison et al., 2006; Zytko et al., 2014). However, these same limitations also affect their ability to accurately perceive the experiential characteristics of others, such as how warm, kind, or funny they are.

This can cause equal frustration at time wasted communicating and meeting face-to-face with someone who was not as they had perceived, through misunderstanding or deception (Fiore et al., 2011; Frost et al., 2008; LeFebvre, 2018; Norton et al., 2007; Zytko et al., 2018; Zytko, Grandhi, et al., 2014). Media richness theory suggests that online dating profiles may not be a rich enough context for ambiguous communications to be successful, such as getting to know someone that you have never met face-to-face (Daft & Lengel, 1983).

When we communicate online, we are lacking many of the non-verbal cues that we can access face-to-face, such as body language, tone of voice and facial expression. Early researchers thought that this might lead to a lack of socio-emotional content in text-based communication online (Culnan & Markus, 1987; as cited in Walther & Parks, 2002). However, we know that in fact it is possible to imbue textual information with rich cues to social and emotional information (Walther, 2007). Social information processing theory (SIP) suggests that we adapt to the medium of text in a number of ways and that that given enough time and exchange of communication messages, relationships can develop in CMC in a similar manner to offline (Walther, 1992, 2011). SIP acknowledges the absence of non-verbal cues from text-based communication, but posits that individuals compensate for this by adapting the remaining verbal and textual cues in order to engage in relational development. Text-based cues are decoded in order to form impressions, including psychological-level knowledge, of their communication partners from computer mediated communication (CMC).

There is evidence that personality traits are expressed in the language that people use when writing a text (cf. Dunlop et al., 2017; Holtgraves, 2011; Pennebaker & King, 1999; Schwartz et al., 2013; Yarkoni, 2010). Overall however, there is considerable variation in the patterns of results relating personality traits with language, particularly in text and online contexts (Tskhay & Rule, 2014). There is a paucity of research regarding language use in dating profiles, particularly in relation to how personality is expressed through language. It is also unclear what cues daters utilise in dating profiles in order to make assessments of personality.

This prompts the questions: are people presenting an authentic representation of themselves and their personality, and is that sense of themselves identifiable in the language that they choose to use in their dating profile texts?

There is a lack of research on how personality traits impact on attraction in online dating. Personality is an important factor in successful romantic relationships (Karney & Bradbury, 1995), and is also consistently rated as important in attraction. The socially desirable pole of most personality traits: high agreeableness, conscientiousness, openness and emotional stability, are more desired than the undesirable poles (Botwin, Buss, & Shackelford, 1997; Buss, 1989; Furnham, 2009; Todosijević, Ljubinković, & Arančić, 2003). However, only one study has examined personality and liking in an online dating related context, in which similarity of traits led to more liking, and dissimilar traits led to less liking when participants were presented with a list of traits (Norton et al., 2007). There is strong evidence of the effect of similarity in online dating across a multitude of attributes other than personality traits (Fiore et al., 2010; Fiore & Donath, 2005; Hitsch et al., 2010), however research is lacking on the effect of traits on attraction in the online dating context.

Research aims and objectives

The aim of this research is to explore the expression and perception of personality traits in online dating profile texts, and to examine whether personality traits have an impact on attraction.

The research questions in this thesis fall under three main themes. The first theme is concerned with personality expression in online dating profile texts. This seeks to answer: whether personality is detectable in dating profile texts; what textual cues are associated with personality traits; and whether or not context affects the detection of traits and the cues associated with them?

The second theme involves accuracy of interpersonal perception in online dating. The research questions relate to: whether individuals can accurately perceive traits in online dating profile texts; what cues they utilise to do so; whether those cues are valid or not; and whether context affects perception and utilisation of cues.

A two-pronged approach was taken to investigate these two themes. Two structured literature reviews were undertaken in order to understand: first, the current state of research on whether personality is expressed in language, and which cues linked to traits in doing so; and second, the research on accuracy of personality perception in text-only contexts, and the cues that are utilised in perceiving others in text. Following that, two research studies were conducted examining the expression of personality in different contexts. The first study assessed the differences in trait-related language in online dating profiles across a number of online dating platforms. The second examined how trait-related language varied in two contrasting contexts: online dating profiles and creative writing stories, in order to see how consistently traits are expressed by authors in their text.

The third theme concerns personality traits and attraction in online dating. These questions examine: whether actual or perceived traits, as well as actual or perceived similarity of traits are related to attractiveness ratings of online dating profile texts, what cues might be related to attractiveness, and again whether context affects those relationships.

The third research study in this thesis investigated the accuracy of personality perception in two contexts: online dating profile texts and creative writing stories in order to determine whether particular contexts provided more salient trait-related cues to personality than others. The cues utilised by judges were examined to see whether linguistic cues that were known to relate to the authors traits were used in making personality assessments. This third study also examined the effect of personality on attraction in both contexts by asking participants to assess the

attractiveness of the authors of the texts as well as the author personalities. Actual and perceived traits, as well as similarity of actual and perceived traits were considered in this study.

In summary, the structured reviews of the literature and the three research studies together aim to address one aspect of the difficulties that daters encounter when presenting themselves and perceiving others on online dating platforms. That is, the difficulty they find in conveying a true sense of themselves, and their frustrations in accurately perceiving others. This research seeks to determine how individuals express their personality in their dating profile texts, how well they can perceive the personality of others in text, and how the actual or perceived traits of text authors impact on attraction.

Structure of the thesis

This thesis consists of seven chapters including this one, which outlines the rationale and aims of this research.

Chapter two provides an overview of the background literature on online dating, computer mediated communication, self-presentation, attraction, and personality related to the central themes of this thesis. Chapter three is comprised of two rapid structured literature reviews. The first review assesses expression of personality in text, the linguistic cues associated with each trait, and the effect of context and other factors on how and when personality is expressed. The second review examines the accuracy of interpersonal perception in text-only contexts, as well as the linguistic cues that are associated with making assessments of personality in text.

Chapter four and five are comprised of the first two research studies examining expression of personality in text. The first study asked daters to provide their actual dating profile texts from different dating platforms, the second asked participants to write a dating profile-type-text, along with a creative story text in

order to compare the two contrasting contexts. The linguistic cues related to traits were analysed to determine the consistency of expression across contexts.

Chapters six contains the third research study which examined the accuracy of personality perception in texts. A sample of the dating profile and story texts from study two were presented to participants in study three, and they rated the perceived personality of the authors as well as their attractiveness. The cues utilised in making judgements of personality were assessed, as well as attraction related to perceived and actual traits in both contexts, profiles and stories.

Chapter seven concludes by providing a summary of key findings and an integrated discussion of the three main themes of the research. It addresses the implications of the research, as well as future directions for suggested research in the area.

Chapter two: Literature review

Online dating

Online dating is an increasingly popular and accepted way for people to meet and form relationships. Across 18 countries, including European countries, Brazil, and Japan, nearly one third of cohabiting couples have experienced online dating, and 15% of those who began a relationship since 1997 met online (Hogan et al., 2011). The most recent Pew Internet research indicates that 15% of all adult Americans have tried online dating applications (apps) or websites, and of those people who have used dating sites and are in a committed relationship, 34% met online (Smith, 2016).

There are many types of dating site and dating site user, particularly as the demographics of typical users shift. The group most likely to date online are 25-44 years old and college educated, whereas the group most likely to use dating apps are 25-34 years old (Smith & Duggan, 2013). While every age range of users have increased from 2013 to 2016, the 55-64-year-old users have doubled and the 18-24-year-old age group has tripled in the last three years making it now the largest and fastest growing group of online daters (Smith, 2016). This is partly due to the rise of mobile dating apps, and in particular apps like Tinder which have used gamified elements like the swiping mechanism to change the search process (Purvis, 2017). Even within traditional online dating sites there is considerable variance in the type of site available and how it functions. eHarmony is a paid site, where only members of the site can view other profiles, and users are directed through a process before seeing a small selection of matches. On the other hand, Plenty of Fish (POF) is a free site, where any member of the public can view thousands of profiles without logging in. Tinder is a geolocation app that provides matches based on proximity and provides little personal information other than photographs in profiles. Studies have found that the number of blank text fields in profiles on Tinder ranges from 26% (LeFebvre, 2018) to 59% (Ranzini, Lutz, & Gouderjaan, 2016), but that most users of the app provide multiple photographs on their profile instead (LeFebvre,

2018). There are specific dating sites available to suit a wide variety of demographics and interests, from sites for those of particular religious beliefs to those aimed at vegans or farmers. Individuals have differing impressions of the various sites and the people who use them, but these are not necessarily connected to how daters actually use them. For example, one study examined the perceived trustworthiness of Tinder, Parship (a site aimed at serious relationships) and Facebook users, and found that Tinder users were rated as less trustworthy than Parship or Facebook users, and both dating site users were viewed as less likable and competent than Facebook users (Silva, Koch, Rickers, Kreuzer, & Topolinski, 2019). However, Sumter et al. (2017) found that the motivations for using Tinder were similar to other online dating sites.

Online dating is now the most popular way to meet a partner, more popular than any other route such as friends, work or education (Jeffrey Hall, 2014). LGBTQ+ couples are even more likely to meet online, with over 60% meeting in this way since 2008 (Rosenfeld & Thomas, 2012). Two studies have looked at the long-term outcomes of online meeting and found only small differences in relationship type and quality over time between meeting online and offline (Cacioppo, Cacioppo, Gonzaga, Ogburn, & VanderWeele, 2013; Paul 2014). As more people explore this method of meeting a partner, questions regarding the manner in which people present themselves and how they are perceived can be raised.

Motivations to use online dating

Many dating site users report that it offers them a wider pool of potential partners to choose from (LeFebvre, 2018; Newett et al., 2018; Smith, 2016). Daters use more than one site when they are looking for a partner (LeFebvre, 2018), and online dating tends to be used as a supplement to offline dating rather than as the sole avenue to find a partner (Newett et al., 2018). Interestingly, Tinder has brought the 18-24-year-old group into the online dating marketplace in large numbers for the first time. They do not typically suffer from a thin dating market with a lack of choices available and did not participate at these levels previously. However the

gamification of the app making it fun to use and the widespread uptake amongst peers has meant that this age group is now the largest group of online daters (Sumter, Vandenbosch, & Ligtenberg, 2017).

There are a wider variety of motivations to use online dating sites and apps than many would suspect. Similar motivations have emerged from multiple studies as to why people choose to date online, in particular; romantic relationships, casual sex or hooking up, friendship, ease of communication, entertainment, to meet people with similar interests or values. More recently we have seen the addition of self-worth validation, convenience to use while travelling, excitement and trendiness as reasons (Bryant & Sheldon, 2017; Chin, Edelstein, & Vernon, 2019; Newett, Churchill, & Robards, 2018; Ranzini & Lutz, 2017; Sumter et al., 2017; Whitty & Buchanan, 2009; Whitty, 2008). Despite perceptions of Tinder users as less trustworthy (Silva et al., 2019) and Tinder as a hook-up app (LeFebvre, 2018), love is still the stronger motivation to use the platform over casual sex (Sumter et al., 2017). Overall online daters tend to be more interested in long-term relationships than dating app users (Bryant & Sheldon, 2017). However, even when people intend to use Tinder for casual encounters, those encounters sometimes develop into relationships, and the initial motivation of hooking up does not appear to affect intimacy (Newett et al., 2018). Given that the primary motivations for using online dating apps and websites are relational, whether seeking long-term love or casual relationships, daters are aware that how they present themselves to others through online dating is important to attracting potential partners to meet (Whitty, 2008; Zytko, Jones, & Grandhi, 2014).

Computer mediated communication (CMC)

Computer mediated communication is communication between people that occurs through computers or technology. A few examples of this include text messages, instant messages, video conferencing, comments on news websites or social media, and email. It has been suggested that CMC also includes online communications that involve music, photographs, drawings, animations or other

imagery, and video, as well as text based language (Crystal, 2011). CMC is different to communicating face-to-face for a number of reasons including the lack of non-verbal information available online, the mix between writing and orality in online communication, and the synchronicity or asynchronicity of communication. When people communicate face-to-face, they use language to express themselves, but they also use facial expressions, tone, speed and pitch of voice, gestures, and body language. These are typically not available when communicating online and as a result, early researchers considered CMC to be a reduced-cues medium, lacking in socio-emotional content (Hiltz & Turoff, 1978). However, there are many ways in which people compensate for the lack of non-verbal cues available in CMC, including the use of paralanguage such as ellipses to indicate a pause, uppercase to indicate shouting or for emphasis, or indicating sounds like gasps with ahh, or uncertainty with hmm. Emoticons or emoji can also be used to add emotional content or context to language, indicating that someone is happy ☺, or sad ☹ for example. Derks, Bos, and Grumbkow (2007) found that emoticons were used more in socio-emotional communication, and in a later study found them used more in positive communication contexts than negative, when communication involved emotions and humour, and with friends (Derks, Bos, & von Grumbkow, 2008). These changes in language, as well as the use of acronyms, abbreviations and symbols, are sometimes referred to as *textspeak* or *textese*, and are typified by a more casual style that does not adhere as rigidly to grammatical convention (Crystal, 2011).

In many ways the use of paralanguage and other characteristics can make CMC language more like spoken language than written (Crystal, 2011). But there is also a written record of the interaction which does not happen with spoken communication, and which can encourage people to be more honest in their communication knowing that there is a record of it (Warkentin, Woodworth, Hancock, & Cormier, 2010). Online daters sometimes use this record in order to compare early messages from dating partners with later information to gauge trustworthiness (Heino, Ellison, & Gibbs, 2010). Whether or not the communication is synchronous or not can also be important. In face-to-face contexts responses

tend to occur simultaneously or synchronously, and some types of CMC such as instant message and video chat are close to synchronous when both participants are fully engaged with the communication. However, even in the most synchronous text-based CMC, the recipient of the message does not have access to the message as it is being constructed, which allows the sender more control than in a face-to-face context. In other types of communication such as email or social media there can be delays ranging from just seconds to hours, days, months or even years. For example replies to message boards many months after an original post was made, or old tweets being discovered and commented upon after years (cf. Wolfson, 2018). This time delay in asynchronous communication can give people time and the opportunity to think more carefully about what they write, allowing them to spend more time on self-presentation if they wish. Each of these factors, along with features and characteristics of the online environment such as anonymity, privacy, and channels of communication, changes the way that people present themselves and are perceived online. A number of theories have been developed to understand the processes underlying communication in the online context, including the cues-filtered-out perspective (Culnan & Markus, 1987; as cited in Walther & Parks, 2002), media richness theory (Daft & Lengel, 1983), social information processing theory (SIP; Walther, 1992), hyperpersonal communication (Walther, 1996, 2007), the social identity model of deindividuation (SIDE; Reicher, Spears, & Postmes, 1995), and the online disinhibition effect (Suler, 2004).

Communication theories in CMC

The cues-filtered-out perspective (Culnan & Markus, 1987; as cited in Walther & Parks, 2002) stems from early research in CMC where reduced non-verbal cues led to a lack of socio-emotional content in the communication contexts studied, and CMC was thus viewed as a poor modality in which to express oneself. It connects to the idea that richer channels give more information to communicators from which to gain communicative cues. However, there is substantial evidence that people frequently connect in emotional and social ways through CMC (Walther, 2007). Media richness operates on a similar premise: that communication media can be

ranked on a continuum of richness. That is, the degree to which the media allows a range of cues to be observed such as body language, tone of voice, and facial expression. Additionally, how much feedback the medium allows is important for checking understanding, and the extent to which the medium is personal in nature and uses natural language is important in determining richness (Daft & Lengel, 1983). A low level of richness does not prevent information processing, but instead requires different information processing to occur. This theory indicates that where interactions involve ambiguity, a rich media would be more appropriate due to the range of cues available to assist in understanding. Forming impressions of attractiveness, personality, trustworthiness of a stranger is a complex task, and thus the richness or leanness of an online dating profile may influence accurate perception of a potential mate.

Social information processing (SIP) theory posits that given enough time and exchange of communication messages, relationships can develop in CMC in a similar manner to offline (Walther, 2011; Walther, 1992). SIP acknowledges that non-verbal cues are frequently absent from text-based communication but posits that individuals compensate for this absence by adapting the remaining verbal and textual cues in order to engage in relational development. Individuals decode text-based cues in order to develop distinct impressions, including psychological-level knowledge, of their communication partners from CMC. Hyperpersonal communication suggests that the levels and intensity of emotion and affection developed through communicating with CMC can meet or surpass the levels felt in face-to-face communication (Walther, 2007).

Four inter-related elements affect the communicative process: characteristics of the communication channel, the sender, the receiver, and the feedback process. Asynchronous channels of communication are ones in which time constraints are reduced as communication is not simultaneous, allowing time to edit, compose and selectively self-present in sending messages, and to read and receive messages. The sender can choose which aspect of themselves to present in a message, taking the time to carefully manage the impression they create and emphasising positive

characteristics. Additionally, there are substantial cognitive resources needed in face-to-face communication in order to attend to non-verbal cues of a communication partner, or distractions of the physical environment in which communication are taking place. Without these factors in CMC, users can allocate more of their cognitive resources to message construction than they might in face-to-face situations (Walther, 2007). In the absence of disconfirming information, the receiver may interpret the messages positively and even idealistically. The social identity model of deindividuation (SIDE; Reicher, Spears, & Postmes, 1995), provides insight on why this might occur, indicating that the self may be viewed at a variety of levels, including the personal self, but also the categorical self. In CMC where there is a lack of non-verbal cues and the communicators are not co-located, the remaining cues take on heightened value and can lead to stereotyping. As a result the social identity of the communication partner may become more salient, and they may be perceived in line with the norms of their social category rather than as an individual (Lea & Spears, 2009; Reicher et al., 1995; Spears & Lea, 1992). Alternatively, individual stereotypes may be activated rather than social categorisation (Walther, 2011). Finally, CMC can result in an intensified feedback loop: beginning with the sender creating positive impressions, the receiver inflating them, and a process of behavioural confirmation as they engage in reciprocal communication magnifying the effects. In non-acquainted, deindividuated, communication partners this can lead to increased intimacy, and intense hyperpersonal interactions.

Hancock and Dunham (2001) found evidence to support this theory comparing synchronous text-based or face-to-face dyadic communications. In both conditions participants rated the personality traits of their communication partner, and in the CMC condition the impressions formed were less detailed for some traits but more intense on all traits than those in the face-to-face condition. Suler (2004) introduced the idea of solipsistic introjection in CMC, which might occur when the individual reading a communication experiences it as though the author's voice is in their head and may project or transfer a particular tone or characteristics onto the author. This may explain some of the intensity of impression formation in CMC,

however there is little empirical evidence for this aspect of Suler's online disinhibition theory. In online dating, the profile page is carefully designed, with substantial time and resources invested, to create a positive impression in order to attract potential romantic partners (Whitty, 2008; Zytko et al., 2014), and as such has the potential to initiate a hyperpersonal communication process.

Online disinhibition results from the interaction of characteristics of the online environment along with individual differences, leading to individuals acting out in ways that are more intense or frequent than they might behave in an offline context. This can be either with benign disinhibition such as higher self-disclosure in a self-help forum, or with toxic disinhibition such as trolling or flaming (Joinson, 1998, 2007; Suler, 2004). A number of factors involved in creating disinhibition online have been investigated in research. Having a perception of anonymity, where people feel that their online behaviour cannot be linked to their offline self can be amplified by invisibility, where there is an inability to see others reactions and where there is no eye contact, may result in inhibitions being reduced (Joinson, 2007; Suler, 2004). However these effects appear to vary by context and by the type of disinhibition (Lapidot-Lefler & Barak, 2012, 2015), and in some research the opposite effect has been found – where more identifiable bloggers disclosed more information than anonymous ones (Hollenbaugh & Everett, 2013). Joinson (2007) suggested that perceived anonymity, being absorbed in a task, and the associated lowering of public self-awareness that can accompany these, might be factors in online disinhibition. Social norms may also play a part – however these may vary by situation and result in benign or toxic disinhibition depending on the context (Joinson, 2007).

Many of these theories have a relationship with self-disclosure, self-presentation and impression formation online and can help understand the processes underlying the different ways in which people express themselves and are perceived in online dating.

Self-presentation in online dating

Self-presentation, or impression management, is the attempt by individuals to control how others perceive them through their actions and expressions (Goffman, 1959). Typically, self-presentation is used to create a positive desired impression, particularly in contexts like online dating. However, it can be used to invoke a negative impression, for example looking threatening to intimidate someone (Leary, 1996). People use self-presentation strategies both on and offline, and often use different strategies with different audiences. For example, usually using more self-enhancement strategies with strangers, but with friends a more modest approach (Tice, Butler, Muraven, & Stillwell, 1995). Individuals, particularly high self-monitors, are also likely to use heightened self-presentation to match the stated preferences of a potential partner if that potential dating partner is attractive (Rowatt, Cunningham, & Druen, 1998). Leary and Kowalski (1990) proposed a two-component model of impression management, arguing for the two discrete processes of impression motivation and impression construction. Impression motivation is comprised of three factors which influence the degree to which individuals are motivated to manage how others view them: the goal-relevance of the impressions, the value of the desired outcomes, and the discrepancy between an individual's current image and the desired image they wish the target audience to hold. Impression construction is the process of creating a desired impression in others, and five factors influence the impression content, the individual's self-concept and desired identity, role constraints, target values and current or potential self-image.

Impression motivation

In certain circumstances, people are more motivated to control how others view them, and some people are more concerned than others with self-presentation in general (Leary & Kowalski, 1990). Attentiveness to self-presentation can range from complete obliviousness where environmental stimuli draw attention away from the self, such as when immersed in a flow experience playing video games (Cairns, Cox, & Nordin, 2014), to acute public self-awareness where people

consciously attend to many aspects of themselves that others can observe in that context. Evidence from online dating research suggests that it is a context that invokes considerable self-awareness and attention to self-presentation (Ellison, Heino, & Gibbs, 2006; Gibbs, Ellison, & Heino, 2006; Toma, 2010; Whitty, 2008; Zytko et al., 2014). When making the right impression is important, as in online dating profiles where the profile is the first step in the desired goal of finding a romantic partner, people deliberately search for evidence of how others perceive them, and attend carefully and selectively to relevant information in order to create a positive impression (Leary & Kowalski, 1990). The publicness of the self-presentation context also affects impression motivation. The more people that are likely to see the presentation of self, the more motivated people are to engage in impression management (Baumeister, 1986), and online dating is a relatively public context where an unknown audience will view and judge the dating profile, likely leading to increased self-presentation motivation. Self-presentation is a key element to a dater's success in finding a partner, and thus the manner in which they choose to write about themselves is a careful consideration (Ellison et al., 2006; Gibbs et al., 2006; Toma, 2010; Ward, 2017; Whitty, 2008; Zytko, Jones, et al., 2014).

Impression construction

The content of self-presentation is influenced by several factors. The individual's self-concept is important, in that people generally avoid deception and self-present relatively consistently with how they see themselves, albeit strategically displaying specific aspects of themselves to match their desired goals (Leary & Kowalski, 1990). Desired identity also plays a role, where peoples' impression management tends to be in the direction of how they would like the world to see them (Markus & Nurius, 1986), while maintaining a balance between absolute candour and presenting an unrealistic ideal (Leary & Kowalski, 1990). Target values are important in that individuals tailor their self-presentational images to the values and preferences that they believe others hold (Leary & Kowalski, 1990). Each of these factors has been shown to occur in online dating

research as will be discussed below (Ellison, Hancock, & Toma, 2011; Ellison et al., 2006; Whitty, 2008; Zytko, Grandhi, & Jones, 2014).

Authentic and deceptive self-presentation

Initial research into online self-presentation looked primarily at anonymous online environments where individuals engaged in personality and identity manipulation and play (Turkle, 1996). Online dating was one of the first environments studied where the participants were only partially anonymous, and this resulted in a shift to more authentic self-presentation strategies, illustrating that self-presentation varies across different online settings (Ellison, Heino, & Gibbs, 2006; Gibbs et al., 2006; Whitty, 2008). With the rise of social media and ubiquitous social networks such as Facebook, where profiles are anchored to offline identities, and individuals in the network are more likely to be connected to the individual in the offline world, self-presentation and identity construction has shifted again. More recent research on Facebook has found that people present themselves accurately and not as an idealised self on the social media platform (Back et al., 2010). Online dating occupies a space between Facebook and anonymous environments, where the other daters on the site are as yet unknown and are typically outside individual's offline social network, but the intention is to attract someone enough to meet face-to-face and potentially have them become part of the offline social network. Tinder has moved further from anonymity than most dating platforms, as individuals use their real first name and their Tinder profile is often linked to their Facebook profile and sometimes linked to other social network profiles, resulting in increased authenticity and a greater anchor to offline identity (Duguay, 2016).

Several qualitative studies have offered considerable insight into the concerns, processes and strategies of profile creation by online daters and these are substantially drawn upon in this section (Gibbs et al., 2006; Ward, 2017; Whitty, 2008; Zytko, Grandhi, et al., 2014). As self-presentation is an important concern in online dating, daters attend carefully to the even the smallest and most subtle cues in their profiles (Ellison et al., 2006; Whitty, 2008), from the username to the

photographs, the fixed choice questions and the profile text. This supports SIP theory where available cues are adapted to compensate for the lack of non-verbal cues and take on heightened importance (Walther, 1992; 2011). Often their focus on these small cues is in response to witnessing cues in other's profiles (Ellison et al., 2006; Ward, 2016). Whitty (2008) and Ward (2016) found that participants created numerous iterations of their profiles to attract partners, and experimented with different photographs and profiles, sometimes rewriting to attract a particular person. They were concerned with depicting an accurate reflection of who they were, and sometimes asked friends and family for feedback to confirm that they had achieved this (Ellison et al., 2006; Whitty, 2008). Smith and Duggan (2013) found that 22% of individuals had asked someone else for help in creating their dating profile. Zytko and colleagues (2014) argued that daters are aware that the constraints of the dating platform restrict how well they can accurately present themselves and do not feel that others are always interpreting their profiles and messages in the manner intended. This inability to convey a complex and accurate image of the self may led to feeling significant anxiety and a fear of rejection. Daters may resort to presenting a simplified version of the self in their profile, as more subtle and complex presentations are frequently misinterpreted. For example, in Ellison and colleagues (2006) study, daters refrained from including any sexual cues in their profiles because cues in the online dating context become exaggerated and sexual cues could come across as promiscuous.

Daters strive to present a positive but accurate representation of themselves (Ellison, Hancock, & Toma, 2011; Ellison et al., 2006; Whitty, 2008; Zytko et al., 2014). Zytko and colleagues (2014) also found that as well as attempting to present positively, many daters consciously strive to avoid particular negative attributes – one dater described not wanting to appear like a "douchebag". Daters describe the profile as a promotional tool with which they can market their best self, rather than as a completely accurate representation of themselves (Heino et al., 2010). However, they strategically balance their desire to self-market with accurate self-presentation, prompted by their desired outcome of a face-to-face meeting. "Profile as promise" is the framework through which Ellison, Hancock ,and Toma

(2012, p. 12) conceptualise this process. Individuals each have a different self-construct, which encompasses various distinct self-identities. The actual self is who we currently are, the ideal self is who we would like to be, and the ought-to self is who we feel we should be (Higgins, 1987). A wide range of possible selves can be drawn upon by online daters when creating a profile – including past, present and future selves (Ellison et al., 2011). Drawing from this fluid sense of self, and within the technological and social limits of the CMC based online dating environment, daters feel that a certain amount of embellishment is acceptable in dating profiles. The promise is that the "profile constitutes a promise made to an imagined audience that future face-to-face interaction will take place with someone who does not differ fundamentally from the person represented by the profile" (Ellison et al., 2011, p. 12). Misrepresentations that violate this agreement are considered unacceptable. Some online daters resolve the tension of trying to market themselves positively enough to attract potential partners and being realistic enough not to disappoint on first meeting face-to-face by presenting their ideal self, a potential future version of themselves that they feel is attainable, rather than their actual self in their profiles (Ellison et al., 2006). This can sometimes lead to behaviour change in order to reconcile the presentation of self with actual self. For example, one dater explained deliberately losing weight after describing herself as lighter than she really was (Ellison et al., 2006).

Most daters feel that any deception that they engaged in would be discovered face-to-face and would lead to their date's disappointment or to rejection (Whitty, 2008; Zytko et al., 2014). Relational goals also affect self-disclosure in online dating, where those with long-term face-to-face relationship goals are more honest in their self-disclosure, have higher amounts of and more intentional self-disclosure, but do not present themselves more positively than those who place less importance on face-to-face goals (Gibbs et al., 2006). What is interesting is that more honesty does not necessarily lead to more perceived success in online dating, but positive self-disclosure does lead to perceived self-presentation success, perhaps because daters feel that they are presenting the best impression of themselves (Gibbs et al., 2006).

Despite the fact that most daters indicated that they did not want to present a deceptive image to others for fear that it would lead to failure at a first meeting, many of them do engage in deception in their profiles. Many daters admit to misrepresenting themselves to attract others, but rationalise the deception as exaggeration rather than lies, and as necessary because they feel everyone else is also doing so and they would miss out if they did not (Ellison et al., 2006; Whitty, 2008; Zytko et al., 2014). The asynchronous nature of the dating profile allows people to rationalise presenting themselves as how they expect or would like to be rather than how they are now, and providing these characteristics are attainable, such as losing a little weight or joining a gym, this is considered acceptable. Unacceptable deceptions are ones that are unattainable, such as growing six inches in height (Ellison et al., 2011). The concept of the "foggy mirror" (Ellison et al., 2006, p. 428), is that some individuals do not have an accurate self-image which can result in unintentional misrepresentation, and within reason this is also considered acceptable, particularly for those characteristics which are more subjective like physical attractiveness. However, although deception is widespread, most misrepresentations are small (Jeffrey Hall, Park, Song, & Cody, 2010; Toma, Hancock, & Ellison, 2008; Toma & Hancock, 2010; Whitty, 2008; Zytko et al., 2014). There are also differences in self-presentation, particularly deceptive self-presentation, when online daters expect to meet their communication partner offline. Men in particular heightened their self-presentation by emphasising their positive characteristics when anticipating a future interaction with a communication partner, particularly if that interaction was to take place online rather than offline (Guadagno, Okdie, & Kruse, 2012).

Profile elements in impression construction

The photograph is the most important element of the dating profile in determining attraction and daters have indicated how presenting a good physical image is a primary concern (Toma et al., 2008). This is even more the case on Tinder where the app is designed with photographic self-presentation at the fore. Tinder users typically make use of the affordances of the app to upload multiple

photographs, typically between four and six photographs (LeFebvre, 2018; Tyson, Perta, Haddadi, & Seto, 2016). Many users also take the opportunity available to link to other social media like Instagram to showcase further photographs and expand beyond the limited opportunity of Tinder to self-present themselves (LeFebvre, 2018; Tyson et al., 2016). They also change their photographs and bios frequently, and choose photographs that reflect an ideal but authentic self (Ward, 2016). However photographs are not always accurate in online dating, particularly women's photographs (Hancock & Toma, 2009).

While photographs are important, the open text field in online dating is also key to impression construction (Fiore et al., 2008; LeFebvre, 2018). Daters described the importance of showing that they are unique, displaying their intelligence, describing interests they enjoy, showcasing their humour, and describing their hopes and dreams (Whitty, 2008). Past research has shown that the free text component of a dating profile is the second most salient element – after the profile photograph – in determining attractiveness and most important in determining trustworthiness (Fiore et al., 2008; Toma, 2010). The text element of the profile must be rated as attractive in order that the whole profile is rated as attractive (Fiore et al., 2008). Online daters are therefore likely to make judgments about compatibility on the basis of what others write, as well as how they look, and will equally be aware that their own self-presentation is key to creating the desired impression to potential matches.

Self-presentation in private messaging

Self-presentation in private messaging can be as important as in dating profiles, particularly for men who primarily initiate contact in online dating (Fiore et al., 2008; Toma, 2010a), sending between three and four times more first messages than women. Most women, and gay men, receive considerably more messages than heterosexual men, and thus can afford to be more selective in who they opt to respond to, choosing only the messages that catch their eye (Fiore et al., 2010; Zytko et al., 2014). Men often attempt to emphasise affinity in their initial

messages, but tend not to fabricate that similarity to appear more attractive, and recipients like this approach as it indicates that the person has taken time to read their profile (Zytko et al., 2014). Hence, profiles are vital in generating initial contact content, as well as determining initial attraction.

In interviews with online daters, Zytko and colleagues found that despite feeling that messaging should give them a chance to present more complex aspects of themselves, this is where men in particular struggled the most with self-presentation choices. Their experience was that one bad message could end a conversation and they would sometimes stop conversing completely if they could not think of something witty to say. Many found that women did not respond to their initial messages at all, or that conversations were abruptly ended without explanation. This often happened at the point where an attempt was made to move communication off the dating platform to another channel like email or phone, or to a face-to-face meeting. They did not know if their message was misinterpreted, or how to correct their behaviour to prevent abrupt disconnections happening again. They experienced considerable frustration because of their lack of understanding as to why it occurred, sometimes messaging women multiple times asking for feedback. They were not confident in the image they were conveying of themselves and found the lack of feedback on their self-presentation attempts to be challenging. Many interpreted the lack of responses to mean that they were unattractive to the whole dating site userbase, which developed into considerable fear of rejection and led them to avoid contacting women they found most attractive. Some resorted to random variations in their messaging behaviour to try to persuade others to respond by causing a reaction and would use this feedback for future attempts at connection. On the occasions that they did get feedback, they might change their behaviour to appear more attractive in response. For example when one participant was messaging very late at night, his communication partner noticed and mentioned it, making him more aware of those types of cues for future interactions (Zytko et al., 2014).

Audience, self-presentation and self-disclosure

Target values are important in that individuals tailor their self-presentational images to the values and preferences they believe that others hold (Goffman, 1959; Zytko, Jones, et al., 2014). Different audiences hold different preferences, and self-presentation can be used to selectively convey various relevant, but accurate, aspects of the self (Leary & Kowalski, 1990). When an audience is unknown, as in a very public medium like Twitter where tweets are visible to others beyond those who are directly following an account, authors imagine their audiences in a variety of ways. Some imagine an ideal audience member, some focus on those they know in the audience, and some constrain their behaviour because the audience is unknowable or because of context collapse, where the tweets are presented to multiple audiences at once without different self-presentation for each (Emanuel et al., 2014). Often people have difficulty imagining the size of an audience on social media and other online contexts.

One study examined the use of visualisation tools to assist in understanding audience size and examined how the tools affected self-disclosure. When they described in numbers the size of the audience, rather than in a visual graphic, online social network users disclosed significantly less information (Caine, Kisselburgh, & Lareau, 2011). The online context, of which audience is a part, can also affect the amount of self-disclosure that individuals engage in. Nguyen, Bin, and Campbell (2012) conducted a systematic review of self-disclosure online and found that the evidence for increased self-disclosure online is mixed and that design and measures used in the studies affect the findings. Experimental studies looking at the actual level, depth or breadth of disclosure were more likely to find that online contexts had greater self-disclosure than offline. Survey data looking at frequency of self-disclosure was also likely to find higher disclosure online, whereas survey data looking at willingness and depth of self-disclosure found that face-to-face situations were higher. This may indicate that people intend to or believe that they will disclose less online than off, but actually disclose more online. In a study investigating self-disclosure on different online platforms, Emanuel and colleagues

(2014) found that participants were willing to reveal more information in an unspecified online context than in an online dating or online job-seeking context. People take into account their potential or imagined audience as well as the perceived social norms of the environment in choosing what information to disclose. With a general online context, it is more difficult to imagine the audience or to perceive social norms and so participants revealed more information about themselves. There was also a difference in the amount of subjective information disclosed between the online dating and the job-seeking environments. In an online dating environment disclosing attitudes, values or likes is more expected than in job-seeking where objective factual information is expected (Emanuel et al., 2014).

We also know that the context in which people present themselves online has an important effect on what information they choose to emphasise or disclose. For example, when creating an avatar for blogging, online dating, or gaming, people choose to emphasise different aspects of their self-image. While their blogging avatar reflected their actual physical appearance, their online dating avatar was created to be more attractive and their gaming avatar more intellectual, yet they still felt that each avatar was highly similar to their own self-image (Vasalou & Joinson, 2009). Self-disclosure is a consideration in this thesis, as the ability to perceive personality in text may change where there is greater self-disclosure, or self-disclosure of different aspects of the self by the authors of texts. Additionally, the context in which the texts are written may affect the amount and content of the self-disclosure that they engage in.

Impression formation in online dating

Online dating users typically form impressions of potential partners in stages, through search displays of profile pictures, the individual profile pages, through private messaging or other private channels of communication, and finally the first face-to-face meeting (LeFebvre, 2018; Zytko et al., 2014). How this works on each platform varies by the interface and affordances of each, but there are commonalities across all platforms and the process is driven by the functionality

of the apps or sites. Profiles are narrowed down using search facilities on the app or site using objective and categorical information such as height, age, gender and sexual orientation. Individual profile pictures are used to make an initial attractiveness decision about whether to look at a profile, which is where initial data gathering is conducted in order to identify preferences (LeFebvre, 2018; Zytko et al., 2014).

Online daters in Whitty's (2008) study talked about the depth and breadth of information available in dating profiles to evaluate potential partners. This information is used to immediately discard daters who have characteristics considered to be deal breakers such as smoking, before any contact or conversation has taken place (LeFebvre, 2018; Zytko et al., 2014). The dater then examines the photographs and profile text carefully for cues to the personality and characteristics of the profile owner, and are aware that this is an interpretation of how the profile owner sees themselves, rather than an exact replica of their offline self (Ellison et al., 2011; LeFebvre, 2018; Zytko et al., 2014). In Tinder the mechanism to indicate that a profile is attractive is to swipe right on the profile, whereas swiping left indicates that the profile is rejected. Common reasons to swipe right to indicate that a profile is attractive are that the individual appears physically attractive or appears interesting, and swiping left indicates that the profile does not meet particular criteria or standards (LeFebvre, 2018).

Impression formation continues through messaging or other channels of online communication where impression management is key to attaining responses to messages (LeFebvre, 2018). The point of moving from the dating site to another communication channel or to an offline meeting is important. Women feel uncomfortable if this is proposed too quickly, but become frustrated if communications continue too long without progress, and rather than taking control of the process many feel that it is the man's role to propose this progression (Zytko et al., 2014). The first face-to-face meeting is often considered a stage in the screening process rather than a date, although if it goes well it can be reframed as a date as it is occurring (Zytko et al., 2014). Whitty (2008) found that most

participants were aware that meeting offline was the most important indicator for relationship development, and over half met within one or two weeks of first communicating. Media richness theory posits that ambiguous communication is more difficult in reduced cues communication channels, and that face-to-face communication is better for contexts such as getting to know someone, as is illustrated in the difficulties that daters encounter (Daft & Lengel, 1983).

Daters look for someone who can communicate something about who they really are and avoid clichéd profiles because they find them inauthentic (Whitty 2008). They develop a set of criteria by which they evaluate dating profiles, and typically incorporate those rules into their own self-presentation also (Ellison et al., 2006). Gosling and colleagues (2002) framework of identity claims and behavioural residue can also provide understanding of self-presentation and impression formation in online environments. Identity claims are deliberately made in self-presentation, such as indicating particular interests on a dating profile in order to create a particular impression, whereas behaviour residue is information unintentionally given, such as spelling errors. This parallels Goffman's (1959) idea that we 'give' and 'give off' information as actors engaged in self-presentation. In a context like online dating, where daters carefully examine even the smallest cues in their profiles (Whitty, 2008), there may be less information given off in other contexts where self-presentation is less salient. However, the information that is given off may become more salient in impression formation because it is perceived as unintentional and therefore potentially a more accurate reflection of the author than the carefully self-presented elements.

There is substantial evidence that daters pay attention to the smallest and most subtle cues in profiles in order to determine whether or not to contact a potential date (Ellison et al., 2006). For example, Zytko and colleagues (2014) found that daters would decide not to contact someone if they noticed spelling and grammatical errors in their profile. They also noticed cues such as the profile or message length, time of day or speed of responses and made judgments about individuals based on these. This also supports SIP theory where small cues take on

heightened meaning in forming impressions in the absence of other information (Walther, 1992; 2007). However, Whitty (2008) also noted that there was little opportunity to witness cues given off in dating profiles, which fits with what Gosling and colleagues (2002) describe in their perception framework as behavioural residue. As profiles are so carefully controlled by daters, the cues communicated are primarily identity claims with few cues remaining that daters have not noticed or have no control over. Zytko and colleagues' (2014) participants noted that the majority of impression formation happened in private messaging, and that profile pages were not as useful as they tended to be relatively generic. They also noted that private messages were judged more critically than profile pages.

Difficulties in impression formation

While many people who have tried online dating have positive experiences and report that online dating is a good way to meet new people, helps them find a better match, and is easier or more efficient than other ways to meet (Newett et al., 2018; Smith, 2016), a considerable number have reported feeling frustrated, anxious, or confused with the experience (LeFebvre, 2018; Zytko, Grandhi, & Jones, 2018), or have encountered harassment or misrepresentation (Ellison et al., 2006; Frost, Chance, Norton, & Ariely, 2008; Masden & Edwards, 2015; Smith, 2016; Zytko, Grandhi, et al., 2014). Many users have deleted their Tinder accounts multiple times – some up to seven times – sometimes because they were successful and had met someone, but many did so because of problems with using the app (LeFebvre, 2018). These issues included being unsuccessful in meeting people, harassment or encountering sexually explicit content, privacy issues, and finding differences in the kinds of relationships people wanted. Online dating promises to offer the opportunity to choose from a wide range of potential partners and to help meet relationship goals, and becomes unenjoyable to use when individuals feel they do not have the ability or they fail to reap the benefits of that opportunity (Zytko et al., 2018).

One of the primary frustrations that daters report is difficulty in forming accurate perceptions of what other daters are really like through profiles and messaging, particularly in terms of their personality characteristics. On most first dates, their potential romantic partner fails to meet the expectations they develop from their communications (Fiore, Shaw Taylor, & Cheshire, 2011; Norton, Frost, & Ariely, 2007; Zytko, Grandhi, et al., 2014), and daters often expect that they have not interpreted their communication partner's characteristics accurately before meeting them (Zytko et al., 2014). Most find their communication partners less attractive in person (Zytko et al., 2014). Some daters attribute discrepancies between the impressions they had formed online and the person they met offline to intentional deception, even when the individual did not or would not admit to the deception. Whereas others feel it possible that they had misinterpreted cues and that the difference was unintentional rather than deceptive (Zytko et al., 2014). Toma (2010b) found that there is a truth bias in text-only profile information. When participants viewed the text element of the profile alone, they rated it as more trustworthy than the photograph alone or the text and photograph together. However, their accuracy in judging trustworthiness was only at the level of chance in all three conditions, again demonstrating that accuracy of perception is poor in online dating. Participants in Fiore and colleagues' study (2008) had greater confidence in their ratings across a variety of dimensions of whole profiles because they had more information available to them, but they were significantly more confident in their ratings of text elements when presented alone than they were of photographs alone.

Frost and colleagues (2008) looked at the characteristics of online daters from a consumer goods perspective, where daters are the ultimate experience goods, rather than searchable goods. Searchable goods are those that vary along tangible attributes and can be assessed in an objective manner – for example a home appliance, cat food, or vitamins. Experience goods are judged by the emotions they elicit rather than the functions they perform. They are judged holistically by subjective attributes and include things like vacations, restaurant meals, movies or kittens for example. A key element of experience goods is that in order for them to

be evaluated an individual must experience them personally, as indirect experience can be misleading (Frost et al., 2008). Much of the disappointment that users experience is due to the fact that online dating filtering systems work on searchable characteristics rather than experiential ones, and it is difficult to achieve accuracy of perception about an individual without direct experience of a person in a face-to-face context. Daters tend to use searchable attributes to narrow down the list of potential partners and use some searchable characteristics as deal-breakers. For example smoking or height can be used for immediate disqualification (Frost et al., 2008).

The search process itself is not always conducive to good decision making, as excessive choice can have a negative impact on the quality of and satisfaction with decisions (Broniarczyk & Griffin, 2014; Finkel, Eastwick, Karney, Reis, & Sprecher, 2012; Iyengar & Lepper, 2000). The search system can lead individuals to approach their search with an assessment mindset, where choices are evaluated against each other rather than in terms of meeting a relationship goal (Broniarczyk & Griffin, 2014; Finkel, Eastwick, Karney, Reis, & Sprecher, 2012; Iyengar & Lepper, 2000), a phenomenon named by Heino, Ellison, and Gibbs (2010) as *relationshopping*. This can result in dismissing a profile, even if it is attractive and meets the criteria for moving to the stage of private messaging, because a more attractive profile may be just a click away (Finkel, Eastwick, Karney, Reis, & Sprecher, 2012). Access to a broader pool of potential partners can sometimes result in people considering dating partners that they might not have considered offline, however it often results in people dismissing potential partners after a cursory assessment of a few criteria (Heino et al., 2010; Zytko et al., 2014). Many of the participants in Whitty's (2008) and Heino and colleagues' (2010) study described their self-presentation attempts as selling themselves or used market related terms without being prompted, supporting this consumer mindset metaphor.

Frost and colleagues (2008) found that people spent seven times longer searching and writing to potential dates than they did meeting people in person, and that these activities were not enjoyable for most daters, even for ones who

were more successful on the platform. When daters were asked to list characteristics that were most important for a romantic relationship, experiential attributes were mentioned more than searchable ones, and included items like humour, understanding, affection, and friendliness (Frost et al., 2008). Participants on Tinder described a lack of chemistry on the platform (Zytko, Freeman, Grandhi, Herring, & Jones, 2015). Similarly, Zytko and colleagues (2014) found that daters strove to express their experiential qualities in their profile and messages, but that they were dissatisfied with their ability to communicate those through the channels available to them, resulting in anxiety and fear of rejection over their inability to do so.

There is evidence that hyperpersonal communication plays a part in the mismatch between impressions formed through profiles and messaging, and those discovered when meeting face-to-face. Ramirez, Sumner, Fleuriet, and Cole (2015) found that positive impressions on meeting face-to-face after communicating online increased up until a period of 17-23 days of online communication. After that time period, the discrepancy between idealised mental constructs formed through CMC and the actual offline person become too high, and face-to-face meeting outcomes became less successful.

It is clear from reviewing the research that online daters experience difficulties in conveying an accurate and attractive impression of themselves to others due to the limitations of CMC and dating platforms. Similarly, they also encounter difficulties in forming accurate impressions of others, particularly the experiential characteristics such as personality and chemistry. This leads to considerable frustration and anxiety. The studies in this thesis aim to address these issues by examining how daters express their personality in dating profiles and how others perceive them. The object is to determine whether it is possible to achieve accuracy of perception, and if not, where the process might be breaking down.

Attraction

There are multiple factors that affect perceptions of attractiveness, including contexts in which people meet such as dating sites, speed dating or natural interactions, the traits and states of both individuals, mate preferences, sex differences and cultural norms, similarity, physical attractiveness, and motivations. Within the attraction literature there are a number of theories and hypotheses that have been well tested. Some of these are more relevant to this research, which is zero acquaintance, non-interactive research with no expectation of meeting in person, and there are no photographs meaning physical attraction is not a factor. Several of these theories and frameworks are helpful in understanding the processes and preferences underlying attraction in an online dating context. Montoya and Horton (2014) propose a two-dimensional model of attraction that is comprised of two assessments that individuals make when judging attraction, willingness and capacity. There is also significant evidence that individuals prefer others that are similar to themselves, known as homophily or the similarity effect (Montoya, Horton, & Kirchner, 2008)

Montoya and Horton (2014) posit that making a judgment of attractiveness is essentially an interpersonal evaluation of two characteristics: capacity and willingness. Capacity is the ability of the target of the assessment to facilitate the goals or needs of the perceiver, and the second component is the target's willingness to facilitate those needs or goals. Attraction is of course related to romantic and sexual relationships, but we also make these judgements about friends, colleagues and other individuals we meet. Attraction has two valanced components, attractiveness which is positive and averseness which is negative. Montoya and Horton define attraction as an immediate positive response to someone, that can be either an affective or behavioural response or both. It is the individual's cognitive assessment of the target that influences the response. Affective attraction is an emotional response towards someone, whereas behavioural attraction is a tendency to act in a particular way towards someone, such as to affiliate or maintain proximity with someone. Affective and behavioural

attraction are often related; however, they can diverge under certain circumstances. Behavioural attraction is more context and self-interest-driven than affective, and this is related to receiving rewards from an interaction with someone. For example, if someone you dislike can offer something you need, you may attempt to affiliate with them to gain that reward. Whereas if someone has high affective attraction for a supermodel for example, there is a strong chance of rejection, and this may result in low behavioural attraction to avoid that negative outcome. Attraction is merely an immediate evaluation, it is not the same as love, friendship or attachment.

Partner preferences

Despite evidence of sex differences in global partner preferences (Buss, 1989; Eagly & Wood, 1999; Furnham, 2009; Shackelford, Schmitt, & Buss, 2005; Wood & Eagly, 2002), there are also many preferences that men and women have in common, such as using online dating to find someone with similar interests and hobbies (Smith & Duggan, 2013; Whitty, 2008), as well as the importance of personality and similar beliefs and values (Whitty, 2008). Both men and women have been found to value physical attractiveness more than any other characteristic in online dating, with 97% of men and 83% of women listing it as most important, with no significant statistical difference between the two, and both also valuing social economic status highly with no significant difference between the sexes (Whitty, 2008). In fact, Whitty's (2008) study found no significant differences between the sexes on any of the items that were listed as preferences for potential partners. A recent meta-analysis of ideal partner preferences found that both physical attractiveness and earning potential both resulted in positive romantic evaluations and that there were no sex differences between women and men (Eastwick, Luchies, Finkel, & Hunt, 2014).

What is attractive in dating profiles?

Physical attractiveness is the single most important quality that daters are seeking in online dating, in a study nearly 97% of men and 83% of women listed it as most important (Whitty, 2008). Photographs are the most salient feature of a dating profile as initial decisions about whether to read a profile and contact a potential romantic partner are first made with the photograph (Ward, 2017; Whitty, 2008). Photographs are also the most significant predictor of overall profile attractiveness, producing a halo effect where the attractiveness of the photograph influences perceptions of the attractiveness of other profile elements (Fiore et al., 2008). Norton, Frost, and Ariely (2007) found that daters who encountered profiles that appeared "too good", whose profiles more closely resembled their ideal self than real self, were liked less. This has been further clarified in a study by Wotipka and High (2016) who found that profiles that had higher selective self-presentation (SSP), where they contained more highly positive content than lower SSP profiles, evoked less desire to date in participants because social attraction was reduced. However, this only occurred when warranting value was high. Warranting, providing evidence to support claims made in a profile, for example photographs of an activity mentioned as an interest, or writing humorously in the profile rather than an individual stating that they are funny, increases trust but high SSP nullifies the effects (Wotipka & High, 2016).

The text element, usually an "about me" section, is also important for judging attractiveness. It is primarily important to have an attractive photograph in a profile, but it is also vital to have a profile text that is rated as attractive in order for the whole profile to be considered attractive (Fiore et al., 2008). Profile texts were considered more attractive when they projected particular qualities. For men they were considered more attractive when they were rated as more genuine and trustworthy, extravert, and rated higher on being both masculine and feminine. Fiore et al. (2008) found that there was no connection between the length of the profile text, or the emotional language and attractiveness. The attractiveness of women's profile texts was not associated with any of the dimensions measured.

Given that daters attend carefully to the smallest cues in their profiles (Ellison et al., 2006; Whitty, 2008), it is not surprising that differences in type of online dating screen names are also related to attractiveness (Whitty & Buchanan, 2010). A typology of screen names was developed through content analysis, and items from the categories were chosen as stimuli to be rated for attraction and motivation to contact. The physical category of names contained usernames like *Hottie*, *Kissme*, *Greatbody* and *Goodlooking*, and this component was rated as more attractive and more motivating to contact by men than women. Women rated them unattractive, but their motivation to contact these names was neutral. Women rated the neutral group of usernames, containing names like *Jt28*, as more attractive than men did, but both men and women disliked these names and were unmotivated to contact them. Women rated the intellectual grouping, with names like, *Welleducated*, *Artist* and *Cultured*, as attractive and were motivated to contact, whereas men gave neutral ratings on this component (Whitty & Buchanan, 2010). The most unattractive names were the neutral ones, and those from the wealthy component, including names like *Silverspoon*, *Millionaire.* In general men were more likely to contact names from all components than women, with women being choosier than men. This illustrates the importance of small cues in a CMC environment with reduced cues like online dating, as theorised by Walther (1992, 2007) in SIP theory.

Daters have a tendency to approach their search with a list of qualities, much like a shopping list, and the increased choice that they have available encourages them to add to the list and be more particular about their criteria (Heino et al., 2010). Qualities that both male and female daters seek out include physical characteristics such as attractiveness, size or weight, height, and age, as well as similar interests and values, socio-economic status, personality including honest and genuine qualities, unique people with different interests to their own, and whether or not they have or want children (Whitty, 2008). Interestingly, women who stated their preferences for an ideal partner were more likely to receive replies to their messages than women who did not (Fiore et al., 2010).

Many of the preferences that have been seen in studies of online daters align with evolutionary theories of attraction. Men consistently seek out younger partners, even more so as they age, whereas women tend to seek out older partners with a smaller range of acceptable ages than men, and women are more selective and tend to state a greater number of and more restrictive preferences for partner requirements than men (Alterovitz & Mendelsohn, 2009; Fiore et al., 2010). Individuals, both men and women, who stated more preferences in an ideal partner were more likely to reply to messages, indicating perhaps that people who did not fit the ideal description did not reach out to contact them in the first place (Fiore et al., 2010). In a large study of 22,000 online dating site users, Hitsch and colleagues (2010) found that women preferred men who were attractive, older, taller than themselves, had higher levels of education, were looking for a relationship, had higher income and who were the same ethnicity as themselves. Attractiveness was the strongest predictor, but men who stated that they were not looking for a relationship were viewed as 41% less attractive than those who were. Men found women attractive when they were attractive, slim, shorter and younger than themselves, and the same ethnicity as them. They avoided women who were more educated and sent more first contact mails when women stated their dating motivation was casual sex. Reinforcing evolutionary theories of mate selection, women had stronger preferences and more preferences than men.

More recently, a study of a decade of user activity on the dating site eHarmony has been conducted, but as yet has only been reported in a pre-print (Dinh, Gildersleve, & Yasseri, 2018). However, longitudinal studies in online dating are rare, so the results of this study will be discussed with caution, given that they are not yet peer-reviewed. eHarmony is designed for individuals who are interested in more serious relationships, and it proposes to guide users to meet new partners using algorithms focused on personality traits. This analysis focused on partner preferences over twelve years and found that men and women had very similar preferences for particular attributes such as smoking, ethnicity, drinking level, education, income and religion, and that women typically had stronger preferences for those attributes than men. Physical attractiveness was the strongest predictor of

communication rates for both men and women. The researchers observed some changes over time, where the strength of preference for characteristics like income and education had reduced over time for both men and women (Dinh et al., 2018). This indicates support for the socio-structural theory of mate preferences, where, as society achieves greater gender equality, as Western society continues to do, sex differences in mate preferences should reduce (Eagly & Wood, 1999; Wood & Eagly, 2002). However, given that the algorithms used to determine which profiles are shown to each dater are not available for examination, and these will have an impact on who daters see and choose to contact, it is uncertain if the trends over time on eHarmony are as a result of changing partner preferences or as a result of algorithm changes. Evidence from annual US population surveys indicate that marital matching on income has substantially increased over time, with high earning women five times more likely to marry similarly high earning men than low earning men than they were in 1970, and men are three times more likely to marry similarly high earning women now than then (Milanovic, 2019). This indicates substantial matching on income signifying that it may actually be an important factor, however it appears to be important for both sexes.

The language used in online dating profiles is important in communicating about the profile owner. Small manipulations in the content can convey a different impression (Strassberg & English, 2015), and particular use of language can influence whether or not someone will reply to a message (Schoendienst & Dang-Xuan, 2011). Strassberg and English (2015) conducted an experimental study which posted manipulated text-only personal ads on the personals section of Craigslist, a classified ads site, and measured the responses to them. Women's profiles designed to emphasise attractiveness rather than passion or successfulness, and men's profiles emphasising financial success rather than physical attractiveness or romance garnered many more replies (Strassberg & English, 2015). Some aspects of this study need to be examined for validity however, as the men's experimental profiles in particular were phrased in a manner that may not have conveyed the intended impression. The male profile that was designed to emphasise attractiveness stated that ''women tell me I'm attractive'' which resulted in very

few responses from women. The profiles that intended to communicate a more romantic man had the phrase ‘‘hopeless romantic, looking for a woman to adore,’’ which also received very few responses and could have been interpreted as creepy or intense rather than romantic. There were also some serious ethical issues with a lack of informed consent for participants. However, the findings overall do support theories of sexual selection.

Schoendienst and Dang-Xuan (2011) analysed 167,276 initial messages from an online dating site for a variety of linguistic properties and examined which linguistic cues were related to the target’s decision to reply.
They also looked at the effect of physical attractiveness on reply rates and controlled for this in the analysis of linguistic cues. A considerable number of their hypotheses were supported. More attractive senders received more replies from targets, particularly male targets. The more attractive a female target was, the less likely they were to reply to initial messages, in all likelihood because they received many messages and could afford to respond only to the most interesting or attractive senders, but in contrast highly attractive male targets were more likely to reply. Women were more likely and men less likely to reply to longer messages, which may be because women are more concerned with and use more depth and breadth of talk in relational maintenance than men (Dainton & Stafford, 1993). Higher use of self-references, which has been linked to depression and neuroticism, reduced the rate at which targets replied, however using more second person pronouns like *you* increased the reply rate, perhaps indicating that focusing on the target is a successful strategy in initial contact messages. More social words increased the reply rate for both men and women, but more leisure words resulted in both men and women replying less. Using sexual words increased the reply rate for men, but not for women, whereas positive emotional words did not change men’s reply rate but increased women’s. It is clear that the language that daters choose to use to express themselves impacts the impression that they construct and how that impression is formed by others. This can lead to better or worse success in dating.

Actual and perceived similarity

Homophily is the tendency of individuals to bond with others similar to themselves – the proverb says, "*birds of a feather will flock together*". There is evidence from a substantial body of research that people are more likely to partner with individuals with similar characteristics to themselves, including physical attractiveness, socio-economic status, ethnicity, attachment style and personality traits (Montoya et al., 2008). Similarity implies positive information, which affects assessments of the capacity and willingness of the target to meet the individual's needs or goals, and thus leads to attraction (Montoya & Horton, 2014). The effect of similarity on attraction has two aspects: actual similarity, where two partners are actually matched on a number of attributes such as ethnicity, religion, or educational level for example; and perceived similarity where one or both partners perceive that they are similar on a range of attributes such as personality, values and attitudes, but where they may or may not actually be similar (Montoya et al., 2008). In lab based and stranger interaction studies, actual and perceived similarity lead to attraction, however the effect of actual similarity reduces after short interactions and does not have an effect on existing relationships. Perceived similarity on the other hand, is found to have an effect on both stranger and existing relationships, but the direction of the effect on existing relationships is unclear – attraction may increase perceived similarity, or vice versa. The overall effect of actual (r = .47) and perceived (r = .39) attraction is significant with a moderate effect size.

Tidwell, Eastwick, and Finkel (2013) conducted a speed dating study in order to test the influence of actual and perceived similarity in an ecologically realistic setting, as many studies examining similarity have been lab based. They found that actual similarity was not a significant predictor of attraction in speed dating, but that perceived similarity was, particularly when assessed in a general holistic manner rather than a trait specific manner. Perhaps actual similarity can only have an effect on attraction when traits are perceivable, and in high self-presentation or demanding contexts such as speed dating, it is more difficult to accurately perceive

others. This may be relevant in an online dating context where the brevity of profiles and the high self-presentation levels may make it difficult to accurately perceive actual personality traits, making perceived traits more salient.

Similarity in online dating

Online daters show strong preferences in mate selection towards similar individuals. This occurs across many areas including ethnicity, religion, marital status, smoking, education (Fiore, Taylor, & Zhong, 2010; Fiore & Donath, 2005; Hitsch et al., 2010) and political attitudes (Huber & Malhotra, 2017). Homophily in some characteristics is more bounding than others – for example Fiore and Donath (2005) found that marital history and wanting children were the most strongly influential similarity characteristics, whereas preferences towards and ownership of pets was the least influential in online dating. Dater's preferences for potential partners similar to themselves can be seen more strongly in their actions than in their stated preferences for particular characteristics such as ethnicity and religion (Fiore et al., 2010; Hitsch et al., 2010). One attribute where daters specifically contact less similar individuals in online dating is physical attractiveness. All daters have a preference for physically attractive others, particularly daters who have high self-worth or who are attractive themselves, but even daters with low self-worth and attractiveness prefer more attractive others and are more likely to contact them than less attractive potential partners (Hitsch et al., 2010; Kreager, Cavanagh, Yen, & Yu, 2014; Shaw Taylor, Fiore, Mendelsohn, & Cheshire, 2011). However attractive people are significantly more likely to respond to attractive others (Hitsch et al., 2010). McGloin and Denes (2018) found that general similarity, asking participants three items related to how similar they felt the person in a dating photograph might be, was indirectly related to attractiveness and was mediated by trustworthiness.

While most people intuitively believe that the more they know about someone the more they will like them, in fact more information tends to lead to less liking on average. Early impressions tend to be more positive because with

ambiguous information and without evidence of dissimilarity, a mistaken impression of similarity is made. However, with further information, dissimilar information is more likely to be encountered, which affects the interpretation of all subsequent information negatively (Norton et al., 2007). Norton, Frost and Ariely (2007) examined this effect with online daters before a face-to-face date, measuring their excitement and expectations about the date, knowledge about and perceived similarity to their dating partner. After their date the participants completed the same measures, and on average and for the majority of participants liking went down after the first date as they gained more knowledge about their dating partner, particularly for women. More information decreased perceptions of similarity, again in particular for women. There were a few highly positive ratings after the date, indicating that for a few individuals more information led to greater liking, but for most liking was reduced. More experienced online daters typically had lower expectations of dates, but only after the first date. It appears that even experienced online daters suspend disbelief for first dates and become more realistic thereafter. Perhaps a positivity bias encourages daters to cast a wide net and give many potential partners a chance, and encourages them to persist with a screening process that most describe as unenjoyable (Norton et al., 2007; Zytko et al., 2014). A longitudinal study of daters who participated before and after a first date and at a number of points up until ten weeks post-date, found that perceptions before the first date of how well they knew the other person, how attractive they were, how similar they were, and how close to their ideal partner they were, were not predictive of relationship longevity (Fiore, Shaw Taylor, & Cheshire, 2011). However, those judgments after the first date were significant predictors of longevity, indicating support for media richness theory where a richer communication channel such as a face-to-face meeting, is more appropriate for contexts with high ambiguity (Daft & Lengel, 1983).

Personality

Personality psychology is centred around the concept of traits, patterns of behaviour, thoughts and feelings that are relatively consistent over time (McCrae & John, 1992). In recent decades there has been a broad consensus in the field of personality research that the Big-Five taxonomy of personality traits represents a structure explaining a large portion of individual difference in humans. The Big-Five traits: extraversion, agreeableness, conscientiousness, openness (or intellect) and neuroticism (or emotional stability) describe five orthogonal factors, each containing a cluster of related facets (McCrae & Costa, 2008). Due to the consistency of the patterns of behaviour associated with traits, they allow us to empirically generalise about how others with similar traits might act and react. Those high in extraversion tend towards an energetic approach to the world, particularly social aspects, and are more sociable, active, assertive and generally more positive in their emotionality. More agreeable individuals have a prosocial and communal approach towards others, and are more altruistic, trusting, modest and tender-minded. Highly conscientious people have strong impulse control, particularly over areas that are socially prescribed. That control facilitates goal and task directed behaviour, allows them to delay gratification, think before acting, follow rules, plan, manage and prioritise tasks. Emotional stability and neuroticism are the two poles of a single dimension, where emotional stability indicates even-temperedness and neuroticism indicates negative emotionality such as anxiety, sadness or tension. Openness or intellect relates to an individual's mental and experiential life in terms of originality, depth and breadth, and complexity (John, Naumann, & Soto, 2008; McCrae & John, 1992; McCrae & Sutin, 2009).

Support for the validity and universality of the Big-Five system comes from its replication over many nationalities (John et al., 2008), its relative stability over time (McCrae et al., 2005), its substantial basis in genetics meaning that it is derived in part from biological structures and processes (Caspi, Roberts, & Shiner, 2005), as

well as the development of the model from two different perspectives, lexical and statistical, with surprising convergence (Loehlin, McCrae, Costa, & John, 1998).

Effect of the Big-Five traits on life outcomes

Although the FFM is not a theory, it adopts the basic principles of trait theory. It assumes that individuals can be characterised by variables of individual difference, that is patterns of thoughts, feelings and actions that are relatively enduring, that those traits can be assessed in a quantitative manner, and that they show some consistence across various situations. It acknowledges four assumptions about human nature: that it is knowable and therefore can be scientifically studied, that it is rational and we can therefore understand ourselves and others, that it is variable and that we differ from each other in ways that are psychologically significant, and that it is proactive, that the locus of human action is within the person (Gosling, Rentfrow, & Swann, 2003).

Mayer (1998; as cited in McCrae & Costa, 2008) posited that personality may be viewed as a system, and that as such a theory was needed in order to define the system, the components of the system needed to be described, and that the organisation and interaction of those components must be modelled. Five-Factor Theory (FFT) describes a personality system that distinguishes between traits as basic tendencies and characteristic adaptations which are concrete manifestations of those traits, the patterns of behaviours that allow us to infer traits. Characteristic adaptations are part of the consistent psychological core that help the individual fit into the everyday social environment, such as habits, social skills, attitudes and plans. These can develop over time, they can vary in different cultures, and they can change in response to social roles, changes in environment and interventions, which personality traits generally do not (McCrae & Costa, 2008).

A substantial and continuously growing body of research has examined the Big-Five traits in a variety of contexts and situations, across time, and in different populations, as well as examining accuracy of personality perception between self

and other raters (Connelly & Ones, 2010). The Big-Five individual traits have been successful and useful in predicting behaviours and major life outcomes, from job performance to health outcomes and longevity (Ozer & Benet-Martínez, 2006). Ozer and Benet-Martínez (2006) describe how happiness and subjective well-being are affected by personality traits particularly related to temperament, with higher extraversion and emotional stability leading to happier lives and greater well-being. Unsurprisingly then, traits also have an important impact on how we engage in our significant relationships with others. This is particularly visible in romantic relationships where low emotional stability and low agreeableness are strong predictors of negative relationship outcomes and high conscientiousness and agreeableness predict relationship satisfaction (Karney & Bradbury, 1995).

Personality online

Trait theory, led primarily by the Five-Factor model (McCrae & Costa, 1996), or secondarily by the three factor EPQ (Eysenck & Eysenck, 1975) dominates personality research online. It has been repeatedly shown that traits have some influence on the preference for specific online platforms, and that the way that individuals use those platforms also varies by trait. For example, extraversion, openness and emotional stability are predictors of social media use (Correa, Hinsley, & de Zúñiga, 2010). However, of particular interest to this research is expression of personality across different platforms by individuals. Characteristic adaptations would suggest that individuals will project their personality differently as they interact with the unique environments of different online platforms such as Facebook, LinkedIn or online dating, but that there would be an underlying pattern to that expression in similar situations (McCrae & Costa, 2008).

A number of studies have looked at the difference in expression of personality online and offline. Blumer and Doering (2012) conducted a repeated measures study using two versions of the NEO-FFI (Costa & McCrae, 1992). They administered the NEO-FFI to 122 undergraduate students, and a week later a modified version of the measure was administered in which all items referred to CMC and behaviour on

the internet. In four of the five factors of personality there was a decrease in the influence of personality traits in the context of behaviours and experiences online. Neuroticism displayed a different effect, where participants displayed higher emotional stability in the context of CMC and the internet. An interesting study of expression of personality within offline social networks by Clifton (2014) illustrates how these theories might be applied to online social networking. Two related studies had a combined sample of 163. Participants completed a Five-Factor model inventory and created a map of their own social network containing the thirty most important relationships to them. A brief Five-Factor model scale was used to rate their own personality as they experienced it with each of the members of their social network. Multiple informants were drawn from their social network and each informant rated the target participant's personality. Participants experienced different expressions of their personalities with different members of their social network, and the informants corroborated these differences. These contextual ratings of personality showed stronger validity than the standard global self-report in predicting informants' perceptions. The validity of the contextual ratings of personality could be predicted by the position of the informants in the social network (Clifton, 2014).

However, Marriott and Buchanan (2014) found that while people may feel that they are more able to express their true self online, their offline social circle remains a better judge of their traits, particularly for lower emotional stability. These are examples of traits interacting with a specific online or offline environment to affect a different expression of personality, and this may have an impact on the expression and perception of traits in an online or text-based environment. If traits are expressed differently in particular contexts on or offline, the question becomes: which are most aligned with the self-reported or actual traits of the individual and is the expression of traits in each context consistent enough to allow accurate zero-acquaintance perceptions of traits in text?

Personality and online dating

A number of studies have examined differences in personality characteristics of on- and off-line daters, as well as comparing online dating site and app users. Several differences have been found in psychological characteristics such as higher levels of trust indicating less online dating use (Kang & Hoffman, 2011), attachment orientation influencing the platforms daters might use (Chin et al., 2019) and how they use them (Blackhart, Fitzpatrick, Williamson, 2014; Hance, Blackhart, & Dew, 2018). Timmermans and De Caluwé (2017b) examined differences between Tinder users and non-users across the Big-Five personality traits. Tinder users were moderately higher in extraversion and openness, and a little lower in conscientiousness than non-users, with no differences in agreeableness and neuroticism. Poley and Luo (2012) tested the social compensation hypothesis in young people's use of online dating, looking at: the Big-Five personality traits, dating anxiety, attachment, social skills, and self-esteem. They expected to find that less socially competent; that is lower self-esteem, less socially-skilled, less extravert, less agreeable and more anxious, participants would have a stronger preference for and use of online dating and more socially competent participants would have a preference for face-to-face dating. However, social competence had little effect on preferred or actual behaviours in dating, with both sets of participants preferring and engaging more in offline dating (Poley & Luo, 2012). This may be because overall many daters find online dating to be frustrating and anxiety-inducing because of the difficulties in expressing themselves and perceiving others (Frost et al., 2008; Zytko, Grandhi, et al., 2014). In fact, Frost and colleagues (2008) found that daters would rather watch a movie at home than engage in online dating, indicating that dating can be a difficult, time consuming and perhaps unpleasant process for many. Fiore and colleagues (2010) found that women who were higher in the traits of general caution and neuroticism, were more likely to contact others on dating sites, perhaps in an attempt to control communications, or to evaluate a

larger pool of potential mates. Women higher in general caution were also less likely to respond to men's messages.

While there appear to be few psychological differences in online and offline daters and between platforms, particularly on the Big Five traits, the intensity of use and motivations to use online dating platforms may be predicted by psychological factors such as higher self-esteem predicting less use for fun or hooking up and more likely to use it to find a relationship (Bryant & Sheldon, 2017).

Personality and self-presentation in CMC

As this research looks at the perception of online dating profile texts, it is important to consider the influence of textspeak on personality perception in a CMC context. SIP theory explains how in CMC with reduced non-verbal cues available, users adapt the remaining cues to communicate complex social and emotional information (Walther, 1992), and emoticons and textspeak are two of the ways in which people do this. Impressions of textspeak were compared in two contexts: a social media 'about me' profile, and a personal statement for a university application and participants judged the profile owners Big-Five personality traits and self-esteem (Fullwood, Quinn, Chen-Wilson, Chadwick, & Reynolds, 2015). Six profiles were created, two contexts and three different manipulated levels of textspeak in each: Standard English, low and high textspeak. There was no difference between the two contexts for all traits and textspeak conditions, however, personality was predicted by textspeak use. Self-esteem was perceived by judges as higher in the Standard English condition compared to high textspeak, whereas emotional stability was predicted by both low and high use of textspeak. Use of either high or low textspeak resulted in perceptions of lower conscientiousness and openness compared to Standard English. It is possible that the context made little difference because both 'about me' texts and university application statements are high impression-management contexts, and impressions of conscientiousness and openness both suffer with the use of text speak. The connection between higher emotional stability ratings and textspeak might be that

emoticons and other textspeak elements help to increase intimacy (Liu, Lin, & Huang, 2013) and friendliness in CMC (Taesler & Janneck, 2010). The significance of the low textspeak results indicates that a small amount of textspeak can leave a significant impression.

A number of studies looking at the use of emoticons in the workplace found that they can add contextual information to an email above the actual content of the message, but they weaken work-related emails at the appeal level, which is the level that provides information about the response expected by the sender (Ernst, Huschens, Herrmann, & Hoppe, 2018). However, the findings from the studies are mixed on positive and negative impacts of emoticons on perceptions of the email sender. Positive emoticons appear to have no effect on perception of competence, but they do appear to have a positive effect on perceptions of friendliness and humour which could be important in perceptions of personality in dating profile and other texts (Ernst & Huschens, 2019).

Personality and self-presentation in online dating

There are few studies examining self-presentation and personality in online dating. Clemens and colleagues (2015) examined the influence of narcissism, self-esteem, and motives to date online on actual, ideal, ought-to, and false self-presentation on Tinder with 156 participants. The measures of each of the type of self-presentation were single items and included quite specific examples of usage and so may not have fully captured the concepts of self-presentation that the authors had hoped for. For example, *"I choose those picture(s) for my Tinder profile so as to attract the right potential matches"* was used as the measure of ought-to self-presentation, and *"I select picture(s) for my Tinder profile that do not show myself, but another (more attractive) person"* as the measure of false presentation, one that is quite an extreme example of deception (p. 11). Given that we know most deception in online dating is minor, strategic or involves exaggeration rather than outright lies, this does not seem the most appropriate choice (Toma, Hancock, & Ellison, 2008; Toma & Hancock, 2010). However, they did find connections

between the different types of self-presentation and demographic, personality and motivations. Greater actual self-presentation was more likely when daters were motivated by seeking a romantic relationship or by casual dating. Ideal self-presentation could be predicted, though not strongly, by lower self-esteem and by gender, where women were more likely to present their ideal self than men. Ought-to self was positively predicted by seeking a relationship as a motivation to date online and having higher self-esteem. False self-presentation was most frequent among those casually dating, those with high narcissism, and most strongly of any of the correlations, with lower self-esteem.

A later study by Ranzini and Lutz (2017) using a more reliable and tested scale developed to measure real and deceptive self-presentation, (Michikyan, Dennis, & Subrahmanyam, 2015), and a larger sample of 497 participants, looked at relationships between self-presentation, personality characteristics, demographic information and motives for using Tinder. They found that in general people were more likely to present their real self than a false self. Higher self-esteem increased the likelihood of real self-presentation, and low self-esteem predicted greater use of deceptive self-presentation. Of the Big-Five traits, extraversion was the only trait that positively predicted misrepresentation in online dating in a large study of 5,020 daters (Jeffrey Hall et al., 2010), where those higher in extraversion were more likely to misrepresent their past relationships, but less likely to deceive about their personal interests. Extraverts are more likely to have a greater number of sexual partners, and may feel it necessary to misrepresent that information in attracting new partners (Nettle, 2005). Openness, conscientiousness and agreeableness all negatively predicted deception in a number of areas. People higher in openness were less likely to deceive about relationship goals and personal interests, as were conscientious individuals, who were also less likely to lie about personal assets, and agreeable people were less likely to lie about all categories except weight (Jeffrey Hall et al., 2010). The most predictive trait of misrepresentation however, was other-directed self-monitoring, individuals who are more attuned to the needs of others are also more likely to adapt their self-presentation to attract them (Jeffrey Hall et al., 2010).

Personality and attraction

Personality is important in successful and satisfying relationships, particularly emotional stability, conscientiousness and agreeableness (Karney & Bradbury, 1995). Low emotional stability and low agreeableness strongly predict negative romantic relationship outcomes, while high conscientiousness and agreeableness predict relationship satisfaction. These traits are consistently valued as desirable personality characteristics in romantic partners (Botwin, Buss, & Shackelford, 1997; Buss, 1989; Furnham, 2009; Todosijević, Ljubinković, & Arančić, 2003), which makes sense in terms of capacity and willingness to create successful relationships. Openness is not as consistently recognised as attractive due to the strong effect of attraction similarity with this trait. Those who are high in openness value it and find it socially desirable in others, however those who are low in openness dislike it in others (Konstabel, 2007). Extraversion is a trait that is less evaluative, it is neither as strongly socially desirable nor as undesirable as other traits (Funder & Dobroth, 1987; Vazire, 2010). However, Botwin, Buss, and Shackelford (1997) conducted two studies with married and dating couples to determine personality preferences in partners. While agreeableness and openness were the two most highly desired traits, conscientiousness was also highly desirable, and each of the five factors had a socially desirable pole. Women had strong and more exacting preferences than men on desirable traits, particularly on preferences for men who were stronger on the dominant facet of surgency (Botwin, Buss, & Shackelford, 1997), which is the disposition towards positive effect, sociability, and high activity and is related to extraversion (Holmboe, 2016).

Several studies have examined the traits and characteristics that people find most important in a potential mate, and personality and abilities tend to be rated as more important than physical attractiveness (Buss, 1989; Furnham, 2009; Todosijević et al., 2003). Although in online dating, physical attractiveness tends to be listed as most important (Whitty, 2008) likely because photographs are the first point of filtering potential partners and so are particularly salient. There is strong agreement across both sexes on the importance of personality in attraction, and in

the ordering of the specific traits that are preferable in relationships (Furnham, 2009; Todosijević et al., 2003).

A recent review of the literature on assortative mating concluded that there are many dimensions on which couples are likely to match: from the strongest matching on variables like age, education, and attitudes; to weaker matching on characteristics like values and intelligence. Personality is one area that couples tend to match, but it is also one of the weaker attributes for matching (Luo, 2017). In online contexts, attraction to authors of blogs has been associated with similarity of perceived personality traits, specifically agreeableness and openness, but not actual traits (Li & Chignell, 2010). A study comparing face-to-face and Facebook perceptions of traits and attractiveness found considerable differences between the two (Cemalcilar, Baruh, Kezer, Kamiloglu, & Nigdeli, 2018). Overall, perceived similarity had a significant effect on attraction. However, individuals also preferred others who were better versions of themselves, that is higher on socially desirable traits, but only up until a point after which a larger difference reduced attraction. Perceived target traits predicted attractiveness, with openness as a predictor in both face-to-face and the Facebook context, agreeableness in face-to-face and neuroticism in Facebook. There was more attraction face-to-face when the perceiver and target had similar levels of actual rather than perceived neuroticism, but no effect of actual similarity in the Facebook condition. Perceived similarity had different relationships with attraction than actual similarity, but there were considerably more significant relationships in the face-to-face condition than Facebook. In the face-to-face condition, openness and conscientiousness attracted higher levels of attraction when the target and perceiver had similarly high levels of each trait, but even more so when the target was perceived to have higher levels of each trait than themselves. Perceived similarity of agreeableness, and low neuroticism were also related to attraction. In the Facebook condition there was no effect for perceived similarity. Overall this indicates that the socially desirable poles of traits will typically be considered more attractive, but that perceived traits may be a substantially more important influence on attractiveness in online texts than actual traits.

Personality and attraction in online dating

There is little research on personality traits and attractiveness in online dating. Norton and colleagues (2007) used online daters as participants for a number of lab studies showing that the proportion of shared traits in a list of personality traits was related to liking. More shared traits led to more liking, however the total number of traits was negatively related to liking, because the participants perceived more dissimilarity when exposed to a longer list of traits, and dissimilar traits reduced liking and negatively impacted the evaluation of traits encountered subsequently. Dissimilar traits encountered early had a significantly higher negative effect on overall liking and perceptions of similarity than those encountered later. The attractiveness of a dating profile and personality traits of a dater may affect the extent to which people self-disclose to a potential dating partner online. In a sample of female daters, Tait and Jeske (2015) found that trusting and extravert individuals were more likely to share personal and potentially identifying information, particularly if a profile was attractive. Fiore and colleagues (2010) found that men appeared to be less attractive if they were higher in general caution as they were contacted less by women, though it was unclear what cues indicated the trait to women.

Three studies examined personality with the Big-Five traits and attraction in the specific context of online dating and found relationships between traits and attractiveness. An experimental study manipulated dating profiles that were designed to present an impression of either free-spirited open, or uptight conservative personality profiles (Jin & Martin, 2015). Profiles were created for the same man and woman in each personality type, resulting in four experimental profiles. The open personality types were dressed in revealing beachwear, whereas the conservative profile types wore winter clothing. There were no profile texts, but a number of other cues were manipulated to express cues related to extraversion and openness, such as a follower and following count and popularity level, and listings of hobbies or interests, where the open type were social and less intellectual in nature, and the conservative interests were those that could be done alone or

were more serious. Participants' perceptions of the Big-Five personality traits, trustworthiness, and interpersonal attraction were measured, and the conservative profiles were found to be more trustworthy and attractive, as well as higher in agreeableness, consciousness, and neuroticism. Open profiles were found to be higher in extraversion and openness. The relationship between the conservative profile type and attraction was mediated by trustworthiness, but no analysis of the effect of traits on attraction was conducted.

In a study of eHarmony users, several attributes related to personality traits as well as other characteristics were predictors of attractiveness (Dinh et al., 2018). Men were considered more attractive, measured by the number of messages from unique users they received per active day on the site, most of all when they were more altruistic, had a higher drinking level, were younger and were less oriented toward conflict resolution. Additionally, being romantic, more agreeable, less neurotic and less clever predicted men's attractiveness. It is unclear why men considered less clever would be found less attractive, as education is typically an attractive quality, particularly in men and has been related to attractiveness in online dating (Hitsch et al., 2010), however perhaps cleverness as rated by daters on eHarmony captures a different quality than intelligence. Merriam-Webster (2019) defines cleverness as not only related to mental quickness and resourcefulness, but also wit and ingenuity. Women were more attractive when they were athletic, this was the strongest predictor, but was much smaller than the weakest predictor of men's attractiveness. Women were also considered more attractive when they had photographs, were romantic, altruistic, and sexual. Overall, the strength of men's preferences were considerably lower than women's preferences for male characteristics, supporting sex difference theories of mate preferences (Dinh et al., 2018).

Lange, von Andrian-Werburg, Adler, and Zaretsky (2019) looked at the effect of the Big-Five personality traits and narcissism on attractiveness of online dating usernames, measuring attractiveness through how motivated participants were to contact the owner of the username. Participants also rated the perceived

personality traits of the username owners. Participant traits were significant predictors of contact motivation, with more conscientious, less neurotic and narcissistic women more likely to be motivated to contact men. Open and neurotic men were more likely to be motivated to contact women. The perceived traits of the username owners were also predictive of motivation to contact. When men and women were perceived as more conscientious and less neurotic, both women and men had higher motivation to contact them. Additionally, when women were more narcissistic, men had higher contact motivation toward them. This indicates that perceived traits can be important to judgements of attraction even in extremely thin-slice contexts.

Conclusion

There is high goal-oriented motivation in online dating to self-present a positive but accurate image of the self in order to attract potential partners, and daters display or omit specific aspects of themselves in order to appeal to what they feel others desire, and to match their own desired goals. The impressions they create are still related to how they see themselves, but they may emphasise different aspects of themselves, such as their attractiveness, to achieve their goals in a particular context such as online dating (Ellison et al., 2011; Ellison et al., 2006; Emanuel et al., 2014; Vasalou & Joinson, 2009; Whitty, 2008; Zytko, Grandhi, et al., 2014). The evidence suggests that daters find it difficult to express the complexity and richness of who they are within the limitations of dating platforms, and that this causes them frustration, anxiety and a fear of rejection. At the same time, they find it similarly difficult to form accurate impressions of other daters, particularly of their experiential attributes such as personality. This causes equal frustration at wasted time spent talking to a potential partner who was not as they perceived or feelings of having been deceived by a communication partner (Fiore et al., 2011; Frost et al., 2008; LeFebvre, 2018; Norton et al., 2007; Zytko et al., 2018; Zytko, Grandhi, et al., 2014). Media richness theory suggests that online dating profiles may not be a rich enough context for ambiguous communications to be successful, such as getting to know someone that you have never met face-to-face (Daft &

Lengel, 1983). This thesis seeks to address this frustration that daters experience, by examining whether or not personality is expressed, is detectable, and can be perceived by individuals in dating profile texts. It will examine the process of interpersonal perception in this context to determine if, or indeed where, it breaks down, causing incorrect judgements to be made.

Additionally, it is known that online daters engage in deception in their profiles, through exaggeration, omitting information, or outright lies and this may further obscure relevant information to accurate perception of personality and other experiential characteristics (Ranzini & Lutz, 2017; Toma et al., 2008; Toma & Hancock, 2010). However, most daters do present their real self more than a false self, indicating that some of the information they provide will be relevant and honest (Ranzini & Lutz, 2017). Self-disclosure may also impact on the perception of personality traits, but this has not been examined in an online dating context previously.

While there is considerable research on the traits of those who choose to date online and why they do so, there is little research on how personality traits impact on attraction in online dating. Personality is important in successful relationships (Karney & Bradbury, 1995), and is also consistently rated as important in attraction, with the socially desirable pole of traits more desired than the undesirable poles (Botwin, Buss, & Shackelford, 1997; Buss, 1989; Furnham, 2009; Todosijević, Ljubinković, & Arančić, 2003). However, only one study has examined this in an online dating related context, and in an experimental format rather than an ecologically valid one. Norton et al. (2007) found that shared traits led to more liking, and dissimilar traits led to less liking when participants were presented with a list of traits. There is strong evidence of the effect of similarity in online dating across a multitude of attributes other than personality traits (Fiore et al., 2010; Fiore & Donath, 2005; Hitsch et al., 2010). This thesis aims to address that gap in the literature by examining the effect of actual and perceived personality traits, as well as actual and perceived similarity of personality traits in online dating texts.

The next chapter in this thesis is concerned with a comprehensive structured review of the literature related to expression and perception of personality in textual contexts. This was considered necessary and appropriate in order to determine whether personality is expressed in language, and if so, which linguistic cues are linked to each trait, and to determine whether traits can or cannot be judged accurately, and which cues are utilised in making those judgements. This is followed by three research studies, two of which examine the expression of personality traits. The first assesses expression of traits in online dating profiles across different platforms; the second in two contrasting contexts, online dating profile texts and creative writing stories. The third study examines the accuracy of perception of personality traits in dating profile texts and creative writing stories, the cues used to make judgements of personality, as well as attraction related to traits in those contexts. Together the structured review of the literature and the three research studies aim to address one aspect of the difficulties that daters encounter when presenting themselves and perceiving others on online dating platforms.

Chapter three: Rapid structured literature reviews of expression and perception of personality in text

This chapter examines expression and perception of personality in text. It begins with an introduction to the literature on linguistic expression of personality, followed by an introduction to interpersonal perception covering the models that are used to understand perception, the factors that affect accuracy of perception of personality traits, and some examples of the model applied to online contexts in the literature. This is followed by the two Rapid Structured Literature Reviews (RSLR; Armitage & Keeble-Allen, 2008) of the literature on expression of personality in text and accuracy of personality perception in text-only contexts. The RSLR follows a similar model to a systematic review, in that it is an intentional, systematic, transparent and replicable process. However, it makes allowances for the review to be completed under the constraints of a shorter timeframe by removing the need for multiple judges of quality, and an understanding that some studies such as unpublished manuscripts and grey matter may not all be included. The purpose of an RSLR is to contribute to knowledge through the systematic examination of a body of literature.

The chapter contains two separate but related rapid structured literature reviews (Armitage & Keeble-Allen, 2008). The first, is a review of the literature on personality expression in written language, with a focus on a dictionary of language categories as developed by the authors of the programme Linguistic Inquiry and Word Count (LIWC 2001, 2007, 2015; Pennebaker, Boyd, Jordan, & Blackburn, 2015; Pennebaker, Chung, Ireland, Gonzales, & Booth, 2007; Pennebaker, Francis, & Booth, 2001) and their relationship to the Big-Five personality traits. This review of expression of personality in text aimed to answer three research questions. The first, whether or not personality is detectable in text-only contexts. The second, to find out which, if any, textual cues are associated with personality traits. Third, whether or not context affects the detection of traits and the cues associated with them in text.

The second RSLR is a review of the literature on personality perception, specifically of the Big-Five traits, in text-only contexts. The purpose of the second review was to answer three research questions. The first, whether individuals can accurately perceive traits in text. The second, what cues they utilise to do so and whether those cues are valid or not. Third, whether context affects the accuracy of interpersonal perception in text and the utilisation of cues in making judgements. This drew upon the first review of linguistic expression of personality to examine the language that may or may not be related to the accurate perception of traits in a text.

A large body of research has built up in the area of interpersonal perception in the last two decades. However, it is only relatively recently that attention has focused on personality perception in online situations such as social media and personal websites, and fewer again of those studies examine perception in text-only contexts. Given the frequency with which we communicate through text in our online communications, it is important to understand how we express our personality in text and how others perceive us when we do so. It is particularly important in situations such as online dating, where there is no face-to-face contact before engaging with a person online, and the express purpose of reading their profile or messages is to get to know the person before meeting offline.

A meta-analysis of personality perception in social media and text was conducted in 2014 (Tskhay & Rule, 2014) and found surprisingly few differences in accuracy of perception in both contexts, but also pointed out that there was a great deal of variation in the results across studies, particularly in text-only studies. Accuracy of perception was highest for extraversion at 0.33, conscientiousness was lower at 0.11 but still had confidence intervals above zero. The other three traits scored considerably lower and with wide confidence intervals including zero, agreeableness at 0.03 and neuroticism and openness at 0.07, indicating unreliable and highly variable results for those traits. The meta-analysis did not cover all of the text-only contexts available at that time, and the number of text-only perception studies have doubled since it was completed. The relatively limited number of

studies in the meta-analysis prevented the authors from examining the factors that might lead to greater or lesser accuracy of perception. Hence, a review of this literature is considered timely and important.

Linguistic expression of personality

Merriam-Webster's online dictionary (2019) defines language as "a systematic means of communicating ideas or feelings…". If personality is a set of relatively stable patterns of thoughts, feelings and behaviours (McCrae & John, 1992), it makes sense that the language of an individual might reflect their personality traits, giving valuable cues to their traits in the process. Self-presentation also plays a key part in how people behave and individuals tailor their self-presentation to different audiences and situations (Leary & Kowalski, 1990). However, language can give some clues about what an individual is attending to, how they associate with others, objects or events (Chung & Pennebaker, 2008). There are two main types of words within our language: content words, what people are communicating about, such as nouns (life, cat, Barcelona), verbs (will, am, talk), adjectives (brilliant, long, red) and adverbs (about, beyond, quite); and function or particle words, which relate more to how people are communicating, such as pronouns (I, we, she, they), articles (a, an), prepositions (about, beneath, from), conjunctions (also, because, but) and others (Chung & Pennebaker, 2008). The English vocabulary is made up of approximately one hundred thousand words, of which only about 500 are function words. However, function words make up about 55% of everything we say, hear and write (Tausczik & Pennebaker, 2010). Function words tend to also be related to the social and psychological world of individuals. For example, if you take the sentence "she said she gave it to him", in order to understand this sentence you have to know who *she* and *him* are, and what *it* is. Without the social understanding the sentence is meaningless.

A growing body of research has shown that personality is expressed and can be identified in the language people use when writing and speaking (Chung & Pennebaker, 2008; Fiore, Shaw Taylor, Zhong, Mendelsohn, & Cheshire, 2010;

Pennebaker & King, 1999; Tausczik & Pennebaker, 2010). Increased or decreased use of particular language components such as pronouns (my, I), adverbs (lovely, friendly), positive emotions (happy, joy) and negative emotion words (sad, angry) have been found to correlate with personality traits. For example neuroticism has been positively correlated with greater use of the first person singular, anger and anxiety words, whereas extraversion has been found to relate to words concerned with being social and positive emotions (Gill, 2003; Mairesse et al., 2007; Pennebaker & King, 1999).

Language can inform us about where people are directing their attention, through their use of content words we might know that they are talking or thinking about death, family, or religion for example. Function words can also give us attentional information, for example people experiencing physical or emotional pain have more self-directed attention which is expressed in the use of more first-person singular pronouns (Rude, Gortner, & Pennebaker, 2004). An individual's use of verbs may indicate their temporal attention, whether they use more past, present or future language. Emotional language has been related to experiencing positive or negative events (Kahn, Tobin, Massey, & Anderson, 2007), and language used around social relationships can indicate who is dominating, how engaged people are, and how much agreement there is between interacting individuals (Tausczik & Pennebaker, 2010). Language can indicate depth and complexity of thought with categories such as exclusions (but, with, without), and conjunctions (and, also, although), which are important in making distinctions and creating a coherent narrative respectively (Tausczik & Pennebaker, 2010). More complex language can contain more prepositions which offer concrete and complex information about a topic, cognitive mechanisms like causal language and insight words, and longer words (Tausczik & Pennebaker, 2010).

The language analysis programme Linguistic Inquiry and Word Count (LIWC 2001, 2007, 2015; Pennebaker, Boyd, Jordan, & Blackburn, 2015; Pennebaker, Chung, Ireland, Gonzales, & Booth, 2007; Pennebaker, Francis, & Booth, 2001) has a dictionary of approximately 90 language components or categories containing over

6,000 words and word stems. Although it contains only a small percentage of the available English language vocabulary, LIWC accounts for approximately 80% of the language in the texts it analyses and Pennebaker and King (1999) used it to examine language in many varied texts from diary entries to academic journal abstracts. It has been used to analyse language in different contexts, from Twitter (Qiu, Lin, Ramsay, & Yang, 2012) to stream of consciousness essays (Holleran & Mehl, 2008). LIWC contains dictionary categories for both functional and content language. It has been used to find modest but reliable correlations between language variables and both the NEO PI-R and Eysenck's EPQ (Oberlander & Gill, 2006; Pennebaker & King, 1999) as well as with items from the California Adult Q-set and the Riverside Behavioral Q-sort, both an alternative to questionnaires for determining personality traits (Fast & Funder, 2008).

Pennebaker and King's research (1999) would suggest that over time and different contexts, the ways that people express themselves through language is remarkably stable and reliable, though they do point out that the words people use may vary substantially by topic or the constraints, explicit or implicit, under which they are written. However, the researchers identified 15 language variables from LIWC 2001 which appeared to be common to different writing contexts from previous studies (Pennebaker & King, 1999). Many relationships have been found between LIWC dictionary categories and traits, but all of the relationships found in various studies have not been replicated in every study that has used LIWC for analysis, while others have produced results with conflicting findings (Golbeck, Robles, Edmondson, & Turner, 2011; Qiu et al., 2012).

Some research has found that due to the top-down nature of LIWC analysis, where the language is already categorized before analysis, it is a weaker tool than other bottom-up approaches where large language data sets are used for mining data and using machine learning and other methods to uncover links to personality traits (Iacobelli, Gill, Nowson, & Oberlander, 2011; Park et al., 2014). Chung and Pennebaker (2007) note that word count is a relatively rudimentary way of understanding language use, it cannot understand context, irony or words with

several meanings for example. However, LIWC is useful for text mining in a psychological context where meaning is as, if not more, important than patterns of correlations.

Interpersonal perception

Our ability to accurately judge the traits and states of others can have significant consequences. For example, the choice of who we hire for a new job, or who we decide to ask on a date require us to make judgements of the personality traits of others. We consider and decide if they will be a conscientious and hardworking employee from their resumé, LinkedIn profile or interview, or a warm, funny and spontaneous date from their smile across a crowded bar or online dating profile. We often make these assessments of strangers very quickly out of necessity, and there is evidence that there is a surprising degree of validity to these thin-slice judgments though it varies by stimuli, trait, and state (Judith Hall, Andrzejewski, Murphy, Schmid Mast, & Feinstein, 2008).

The accuracy of judgment of both states and traits will be referred to as interpersonal accuracy following the recommendation of Judith Hall, Schmid Mast, and West (2016), and this thesis is concerned solely with the accuracy of perception of traits, namely the Big-Five. Interpersonal accuracy can have significant outcomes on important life domains. Letzring and Noftle (2010) found that couples with more accurate perceptions of each other had higher romantic relationship quality, and students who formed more accurate impressions of each other at the start of a semester interacted more and had greater liking for each other throughout and at the end of the semester than those who did not (Human, Sandstrom, Biesanz, & Dunn, 2012). A number of factors are involved in the perception and accurate judgment of traits. The people making judgments are known as observers, judges, or perceivers, those who are being judged are the targets. Connelly and Ones (2010) meta-analysis looking at accuracy of interpersonal perception found that accuracy across traits and contexts lies between .08 to .48, with family and friends achieving the most accuracy, and strangers and acquaintances the least.

Interpersonal perception frameworks

Several approaches and models have been developed to look at the factors and processes involved in person perception. There are two main approaches, the profile based approach looking at which traits are more prominent than others in an individual, for example is a person more outgoing than openminded, and is often examined with the social accuracy model (SAM; Biesanz, 2010). The trait-based approach on the other hand examines how an individual can accurately perceive the trait levels of a target relative to others. There are a number of related models connected to the study of trait based accuracy; Brunswik's 1956 lens model (as cited in Back & Nestler, 2016) is a conceptual framework and analytical tool used to look at the processes involved in interpersonal accuracy, and the Realistic Accuracy Model (RAM; Funder, 2012) and Dual Lens Model (DLM; Hirschmueller, Egloff, Nestler, & Back, 2013) are variants of the lens model which further break down the processes involved in accurate perception.

The lens model works on the assumption that we build impressions of characteristics of our environment that are not directly observable, by utilising sets of observable cues as a lens by which to view these characteristics. For example, the trait extraversion is in itself not observable, but the characteristic adaptations that extravert individuals typically display, such as speaking a lot, more loudly, and having many friends, can be used to build an impression of extraversion. In order for the impression to be accurate, the cues need to be valid and available in a given context, that is, they are specifically related to the trait and are observable. The cues also need to be utilised, the judge needs to be sensitive to the available and valid cues and use them appropriately to make judgements, see Figure 1 for a diagram of the processes involved in the model. Essentially the model examines two stages in interpersonal accuracy, personality expression in the relationship between accuracy criteria and cues (validity), and impression formation in the relationship between observable cues and personality judgments (utilisation).

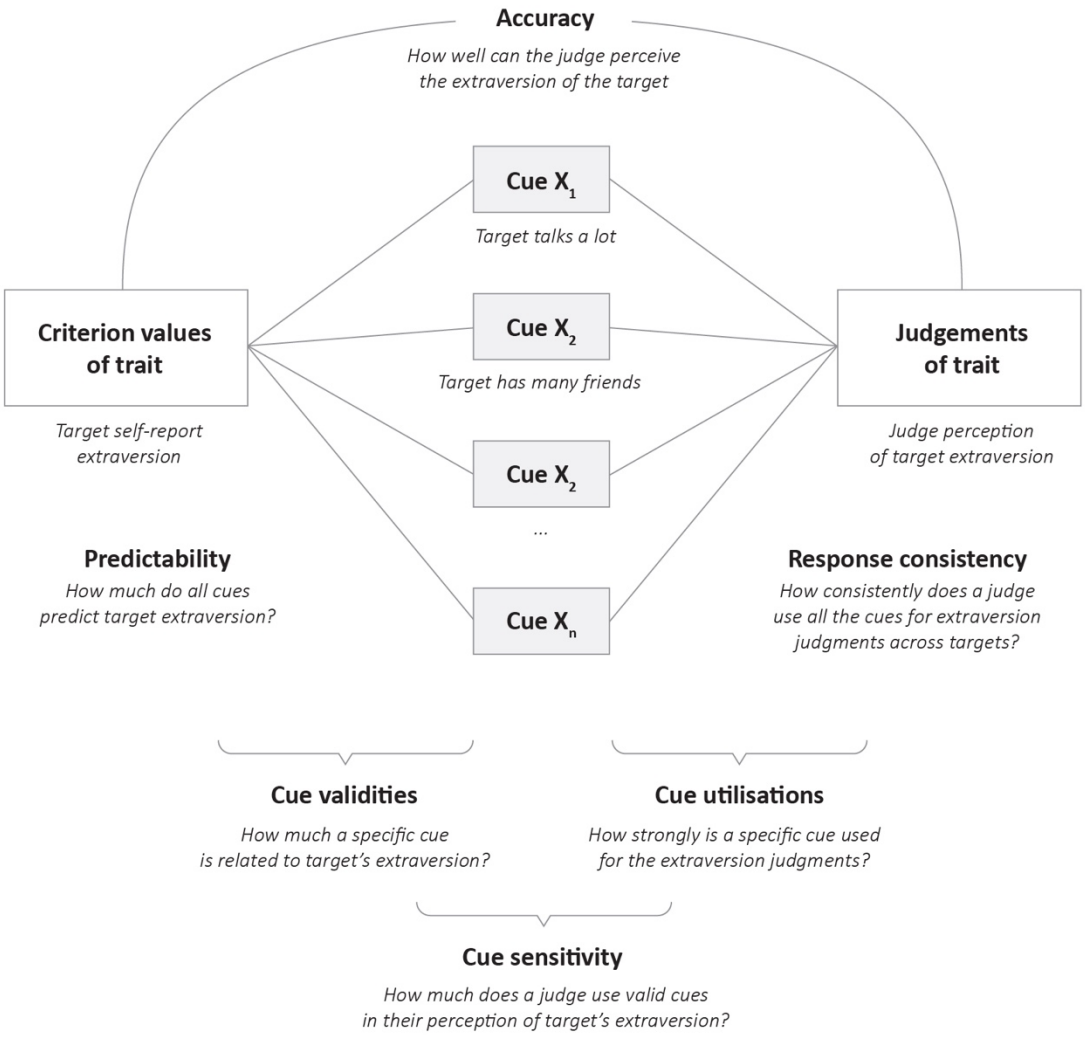

Figure 1. A lens model describing the processes involved in accurate personality perception (adapted from Back & Nestler, 2016)

Funder's Realistic Accuracy Model

While the lens model has two processes, cue validity and cue utilisation, the Realistic Accuracy Model (RAM; Funder, 2012) breaks each of those processes into two independent steps, giving four stages in total as seen in Figure 2. In order for personality to be judged accurately, each of those stages must be fulfilled, and if any stage is unsuccessful accuracy cannot be achieved.

The first stage is relevance, where the target (person being judged) must engage in a behaviour relevant to a personality trait. For example, in order for

someone to be judged as agreeable they must be warm and friendly. If they remain aloof and cold, they will not be perceived as agreeable regardless of their intentions or thoughts. The second stage is availability, where the trait-relevant behaviour must be available to a judge. For example, if an extravert is social, speaks a lot and speaks loudly, that trait-relevant behaviour is visible and available. However, if they only behave that way with friends, and not at work, those who only know them in work may not perceive them as extravert as the trait-relevant information is not available to them. The third stage is detection, where the trait-relevant, available behaviour must be detected by the judge. If the judge is distracted or perceptually impaired in some way, they will not detect the information and cannot make accurate judgements. The fourth and final stage is utilisation, where the judge correctly connects the trait-relevant, available, detected behaviour to the appropriate trait, and thus accurately perceives the trait.

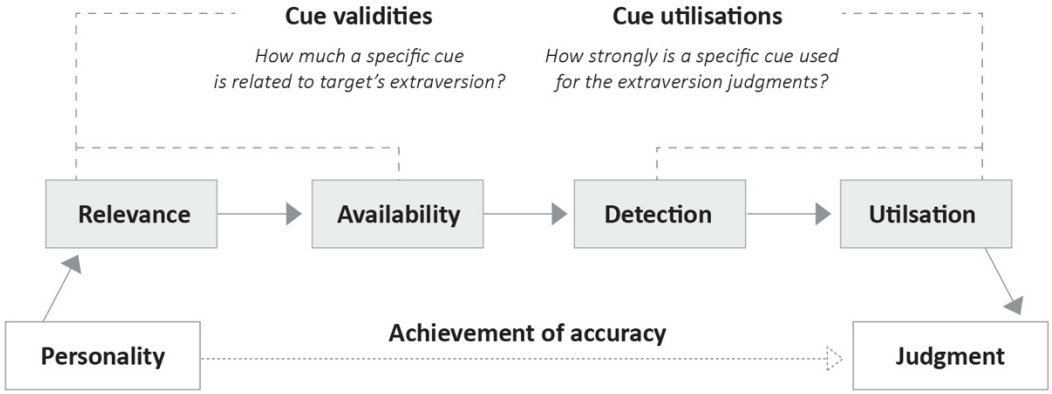

Figure 2. The Realistic Accuracy Model (RAM; Funder, 2012) mapped to the lens model

The model highlights the complexity and difficulty of making accurate judgments. It serves as a useful framework in understanding the processes and circumstances in which accuracy of perception are more or less likely. Connelly and Ones (2010) meta-analysis found that it is more likely to be at the detection and utilisation stages of the process that it breaks down, where judges fail to detect and utilise valid cues, or utilise invalid cues instead. There are also four moderators of accurate perception which Funder (2012) outlines in relation to the Realistic

Accuracy Model. These are good targets, good traits, good information and good judges. These are explained in greater detail in the next section.

Additional useful models

Researchers have also developed a more fine-grained model of perception based on Funder's RAM, the Dual Lens Model (DLM; Hirschmueller et al., 2013). The DLM further divides relevant behavioural cues into controlled and automatic cues arising from explicit and implicit self-concept of personality (Hirschmueller et al., 2013). The DLM as a conceptual model is theoretically valid, and the authors have shown how it can be applied in research, but is difficult to operationalise in research in order to separate out the processes. Gosling and colleagues (2002) proposed a framework that may relate to the controlled and automatic cues outlined in the DLM, whereby individuals express cues in two different ways. The first way is deliberately, through identity claims, such as a poster of a civil rights leader on a dorm-room wall. The second way is non-deliberately, for example through behavioural residue, such as paraphernalia from a hobby or activity visible in a room. There can be overlap between these two concepts, the activity related objects could be left in a visible location deliberately in order to make an identity claim, and the poster may convey behavioural residue about political beliefs unintentionally. This framework may have particular relevance in the context of online dating profiles where there is considerable self-presentation, indicating many deliberate identity claims, as individuals attempt to express aspects of who they are, and where behavioural residue such as spelling, or grammar errors may also convey valid unintentional cues. The lens model will be used for analysis in this thesis, with Funder's RAM and Gosling and colleague's framework used to interpret and discuss results.

In order to apply lens model analysis, it is necessary to have data that covers as wide a range of cues as possible in the given context, including invalid cues which can also influence judgments. Invalid cue utilisation may be explained by halo effects caused by cues that are particularly visible or positively perceived such as

physical attractiveness, or invalid stereotyping of surface characteristics like gender (Back & Nestler, 2016).

In the context of interpersonal perception, the term accuracy can have different meanings depending on the method of assessment. Accuracy is a term that is used for simplicity and descriptiveness, however in order to have accuracy of judgment you must first have a measurement of the "true personality" of the target, the accuracy criterion. Self-reports tend to be more accurate for those traits that are internally focused, for example on thoughts and feelings like neuroticism, and less accurate for traits that are more or less socially desirable (Vazire, 2010), and so self-reports are not perfect representations of the individual. Acquaintance reports and behavioural assessments are two other methods that add valid perspectives missing in self-reports to create a more accurate overall picture. The "gold standard" accuracy criterion is a combination of multiple methods, known as realistic accuracy, but which requires considerable resources when conducting research (Letzring & Funder, 2018; Vazire & Carlson, 2010). However self-report is still the most common type of accuracy criterion used in interpersonal perception, as it is quantifiable, easily measured, and reasonably valid (Back & Nestler, 2016). Self-other agreement is the measure of accuracy that this thesis is concerned with, using self-report measures of personality as the accuracy criterion due to the constraints of time and resources available.

Moderators of accurate perception

In addition to the four stages involved in accurate perception in the Realistic Accuracy Model, there are four moderator variables outlined by Funder (2012) that affect accuracy of perception; good traits, good information, good judges and good targets.

Good traits

Some traits are easier to judge than others. There are two trait characteristics that affect perception: observability – the level to which a trait is expressed in

observable behaviours, and evaluativeness – the level to which a trait is typically seen as socially desirable or undesirable (Funder & Dobroth, 1987; Vazire, 2010). Observable traits such as Extraversion, result in more easily detectable, valid, behavioural cues like having many friends, a louder voice, or being more assertive, that leads to greater accuracy. On the other hand, traits low in observability are mainly internal, such as Neuroticism which is mainly concerned with thoughts and feelings that are less visible to the observer. Traits that are highly evaluative, like neuroticism which is socially undesirable, and agreeableness, which is socially desirable, tend to be more difficult to judge than those that are neutral like extraversion (Funder & Dobroth, 1987; Vazire, 2010). The trait that tends to be most accurate in interpersonal perception is extraversion, being both visible and less evaluative, whereas neuroticism, agreeableness and openness tend to be less accurate, most of all when the judge is a stranger (Borkenau & Liebler, 1993; Connelly & Ones, 2010). Openness concerns intellect, creativity and aesthetics, which individuals may not be as likely to discuss with a stranger in an initial interaction, as well as political and religious views which are somewhat stigmatized as conversational topics with people of minimal acquaintance. This may explain the low levels of accuracy typically found for openness (Connelly & Ones, 2010).

Good information

The quality and quantity of information available in a situation has a significant effect on the accuracy of judgment possible in that context. Although statistically significant levels of accuracy have been found in thin slice studies, where for example the judge is exposed to only a photograph or a brief video of the target, it is known that well-acquainted others provide more accurate judgments of a target than strangers, having greater amounts of information about the target from their interactions over time (Carney, Colvin, & Hall, 2007; Connelly & Ones, 2010). However quality of information is also important, where there are different channels of information available relevant to traits, as shown in Connelly and Ones (2010) meta-analysis where family members had the highest accuracy ratings, and work colleagues were almost as inaccurate as incidental acquaintances and

strangers. Although work colleagues may see the target every day, the information they acquire can often remain quite bounded within the work context, with limited channels of information. Of course, some individuals may express more of themselves in a work environment or become close friends with colleagues which would improve accuracy, but the meta-analysis found in general that work colleagues have low accuracy. Without a deeper interpersonal relationship, they do not have access to the rich information channels about more personal aspects of the individual that a family member might have, and so their accuracy ratings are lower. In fact interpersonal intimacy is a key factor in making accurate judgments, particularly for traits that are low in visibility like neuroticism (Connelly & Ones, 2010). Connelly and Ones found that for experimental stimuli, a combination of visual and auditory information gives the best accuracy, although for zero-acquaintance research it appears that the information type is not a large moderator of accuracy. The judgment context has two features that influence accuracy; strength, that is how much variation of expression is possible within the context, and richness, how many qualitatively different kinds of information are available.

A weak situation is once which is poorly structured and is lacking in social constraints or guidelines for behaviour, which allows the personality to have strong influence over behaviour and can therefore provide more valid cues and thus higher accuracy, for example a conversation through instant message with no defined purpose or boundaries. Whereas a strong context can hinder expression of relevant cues, for example a structured task where the participants interaction is focused on the task at hand (Letzring, Wells, & Funder, 2006). Online dating profiles are a mix of strong and weak context, in that daters can potentially describe themselves in any way they prefer, but social norms of behaviour on the dating sites and apps tend to impose constraints in the public facing profiles, for example, not including anything vaguely sexual in a profile for fear that it would be interpreted as promiscuity (Ellison et al., 2006).

Media richness theory interprets rich contexts as those that incorporate different kinds of valid cues through a variety of channels, for example face to face

interactions where verbal and non-verbal cues are available (Daft & Lengel, 1983). Judgements in rich contexts tend to be more accurate for perception than textual contexts, though that can be trait dependent where certain traits are more visible in different contexts (Wall, Taylor, Dixon, Conchie, & Ellis, 2013). Wall and colleagues found that in dyadic conversations in three different contexts, instant message chat, telephone and face-to-face, there were different levels of accuracy across traits. Extraversion and neuroticism accuracy increased as the richness of the context increased, however conscientiousness and openness accuracy improved as the richness decreased, with higher accuracy in text chat. Traditional dating profiles tend to contain information about a range of topics as people are concerned with conveying interesting aspects of themselves (Whitty, 2008). Andersen and Ross (1984) also discovered that when targets spoke about their thoughts and feelings, rather than hobbies and activities, they were judged with greater accuracy. It is possible that dating profiles with richer information, containing more information about thoughts and feelings, will induce more accurate judgements than those that describe hobbies and activities. However, Tinder and other online dating apps have constraints on the length of the written profile and may contain less information as a result. Though previous research has found it possible to infer personality cues from the type of and number of photographs that people upload in social media for example (Eftekhar, Fullwood, & Morris, 2014), this thesis is concerned with text-only, and subsequently may find that dating app profiles contain fewer cues to personality than dating website profiles.

Good judges

There are few reliable individual differences that relate to being a good judge of personality. Letzring (2008, 2014) found that social skill, agreeableness, and psychological adjustment were good indicators of a good judge, where those interpersonal qualities allow the judge to elicit better information in interactions with a target, and Murphy and Hall's meta-analysis in 2011 found that general intelligence was related to accuracy. Judith Hall, Goh, Mast, and Hagedorn (2016) found that women were more accurate judges of personality in text specifically, and

higher empathetic concern, agreeableness, conscientiousness, emotional stability, lower dominance and interest in others' personalities all predicted good judgment accuracy in text. These characteristics all suggest that a communal orientation indicates better judgement in text. Where there are many judges in a study, the good judge qualities should not have a large impact on accuracy, however some studies on interpersonal accuracy employ a small number of judges, and this could affect generalisability where a substantial percentage of the judges might have higher intelligence or greater psychological adjustment than the general population. For example, in a study looking at interpersonal accuracy from World of Warcraft usernames only eight judges were used, and in one looking at perception from stream of consciousness essays only nine observers made judgements (Graham & Gosling, 2012; Holleran & Mehl, 2008) whereas many of the studies included in the RSLR later in this chapter had between 50 and 200 judges.

Good targets

Given that some traits are more accurately judged than others, targets with higher levels of more visible and less evaluative traits are more likely to be accurately judged than others. Higher expressiveness, as well as targets whose behaviour in the context is a more reliable indicator of their typical behaviour also show more of their personality through observable and valid cues (Human, Biesanz, Finseth, Pierce, & Le, 2014). Interestingly for this thesis, Human, Biesanz, Parisotto, and Dunn (2012) discovered that when targets were instructed to engage in self-presentation, to "put their best face forward", they were not only better liked, but they were more accurately judged than those less motivated to self-present. Mediational analysis indicated that this was because self-presenting encouraged the targets to be more engaging than the control group. The online dating context encourages high levels of self-presentation, and thus may facilitate more accurate interpersonal perception.

Much like the effect of the good judge, studies with very few targets may not be as generalisable due to the effects of the good target. For example two studies

looking at interpersonal accuracy in resumés used only four and two judges respectively (Apers & Derous, 2017; Cole, Feild, & Stafford, 2005).

Several of these moderators interact in complex ways. Traits such as openness and neuroticism that are not typically judged accurately in face-to-face contexts, can be more accurate in contexts where the quality and quantity of information specifically related to them is more observable or salient. For example, Gosling and colleagues (2002) found that openness tends to be more observable in personal environments such as bedrooms and offices where the books, music, hobby materials and other belongings can indicate a breadth of interests, creativity and curiosity. In socially stressful situations there are more cues of neuroticism such as visible and audible nervousness available to observers (Hirschmüller, Egloff, Schmukle, Nestler, & Back, 2015). Particularly relevant to this research, in some written materials agreeableness and neuroticism can be more easily detected by observers than in other contexts (Borkenau, Mosch, Tandler, & Wolf, 2016; Dunlop, McCoy, & Staben, 2017; Holleran & Mehl, 2008; Küfner, Back, Nestler, & Egloff, 2010; Qiu, Lin, Ramsay, & Yang, 2012). Each of these three traits, openness, neuroticism, and agreeableness are difficult to judge in interactions in other non-textual contexts as they are typically not expressed in behaviours as much as more observable traits like extraversion (Borkenau & Liebler, 1992; Wall et al., 2013). Finally, motivation plays a part in that when people judge others in meaningful contexts they achieve higher pragmatic accuracy, which is, accuracy that facilitates relationship-specific goals. Gill and Swann (2004) found that couples in romantic relationships developed more accuracy about their partners traits that they considered to be relevant to their relationship. It is possibly that traits important in a romantic relationship would be judged more accurately in online dating profiles than other contexts, however a study of personal ads online found only extraversion was judged with accuracy (Weidman, Cheng, Chisholm, & Tracy, 2015).

Previous lens model research in online contexts

There are a number of lens model studies that have been conducted examining online environments that have not been included in the RSLR. These were not text-only contexts and so did not qualify for inclusion, but they provide relevant and interesting results in the context of the research being conducted in this thesis. The lens model framework, alongside Gosling and colleague's (2002) identity claim and behaviour residue framework, was used in a study of personal websites (Marcus, MacHilek, & Schütz, 2006). Personal websites were chosen as highly controllable environments where website owners convey many identity claims through the deliberate construction of each element of their site. There is a high degree of self-presentation involved in such sites, and each element of the site is considered and personalised in order to convey a particular impression. While there is no way to eliminate behaviour residue entirely, and in such websites it is still present through spelling errors and broken links for example, choosing a context like these websites increases the number of identity claims and reduces the behaviour residue as much as possible, making it possible to make the distinction between them. Other environments such as online chat or face-to-face situations for example might allow people less time to consider their self-presentation when communicating and thus reveal more behaviour residue as they have less control over every cue that they give off. A content analysis of the sites provided a list of cues to use for the lens model analysis of cue validity and utilisation. They found high levels of consensus for all traits except neuroticism which was low, indicating successful self-presentation by the website owners. Accuracy was achieved across all traits except agreeableness from 0.36 for openness to 0.18 for conscientiousness. They found that there were considerably more cue utilisations than there were valid cues, but there was also substantial sensitivity to appropriate cues in the making of judgements.

A lens model analysis of Facebook looked at 53 cues derived from a content analysis of 100 Facebook profiles, and judgments of the Big-Five personality traits by 35 unacquainted observers (Jeffrey Hall, Pennington, & Lueders, 2014). The content analysis resulted in a list of subjective measures like positive affect and humour, as well as objective measures like number of friends and status updates. Accuracy of perception was achieved for extraversion at 0.23, agreeableness at 0.32 and conscientiousness at 0.20. Judges relied on many cues, including those that provided evidence of social interaction, outgoing photographs, and having more friends when making judgements of extraversion, or friendly profile photographs which were important for rating agreeableness for example. Relatively few of the utilised cues were actually valid and correlated to the trait that they were used to determine, for example of the 17 utilised cues for extraversion, only four were valid, including positive affect and number of friends. There were five diagnostic cues for openness including listing books and music in the info section and posting more political status updates; four diagnostic cues for agreeableness including profile picture friendliness; one for conscientiousness which was actually other generated, that is the degree to which the profile owner's friends supported their status updates; and none for neuroticism. More diagnostic cues for a trait was generally connected to higher accuracy in judgments of that trait, extraversion and agreeableness were the two most accurately observed traits, however openness had the most diagnostic cues but had low levels of accuracy. Interestingly, while there was no single diagnostic cue for neuroticism, the vector correlation was strong, indicating that of the 15 cues that observers utilised no one cue accurately predicted neuroticism, but taken together, all 15 cues could.

Another study using Funder's RAM framework (2012) looked at personality perception on Facebook and was conducted in two stages involving two separate studies. The first study looked at zero-acquaintance accuracy from Facebook profiles, where they found substantial correlations for openness at 0.44, and conscientiousness at 0.42, but not for the other three traits (Darbyshire, Kirk, Wall, & Kaye, 2016). The second stage study again asked observers to look at Facebook profiles, and to provide a few statements about what judgements they had made

of the profile owner, as well as saying how they had made those judgements. This examined the detection and utilisation step in Funder's RAM. The responses were analysed using thematic analysis and several themes were compiled. There were several themes including: vocabulary, spelling and grammar accuracy particularly in judging intelligence of the target; photographs, particularly when they showed someone being social, or particular activities that indicated agreeableness or conscientiousness. They also examined online interactions, making comments, posting status updates and other interactions with friends. These interactions appeared to give specific cues to different traits depending on content: relationships with others, particularly in forming judgments of how likeable the person might be; health status, particularly mentions of keeping fit and general level of activity as cues to extraversion; and finally occupational status, used to judge educational level and organisational skills. While this gives valuable information about how cues are utilised in forming perceptions on Facebook, it is unfortunate that the two studies were not integrated so that detection and utilisation could be measured against the actual validity of cues and accuracy of perception.

In summary, there is evidence that personality is expressed in language and online behaviours, and that accuracy of personality judgement may be possible in text-based environments. The following two rapid structured literature reviews will examine both of these areas with a comprehensive overview of the literature.

A rapid structured literature review of expression of personality in text

Given how much we communicate primarily by text in computer-mediated communication, and the fact that more attention is now directed at this research area, a comprehensive review of the research in this area was needed. As a systematic review of the literature was not the main body of work of this thesis, and thus time was a constraint, a rapid structured literature review was considered appropriate (RSLR; Armitage & Keeble-Allen, 2008). While a good quality systematic review is of high evidential value, it is a time-consuming and resource intensive

process requiring multiple quality raters when well conducted. The RSLR framework is based on the systematic approach, with the most important considerations being an intentional, systematic, transparent and replicable process that is achievable in a shorter timeframe.

Aims and objectives

The aim of the RSLR is to ensure that as much of the literature is covered as possible, clear inclusion and exclusion criteria are applied to avoid bias, that the process is documented in a transparent and repeatable manner, and that the review adds new knowledge. The stages of the review process are: first, conceptualisation, where the rationale for the review is considered and the scope of the review is determined; second operational aspects, where the design, methodology and results are clearly laid out; and finally the third stage is sense making, discussing and interpreting the data, which in this review was conducted in a narrative analysis (Armitage & Keeble-Allen, 2008).

The review had three principal objectives: 1) to examine whether the Big-Five personality traits are related to language use in text, 2) to examine the specific language cues related to traits, if any, and 3) to determine if context affects the relationship between linguistic cues and traits. This review examined studies which researched LIWC dictionary categories and their relationship with the Big-Five personality traits in order to see if there are patterns of language-trait relationships that reliably replicate in multiple studies.

Search strategy

This review was conducted with a post-positivist approach focusing on English language, peer-reviewed or unpublished, quantitative studies examining personality expression analysed through LIWC in written text. The initial search was conducted in November 2017 and was updated in August 2018 and March 2019. No limit on time frame was specified, as the first LIWC programme was designed by the original authors in 1993, and became available to other researchers to use in 2001 thus

naturally limiting the findings. Online academic databases Academic Search Complete, PsycINFO, and Psychology and Behavioral Sciences Collection were searched using keywords that had been drawn from previous comprehensive scoping reviews of the relevant literature involved in personality expression in language. The following search terms and closely related words were used *personality*, as well as each trait separately, *Big-Five, Five-Factor Model*, *writing, blog, email, text, internet, social media, textspeak, linguistics, linguistic inquiry and word count, LIWC, text mining, text analysis, discourse analysis.* Scoping searches for research conducted using HEXACO and the 16PF with LIWC did not yield any results, thus the focus was on the Big Five. However, each individual trait was listed and thus could be expected to pick up on studies examining those traits within different frameworks. The final search string was as follows:

> *(personality OR big-five OR 'big five' OR 'five-factor model' OR NEO-PI-R OR extraversion OR extroversion OR surgency OR openness OR intellect OR conscientiousness OR agreeableness OR neuroticism OR 'emotional stability' OR 'personality traits') AND (writing OR blog OR email OR e-mail OR text OR language OR 'social media' OR textspeak OR internet OR 'personal narrative' OR stories OR 'creative writing' OR resume OR) AND ('linguistic inquiry and word count' OR LIWC OR 'linguistic analysis' OR cues OR 'textual structure' OR 'text mining' OR 'word use' OR 'computerized text analysis' OR 'text analysis' OR 'Discourse Analysis' OR Psycholinguistics)*

The results were filtered by English language only, peer-reviewed journals, and subject. The following subjects were included: *personality, psychology, personality assessment, language, linguistics,* and *psycholinguistics*. The search yielded a large number of records, 428, but different search terms and strategies did not provide a narrower range of results that included the research that was required. Additional searches were carried out on Google Scholar, thesis repositories, and through cross-referencing key papers, and a further 183 records were identified. After removing duplicates, 504 records remained for screening, see Figure 3 for a flow chart of the study selection process.

Only studies that involved personality detection in written text through analysis of the text with the Linguistic Inquiry and Word Count (LIWC; Pennebaker & King, 1999) programme, and reported correlations of LIWC dictionary categories with the Big-Five personality traits or the EPQ-R were included. Studies originally conducted in a language other than English were excluded, as were those that analysed non-text sources (such as transcriptions of conversation or video), did not measure personality with the Big-Five traits or the EPQ-R, or used other forms of linguistic analysis such as n-grams, machine learning or those that amalgamated LIWC cues to form aggregate cues.

After screening the titles and abstracts of 504 records, 27 remained for consideration, and after full-text screening 15 were included in the review. Studies were eliminated at both abstract and full-text screening stages where they did not meet the inclusion or exclusion criteria above. In addition, a number of studies reanalysed corpus of text from previous studies with a different approach, and these were not included. One study did not include inferential statistics to relate traits to language use and was also excluded.

Results

Table 1 illustrates findings from 14 studies looking at correlations between LIWC dictionary categories and the Big-Five personality traits, or systems that map to them such as the EPQ-R, in various samples of text. One of the 15 studies included in this review found no correlations between personality traits and LIWC variables (Fiore, Shaw Taylor, Zhong, Mendelsohn, & Cheshire, 2010). Fiore and colleagues' study (2010) examined the Big-Five personality traits correlation with several LIWC categories of language, specifically home, work, money, sex, positive and negative emotion categories in online dating profiles, but found no significant results.

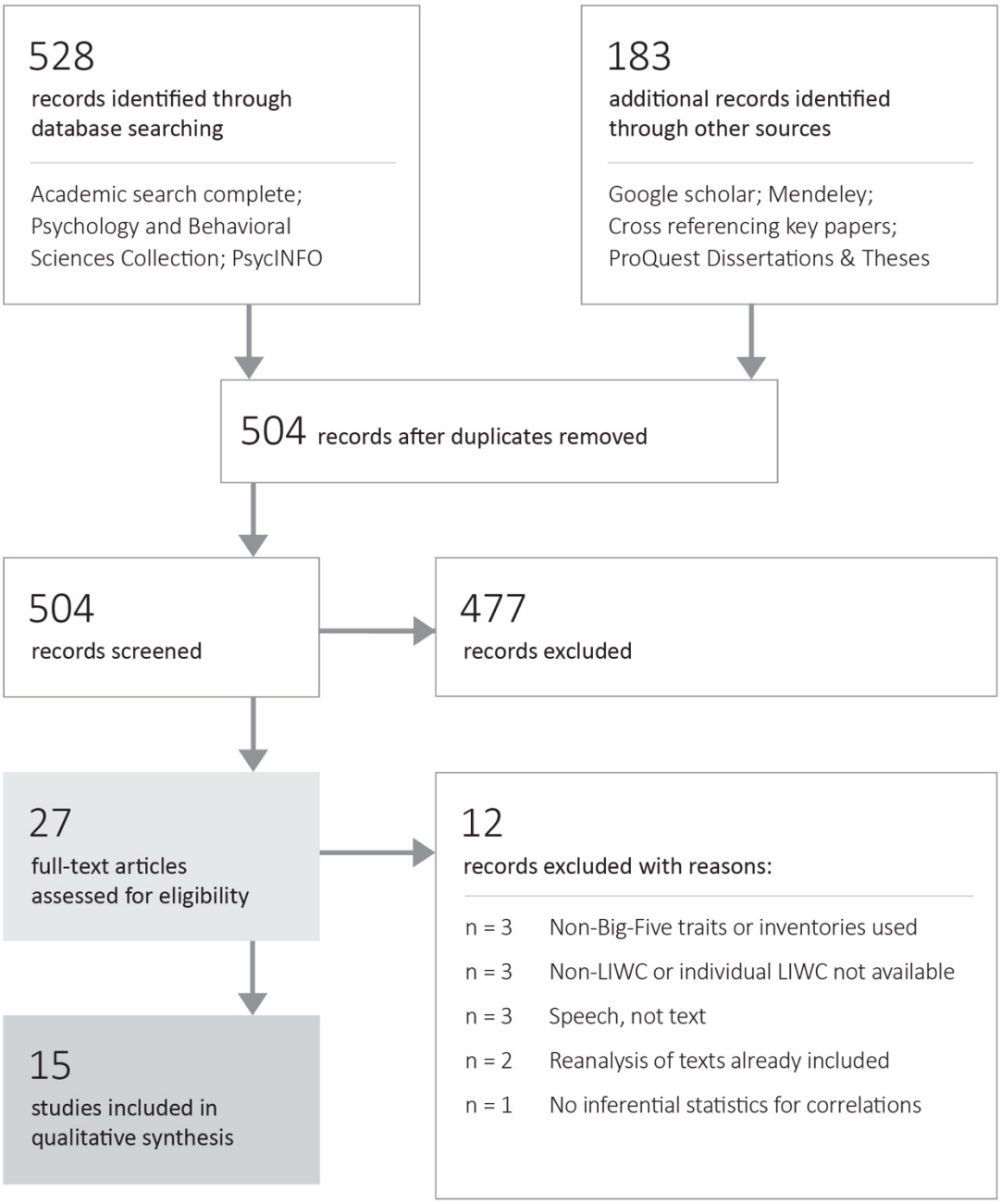

Figure 3. Flow chart of the study selection process for the RSLR of expression of personality traits in text

Not all studies included in this table examined correlations between every dictionary category and personality traits, one chose only eight LIWC categories based on particular hypotheses (Li & Chignell, 2010), two chose the 15 from the Pennebaker and King (1999) variables chosen for their stability and reliability (or the 11 of those that remained in later versions of the LIWC 2015 programme; Dunlop, McCoy, & Staben, 2017; Gill & Oberlander, 2002), one used 23 variables (Yee,

Harris, Jabon, & Bailenson, 2011), but most, the ten remaining studies, chose to examine all the LIWC categories available. Most also looked at the Big-Five personality traits, though two examined only extraversion and neuroticism through the EPQ-R (Gill, 2003; Gill & Oberlander, 2002; Oberlander & Gill, 2006). These 15 studies have examined language and trait correlations in a variety of contexts, including offline personal writing tasks like lists of goals, personal essays, and self-narratives. The online contexts include studies looking at blogs, email, Facebook and Twitter, and chat in Second Life. See the list at the end of Table 1 for full details on each study context.

Despite the wide variety in the contexts under study, there are a number of dictionary categories that are particularly relevant with respect to several traits and there are a number of dictionary category-trait correlations that replicate well across studies, as Table 1 illustrates. Additionally, some traits have more correlations with categories than others indicating that those traits may be expressed more in language than others. These will be discussed in turn.

Table 1. Correlations of language variables to personality traits found in previous research

	E	A	C	N (ES rev)	O
	Valid	**Valid**	**Valid**	**Valid**	**Valid**
Achieve	−ns	+u −e	+gsu	−u	−u
Adverb	−u		+u	+u	+hqu
Affect	+qsu	+du			−squ
Anger	−hu	−ghsu	−ghsu	+ghsu	+u
Anxiety	−hu	−hu	−u	+dghnsu	+u
Articles	−pqu	+n −p	+su	−psu	+epqsu −j
Assent	+qu	+u	−s	−u	− squ
Auxiliary verbs	−qu		+u −e	+u	+u
Body		−gsu	−gu	+gu	+u −ep
Biological processes	+u	+d −u	−u	+u	−eu
Causation	−psu	−sveu	−ps	+stu	+eu −p
Certainty	+s	+gu	+u −ps	+s	+eu
Cognitive mechanisms	−u	+u	−es	+su	−su
Conjunctions	−u	+u	+u	+qu	+u
Death	−u	−hsu	−eghnsu	+u	+u
Discrepancies	−nu	−nu	− epsu	+nstu	+u −s
Exclusive	+t −pu	−q	+h −psgu	+gsu	+pgu
Family	+gseu	+gsu	+u		− u
Feeling	−u		−eu	+eu	+u
Fillers		− u	−eu	+u	+u
1st person singular	+ht	− u +ps	− u	+ pqstu	+u −ps
Friends	+su	+su	+ u	−s	− u
All function words	−u	+u	+u	+u	+u
Future	−u		+u −e	+ntu	+u −s
Health	−e			+u	
Hearing	+s −u	+h	−su	+egu	+gu −s
Home		+su	+u	+gh −u	−su
Humans	+gsnu	− u	+d −s	−n	+e −s
Impersonal pronouns	−hqu			+u	+u
Inclusive	+ psu	+gsu	+u	+bt −u	+nsu
Ingestion		+e −u	− u	+dnu	+su
Inhibition	−s		+u	−h	
Insight	− u		− u	+u	+pu
Leisure	+su	+su −h	−hu	− u	−s
Money		−esu	+u		+u −d
Motion	+u	+su	+u	−hu	−su
Negations	−pu	−qu	−epsu	+qsu	+u −s
Negative emotion	−pau	−hpsu	−ejpsu	+aghjspu	−asu
Non-fluencies				+u	−q
Numbers	−bcpsu	+su	+u		+u −s
Past	−nu	+u			−qs
Positive Emotion	+jnpqsu	+psdu	+pu	−pu	−asqu
Prepositions	−u	+u			+snqu
Present	+n		+u	+tu	+u −ps

Quantifier	−u	+u	+u		+eu
Religion	+sq	+u	+u	+e −u	
Sadness	−u	−su	−esu	+gu	
Second person singular	+s	+eu	+e	+t −s	+u −s
Seeing	−u	+s	−du		+u
Sexual	+hsu	+s −qu	−u		
Long words	+t	+n −p	+t	−j	+pn
Social	+gpseqnu	+su	+d	−b	−s
Space		+bqs	+u	−s	+u −s
Sports	−b			−s	
Swearing	−t	−hsu	−dsu	+bsu	−q
Tentative	−psu		+t −su	+su	+pu
Third person singular				+u	
Third person plural	−u	−u		+u	+hu
Time		+su	+su	−u	+u −s
Perceptual	+s −ud		−dsu	+u	+gu −s
Personal pronouns	+h	+s	−u	+su	−su
Relativity		+u	+u	−u	−u
Total pronoun		+s	−u	+u	+u −s
Verbs	−u		+u	+u	+u −q
We	+s	+s			−s
Word count	+c				
Work	+d −snu	+u	+egu	+dn −ghu	+e −nu
Comma			−d		
Colon			+d		
Question mark	+d				
Exclamation			+d		
Parentheses	−d				−d

E = Extraversion, A = Agreeableness, C = Conscientiousness, N = Neuroticism, O = Openness to Experience,
+ Positive correlation. – Negative correlation.

	Reference for study	Text analysed	Personality	# LIWC	r values
a	Dunlop, McCoy and Staben (2017)	Goals	Big-Five	11	.10 – .20
b	Gill (2003)	Email	EPQ-R E+N	All	.20 – .26
c	Gill and Oberlander (2002)	Email	EPQ-R E+N	15	.20 – .21
d	Golbeck, Robles and Turner (2011)	Facebook	Big-Five	All	.15 – .26
e	Golbeck, Robles, Edmondson and Turner (2011)	Twitter	Big-Five	All	.24 – .43
f	Fiore, Shaw Taylor, Zhong, Mendelsohn, & Cheshire (2010)	Online dating	Big-Five	6	No results
g	Hirsh and Peterson (2009)	Self-narrative	Big-Five	All	.19 – .29
h	Holtgraves (2011)	Text messages	Big-Five	All	.14 – .25
j	Li and Chignell (2010)	Blogs	Big-Five	8	.75 – .93
n	Nowson (2006)	Blogs	Big-Five	All	.22 – .34
p	Pennebaker and King (1999)	Personal essays	Big-Five	All	.07 – .16
q	Qiu, Lin, Ramsay and Yang (2012)	Twitter	Big-Five	All	.17 – .27
s	Yarkoni (2010)	Blogs	Big-Five	All	.08 – .22
t	Yee, Harris, Jabon and Bailenson (2011)	Second life chat	Big-Five	23	.22 – .34
u	Schwartz et al. (2013)	Facebook	Big-Five	All	.02 – .19

Discussion

Good linguistic cues

Several LIWC dictionary categories correlate particularly well with three or four of the Big-Five traits and have replicated well across multiple studies. A number of categories related to emotions are reliably related to more than one trait, and these relationships intuitively make sense. Negative emotion words such as hurt, ugly and nasty, are related to neuroticism, extraversion, agreeableness, and conscientiousness (cf. Dunlop et al., 2017; Holtgraves, 2011; Pennebaker & King, 1999; Schwartz et al., 2013; Yarkoni, 2010). However, the relationship is positive or negative depending on the trait, with highly neurotic people using more negative emotional language, and extravert, agreeable and conscientious individuals using less. Anger words are similarly related positively to neuroticism, and negatively to agreeableness and conscientiousness (Hirsh & Peterson, 2009; Holtgraves, 2011; Schwartz et al., 2013; Yarkoni, 2010). Anger words are a LIWC sub-category of negative emotion words, so they offer a more fine-grained look at what kind of negative emotions are particularly important in relation to those traits. It makes sense that agreeable people who are prosocial, tender-minded and trusting, would be less likely to use words like hate, kill, and annoyed, as they are concerned with smooth interpersonal interactions. Conscientious people who are not impulsive and who follow rules (John et al., 2008), would be less inclined to use anger words and negative emotion words like ugly and nasty as they are concerned with following social norms and are more cautious with their self-presentation (Lee, Ahn, & Kim, 2014). Positive emotion words such as love, nice and sweet, are used less by neurotic and open individuals and used more frequently by extraverts, agreeable and conscientious people (cf. Pennebaker & King, 1999; Schwartz et al., 2013; Yarkoni, 2010). Given that extraverts and agreeable people are more socially or communally orientated to others, extraverts are more positive in their emotionality in general, and agreeable people are more tender-minded (John et al., 2008; McCrae & John, 1992), it fits that they would use more positive emotional language.

Two categories of functional language are also particularly well related to more than one trait, first-person singular pronouns like I, me, mine, and articles like a, an, the. First-person singular pronouns usually indicate a focus on the self, sometimes because of physical or emotional pain (Rude et al., 2004). Individuals higher in neuroticism show higher self-focus by way of more personal pronoun use, whereas those higher in openness are less self-focused (cf. Qiu et al., 2012; Yarkoni, 2010; Yee et al., 2011). The use of articles, which is one of the categories showing complexity of language, are used more by those who are higher in openness who are more concerned with intellect and complexity of thought (Golbeck, Robles, Edmondson, et al., 2011; McCrae & Sutin, 2009; Qiu et al., 2012; Yarkoni, 2010). Articles are also used less by those higher in neuroticism and extraversion, indicating simpler language in relation to those two traits.

There is always a concern that running a large number of statistical tests will produce type one errors, as in studies like these where up to 90 LIWC variables are correlated with five traits resulting in up to 450 tests. However, looking at the replication rate of findings across a number of studies indicates that many, but not all, trait-dictionary category relationships appear to be robust. Table 2 shows the most replicated variables for each trait, all included in the table have been found in at least three previous studies. In addition, the most replicated results in these studies also make sense in light of the specific personality traits and language concerned.

Particularly noteworthy is the replication of social words with extraversion in seven separate studies across very different contexts including personal essays, blogs and Twitter (cf. Golbeck, Robles, Edmondson, et al., 2011; Hirsh & Peterson, 2009; Yarkoni, 2010). Given that one of the primary concerns of extraverts is sociability, this finding is well supported by theory and evidence (John et al., 2008; McCrae & John, 1992). Both positive and negative emotional language have replicated many times over, particularly in relation to extraversion, agreeableness and neuroticism, and again in the context of the trait relationships that have been evidenced, they make intuitive sense. In addition to negative emotions generally

and anger words mentioned above, anxiety related words have also repeatedly correlated with neuroticism (cf. Hirsh & Peterson, 2009; Holtgraves, 2011; Yarkoni, 2010). While swearing tends not to occur often in texts, resulting in low means for the category (Pennebaker & King, 1999, Fast & Funder, 2010), it does have a strong relationship with traits beyond what this low frequency would suggest. Swearing is negatively associated with both agreeableness and conscientiousness, replicating three times for each, as well as three times as a positive correlate of neuroticism (Gill, 2003; Golbeck, Robles, & Turner, 2011; Holtgraves, 2011). Words related to death typically have also low frequency of usage, but again this category has a strong and well replicated negative relationship with conscientiousness as well as agreeableness (cf. Golbeck, Robles, Edmondson, et al., 2011; Holtgraves, 2011; Nowson, 2006; Yarkoni, 2010).

Table 2. Correlations of language variables to personality traits replicated in previous research (in three or more studies)

E	A	C	N (ES rev)	O (I)
+ Affect (3)	– Anger (4)	+ Achievement (3)	+ Anger (4)	+ Adverbs (3)
– Articles (3)	– Body (3)	– Anger (4)	+ Anxiety (6)	– Affect (3)
– Causation (3)	– Causation (4)	– Death (6)	– Articles (3)	+ Articles (5)
+ Family (4)	– Death (3)	– Discrepancies (4)	+ Causation (3)	– Assent (3)
+ Humans (4)	+ Family (3)	– Exclusive (4)	+ Discrepancies (4)	+ Exclusive (3)
– Impersonal pronouns (3)	+ Inclusive (3)	– Negations (4)	+ Exclusive (3)	+ Inclusive (3)
+ Inclusive (3)	– Money (3)	– Neg emotion (5)	+1st p sing (5)	– Neg emotion (5)
– Neg emotion (3)	– Neg emotion (4)	– Sadness (3)	+ Future (3)	– Pos emotion (5)
– Numbers (5)	+ Pos emotion (4)	– Swearing (3)	+ Hearing (3)	+ Prepositions (4)
+ Pos emotion (6)	+ Space (3)	– Perceptual process (3)	+ Ingestion (3)	
+ Sexual (3)	– Swearing (3)	+ Work (3)	+ Negation (3)	
+Social (7)			+ Neg emotion (7)	
– Tentative (3)			+ Swearing (3)	
– Work (3)			– Work(3)	

E = Extraversion, A = Agreeableness, C = Conscientiousness, N (ES rev) = Neuroticism (Emotional stability reversed), O (I) = Openness to Experience (Intellect).
+ Positive correlation. – Negative correlation.(Number of studies in which the variable has been significantly correlated with the trait).

Despite some variables replicating well, there are others that have conflicting results in different studies. For example, sexual words are positively related to agreeableness in blogs (Yarkoni, 2010), while they are negatively related to agreeableness on Facebook and Twitter (Qiu et al., 2012; Schwartz et al., 2013).It may be that agreeable individuals are less likely to use sexual words in a context where their friends, family, or work-related social circle will see them and perhaps be offended, but on blogs they have greater freedom of expression to discuss any topic that they would like. For example, in diary style blogs where people talk about their own lives, there is higher self-disclosure than in filter type blogs that talk about events outside of blogger's own lives (Fullwood, Melrose, Morris, & Floyd, 2013). Conscientiousness is related to less tentative language in social media (Schwartz et al., 2013; Yarkoni, 2010), and more tentative language in Second Life chat (Yee et al., 2011). Given that conscientious individuals are more cautious in their self-presentation in social media (Lee, Ahn, & Kim, 2014), they likely carefully edit what they share so that they can be confident that they are presenting the image they would like, thus they may be less tentative in their language. In chat, which is typically faster moving with less time to consciously self-present, they may be more hesitant in what they say as they are not as sure that they are presenting themselves as well. It is clear that the context in which people are writing interacts with the language they use, and how it relates to their personality, in complex ways.

Good traits

Some traits appear to be more expressive in their language than others, and hence have more categories of language which correlate with them. Unsurprisingly, given that extraverts are typically more expressive in their tone, gestures and facial expressions (Funder & Dobroth, 1987; Vazire, 2010), they also express more in their language in a way that can be correlated directly with the trait. In Table 2 there are 14 correlations between dictionary categories and extraversion that have been replicated in at least three studies. The dictionary categories that repeatedly correlate with extraversion fit with the positive, social, active and assertive qualities of extraverts such as: a strong focus on social language including references to

positive emotions, humans, family and sex, and less complex, concrete and tentative language as shown by the reduced number of articles, numbers and tentative words. Previous research has found that extraverts use more abstract language than introverts supporting these findings (Beukeboom, Tanis, & Vermeulen, 2013).

However, it is more surprising that neuroticism also has high numbers of replicated correlations with language. Neuroticism is concerned with thoughts and feelings, meaning it is not typically an externally-expressed and observable trait (Connelly & Ones, 2010; Funder & Dobroth, 1987; Vazire, 2010). However, it is clear that it is more expressed in written language, with 14 language-trait links that have replicated at least three times. The categories that have replicated well fit with the typical trait characteristics of negative emotionality, with anger, anxiety and negative emotions all strongly related to the trait.

Agreeableness is a socially desirable trait, and as such can be subject to much self-presentation which can make it more difficult to see evidence of the expression of the trait face to face (Back & Nestler, 2016; Funder & Dobroth, 1987; Vazire, 2010). However, there is evidence here of several correlations to it in language with 11 language-trait relationships replicating at least three times. Interestingly, there are no LIWC categories that have replicated more than four times with agreeableness, indicating perhaps more variation in this trait than others.

Conscientiousness also has 11 correlations that have replicated more than three times. Those correlations that have replicated strongly tend to be related negatively to conscientiousness, so they are concerned with what conscientious people do not say, rather than what they do say. They include speaking with less negative emotion, anger, and swearing less, as well as speaking less of death. Only achievement and work-related words are positively correlated, which makes sense when you consider that conscientious people are concerned with planning, good work ethic and meeting goals (John et al., 2008; McCrae & John, 1992). However, it is surprising that these word categories have not been replicated in more studies

because they seem to be strongly related to the characteristics of the trait, but this could be due to the context in which the texts are written, where some are more likely to elicit content that is work related and some are not.

Openness is a trait more concerned with intellect and creativity which are not always apparent face-to-face, and here openness has demonstrated the least number of correlations with language, with nine correlations replicating three or more times. These include more complex language such as articles, prepositions and adverbs, as well as less emotional language. It is worth noting that openness also has some of the greatest variation in findings, 19 of the relationships between language and traits have contradictory results, and there are a substantial number of relationships that have been found only once or twice. Given that openness is the Big-Five trait with the least strongly connected facets, this may not be surprising (McCrae & Sutin, 2009).For all traits, it is clear that there are strong connections to the language that people speak and write, but some are expressed more in language than others.

What is interesting from the review of the studies, is that personal and self-related narratives provide the most correlations with LIWC dictionary categories, possibly because the context is one in which more aspects of the person are expressed, providing more language specifically related to each trait. There are also more overlaps of findings within the three studies looking at this context (Dunlop et al., 2017; Hirsh & Peterson, 2009; Pennebaker & King, 1999). This may reflect the possibility that when individuals are asked to write about themselves, they cover similar topics and use typical trait-related language to do so, indicating the importance of context in expression of traits and the cues that might be associated with them.

Language and personality in social media and online dating

A number of studies have investigated the relationship between language and personality traits using LIWC analysis in social media and online texts with varying degrees of success. However, only one has examined language and personality

traits in online dating specifically and did not find correlations between the Big-Five traits and LIWC categories, hence it is not included in the table above. Fiore et al. (2010) conducted a large-scale study from one mainstream dating site. Dating profile authors' Big-Five personality traits were measured using the Ten Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003), and they were administered measures of General Trust (Yamagishi, 2001) and the Experiences in Close Relationships-Revised Scale (ECR-R; Fraley, Waller, & Brennan, 2005).Their "About me" profile texts were analysed using the LIWC word categories of home, work, money, sex, emotions and tentative language. The first four LIWC categories were chosen from the perspective of evolutionary psychology, where the researchers were examining sex differences in attraction, whether this was expressed in language and whether this language influenced the attractiveness of profiles. The remaining two LIWC categories were examined because there are known differences between men and women's use of these categories of language (Brody, 1993; Palomares, 2009) and they specifically related to relationships which was salient for online dating. It was found that women who used more negative emotion words were lower in general trust, higher in general caution and higher in attachment anxiety. Men who used more positive emotion words had higher levels of general caution and attachment anxiety and men who used more tentative language had lower levels of general trust and higher attachment anxiety. All of these correlations were small in magnitude, between 0.10 and 0.14, but were significant. Men who were higher in general caution were contacted less frequently on the dating site – though it was unclear whether the greater use of positive emotion words was picked up as a cue – this could indicate that individuals can unconsciously pick up on personality cues from written self-descriptions and engage in behaviour in response to those cues. There were no correlations between the language variables and the Big-Five personality traits as measured by the TIPI. However, the particular dictionary categories that were chosen are mostly not those that typically replicate well in trait correlations, with the exception of emotions, and so there is scope for research examining all of the LIWC variables, with particular focus on those that have been particularly well replicated in the

past, as this thesis aims to do. An earlier related study by Fiore, Taylor, Mendelsohn, and Hearst, (2008) found no relationship between the length of profiles, the use of positive or negative emotional words, or the use of first person singular words and attraction in dating profiles.

Two studies examined language and personality in Twitter (Golbeck, Robles, Edmondson, et al., 2011; Qiu et al., 2012). Qiu, Lin, Ramsey and Yang (2012) looked at one full month of tweets from 142 Twitter users who also completed the BFI personality measure, compared to Golbeck and colleagues who collected tweets and personality measures from 50 users. Qiu and colleagues collected on average 204 tweets and an average of 2,363 words per user. They describe Twitter, a microblog, as a social awareness stream containing everyday concerns, thoughts and emotions, where people connect and communicate with others outside of their offline network. They found that extraversion, agreeableness, openness and neuroticism, but not conscientiousness, were associated with specific language markers in participants' tweets.

Golbeck and colleagues found connections with all five traits, including nine with conscientiousness in their study, the highest number with any trait, suggesting that personality can be manifested in microblogs. These correlations included some of the well replicated findings from the other studies reviewed above, however, there was not a lot of overlap found between the correlations in the two studies, with only two of the 42 correlations overlapping. Perhaps the recruitment of participants in each study influenced the findings. Qiu and colleagues used three methods of recruitment, snowball sample from posts on their own Twitter accounts, recruitment on campus, and through Mechanical Turk, specifically recruiting experienced Twitter users in Mechanical Turk, which resulted in a sample of 142, of which 64 were Asian. Golbeck and colleagues posted on Twitter, Facebook and relevant email lists to recruit, resulting in a sample of 50, with no known demographic details, making it difficult to compare.

In Qiu and colleagues study, openness had the highest number of correlations with language, and it also had a high number in Golbeck and colleagues study, perhaps due to the fact that Twitter attracts a more educated audience, and users in America at least are more liberal in their politics, both correlates of openness (Wojcik & Hughes, 2019). Several of these were correlations that have been replicated in at least two further studies, where more open tweeters use more articles and prepositions indicating complex language and use less past tense and less positive emotional language. Extraversion also had a considerable number of correlations in Qiu's study, unsurprising given it is a more visible trait that is expressed in external behaviours and cues relevant to the trait. A total of five correlations included four that had previously been found, higher frequency of social and positive emotional words, more use of religious words, and less use of articles. However only one correlation was found in Golbeck's study, for social words, matching a finding from Qiu. The use of religious words connected to extraversion in Qiu's study is an interesting finding here, while agreeableness and conscientiousness have been known to have a connection to religiosity for some time, extraversion was relatively recently confirmed to be connected to religiosity through a meta-analysis (Saroglou, 2002).

Neuroticism had two correlations to language here in Qiu's study, both of which have been previously found, the use of more personal pronouns and more negations. Golbeck and colleagues also found two correlations, the use of more family and hearing related words, both of which have been found in one previous study. Of the four correlations in each study for agreeableness there were no overlaps between the two, and only two had been previously found, less causation words in Golbeck, and more space words in Qiu. It was interesting that in Qiu and colleagues study conscientiousness had no correlates at all, while the most language-trait correlations in Golbeck and colleagues' study were for this trait with a total of ten correlations including seven that had previously been found. It is possible that snowball sampling on Twitter resulted in a pattern of participants who were similar to each other but with different characteristics to other samples, as information can pass to similar others more quickly in social networks like Twitter

and Facebook where people tend to create filter bubbles by following similar others (Halberstam & Knight, 2014). This may have been more of a problem with the Golbeck study, where less participants and more recruitment through snowball sampling could have resulted in a skewed sample. Overall, this indicates that some stable patterns of language related to traits can be found in Twitter content in terms of how the findings over both studies related to other research, but not in terms of how they relate to each other.

A number of studies have examined personality expression in language within the context of blogs (Li & Chignell, 2010; Nowson, 2006; Yarkoni, 2010). These can be either self-related content or on other topics, but they have also displayed similar relationships to other contexts in terms of trait-language correlates. The studies measured personality using measures of the Big-Five or measured neuroticism and extraversion with the EPQ-R and found some overlapping results with each other and previous research. Of particular note are confirmation in these studies of the link between extraversion and more positive emotional language and inclusive words, as well as less use of numbers. They also repeated the finding that neuroticism and higher use of first-person singular, negative emotion as well as anger and anxiety words are related. Yarkoni's (2010) study is interesting because it not only looked at LIWC categories in the analysis, where many correlations that replicated previous findings were found, but it also looked at individual word use within the large corpus of blogs that had been gathered. This helped to explain a number of counterintuitive findings, including for example the positive link between agreeableness and sexual words. It was found that the words agreeable people were using that fell within the sexual category on LIWC were words like, love, loves, loving, and loved, and they were using significantly less the words like fuck, porn, and rape which also fall into that category. It is possible that some LIWC categories are overly broad, and capture multiple dimensions within each, which may mask some language-trait interactions and explain others that appear counterintuitive.

Social media, and in particular Facebook has received attention from researchers looking at how personality is connected to behaviour, content and use

of social media features. The majority of these studies however have looked at features like the uploading of photographs, likes and shares, numbers of friends, and numbers of status updates rather than the language used in the updates or about me page (Bachrach, Kosinski, Graepel, Kohli, & Stillwell, 2012; Gosling, Augustine, Vazire, Holtzman, & Gaddis, 2011; Jeffrey Hall & Pennington, 2013; Ivcevic & Ambady, 2012; Moore & McElroy, 2012). Some have looked at status updates and the content of about me pages for items like the use of quotes and listed interests (Ivcevic & Ambady, 2012) or have used codebooks to look at the frequency of positive effect and humour (Pennington & Hall, 2014), but few have used LIWC in order to analyse that content for links to personality traits. Two studies examined linguistic expression in Facebook, and found considerable overlap in their results, which is interesting given the differences in sample size (Golbeck, Robles, & Turner, 2011; Schwartz et al., 2013). Golbeck and colleagues had a sample of 167 participants with an average of 42.6 words each taken from participants about me section and status updates on Facebook, while Schwartz and colleagues had access to approximately 700 million words from 75,000 participants who had completed personality inventories through the *My Personality* application on Facebook. Golbeck et al. unsurprisingly found considerably fewer significant correlations than the big data study, however of the 12 that they did find, seven overlapped with Schwartz et al.'s study. Those that did not overlap were more likely to be context dependent content words, such as money, work and biological processes, while those that overlapped were mainly emotion related, swearing, and perception related words, indicating that language use on Facebook may be more stable than that on Twitter.

In summary, there are particular trait-language correlations that appear to replicate well over different studies, even if they do not always replicate in similar contexts. However, there is also substantial variation for most LIWC cues, and even the most replicated connections between LIWC cues and traits appear in only half of the studies examined. This indicates that the context in which texts are written and the sample of people who write them are important in determining how personality will be expressed in text. Some of the non-replicable results may be an

artefact of the multiple tests run across many variables, and some may be relevant trait indicators in the context and sample they are measured in, but not in all contexts or samples. In terms of personality perception in text, these language variables are key cues that can be tested for in lens model research and offer evidence to support hypotheses about how language in texts might reflect personality traits, but they may not be very generalisable beyond any sample tested.

Relevance and availability in language

LIWC language categories may be viewed through the lens of Funder's Realistic Accuracy Model (2012). Funder divides valid cues, those that are related to the target's self-reported personality, into two categories, relevant and available. Those that are relevant are related to the target traits, those that are available are observable to a judge. Not all relevant cues are available to judges, as they may not be readily visible or observable. As previously mentioned, language can be divided into two main categories, content and function words. Content words are mainly concrete and imaginable words that communicate what a person is talking about through topics, concerns and actions, like words about family, work, death, the body. Whereas function words like articles and pronouns are more abstract, have more complex meanings, and are crucial to the functioning of a language system (Tausczik & Pennebaker, 2010). Function words comprise a small amount of the English vocabulary but make up around 55% of all our spoken and written language. They are not the focus of people's attention when reading or listening, but we know from the review of the literature on LIWC category-trait correlations that they do have a relationship with how traits are expressed in language. It is possible that LIWC content words, in particular those relating to personal concerns (work, home, or money for example), affective processes (emotion words), social processes (family, friends), perceptual and biological processes (seeing, hearing, eating, drinking, sex) might be more observable in online dating profiles and other textual contexts. Function words like pronouns and articles, as well as other grammar and

cognitive process words might be less easily detected as they are less noticeable, and therefore may not be available to judges in perceiving traits.

An example of this might be that extraverted people are consistently found to use more social, family, human, sexual, positive emotional and inclusive words, and less negative emotion words, all visible and relevant cues to their identity as positive, outgoing, social people concerned with others. These have been found in blogs (Li & Chignell, 2010; Yarkoni, 2010) and on Twitter for example (Golbeck, Robles, Edmondson, et al., 2011; Qiu et al., 2012). These are all word categories that are visible in their expression, and therefore might be more available to perceivers. However, the use of fewer articles, tentative language and numbers may be a less visible manifestation of the trait in language. On the other hand, openness has only nine reasonably well replicated LIWC variables that correlate with it, and five of those are variables that may be less visible, indicating that this trait maybe less visible and therefore less detectable by perceivers.

Linguistic cues might be also viewed through Gosling and colleagues (2002) framework of identity claims and behavioural residue. It is possible that LIWC content words, in particular those relating to emotion, social processes, and various other categories such as eating, drinking, and sexual words might be used deliberately, or deliberately avoided, as identity claims in online dating profiles and other situations where there is considerable self-presentation involved. Function words like pronouns and articles, as well as other grammar and cognitive process words might be less easily used as identity claims and may be a good example of unintentional behavioural residue in this context.

For example, in online dating profiles where there is high self-presentation involved individuals may emphasise or lay claim to the identity of friendliness by talking about enjoying the company of others, or openness by talking about their cultural or artistic interests. Those higher in neuroticism may avoid the use of anxiety or negative emotion words in an attempt to control their ability to create a positive impression. However, even in online dating which is a highly controlled

environment where daters carefully craft the smallest cues (Whitty, 2008; Zytko, Grandhi, & Jones, 2014), it is likely that they will leave behavioural residue of their traits. In a textual context this may manifest through spelling and grammar errors or through the timing or length of profiles or messages, but it may also manifest through the use of functional language such as articles, pronouns, and other categories. These may or may not be visible to individuals attempting to perceive traits through those texts. People who are higher in conscientiousness may deliberately avoid the use of swear words, negative and angry emotions, and death related words in order to conform to norms and rules of society and to appear in control of their impulses, while using more work and achievement related words to claim the work ethic aspect of their identity, for example on social media like Facebook and Twitter, in text messages, and in blogs (Golbeck, Robles, Edmondson, et al., 2011; Golbeck, Robles, & Turner, 2011; Holtgraves, 2011; Yarkoni, 2010). But they are perhaps more unlikely to avoid using words related to cognitive mechanisms, discrepancies and negations to fulfil the same purpose, perhaps reflecting behavioural residue rather than identity claims.

For example, this has been examined in personal websites, which are also highly controlled self-presentational environments where individuals who create their personal website can consciously shape every aspect of the website to manage the impression they wish to create (Vazire & Gosling, 2004). Like any other environment however, they are not entirely free of behaviour residue, such as spelling errors or broken links, but this behavioural residue is reduced in an environment where there is high motivation to self-present and high control over the environment. Vazire and Gosling's study examined whether personal websites conveyed a clear message about personality, and whether it was an overly positive message. They found that there was strong consensus among judges of traits, indicating a clear self-presentational message, and that there was considerable accuracy in perception of traits, though as expected, extraversion and particularly agreeableness were viewed more positively as a result of ideal self-presentation through identity claims.

Summary

This review set out to determine whether the Big-Five personality traits are related to language use in text, whether specific LIWC language cues are related to traits, and whether context affects the relationship between linguistic cues and traits. There are some language cues that replicate relatively consistently in their relationship with Big-Five traits, indicating that these might be utilised by observers attempting to perceive traits in text. However, there is also substantial variance in the relationships across multiple studies. Some traits have considerably more variance than others, openness the most over any other trait, perhaps indicating that this trait may be less observable than others. Context also appears to substantially interact with expression of personality in language to affect the cues that are related to traits, with private self-related contexts appearing to offer more trait-related cues than other environments. The relevance and availability of trait-related language may also affect the effectiveness of cues in providing trait-related information to observers, where some types of language variables may be more visible and therefore detectable by observers than others. In environments with high self-presentation the use of identity claims to exaggerate socially desirable traits may obfuscate valid language trait relationships and may be another barrier to accurate perception. The research studies in this thesis aimed to address some of the gap in the research regarding the expression of language cues in different contexts by examining texts written by the same authors in different contexts. Study one examined expression of personality in different online dating platforms, and study two examined expression of personality with two contrasting contexts, online dating profiles which were self-related with high self-presentation and creative writing stories which were non-self-related with low self-presentation. Study two in particular allowed examination of how identity claims and behaviour residue might affect expression of traits in text.

The second RSLR will examine the accuracy of personality perception in text-only contexts and will make use of the information in this review to help understand the cues related to accurate or inaccurate perception. The review will

also examine the relationship between the context in which texts are written and how accurately traits are perceived.

A rapid structured literature review of personality perception in text

Given how much we communicate primarily by text in computer-mediated communication, and the fact that more attention is now directed at this research area, a comprehensive review of the research in this area was needed. Once again a Rapid Structured Literature Review was carried out (RSRL; Armitage & Keeble-Allen, 2008), as a systematic review was not the main aim of this thesis.

Aims and objectives

As in the first RSLR, the aim was to ensure that as much of the literature was covered as possible, clear inclusion and exclusion criteria were applied to avoid bias, the process was documented in a transparent and repeatable manner, and the review added new knowledge (Armitage & Keeble-Allen, 2008).

The review had two main objectives: 1) to examine whether accuracy of personality judgments is possible in zero-acquaintance, text-only contexts and 2) to see if all or any traits are accurately perceived. The review was particularly concerned with traits that typically have high (e.g. extraversion) or low (e.g. neuroticism) visibility or are highly evaluative (e.g. agreeableness) or neutral (e.g. extraversion), as these characteristics affect accuracy (Funder & Dobroth, 1987; Vazire, 2010). Given that context strength and richness also affect accuracy of personality judgments through differences in the quantity and quality of information available, this was examined as a theme of the review (Borkenau & Liebler, 1993; Connelly & Ones, 2010; Funder & Dobroth, 1987; Vazire, 2010). A pattern that has emerged in interpersonal perception studies is that self-related content tends to elicit more accuracy then non-self-related content, and from the work of Human, Biesanz, and colleagues (2012) it appears that conscious self-presentation by targets can also increase the accuracy of judgments, thus the self-

relatedness and level of self-presentation in the judgment contexts was also considered.

This RSLR also drew from the review of the literature on personality expression in text in the previous section to aid analysis and understanding of the findings here.

Search strategy

This review was conducted with a post-positivist approach focusing on English language, peer-reviewed or unpublished, quantitative studies examining interpersonal accuracy of personality perception in text. The initial search was conducted in November 2017 and was updated in August 2018 and March 2019. No limit on time frame or geography was specified. Online academic databases Academic search complete, PsycINFO, and Psychology and Behavioral Sciences Collection were searched using keywords that had been drawn from previous comprehensive scoping reviews of the relevant literature involved in interpersonal perception, language, personality and computer mediated communication. The following search terms and closely related words were used *personality*, as well as each trait separately, *Big-Five, Five-Factor Model*, *interpersonal perception, lens model, zero-acquaintance, first impression, thin-slice, computer-mediated communication, writing, blog, email, text, internet, social media, textspeak, language.* Scoping searches for research conducted using HEXACO and the 16PF with LIWC did not yield any results, thus the focus was on the Big Five. However, each individual trait was listed and thus could be expected to pick up on studies examining those traits within different frameworks. The final search string was as follows:

> *(personality OR big-five OR 'big five' OR 'five-factor model' OR NEO-PI-R OR HEXACO OR extraversion OR extroversion OR surgency OR openness OR intellect OR conscientiousness OR agreeableness OR neuroticism OR 'emotional stability' OR 'personality traits') AND (perception OR judg* OR*

detect OR 'lens model' OR 'interpersonal perception' OR assessment) AND ('computer mediated communication' OR 'computer-mediated communication' OR writing OR blog OR email OR e-mail OR text OR language OR 'social media' OR textspeak OR internet) AND (Zero-acquaintance OR 'initial impression' OR 'first impression' OR 'impression formation' OR first-impression OR 'thin slice')

The search yielded 114 records. Additional searches were carried out on Google Scholar, thesis repositories, and through cross-referencing key papers, and a further 150 records were identified. After removing duplicates 196 records remained for screening, see Figure 4 for a flow chart of the study selection process.

Only studies that included two samples were considered, first, targets who had completed an inventory of their Big-Five personality traits, or the EPQ-R neuroticism and extraversion, and generated a text output to be judged, and second, human judges who relied only on the text output of the targets and judged the target Big-Five personality traits on a similar inventory. Additionally, the studies had to include a measure of accuracy between those two corresponding measures. After screening the abstracts of 196 records, 29 remained for consideration, and after full-text screening 19 remained for inclusion in the review. Studies were eliminated at both abstract and full-text screening stages where they did not include a measure of accuracy, were concerned with traits other than the Big-Five, or those that map to the Big-Five such as Eysenck's EPQ (Gow, Whiteman, Pattie, & Deary, 2005), focused on behaviour or language correlations with traits rather than personality perception, included visual or auditory information about the target alongside text in the stimuli (for example, social media pages), or included perception of an animal or other non-human target.

Results

The 19 studies included in the final review included research over the last 17 years, with the first study conducted in 2002. Interpersonal judgments were made

in a variety of contexts including online chat, email, and blogs, as well as offline resumes and more personal offline texts such as stream of consciousness essays and lists of goals. See Table 3 for a full list of the included papers with citations.

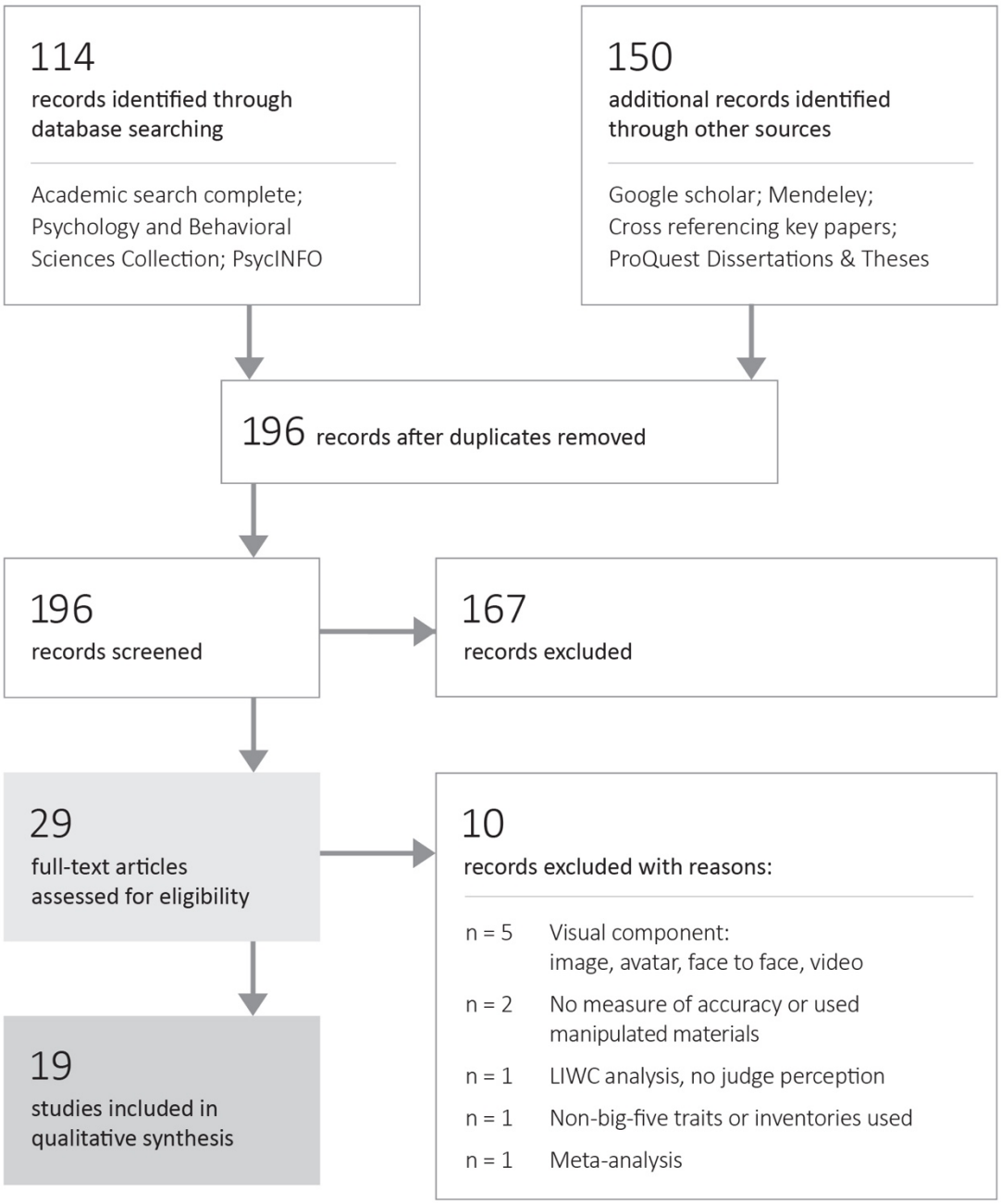

Figure 4. Flow chart of the study selection process for the RSLR of perception of personality traits in text

The primary objective of this review was to determine whether traits could be detected accurately at zero-acquaintance by judges using only text to make their judgments. There is clear evidence that zero-acquaintance accuracy is possible, but with substantially lower accuracy levels that in other contexts such as face to face interactions (Connelly & Ones, 2010). This review found that many of the studies achieved at least some significant accuracy though effect sizes were mainly small (i.e. between 0.11 and 0.46 for single rater accuracy and between 0.08 and 0.89 for aggregate accuracy). Studies varied considerably in their methods, accuracy measurements, and which traits could be perceived. One difference in how accuracy is reported is between single judge accuracy, where accuracy is calculated for each judge and a mean single judge score is calculated, and aggregate judge accuracy where the aggregate of several judges is calculated. Aggregate judge accuracy is commonly reported in interpersonal perception studies, and aggregate accuracy tends to be considerably higher than single judge, with higher numbers of judges leading to higher accuracy scores for purely statistical reasons (Back & Nestler, 2016; Hirschmueller et al., 2013), as can be seen in Table 3.

There was a lot of variety in the design of the studies, particularly in the numbers of targets, the quantity of stimuli generated by each target, the number of judges, and how many stimuli they had to judge. Target numbers ranged from two to 1357, and judge numbers ranged from eight to 394. Stimuli were as short as online dating or gaming usernames and email addresses, or as long as six life domain essays per target with an average total word count of 375 (Borkenau et al., 2016), and one month of target tweets with an average word count of 2363 (Qiu et al., 2012). The burden on judges was also substantially different across studies, where some judged ten online dating usernames and rated them on a ten-item inventory (Lange et al., 2019), other judges rated one month of tweets from 142 twitter users, a total of over 300,000 words and rated each of the 142 targets on the 44-item BFI (Qiu et al., 2012). This high level of burden could potentially cause considerable fatigue and could reduce motivation in judges. A very low number of either targets or judges could possibly introduce good target or good judge effects, where targets with particularly observable traits (Human et al., 2014), or judges

with higher intelligence and greater psychological adjustment could influence the accuracy ratings (Judith Hall et al., 2016; Letzring, 2008, 2014).

The effect of context on accuracy

There were a number of patterns that emerged around the context in which judgments were made. These have been grouped into several categories based on some of the frameworks previously discussed. Given the topic of this thesis is personality perception in online dating profiles, and target engagement in self-presentation may have an effect on accuracy (Human, Biesanz, et al., 2012), online contexts that include an amount of self-presentation are of particular interest. Twelve of the studies, from 10 papers, fall into the online text category and all of these contexts would typically involve interacting with others and therefore self-presentation, though only a few of them were studies actually designed to have participants interacting with others. The contexts of these online studies can be further segmented into one-to-one or one-to-many categories, where in the context of the study the stimuli were either from one-to-one interaction or stimuli such as email and IM chat, or from public or semi-public settings such as email addresses, Craigslist personal ads or Twitter. There are varying levels of self-presentation across these contexts. The offline contexts were grouped into two categories based on level of publicness and self-presentation. The first includes only resumés as a semi-public context where they are designed to be seen by others, but not typically by many observers, and they involve considerable self-presentation. Secondly, the remaining contexts involved mostly self-related private content that were only to be viewed by the researchers, such as stream of consciousness essays, goals and creative writing, which should involve less self-presentation. As shown in Table 3, there were some patterns that emerged over these contexts in terms of how many traits and which specific traits could be accurately judged. The offline and private contexts appear to have substantially greater accuracy of perception than any of the other categories, and this will be elaborated on in the discussion below.

Table 3. Categories of contexts in which personality judgments were made

Context of study	**Traits accurately judged**						
Online with self-presentation: One to one	**E**	**A**	**C**	**N** (ES rev)	**O**	**# judges**	**# targets**
IM chat (one to one) (Wall et al., 2013) *Interactive stranger dyads; talk about anything 10 mins.*	0.02	0.08	**0.20**	0.00	0.05	92	92
IM chat (study 1: one to one) (Rouse & Haas, 2003) *Interactive stranger dyads; getting to know you questions 15 mins, discuss ideal college community 15 mins.*	0.04	0.00	**0.40***	0.08	-0.06	64	64
Chatrooms (study 1: one-to-one) (Markey & Wells, 2002) *Interactive stranger dyads; talk about anything 15 mins.*	**0.32***	-0.13	#	-0.02	**0.46***	84	84
Email (EPQ) (Gill & Oberlander, 2001)	**(0.89*)**	**_**	**_**	(-0.29)	**_**	30	18
Online with self-presentation: One to many	**E**	**A**	**C**	**N (ES rev)**	**O**	**# judges**	**# targets**
Online dating usernames (Lange et al., 2019)	**0.33***	0.16 +	0.18 +	0.09	**0.25***	394	69
World of Warcraft usernames (Graham & Gosling, 2012)	0.02	-0.01	-0.01	-0.02	0.01	8	1357
Email addresses (Back, Schmukle, & Egloff, 2008)	(0.05)	**(0.08*)**	**(0.12*)**	**(0.08*)**	**(0.13*)**	100	599

Craigslist personal ads (Weidman et al., 2015) Study 1: undergrad participants Study 2: single and primed participants	**0.11*** **0.12***	0.06 0.03	0.08 0.00	0.03 0.05	-0.04 0.08	219 117	100
Twitter (Qiu et al., 2012)	0.05 (-0.02)	0.13 **(0.32*)**	0.05 (0.02)	0.04 **(0.23*)**	0.09 (0.03)	8	142
Blogs (Li & Chignell, 2010)	0.26	-0.27	0.14	0.05	0.25	12	8
IM chat (study 2: group chat transcripts) (Rouse & Haas, 2003) *Transcripts from one participant taking part in a word game with 13 non-participants. Judges focused only on the single participant comments*	0.13	0.07	-0.06	0.05	-0.08	35	82
Chatrooms (study 2: group chat) (Markey & Wells, 2002) *Interactive stranger groups of 6; talk about anything 15 mins.*	0.20	#	0.07	#	#	72	72
Offline with self-presentation: One to few	**E**	**A**	**C**	**N (ES rev)**	**O**	**# judges**	**# targets**
Resumés (Apers & Derous, 2017)	**0.32**	0.08	-0.39	0.03	-0.32	296	4
Resumés (Frauendorfer, Mast, & Sutter, 2015)	**0.28***	-0.11 +	**0.40***	**0.25***	**0.26***	164	8
Resumés (Cole, Feild, Giles, & Harris, 2009)	**0.15***	-0.05	0.03	-0.11	0.08	244	122
Resumés (Cole et al., 2005)	0.22	-0.26	**0.33***	-0.19	**0.44***	53	2

Offline with less self-presentation: One to researchers only	**E**	**A**	**C**	**N (ES rev)**	**O**	**# judges**	**# targets**
Lists of goals (Dunlop et al., 2017) Study 1: All goals Study 2: First goal only Study 3: Fifth goal only	**0.40*** **0.18*** **0.13***	**0.24*** **0.13*** 0.10 +	**0.17*** **0.14*** -0.06	**0.24*** **0.19*** -0.20*	**0.15*** 0.03 **0.12***	8 7 8	396
Life domain essays (Borkenau et al., 2016) Study 1: All essays single and (aggregate) --- Study 2: Individual essays single and (aggregate) • a – hobbies essay • b – friends essay • c – academic essay • d – future plans essay	0.19 **(0.29)** --- 0.19[b] **(0.29)**	**0.21 (0.32)** --- 0.14[d] **(0.21)**	**0.26 (0.34)** --- **0.24[c] (0.30)** 0.13[d] **(0.21)**	**0.23 (0.34)** --- 0.17[c] **(0.25)** 0.14[d] **(0.24)**	**0.35 (0.47)** --- **0.38[a] (0.49)** **0.25[c] (0.35)** 0.17[d] **(0.29)**	130	208
Stream of consciousness essays (Burusic & Ribar, 2014)	**0.12* (0.23*)**	-0.07(-0.04)	0.14 (0.08)	0.19[+] (0.13)	0.16 **(0.28*)**	11	90
Stream of consciousness essays (Holleran & Mehl, 2008)	**0.25* (0.37*)**	**0.31* (0.45*)**	**0.36* (0.50*)**	**0.27* (0.40*)**	**0.21* (0.29*)**	9	90
Creative writing stories (Küfner et al., 2010)	(0.09)	**(0.31*)**	(0.11)	(-0.07)	**(0.19*)**	10 10	79 126

Single-rater accuracy *r* value (aggregate rater *r* values).
All significant correlations in bold ($p < .05$).
Where *p* value was not reported correlation *r* values over 0.20 in bold as per guidelines in Gignac and Szodorai (2016) and by Funder and Ozer (2019)
Significant *p < 0.05; +p < 0.1; p values not always reported.
Insufficient variance for analysis (Markey & Wells, 2002).

Linguistic cues and accuracy

In addition to looking at the traits that were judged accurately across contexts, this review examined the linguistic cues which were utilised to make accuracy judgements in the three studies that conducted full lens model analysis with LIWC variables and reported this information. Table 4 lays out all valid textual LIWC trait-correlations from the review of the LIWC literature, as well as all of LIWC cues that were utilised in this accuracy review, so that cues that have replicated over multiple studies can be viewed beside cues that have been utilised here for accuracy. Only three of the LIWC review studies can be included in the RSLR of perception accuracy (Dunlop et al., 2017; Li & Chignell, 2010; Qiu et al., 2012), as most of those studies did not look at judgment of traits, rather just links of language and traits. The study by Li & Chignell (2010), did not actually look at cue utilisation however, and only looked at validity in the LIWC variables connection to target traits. One additional study here that did look at perception of traits in language, did examine LIWC cue utilisation, but did not look at whether the cues were actually valid by correlating them with an accuracy criterion (Weidman et al., 2015), and so was not included in the previous LIWC analysis review. Only two studies here were full lens model analyses looking at LIWC cues on both the validity and utilisation sides of the model (Dunlop et al., 2017; Qiu et al., 2012). Unfortunately, only one of the studies included in those two examined the full range of LIWC variables (Qiu et al., 2012), while the other one looked at only eleven categories (Dunlop et al., 2017). Weidman and colleagues examined only eight categories in looking at utilisation in online personal ads.

Consequently, there is a lack of data to determine what traits and categories do and do not replicate on the utilisation side of the model. Several other studies were also full lens model studies, but uncovered valid and utilised cues through content analysis such as those looking at features of usernames in online dating, World of Warcraft, and email addresses (Back et al., 2008; Graham & Gosling, 2012; Lange et al., 2019), characteristics of life domain essays (Borkenau et al., 2016), and

online chat (Rouse & Haas, 2003). The LIWC cues that were utilised in the studies included in this review will be discussed in terms of how well they match valid cues, how well they replicate (despite the limited data), and how they interact with context.

Table 4. Validity and utilisation of LIWC dictionary categories in personality perception in text found in previous research

Language category	E		A		C		N (ES rev)		O	
	Valid	Utilised	Valid	Utilised	Valid	Utilised	Valid	Utilised	Valid	Utilised
Achieve	−ns		+u −e		+gsu		−u		−u	
Adverb	−u				+u		+u		+hqu	
Affect	+qsu	+q	+du						−squ	
Anger	−hu	+r	−ghsu	−qrr	−ghsu	−qr	+ghsu	+qr	+u	
Anxiety	−hu	+r	−hu		− u	+r	+dghnsu		+u	
Articles	−pqu	−q	+n −p	−q	+su		−psu		+epqsu −j	
Assent	+qu	+q	+ u		−s	−q	−u		− squ	
Aux verbs	−qu				+u −e		+u		+u	
Body			−gsu	−q	−gu	−q	+gu	+q	+u −ep	
Bio	+u		+d −u		−u	−q	+u	+q	−eu	
Causation	−psu		−sveu		−ps		+stu		+eu −p	
Certainty	+s		+gu		+u −ps		+s		+eu	
Cognitive mechanisms	−u	−q	+u		−es	+q	+su		−su	
Conjunctions	−u		+u		+u		+qu		+u	
Death	−u		−hsu		−eghnsu		+u	+q	+u	
Discrepancies	−nu		−nu		− epsu		+nstu		+u −s	
Exclusive	+t −pu		−q		+h −psgu		+gsu		+pgu	
Family	+gseu		+gsu		+u				− u	
Feeling	−u				−eu		+eu		+u	
Fillers			− u		− eu		+u		+u	
1st person singular	+ht	+q	− u +ps	−q	− u	−q	+ pqstu	+q	+u −ps	+r
Friends	+su		+su		+ u		−s		− u	

Language category	E		A		C		N (ES rev)		O	
	Valid	Utilised	Valid	Utilised	Valid	Utilised	Valid	Utilised	Valid	Utilised
All function	−u	−q	+u		+u		+u		+u	
Future	−u				+u −e		+ntu		+u −s	
Health	−e						+u			
Hearing	+s −u	+q	+h		−su		+egu		+gu −s	+q

Home			+su		+u		+gh −u		−su	
Humans	+gsnu	+q	−u		+d −s		−n		+e −s	+q
Impersonal pron	−hqu						+u		+u	
Inclusive	+ psu		+gsu		+u		+bt −u		+nsu	
Ingestion		+q	+e −u		−u		+dnu		+su	
Inhibition	−s				+u		−h			
Insight	−u				−u		+u		+pu	
Leisure	+su		+su −h		−hu		−u		−s	+q
Money			−esu		+u				+u −d	
Motion	+u		+su		+u		−hu		−su	
Negations	−pu		−qu		−epsu		+qsu		+u −s	
Negative emotion	−pau	+r −a	−hpsu	−aqr	−ejpsu	−aq	+aghjspu	+qra	−asu	−a
Non-fluencies							+u		−q	
Numbers	−bcpsu		+su		+u				+u −s	
Past	−nu		+u						−qs	
Positive Emotion	+jnpqsu	+aq	+psdu	+aqrr	+pu	+a	−pu	−arr	−asqu	−r +a
Prepositions	−u	−q	+u			+q			+snqu	
Present	+n	+q			+u		+t u	+q	+u −ps	
Quantifier	−u		+u	+q	+u	+q			+eu	
Religion	+sq	−q	+u	+q	+u		+e −u			−q
Sadness	−u		−su		−esu	−q	+gu	+qr		−q
Second person singular	+s		+eu		+e		+t −s		+u −s	−q
Seeing	−u		+s		−du				+u	
Sexual	+hsu	+q	+s −qu	−q	−u	−q		+q		
>6 letter words	+t	−q	+n −p		+t		−j		+pn	
Social	+gpseqnu	+q	+su	+q	+d		−b	−q	−s	+q
Space			+bqs		+u		−s		+u −s	
Sports	−b						−s			
Swearing	−t	+q	−hsu	−rrq	−dsu	−qrr	+bsu	+qrr	−q	
Tentative	−ps u				+t −su		+su		+pu	
Third person sing heshe							+u			
Third person plural they	−u	−q	−u				+u		+hu	
Time			+su		+su		−u		+u −s	
Perceptual	+s −du	+q			−dsu	−q	+u		+gu −s	
Personal pronoun	+h	+q	+s		−u	+q	+su	+q	−su	
Relativity			+u		+u		−u		−u	
Total pronoun		+q	+s		−u	+q	+u	+q	+u −s	
Verbs	−u	+q			+u		+u	+q	+u −q	
We	+s		+s						−s	
Word count	+c	+rr				+r		+l		+rr
Work	+d −snu	−q	+u		+egu	+q	+dn −ghu		+e −nu	
Comma										
Colon										
Question mark										
Exclamation										

Parentheses	– [d]					

E = Extraversion, A = Agreeableness, C = Conscientiousness, N = Neuroticism, O = Openness to Experience

+ Positive correlation. – Negative correlation.

	Reference for study	Text analysed	Personality	# LIWC	Valid r values	Utilised r values
[a]	**Dunlop, McCoy and Staben (2017)**	**Goals**	**Big-Five**	**11**	**.10 – .20**	**.09 – .40**
[b]	Gill (2003)	Email	EPQ-R E+N	All	.20 – .26	
[c]	Gill and Oberlander (2002)	Email	EPQ-R E+N	15	.20 – .21	
[d]	Golbeck, Robles and Turner (2011)	Facebook	Big-Five	All	.15 – .26	
[e]	Golbeck, Robles, Edmondson and Turner (2011)	Twitter	Big-Five	All	.24 – .43	
[g]	Hirsh and Peterson (2009)	Self-narrative	Big-Five	All	.19 – .29	
[h]	Holtgraves (2011)	Text messages	Big-Five	All	.14 – .25	
[j]	Li and Chignell (2010)	Blogs	Big-Five	8	.75 – .93	
[n]	Nowson (2006)	Blogs	Big-Five	All	.22 – .34	
[p]	Pennebaker and King (1999)	Personal essays	Big-Five	All	.07 – .16	
[q]	**Qiu, Lin, Ramsay and Yang (2012)**	**Twitter**	**Big-Five**	**All**	**.17 – .27**	
[r]	**Weidman, Cheng, Chisholm and Tracy (2015)**	**Craigslist personals x2**	**Big-Five**	**8**		**.17 – .56** **.03 – .59**
[s]	Yarkoni (2010)	Blogs	Big-Five	All	.08 – .22	
[t]	Yee, Harris, Jabon and Bailenson (2011)	Second life chat	Big-Five	23	.22 – .34	
[u]	Schwartz et al. (2013)	Facebook	Big-Five	All	.02 – .19	

Note: Studies in bold assess accuracy of personality perception while also looking at utilisation of LIWC categories as cues.

Discussion

In grouping the contexts of the studies in this way it is possible to look at them from a number of perspectives, the public or private nature of the writing, and thus the level of self-presentation that may be involved, which may also influence the relative numbers of identity claims versus behavioural residue cues that may be available in those contexts (Gosling et al., 2002). Additionally, results can be examined through the filter of strong or weak contexts, and self-related or non-self-related generated content.

Context and quality of information

The category of contexts that appears to elicit the greatest accuracy is the offline and private category, with the exception of the creative writing study (Küfner et al., 2010). This differs from the other private texts in that it is not self-related, and thus has substantially less accuracy than the self-related content. In fact, it could possibly be included as easily in the 'offline one to few' group with the studies looking at resumés, as you might expect people to write stories for at least a

few others to read rather than to record private self-related content. However, in this study the authors of the stories expected the researchers to be the only readers, so it is included in the 'one to researchers only' category for that reason. This grouping of contexts includes lists of idiographic goals where participants were asked to reflect upon, and describe ten things that "they were typically trying to do" (Dunlop et al., 2017), life domain essays where people wrote five short essays about their hobbies, friends, family, academic studies, and plans for the future (Borkenau et al., 2016), and stream of consciousness essays where participants spent 20 minutes writing everything that came into their head without editing (Burusic & Ribar, 2014; Holleran & Mehl, 2008). These vary in the strength of the context but allow writers quite a lot of freedom in choosing their topics, in particular the stream of consciousness essays allow the participant to write with complete freedom. This fits with the findings of the review of LIWC studies, where the most correlations between language categories and traits were in private self-related content, indicating that more personality related content is likely present in those contexts (Dunlop et al., 2017; Hirsh & Peterson, 2009; Pennebaker & King, 1999).

Accuracy is not necessarily a result of word count and quantity; lists of goals were short but effective for gaining judgment accuracy and were only 50 words long, and even a single goal at an average of 5 words had some level of accuracy. The life domain essays were on average 75 words each and combining five of them was highly effective, but even individually they allowed greater accuracy for the traits that the content was related to, for example essays on hobbies revealing openness, essays about friends revealing extraversion, essays about academic studies revealing openness and conscientiousness (Dunlop et al., 2017). The Twitter content that was examined was long and ineffective for accuracy, so it is not quantity that is important, rather it would appear that quality and information richness are more important (Qiu et al., 2012). Although when comparing two of these contexts that were very similar but with different word counts, the higher word count resulted in better accuracy, so information quantity plays a part when

all else seems equal. In the stream of consciousness essays, the study where the participants typed their essays (Holleran & Mehl, 2008) had nearly twice the word count of those who wrote by hand (Burusic & Ribar, 2014), and the amount of accuracy in Holleran and Mehl's study was considerably higher with all five traits accurately perceived, rather than just extraversion and openness in Burusic and Ribar's study.

These private offline contexts all involve self-related content, revealing inner thoughts and feelings rather than lists of activities, or particular task related information, and are mostly weak situations without many constraints on expression, allowing for greater numbers of cues to be expressed. In a private context you would expect that self-presentation should not influence the authors of the texts, however participants were aware that the researchers would read their texts. In Burusic and Ribar's (2014) study of stream of consciousness essays they also examined accuracy of perception for self-presentation tactics, and found that judges could accurately detect the self-presentation tactic of self-promotion, and to a degree ingratiation, in the target texts, indicating that self-presentation is most likely present in all texts created for research, even the most private and least considered ones. However, given what we know of the effort and consideration that goes into online dating texts, it would be reasonable to expect higher levels of self-presentation in those (Ellison et al., 2006; Guadagno et al., 2012; Whitty, 2008).

The studies which involved actual interaction between dyads in instant message chat, or in groups within a group chat scenario had different levels of accuracy. One-to-one contexts had some accuracy, but only for one or two traits in each study. For example conscientiousness was the only trait judged accurately in Rouse and Haas, (2003), and Wall and colleagues (2013) studies, and extraversion and openness were judged accurately in Markey and Wells (2002) study in the one-to-one context. However, in group chat it appears that the chaotic nature of it, or the attempt to make multiple judgements in a short period of time through text

resulted in a complete lack of accuracy. Perhaps in the one to one chat scenarios, the topic of conversation might have played a part in giving more information on one or two traits but not others. We know that people often avoid discussing topics such as religion, politics and more personal concerns with strangers, and so traits such as openness and neuroticism might not be visible in a zero-acquaintance encounter (Connelly & Ones, 2010).

What effect might self-presentation have on expression and utilisation of valid cues? The group of contexts that seems to have the least success with perception accuracy is the online 'one to many' category, which you might expect would have considerably higher levels of self-presentation than private essays, but with a weaker context than resumés. This grouping includes some extremely thin slice judgements based only on usernames for online dating sites (Lange et al., 2019), the massively multi-player online role playing game (MMORPG) World of Warcraft usernames (Graham & Gosling, 2012), and email addresses (Back et al., 2008). Although the quantity of information available in these contexts is incredibly small, they did manage to achieve a degree of accuracy of perception in two of the studies, indicating perhaps that in a very strong context designed for communication with many, with restrictive limitations, people perhaps focus on the most salient aspect of their personality to communicate. However, the accuracy effects overall tended to be small where they existed.

Judges were unable to perceive personality at all from World of Warcraft usernames, perhaps as a fantasy game there is not as much inclination to present the real self in usernames. However, online dating nicknames were more successful, with significant accuracy correlation coefficient scores for extraversion of 0.33 and openness of 0.25. With the effort that is made to self-present and attend to even the smallest cues in online dating (Ellison et al., 2006; Guadagno et al., 2012; Whitty, 2008), it is not surprising that these have stronger relationships to the owner's traits than the other very thin slice contexts. Back and colleagues reported

statistically significant accuracy for all except extraversion in email addresses. However, even with reporting aggregate accuracy scores rather than single-rater, they only achieved between 0.08 for agreeableness and neuroticism, and 0.12 and 0.13 for conscientiousness and openness respectively.

The online 'one to many' group also includes content from Twitter (Qiu et al., 2012), blogs (Li & Chignell, 2010), and group chatroom conversations (Markey & Wells, 2002; Rouse & Haas, 2003). These particular situations involved considerably more content than the email and usernames, but actually achieved less accuracy than those thin slice settings. The more successful of these was Twitter, where there was significant aggregate-rater accuracy for of 0.32 for agreeableness and 0.23 for neuroticism, and blogs where there were correlations of 0.26 for extraversion and 0.25 for openness but significance was not reported. Perhaps with more content that is not always self-related, there is less focus on trait relevant content and personality is more diffused and harder to detect.

Of particular relevance to this thesis is Weidman and colleagues (2015) study on Craigslist personal ads, which are similar in purpose to online dating profile texts. They may however be a weaker context given that they are not written within the structure of a dating profile or the guidelines of a dating site, and so users may feel more inclined to write freely. Craigslist (2019) is a site with a very broad remit, including classified ads for second-hand goods, employment, and accommodation, and also includes entertainment listings, discussion forums and more. However, the personal ads section was removed from the site in March 2018 after the US congress passed a bill to prevent sex trafficking of children (Kennedy, 2018). They had already removed an erotic services section in 2010, and much of that content had migrated across to the personals section instead. Given that, it is possible that there may have been a more sexually permissive atmosphere in the personal ads section on Craigslist than typical dating sites, and this study may not fully generalise

to online dating. Despite the remit of these personal ad authors to write freely, little accuracy of perception was achieved in this study.

The authors ran two studies, using the same personal ads for each, but with two separate sets of judges. The first set were 219 undergraduate students, and the second set of 117 student judges were pre-screened to ensure that they were not in a long-term relationship and were interested in finding a romantic partner. The second sample were also informed that the personal ads were from other single students in the university, and that they would have the option to receive contact details for the profiles that they liked at the end of the study if they wished. This was designed to ensure a sample of judges with similar motivations to typical personal ad viewers, however participants were debriefed at the end of the study and informed it was untrue that contact details would be available for the Craigslist ads. Across both studies extraversion was the only trait that was significantly accurate, with a low effect of 0.11 and 0.12, the other four traits were not judged with any accuracy. The additional motivation provided by the second set of single judges being primed with the idea of potentially meeting the personal ad authors did not provide any additional accuracy. The ads were on average 190 words in length, which, while not a lot of information, is considerably more than the 50 words of the goals in Dunlop and colleagues (2017) study which achieved higher accuracy across all traits. Given that dating profiles are typically self-related content with a high degree of self-presentation (Ellison et al., 2006; Guadagno et al., 2012; Whitty, 2008), and that there is some evidence that being motivated to engage in self-presentation can lead to more accurate perceptions (Human, Biesanz, et al., 2012), one might have expected higher levels of accuracy. However, as the grouping of contexts in this review shows, more public contexts typically result in less accuracy.

Context and interaction with other factors

There are many variables that might influence whether accuracy is possible in a given situation, whether it is on or offline, and public or private, self-related content or not, all just discussed. Two further factors that might affect results are the design of the study in terms of the number of target texts that are used as stimuli, and the number of judges rating them. We know that there are some characteristics of good targets and good judges, and that a heavy reliance on only a few of either in a study might affect the outcome (Judith Hall et al., 2016; Human et al., 2014; Letzring, 2008, 2014). The offline 'one to few' category which contains only resumés with which you would expect high levels of self-presentation, had mixed levels of accuracy, and seem to vary most because of study design. In three of the studies there were only two (Cole et al., 2005), four (Apers & Derous, 2017), or eight (Frauendorfer et al., 2015) target resumé texts, which could lead to a strong 'good target' effect where any or all of the targets could have higher levels of more visible and less evaluative traits resulting in more accuracy. These three studies found more accuracy of perception, though for different traits in each study, than the one resumé study that employed a large number of both targets and judges (Cole et al., 2009), and two of them also found strong negative correlations of accuracy with two traits, different in each study, indicating that the 'good target' effect as well as self-presentation might be a factor (Apers & Derous, 2017; Cole et al., 2005). However, what is clear is that even in a strong context like a resumé, with high levels of self-presentation, where there are guidelines to what should and should not be included, as well as social norms about language use and content, it is still possible to achieve some accuracy of perception.

Several studies used a small number of judges, which could also result in the 'good judge' effect on results where women and individuals with communal orientation are better judges of traits in text (Judith Hall et al., 2016). The two online 'one to many' studies that had poor single rater accuracy, and slightly better aggregate-rater accuracy, were the Twitter (Qiu et al., 2012) and blogs (Li &

Chignell, 2010) studies. The low levels of accuracy could be for a number of reasons already discussed, such as self-presentation or lack of self-related content, but it might also be a result of poor judges. The Twitter study employed eight judges, six of whom were female, and all were research assistants at a large university, while the blogging study employed twelve judges, six each male and female, also all students at a university. Given that previous research has found women and higher intelligence to be predictors of good judges (Judith Hall et al., 2016), one might expect these sets of judges to have had a positive influence on accuracy perception in these studies, however accuracy was overall low. Other factors that influence accuracy of judges in text contexts are agreeableness, conscientiousness, emotional stability, lower dominance and interest in others' personalities (Judith Hall et al., 2016), but we do not have reports of the judge's personalities to make judgements of how they might have affected these studies. In the offline private grouping of contexts almost all of the studies had lower numbers of judges, with the exception of the life domain essay study (Borkenau et al., 2016) and the creative writing study (Küfner et al., 2010), and all studies except the creative writing have relatively high accuracy as previously discussed. Of the studies with few judges, Holleran and Mehl's study on stream of consciousness essays had eight female and one male judge and achieved very high accuracy, partly because of the context, quality and quantity of information, but the female judges may have played a part. Burusic and Ribar's similar study had six women and 5 men, a lower word count, and considerably less accuracy. While judges and target may play a part in overall accuracy, they are merely one of many factors that can affect interpersonal perception in studies such as these, however these are two factors that should be considered in any study of interpersonal perception.

Validity and utilisation of cues

As mentioned, there is a lack of data concerning the utilisation side of the lens model in the research that has been conducted on personality perception in text thus far, indicating a significant gap in the literature. However, there is a more

substantial body of evidence looking at valid cues which can be brought in to support this discussion, as laid out in Table 4. When examining the data in this way, an interesting pattern emerges. There are several LIWC categories that consistently correlate with traits, such as anger, anxiety and negative emotions with neuroticism, social and positive emotional words with extraversion, death and negative emotion words negatively with conscientiousness for example. However, in those few studies that do examine cue utilisation, these reliable cues are often either not valid but are utilised anyway, or are valid but not utilised. It may be possible that for the cues that consistently replicate, they are typical language for that particular trait across a variety of contexts, and so when a perceiver sees the cue, they interpret it as the trait even if in the particular context or sample it is not actually valid. For example, negative emotional words and anger words are consistently replicated as positively related to neuroticism. In Qui and colleagues' study on Twitter (2012), neither of those LIWC categories were found to be valid markers of neuroticism. However, both of those categories were utilised incorrectly by judges to indicate neuroticism, where perhaps the judges associate that language with more neurotic people because they often do use those words, but in this case it was inaccurate. We know that the top 10% of Twitter users account for 80% of the content on the platform, and that those high use individuals are more likely to discuss politics. American Twitter users are on average more likely than the general population to think that gender and race present difficulties in society, they are also more likely to believe that immigrants strengthen their country (Wojcik & Hughes, 2019). It is possible that the participants who took part in Qiu and colleague's study were more politically oriented and used more anger and negative emotional words around those topics, without it being reflective of their personality traits. In fact, a study looking at personality traits of social media users found Twitter users to be significantly lower in neuroticism than Facebook users (Hughes, Rowe, Batey, & Lee, 2012), indicating that their use of negative emotional words may not be related to their trait in this context.

On the other hand, for cues that are valid but not utilised, Funder's (2012) Realistic Accuracy Model (RAM) may help explain why some LIWC variables correlate repeatedly with traits, making them relevant, but may not be available to judges. As previously discussed earlier in the chapter, there are four steps in the RAM, relevance (is the cue directly correlated to the trait), availability (is the cue observable to a judge), detection (does the judge notice the cue), and utilisation (does the judge use the cue appropriately in making their judgment). While a substantial number of LIWC categories are valid indicators of personality traits, they are not all obviously observable. There are 34 LIWC categories that reliably relate to personality traits, and of those 14 are less visible word categories as have been described, while the remaining 20 are more visible content word categories like emotional and social words. Of the 14 invisible categories, only three have been utilised at all over all the review studies, as in, a consistently replicated valid cue like negative emotion words and conscientiousness, was utilised in a different study in which it was not validated. Only two less visible cues have been diagnostic, valid and utilised, within a study to make an accurate judgement, articles correctly for lower extraversion and first person singular correctly for neuroticism, both in Qiu et al's study on Twitter (2012). For example, people higher in openness are more likely to use more articles in their language, this has been found in five different studies, however, this cue has never been utilised by perceivers making a judgment of openness. On the other hand, 15 of the 20 visible word categories have been utilised, and seven of those were diagnostic in judging a trait or multiple traits. Emotion words appear particularly salient cues in judging traits, with negative emotion words diagnostic for all five traits, and positive emotion words for three traits, extraversion, agreeableness and neuroticism. Visible cues are perhaps likely to be used as identity claims as per Gosling and colleague's framework (2002), particularly where self-presentation is a factor, whereas invisible language cues may possibly be read as behaviour residue.

In the study of Craigslist personal ads, there was no analysis of the validity of the cues available, only the utilisation of cues was examined (Weidman et al., 2015). What is interesting in this study is that while most traits were not accurately perceived, extraversion did have a low level of significant accuracy. However, the four cues that were utilised in the two studies to make judgments of extraversion were not any that have commonly been found to predict the trait in text, although higher word count was utilised in both, and given that extraverts tend to talk more in face to face situations that might be why this was utilised. Only one previous study has found that extraverts tend to have higher word counts in written text (Gill & Oberlander, 2002). The other three cues were only utilised in the second study where judges were primed as though they may contact a potential romantic partner, and they were greater use of anger, anxiety and negative emotion words. These are categories that are the opposite of language used by extraverts typically. These three categories were utilised to make judgements across a number of traits. Anger and negative emotional word categories were utilised with a positive relationship with neuroticism, and negative with agreeableness and conscientiousness all of which are similar to typical trait language use, but the positive relationship for both with extraversion is not. Anxiety words were utilised not for neuroticism, which would be typical language use for that trait, but for extraversion and conscientiousness instead. One category that was highly utilised in both samples of judges was swearing, where it was positively associated with neuroticism and negatively with agreeableness and conscientiousness. Despite the scant use of swear words in the personal ads (the mean number of swear words across all ads was 0.15), they had a disproportionate effect on judgments of traits. It appears that any use of negative emotional words or swear words have a significant impact on how personal ads are perceived, particularly in a group that is motivated by the possibility of potentially contacting attractive profile authors. This may be because daters who are learning about a partner in the abstract, say online, rely more on beliefs about ideal partner personality profiles, and any small deviation

from their ideal may negatively affect perception, like swearing or negative emotions (Eastwick, Finkel, & Eagly, 2011).

Conclusion

The aim of this review was to determine if personality is accurately perceivable in text-only contexts, and if so, what are the factors that make it more or less likely, and what traits if any are more or less accurately perceived. What is clear is that there are many factors influencing ability of judges to accurately perceive the personality traits of targets. The primary influence appears to be the context and content of the target texts, the most likely context for accuracy is offline private texts that will be viewed by only the researchers in the respective studies, and where the content is self-related such as personal narratives or stream of consciousness essays.

There is evidence that a number of LIWC dictionary categories are particularly valid cues related to personality traits and have replicated over numerous studies, however overall there is considerable variation in the patterns of results relating personality traits with language. This variation is substantial enough that while the studies in this thesis will examine the full spectrum of LIWC variables in both expression and perception of traits in language, they will also use content analysis to examine the texts for more reliable cues to personality. There is a paucity of research examining utilisation of textual cues in accuracy perception, and in the two studies where this has been done, one uses only a few categories rather than a full spectrum of available language cues.

The cues that are most correlated with traits are not always the cues utilised to make judgements, and when they are the utilised cues, they are not always valid in that particular sample or context indicating the complexity involved in

interpersonal perception in text. The factors that might have effected cue utilisation were; self-presentation by targets perhaps including identity claims in trait-atypical language, for example anger words on Twitter; typical trait language being utilised but not valid which is perhaps a type of stereotyping, for example anger words leading to an incorrect perception of neuroticism; and the difference between visible LIWC categories of mainly content words which are more likely to be available to observers for utilisation, and less visible categories of words like function, grammar and cognitive process words which may be valid but unobservable.

While this review offers a comprehensive review of the literature, there is also a need to examine this evidence statistically in a meta-analysis. Tskhay and Rule's 2014 meta-analysis was a good start for uncovering levels of accuracy in online contexts, and they found that while some accuracy was possible, there was wide variation within the results, suggesting that contextual or other factors are important moderators. They did not have the data to examine those moderators in detail, nor did they examine cue validity and utilisation. However, due to the lack of studies examining cue utilisation in text, that research may not yet be possible to subject to meta-analysis.

There is clearly a need for further research examining the validity of language cues as personality markers and utilisation of those language cues in making personality judgments in different contexts. In particular it would be important to take into consideration the other factors involved in perception such as judge and target characteristics, strong, weak, private, or public contexts, self or non-self-related content. Ideally this would all be examined with the same sample of participants providing target texts in multiple contexts, so that these factors can be directly compared across one sample. The studies in this thesis aim to address this gap in the research by examining both the validity and utilisation of cues in three studies. The first study asked online daters to share their online dating profiles from

the different dating platforms they used. Cues elicited through LIWC and content analysis related to self-presentation and self-disclosure of personality were compared between those platforms. The first study assesses the validity of language cues related to personality through LIWC and content analysis in online dating profiles texts across different dating platforms. The second study, in chapter five, asked participants to write profile texts and creative writing stories in order to compare personality expression between two different contexts, one self-related with self-presentation and a public orientation and one non-self-related with less self-presentation, with a private orientation. The third study asked participants to judge the personality traits of the authors of the profile and story texts from study two, and assessed accuracy of perception in the two contrasting contexts as well as the validity and utilisation of cues in both contexts. Together the three studies answer the research questions of whether personality is expressed and is detectable in text-only contexts, whether traits impact on attraction, whether the cues associated with expression are stable or change between contexts, and finally whether the cues associated with expression of personality are utilised in perception of traits.

Chapter four: Study one – expression of personality in online dating texts

This study set out to examine three research questions. The first, whether personality is expressed and can be detected in text. The second, whether the way in which personality is expressed in language varies in different contexts, specifically in this study, different online dating platforms, and between dating websites and applications (apps). Third, it sought to determine which cues, if any, related to expression of personality in written texts. As was demonstrated in the rapid structured literature reviews (RSLR) in chapter three, there are a wide variety of results obtained in different studies of Linguistic Inquiry and Word Count programme (LIWC) language variables relationships with personality traits, and there is a lack of research comparing texts from different contexts from the same author to examine how the expression of personality differs between contexts.

This study is the first of two examining expression of personality in text and asked online daters to share their online dating profiles from the different dating platforms they used. Cues elicited through LIWC and content analysis related to self-presentation and self-disclosure of personality were compared between those platforms. This study aimed to answer the research questions of whether personality was expressed and was detectable in online dating profiles. It also examined the question of whether the cues associated with expression were stable or changed between contexts, in this case different dating platforms.

Online dating users

There is little evidence to show that dating website and dating application users are substantially different from each other, or from the general population in terms of demographic or the Big-Five personality traits (Gatter & Hodkinson, 2016; Kang & Hoffman, 2011; Poley & Luo, 2012; Timmermans & De Caluwé, 2017b).

However, some differences have been found. For example Tinder users may be moderately higher in openness and extraversion, and a little lower in conscientiousness than non-users (Timmermans & De Caluwé, 2017b). Traits may influence the use of and intensity of use of dating apps, where individuals higher in sociability, impulsiveness, and more interested in sex may be more likely to use dating apps, and used them with more frequency than other users (Carpenter & McEwan, 2016).

Impression construction and formation in online dating

Online dating profiles are an integral part of success in online dating and thus substantial effort is expended by daters when creating them, with even the smallest cues such as spelling, grammar and message length receiving considerable attention (Ellison, Heino, & Gibbs, 2006; Whitty, 2008; Zytko, Grandhi, & Jones, 2014). This supports Social Information Processing theory (SIP) where without the cognitive demands of processing a communication partner's non-verbal cues and feedback, attention can be focussed on self-presentation and available cues take on heightened importance in communication (Walther, 1992, 2007). Most daters strive to present a positive but accurate image of themselves, and often create multiple iterations of their profiles, experiment with different self-presentation strategies, create multiple profiles on different platforms, and engage friends or family to help ensure that profiles reflect who they are (Ellison et al., 2006; Smith & Duggan, 2013; Ward, 2016; Whitty, 2008). Despite widespread deception in online dating, most deceptions are small, or are considered exaggerations rather than outright lies (Ellison et al., 2006; Toma, Hancock, & Ellison, 2008; Whitty, 2008; Zytko et al., 2014), and most daters present their real self rather than a false self (Ranzini & Lutz, 2017). Ellison, Hancock, and Toma (2011) described the balance between self-promotion and accuracy of self-presentation as the "profile as promise" framework. This framework posits that where a wide range of possible selves can be drawn upon in creating a dating profile within the technological and social limitations of

the computer mediated communication (CMC) based online dating environment, a certain amount of embellishment is considered acceptable by online daters. However, the promise is that in potential future face-to-face interactions, the person will not differ substantially from how they have presented themselves in their profile, and if they do, that is then considered an unacceptable violation of that promise (Ellison et al., 2011).

In traditional dating websites, daters describe how important it is to show that they are unique, and to find ways to display their intelligence, interests, humour, and hopes and dreams (Whitty, 2008). Profiles are vital in generating content for initial contacts, as well as for ruling out potential dates with deal-breaker information (Zytko et al., 2014). Self-disclosure is an important part of relationship development, where purposefully revealing information to a partner and having information revealed in response can increase intimacy (Altman & Taylor, 1973 as cited in Carpenter & Greene, 2016). Emanuel et al. (2014) found that people were more likely to reveal attitudes, values or likes in an online dating environment in comparison to job seeking or an unspecified online context, and this is information that is important to daters as they prefer others with similar attitudes and values to themselves (Whitty, 2008). However, in online dating profiles it is possible that revealing too much information might decrease the number of interested suitors, as more information tends to reveal dissimilarity and leads to decreased rather than increased liking (Norton et al., 2007). Tinder however, foregrounds photographs as the primary means of self-presentation and limits the length of profile texts. As such, in Tinder and in similar dating apps like Bumble, the self-presentation focus is not as much on the profile text, and many are short or left blank (LeFebvre, 2018), which may reduce the expression of traits in the language used and make detecting traits more difficult. However, Lange, von Andrian-Werburg, Adler, and Zaretsky (2019) found that traits were detectable in online dating usernames, suggesting that the way in which daters focus on self-

presentation in the smallest cues in dating profiles can imbue the thinnest slice of dating profile information with relevant information for the detection of traits.

Media richness theory suggests that ambiguous communication such as attempting to convey a complex and accurate representation of the self is more difficult in reduced cues communication channels such as online dating, where non-verbal cues are mostly absent (Daft & Lengel, 1983). The constraints of dating platforms and self-presentation through CMC results in daters finding it difficult both to reflect the complexity of who they truly are, and to perceive the experiential traits of others accurately. This can lead to considerable frustration and anxiety with the process as well as heightened fear of rejection (Ellison et al., 2006; Frost, Chance, Norton, & Ariely, 2008; Zytko et al., 2014). These difficulties also lead to the majority of first dates being unsuccessful, with potential partners failing to live up to expectations formed during online communication and most finding their communication partners less attractive in person (Fiore, 2010; Frost et al., 2008; Zytko et al., 2014). Daters often feel that their own characteristics have not been interpreted correctly and that they have either misinterpreted others, or have been deceived by others (Zytko et al., 2014). Many dating sites focus on filtering available options through searchable characteristics, whereas experiential attributes such as personality, attitudes and chemistry are more important in romantic compatibility (Frost et al., 2008; Zytko, Freeman, Grandhi, Herring, & Jones, 2015). Personality traits are a substantial factor in understanding the experiential aspects of others, and traits are important in successful and satisfying relationships, particularly emotional stability, conscientiousness and agreeableness (Karney & Bradbury, 1995). These traits as well as openness are consistently prominent in preferences for desirable partners (Botwin et al., 1997; Buss, 1989; Furnham, 2009; Todosijević et al., 2003). Thus, this study, and the two following it, are important in determining whether personality is expressed and can be detected in profiles. By looking at the cues involved in expression, and in perception in the third study, it is possible to see

where the process of perception might be successful or at what point in the process failure to perceive traits accurately might occur.

Personality and self-presentation in online dating

There is evidence that people do not always express their personality in exactly the same way online and offline, with all of the Big-Five traits showing lower influence, except emotional stability which appeared higher, in online contexts in comparison to offline (Blumer & Doering, 2012). Additionally, people may express their personality in different ways to the various people in their online and offline social network. In addition, Clifton (2014) found that this difference in expression was corroborated by perceptions of the individual by those acquaintances. While some individuals may feel that they are more able to express their true self online, their offline social circle remain more accurate judges of their actual personality, particularly for the trait neuroticism (Marriott & Buchanan, 2014). Individuals may also emphasise different aspects of their self in different situations online, such as in Vasalou and Joinson's (2009) study where avatars for blogging reflected actual appearance, those for an online dating context were made more attractive, and for gaming, more intellectual. Despite these differences, the avatar creators felt that each avatar reflected their own self-image. Online daters who are more extraverted may also engage in greater self-disclosure (Tait & Jeske, 2015).

Use of textspeak can influence how others perceive an individual's personality traits, where people are perceived as more emotionally stable, and less conscientious and open when they use textspeak in comparison to Standard English (Fullwood et al., 2015). Positive emoticons and textspeak can help increase feelings of intimacy and friendliness in CMC (Ernst & Huschens, 2019; Liu et al., 2013; Taesler & Janneck, 2010), which may explain the higher emotional stability perceptions. While online daters may emphasise different aspects of their self

through self-presentation, they will likely still present aspects of their actual personality traits, which may be detectable through analysis of their profiles.

Partner preferences

Particular personality traits are important in successful and satisfying relationships, particularly emotional stability, conscientiousness and agreeableness (Karney & Bradbury, 1995). Low emotional stability and low agreeableness strongly predict negative romantic relationship outcomes, while high conscientiousness and agreeableness predict relationship satisfaction. Several studies have examined the traits and characteristics that people find most important in a potential mate, and personality and abilities tend to be rated as more important than physical attractiveness (Buss, 1989; Furnham, 2009; Todosijević et al., 2003). Though in online dating physical attractiveness tends to be listed as most important (Whitty, 2008) possibly because photographs are the first point of filtering potential partners. The personality traits emotional stability, conscientiousness, agreeableness as well as openness are consistently prominent in desirable characteristics (Botwin et al., 1997; Buss, 1989; Furnham, 2009; Todosijević et al., 2003). There is strong agreement across both sexes on the importance of personality in attraction, and in the ordering of the specific traits that are preferable in relationships (Furnham, 2009; Todosijević et al., 2003).

Personality, language and attraction in online dating

The literature review of expression and perception of traits in text revealed that although studies find many different and sometimes conflicting results in relationships between language variables and traits, there are some findings which have consistently replicated across a variety of studies, as can be seen in Table 4 in chapter three. Only one study has examined the relationship between expression of personality traits in language and attraction in online dating profile texts. Fiore et al.

(2010) measured the Big-Five personality traits using the ten item personality inventory (TIPI; Gosling, Rentfrow, & Swann, 2003). The LIWC language categories of home, work, money, and sex were chosen because of evolutionary or socio-structural sex differences in mate preferences where women are more likely to prefer men who have greater potential for resource attainment, and men more likely to prefer young, attractive women who are interested in home and children (Buss, 1989; Eagly & Wood, 1999; Furnham, 2009; Shackelford et al., 2005; Wood & Eagly, 2002). Additionally there have been differences found between men and women in their use of emotion words and tentative language and these were also examined (Brody, 1993; Palomares, 2009). Fiore et al. (2010) found no correlation between the Big-Five personality traits and those language variables, though they did find correlations with language and general caution, trust and attachment anxiety. General caution also had an effect on messaging behaviours, where women contacted men less if they were higher in general caution. However, the LIWC categories chosen for Fiore and colleagues' study are not those that replicate well in relation to the Big-Five traits, and this may explain the lack of relationships in their findings. This study will examine all LIWC variables and will focus particularly on those that have previously replicated in correlations with traits in order to answer the research question of whether personality is expressed in the language of online dating profiles.

Hypotheses

This study was concerned with the differences in expression of personality and self-presentation in various online dating platforms. Online daters provided their dating profiles across a number of different platforms, where they used more than one platform, as well as completing a personality inventory, and some dating and demographic questions. The research sought to answer two research questions, whether personality could be detected in online dating profile texts using two methods, LIWC and content analysis, and whether context affected the

presentation and detection of traits in text. Based on previous research there were several hypotheses developed for this research.

Daters tend to experiment with self-presentation in their dating profiles in order to attract particular types of partners or to attempt to express themselves more accurately or attractively, and they often create multiple profiles on different platforms (Ellison et al., 2006; Smith & Duggan, 2013; Ward, 2016; Whitty, 2008). It is expected that many daters have multiple profiles across different sites, and that they vary their dating profile content on different platforms in this study. Due to the focus on photographs and word count restrictions in dating app profiles, daters may use shorter profiles and thus less personality related language in their dating app profiles than their web profiles.

H1. Hypothesis one predicts that for those participants with both traditional online dating profiles and dating application profiles, expression of personality in language and content will be higher in web profiles than app profiles.

Personality traits are ranked as highly important in mate preferences, particularly higher conscientiousness, agreeableness, emotional stability, and openness (Buss, 1989; Furnham, 2009; Todosijević et al., 2003). Therefore, it is expected that daters will seek to emphasis their positive and socially desirable traits, and will avoid mentioning their less socially desirable traits, lower conscientiousness, agreeableness, emotional stability, and openness. In Jin and Martin's (2015) study of dating profiles, participants found profiles manipulated to appear less extraverted more attractive. Extraversion is also a less evaluative trait (Funder & Dobroth, 1987; Vazire, 2010), meaning it is neither highly socially desirable or undesirable. Hence it is expected that unlike the less desirable pole of the other four traits, low extraversion being as socially desirable as high extraversion, will be actively expressed in profiles.

H2. Hypothesis two predicts that content analysis items measuring explicit statements related to high conscientiousness, agreeableness, emotional stability, openness, and both high and low extraversion will be related to those traits in participant's self-reports.

Based on previous findings in the review of expression of personality in language, it is expected that previously replicated findings of correlations between the Big-Five traits and LIWC language categories will replicate at least in part in this study.

H3. Hypothesis three expects that LIWC categories that have replicated at least three times in previous studies in relation to each trait will predict those traits. The relationship between all LIWC variables and personality was also investigated but given the variation in findings in the previous research, a hypothesis is not formulated for those results.

It is expected that self-disclosure might vary across different platforms, given that Tinder and other dating apps have limited space in which to disclose information, as well as focusing primarily on photographs in self-presentation (LeFebvre, 2018).

H4. Hypothesis four predicts that self-disclosure will be higher on dating websites than dating apps, that website dating profile texts will be longer than dating app profiles, and that there will be more blank profiles on apps than websites.

Research suggests that extraversion may be related to greater self-disclosure in online daters (Tait & Jeske, 2015) and higher self-disclosure in profiles might lead to greater perception for that trait.

H5. Hypothesis five predicts that those higher in extraversion will self-disclose more than those lower in extraversion.

One of the motivations for conducting this research is that daters report finding it difficult to express their true self through their dating profile and find that others often misinterpret how they have described themselves (Ellison et al., 2006; Frost, Chance, Norton, & Ariely, 2008; Zytko et al., 2014). Thus, daters were asked how much their profiles reflected who were.

H6. Due to the greater restrictions on self-presentation in app profiles, hypothesis six predicts that daters who choose dating apps as their primary platform will feel that their profiles do not fully reflect who they are more so than those who choose a dating website as their primary platform.

Research has shown that use of emoji is related to increased perceptions of friendliness and intimacy (Ernst & Huschens, 2019; Liu et al., 2013; Taesler & Janneck, 2010). Positive emoji such as smiley faces have been related to agreeableness and extraversion, while negative emotional emoji such as sad or pensive faces have been correlated with low emotional stability (Marengo, Giannotta, & Settanni, 2017).

H7. Hypothesis seven predicts that those higher in agreeableness and extraversion will be more likely to use positive and neutral emoji or emoticons in their profiles than those lower in agreeableness and extraversion. It is also expected that the use of negative emoji will be more likely by daters lower in emotional stability than higher.

Daters have previously indicated that spelling and grammar errors in dating profiles can be deal breakers as they indicate a lack of care and attention in creating

a profile (Ellison, Heino, & Gibbs, 2006; Whitty, 2008; Zytko, Grandhi, & Jones, 2014), which could be related to low conscientiousness.

H8. Hypothesis eight predicts that spelling and grammar errors will be negatively related to conscientiousness.

Methodology

Design

This was a cross-sectional study. An online survey was used to gather data from participants including their dating profile texts and Goldberg's 50-item Big-Five personality inventory (2001). Content analysis and linguistic analysis was employed in exploring and describing the differences between dating profile texts on various dating platforms. Both a within-groups and between-groups design was used in this study. Participants language use was compared within their own profile texts, as well as compared to other's texts. The dependent variables were the language and content of dating profile texts, as defined by the content analysis categories, primarily measured as absent or present, and LIWC dictionary categories, measured as a percentage of the total profile text. The independent variables were the Big-Five personality traits as measured by Goldberg's 50-item Big-Five personality inventory (2001).

Participants

A sample of 173 online dating adults were recruited using convenience and snowball sampling. There were 106 female, 51 male, one transgender and one gender diverse participants, of whom 125 were heterosexual, and 32 were lesbian, gay, bisexual, pansexual or asexual. Participants ranged from 18 to 70 years old, with an average age of 28.88 years (*SD* = 9.79). Age was non-normally distributed,

with skewness of 1.899 (*SE* = 0.20) and kurtosis of 4.59 (*SE* = 0.39). Men were on average 30.58 years old, and women 28.16 years, and a t-test with age as the dependent variable indicated no significant difference between the two.

This study used a wide range of sources, known as *multiple site entry technique* (Reips, 2002; Reips, 2000) in order to recruit participants. The study proved difficult to recruit for and data collection was extended over 13 months and recruited through email, social media such as Facebook, Twitter, Reddit and LinkedIn, paid ads on Facebook, mentions of the study in media appearances on radio and television and at public speaking events, requests to dating platforms to share the link, as well as Hanover College Psychology Research page, student research posting boards, and the University of Wolverhampton participant pool Sona. Only 33% of those who clicked on the study link completed the full study, many dropped out when first asked to share their dating profile, and more when asked to complete the 50-item personality inventory, despite those requirements being highlighted in the information sheet at the start of the survey. One positive feature of the range of sources is that participants are not recruited from a single source, such as undergraduate psychology students, and may indicate a more heterogeneous sample, and avoids sampling bias as suggested by Reips (2002, 2000). However, it is possible that the participants who did volunteer are a sample with unique characteristics, particularly because of the reluctance of others to do so. Volunteer online participants have previously been found to have higher openness than paid or student participants (Buchanan, 2018) and that may also be the case with this sample, although 21 participants were students who were recruited through the university participant pool. The data was screened for repeat submission from the same IP address and no participants who had completed the survey needed to be removed.

All participants were online daters who were dating online currently or within the last three months. Their time spent on dating sites ranged from less than a

month to 15 years, with their average time being just over two years (*M* = 25.1 months, *SD* = 29.31). However, many of the daters who were on dating sites for long periods of time mentioned that they were on and off the sites over that period, rather than being continuous members. The majority of participants indicated that English was their first language (*n* = 145) with only 14 indicating it was not, and 14 did not answer the question.

Materials

The study was conducted with an online questionnaire administered through Qualtrics. The data that was collected included information regarding demographic information, online dating activity, the participants' dating profile texts, and Goldberg's 50-item Big-Five personality inventory (2001). See Appendix 1 for the full survey.

Demographic information

Participants were asked minimal demographic information in order to reduce dropout from the survey. They were asked their age, how they identified their gender and sexual orientation, as well as whether English was their first language.

Dating information

Daters were asked a number of questions regarding their activity in online dating including how many different platforms they were using, how long they had been dating online, what kind of relationships they were seeking, and how they felt about dating online on a five-point Likert scale from very positive to very negative. They were also asked which dating platform they used, or if they used multiple platforms, which platform them used the most. They ten indicated their second, third and fourth preference of platform if they had said that they used multiple platforms. For each of these platforms participants copied and pasted their dating profile, where available, into the survey, and used a five-point Likert scale to

indicate how much that profile "reflects who you really are". They were also asked about the effort they put into their profiles on a five-point Likert scale from very little to a lot of effort, how much they vary the information in different profiles and why they do so.

Goldberg's Big-Five Factor Markers (2001)

While it is a comprehensive and reliable measure, the NEO-PI-R takes approximately 45 minutes to complete making it an undue burden on participants in many studies. A number of shorter measures have since been developed to meet the need for a less time consuming inventory, such as the 44-item Big-Five Inventory (BFI; John, Donahue, & Kentle, 1991 as cited in (John et al., 2008), and Costa and McCrae's 60-item NEO-FFI which covers core aspects of each of the Big-Five traits (Costa & McCrae, 1992). These have both been shown to have strong internal consistency and to correlate well with the NEO-PI-R, as has the lexical 100-item Trait Description Adjectives (TDA; Goldberg 1992).

Goldberg also developed a 50-item measure, the Big-Five Factor Markers (1999) for his open source personality project the International Personality Item Pool (IPIP; Goldberg, n.d.; Goldberg, 2001) in response to the fact that the NEO-Pi-R, NEO-FFI and other inventories were proprietary and holding back the development of personality psychology research (Goldberg, 1999). Goldberg's 50-item Big-Five Factor Markers originates with his 100-item TDA based on the lexical approach but uses short sentences that contain more contextual information which are known to improve inter-rater reliability over the use of single adjectives. The IPIP Big-Five Factor Markers have very strong internal reliability, and five orthogonal traits which have consistently replicated across cultures such as Romania, Croatia, and China with almost identical structure to the original American studies (Goldberg, 1999). Goldberg's extraversion and emotional stability correlate well with EPQ-R extraversion and neuroticism (Constantinescu & Constantinescu, 2016; Mlacic & Goldberg, 2007; Zheng et al., 2008), and with NEO-PI-R scores for the corresponding

traits (.85 to .92 when corrected for un-reliability; International Personality Item Pool, 2001).Conscientiousness, extraversion and neuroticism/emotional stability correlate highly with the NEO-FFI ($r = 0.69$ to 0.83, $p < 0.01$), while agreeableness and intellect/openness correlated less strongly ($r = 0.49$ and 0.59, $p < 0.01$; (Gow et al., 2005). Though there is strong correlation between the Big-Five and FFM inventories, they do not necessarily measure exactly the same dimensions. In particular the main difference between Goldberg's Big-Five Markers and the NEO-PI-R are with the trait openness/intellect. Goldberg's intellect dimension is more focused than the NEO-PI-R on intellect and imagination whereas the NEO-PI-R openness measures creativity and trying new things (John et al., 2008). Due to its grounding in the lexical approach, Goldberg's Big-Five Markers was the most appropriate choice for this study examining expression of personality in the language of online dating profiles, see Appendix 2 for the full scale.

Each trait had a Cronbach's alpha that indicated a high level of internal consistency; extraversion (10 items; $\alpha = .901$), agreeableness (10 items; $\alpha = .804$), conscientiousness (10 items; $\alpha = .781$), emotional stability (10 items; $\alpha = .858$), and intellect (10 items; $\alpha = .796$).

Codebook

In order to gather as many potential cues as possible, as is recommended when using a lens model approach to personality perception (Back & Nestler, 2016), content analysis was used as well as LIWC to extract potential cues related to traits from the texts. A codebook was constructed consisting of 25 items related to communication and language use in the content of each dating profile, see Appendix 3 for the full codebook. These included items related to self-disclosure, emoji use, high or low levels of each of the Big-Five personality traits, demands in a potential mate, work and leisure interests, and humour. Almost all items were coded for absence or presence of the content. This was due to large variation in length of profiles, meaning that counting instances would mean longer profiles

would have higher rates of many of the items and would not give a clear comparison between expression and traits.

The codes were derived from research on self-disclosure, online communication, personality, and online dating impression construction research. Andersen and Ross (1984) found that personality was judged with greater accuracy when stimulus content was related to thoughts and feelings rather than hobbies and activities, and Connelly and Ones (2010) found that greater intimacy led to greater accuracy of perception. Thus, self-disclosure may be important in determining personality from online dating profiles. Items from Fullwood, Melrose, Morris, and Floyd's (2013) study examining self-disclosure in blogs were utilised to form coding variables in this study. Those variables were expressions of positive thoughts or emotions about self, and about others, and expressions of negative thoughts or emotions about self, and about others, positive goals, hopes or fantasies, and expression of fears, and worries or concerns. After an initial analysis of the dating profiles, it was clear that several of the categories in Fullwood et al.'s (2013) study were not relevant to dating profiles as there were no instances of them occurring. These included disclosing personal information about others, and attacks on others. In addition to these items, a further two variables measured self-disclosure, one examined potential partner preferences, and the last examined disclosure of physical characteristics such as height or weight.

In addition to these items examining self-disclosure, mentions of hobbies and interests were included, as were mentions of work and education. Similarity in interests is rated highly as a reason to date online (Smith & Duggan, 2013), and education level and work might give an indication of current or future earning potential which is also important in ideal mate preferences for both men and women (Eastwick et al., 2014). Previous studies have found that online daters pay careful attention to small cues in their profiles, including spelling and grammar, and thus this was also included as a variable (Ellison, Heino, & Gibbs, 2006; Whitty,

2008; Zytko, Grandhi, & Jones, 2014). Due to the variation in severity of spelling and grammar mistakes this was initially coded as one of three options, absent of any errors, presence of minor errors or presence of major errors. However only four participants had major errors and this variable was recomputed as absence and presence of errors. Emoji were also coded in three categories, positive, including smiley faces of all kinds, negative, including sad and angry faces (which were not present in any profiles), and neutral which included descriptive emoji like popcorn, shooting stars, and maps for example (Ernst & Huschens, 2019; Liu et al., 2013; Taesler & Janneck, 2010). A category of sexually themed emoji such as the eggplant or peach was considered, but these were not present in the texts and thus not included. A variable was created for attempts at humour, as humour is related to interpersonal attraction (McGee & Shevlin, 2009).

Finally, two variables were created for explicit statements relating to each of the Big-Five personality traits, one for expressions of a high level of the trait, for example, “I am the life and soul of a party” for higher extraversion or “I don't talk a lot” for lower extraversion. The instructions for the codes were derived from Goldberg’s (2001) Big-Five markers and examined explicit mentions of typical trait behaviours, thoughts or emotions.

A sample of profile texts (25%) was rated by a second coder to determine inter-rater reliability. Cohen’s kappa was used to determine agreement and levels were above 0.70 for all dependent variables, except humour which was .68 which is marginally below ideal, but all were considered acceptable (Landis & Koch, 1977).

Procedure

The study was administered online, see Appendix 1. An information page provided participants with information on the study topic, what would be required to take part, and how their data would be used. A consent form followed where participants indicated that they had read and understood the information sheet,

that they could withdraw at any time, could leave questions blank if they wished, that they should remove identifying information from their dating profiles, and that they were over 18. Participants were given a unique identifier code that they could use to request removal of their data from the study up until the point of data analysis. Participants then consented to take part in the study.

The first section of the survey was comprised of online dating activity information, as well as pasting online dating profiles into the survey. The second section included the 50-item personality inventory, and the third section gathered demographic information.

Finally, a debrief page explained again the aim of the study, reminded participants that their data was confidential and would be held securely, and gave contact details if they had further questions. They were also given a link to share the survey with others who might be interested, and a link to a separate form to add their email address if they would like a summary of the results once data analysis was complete.

Ethics

This study was approved by the School of Applied Sciences Behavioural Sciences Ethics Committee in the University of Wolverhampton. Please see Appendix 4 for details.

Analysis

Linguistic Inquiry and Word Count 2007 (LIWC 2007) was used for the analysis of the profile text data. LIWC is a linguistic analysis programme containing a dictionary consisting of approximately 80 output variables including standard linguistic dimensions, word categories that mine psychological constructs and personal concern categories. There are over 80 word categories comprised of over 4,500 words and word stems. Results are reported as percentage of the total words

in the sample. LIWC 2007 was used rather than the latest version LIWC 2015, as the majority of previous research was conducted with 2007 and it was important that the results of this study be compared to previous findings. LIWC 2015 has had substantial updates and changes to the dictionary categories, meaning results can no longer be compared for many categories (Pennebaker, Boyd, Jordan, & Blackburn, 2015). LIWC has shown good reliability across topics and testing occasions (Pennebaker, Chung, Ireland, Gonzales, & Booth, 2007).

The study design had intended that LIWC variables related to traits could be compared across platforms, particularly across dating websites and applications, using paired t-tests to determine if there were differences in trait-related language on each. However, the analysis of LIWC variables in this study was restricted by the length of the profiles submitted by daters. It is recommended that LIWC analysis not be conducted on texts with less than 50 words, as longer texts are more reliable than short (http://liwc.wpengine.com/how-it-works/). Only 56 texts met the standard required, and only eight of those were dating application profiles. Thus, a comparison of LIWC variables across platforms was not possible.

Results

The results will be presented with descriptive statistics first, followed by inferential statistics for characteristics of participants, hypotheses testing for expression of personality in texts, and finally additional exploratory analysis. A considerable number of different dating platforms were used by participants, thus in order to perform analysis between platforms the four most popular platforms were included in the analysis, Tinder, Bumble, POF and OkCupid, as they had substantially higher numbers of users than any others. Additional analyses examined differences between the two primary types of dating platform, websites and apps, and thus the platforms were categorised as either dating websites, POF,

OkCupid and all other web based online dating platforms, and dating applications, Tinder, Bumble and all other dating applications used by participants.

Where multiple tests were conducted the conservative Bonferroni method to control for the increased risk of Type I error was used (α =.05/number of tests conducted). Where multiple correlations were conducted an adjusted alpha value was not used, and the size of the correlation was used to indicate the effect as a more effective manner of determining the validity of the test than significance level (Funder & Ozer, 2019; Gignac & Szodorai, 2016).

Significant results are presented in full in this section and the complete details of all non-significant and results can be found in the appendix of data outputs for this study, Appendix 17. For the regression analysis conducted in this chapter, all assumptions were tested and were met unless otherwise stated. The detailed information for each set of assumption tests in this chapter is provided in Appendix 5A.

Reporting effect sizes

In recent years it has become more common to report effect sizes of statistical testing, and it is highly recommended, along with reporting confidence intervals, as one of the ways to improve the dependability of psychological research. The best and most appropriate way to interpret effect sizes is to compare effects to typical effect sizes in related work (Lakens, 2013). As described in the rapid structured literature reviews of expression and perception of traits in text, the effect sizes for correlations here will be interpreted according to the data driven standards for individual differences and other psychological research as described by Gignac and Szodorai (2016) and by Funder and Ozer (2019). Thus, effect sizes of *r* will be interpreted as follows; *r* = 0.10 relatively small for a short term finding, but potentially consequential over time, *r* = 0.20 a typical effect size for this research, of some use the short term and potentially substantially consequential over time, and

r = 0.30, relatively large, potentially powerful in both the short and long term. Effect sizes of *r* = 0.40 are very large and are likely an overestimation of the effect, may indicate problems with reliability and should be considered with caution. Gignac and Szodorai (2016) and Funder and Ozer (2019) focus on r values and do not offer effect size guidance for Cohen's *d* or Hedges' *g* effect size measurement, however Lovakov and Agadullina's (2018) pre-print offers similar guidance for both of these effect sizes, namely for Cohen's *d* that effects of 0.10, 0.25, and 0.40 and Hedges' *g* of 0.15, 0.40, and 0.70 should be interpreted as small, typical and large in social psychology research. What is clear from numerous studies is that Cohen's effect sizes as originally developed, and which he intended only to be used in cases where no other more suitable measure was available, are overly stringent in the context of personality and psychological research (Funder & Ozer, 2019).

Descriptive statistics

Dating activity

As expected, many participants use more than one online dating platform in their effort to find potential partners with 87 participants choosing two or more platforms and 86 participants using only one, see Table 5 for details. Of those first-choice platforms, 123 were dating applications, most commonly Tinder and Bumble, and 50 were dating websites, most commonly POF and OkCupid, see Table 6.

Table 5. Number of different dating platforms used by participants

Number of platforms	n
Only 1	86
2	46
3	24
4	11
5 or more	6

Table 6. Only or most frequently used dating platform choice

Platform	n
Tinder	109
POF	31
OkCupid	15
Bumble	11
Other	6

Table 7 contains the details of all the platforms used by participants and the numbers of blank profiles on each. Tinder was by far the most popular with 76% of participants having a Tinder profile, followed in popularity by POF, Bumble, and OkCupid. Other well-known platforms such as Match, eHarmony, and Grindr had low numbers of users, and a variety of other apps and websites, including specific religious sites, or fetish and swinger sites also had fewer users. A total of 302 profiles were shared by the 173 participants in the survey, many of which were blank, see Table 8 for details.

Table 9 describes how much variation of profiles there was, as measured in the content analysis, by participants who submitted more than one profile, with 81 that had at least minor changes between platforms. Participants were asked how much they varied their profiles between platforms on a five-point Likert scale, from “do not vary at all” (1) to “vary a lot” (5), and the full range of the scale was used (M = 2.13 and SD = 1.15). Several reasons were given as to why they varied their profiles that align with previous research findings; because of the site design, for example less space for text (n = 56), to try out different profiles and see what works (n = 36), in response to messages or other profiles on that particular site (n = 11), to target the types of daters who use different sites (n = 30), other reasons (n = 17) including privacy, setting up profiles on different platforms at different times, adding new hobbies, looking for different things on different sites, and spent more time updating the profile on the most used site. Many people chose more than one option for why they varied their profiles, 89 chose only one reason (37 for site

design, 25 to try different profiles, 13 to target daters, 5 in response to messages or profiles, 9 other). Twenty-four chose two reasons, three people chose three reasons, one person chose four reasons.

Table 7. Total number of participants using each platform and number of blank profiles on each

Dating platform	n	Number of blank profiles
Tinder	132	31
Plenty of Fish	52	5
Bumble	37	11
OkCupid	25	1
Match	8	1
Grindr	4	1
eHarmony	2	0
Other (25 app/13 web)	41	9

Table 8. Number of profiles for each level of platform choice, and number of blank profiles for each

First through fourth choice of platform	n	Number of blank profiles
First	173	29
Second	81	17
Third	29	9
Fourth	12	4
Total	302	59

Table 9. Uniqueness of profiles by participants across different platforms

Uniqueness	n
All profiles exactly the same	19
Minor differences	12
Major differences	18
One or more matching text + other blank	14
Completely different profiles	18

Big-Five traits

Table 10 shows the means, standard deviations and results of the Shapiro-Wilk's test of normality for each of Goldberg's Big-Five traits for all participants. Extraversion, conscientiousness, emotional stability and openness were normally distributed, while agreeableness was not, with a skewness of -1.036 (standard error = 0.194) and kurtosis of 2.308 (standard error = 0.386).

Table 10. Descriptive statistics for each of the Goldberg's Big-Five Factor Markers

Big-Five Trait	N	Min	Max	M	SD	Shapiro-Wilk	df	*p*
Extraversion	156	13	50	32.10	8.74	.985	149	.096
Agreeableness	156	14	50	40.70	5.94	.943	149	.000
Conscientiousness	156	12	50	33.67	6.57	.989	149	.291
Emotional Stability	156	11	45	29.44	7.92	.986	149	.123
Intellect	156	22	50	38.42	6.12	.987	149	.198

Inferential statistics

Participant characteristics

Previous research has found that age may be related to personality trait differences (Soto, John, Gosling, & Potter, 2011) and thus age was correlated with traits to identity patterns that may affect results of hypothesis testing. Age was non-normally distributed, with skewness of 1.899 (SE = 0.20) and kurtosis of 4.59 (SE = 0.39), thus Kendall tau-b correlations were run to determine the relationship between age and the Big-Five traits. There was a strong positive relationship between age and agreeableness (τ_b = .203, p < .0005), emotional stability (τ_b = .155, p = .006), and conscientiousness (τ_b = .203, p = .039).

Differences have been found between Tinder users and non-users, where Tinder users may be moderately higher in openness and extraversion, and a little lower in conscientiousness than non-users (Timmermans & De Caluwé, 2017b). Tests were conducted with this sample to see if differences were present and it was expected that the same differences would be found.

In order to determine whether there were trait differences in the first choice of dating platform, a series of five one-way ANOVAs were conducted with the four most popular choices of dating platform as the independent variables, Tinder, POF, OkCupid, Bumble, and each of the Big-Five traits as the dependent variable.

The results for extraversion, agreeableness, emotional stability, and intellect were non-significant. However, there was a significant finding for conscientiousness and preferred platform preference. There was a statistically significant effect of conscientiousness on most used dating site; $F(3, 134) = 3.280$, $p = .023$. Employing the Tukey HSD post-hoc test, a significant difference was found between POF and Bumble ($p = .048$) where POF users had higher conscientiousness ($M = 36.76$, $SD = 6.729$) than Bumble users ($M = 30.40$, $SD = 8.618$). The effect size was small, $\eta^2 = 0.068$, explaining 6.8% of the variance.

T-tests were conducted for test personality trait differences between those who chose a dating website in comparison to a dating application as their most used platform. A Bonferroni corrected alpha value of $p < .01$ was used for the set of multiple tests ($\alpha = .05/5 = .01$). Agreeableness, emotional stability, and intellect all had non-significant results indicating no difference in those traits between those who prefer dating websites to apps. However, extraversion and conscientiousness both had significant results, indicating that there was higher extraversion and lower conscientiousness in those who chose apps as their preferred platform as expected. Hedges' *g* statistic was used to determine the effect size as there was substantial difference in the size of the two groups.

There was higher extraversion in the app group (M = 33.18, SD = 8.647) than the web group (M = 29.60, SD = 8.528). The mean difference between the two groups was 3.59 and the 95% confidence interval for estimated population mean difference was between 0.619 and 6.556. The effect size was moderate or typical (g = 0.41). An independent t-test showed that the difference between conditions was significant (t = 2.388, df = 154, p = .009, one-tailed). There was lower conscientiousness in the app group (M = 32.88, SD = 6.517) than the web group (M = 35.51, SD =6.386). The mean difference between the two groups was 2.63 and the 95% confidence interval for estimated population mean difference was between 0.397 and 4.863. The effect size was moderate (g = 0.41). An independent t-test showed that the difference between conditions was significant (t = 2.326, df = 154, p = .01, one-tailed).

Age and platform choice differences

Age was non-normally distributed, with skewness of 1.899 (SE = 0.20) and kurtosis of 4.59 (SE = 0.39). Thus, a Kruskal-Wallis H test was used to examine differences in age between the most commonly used platforms. It showed that there was a statistically significant difference in age between the different first choice dating platforms, $\chi^2(3, N = 149) = 30.459$, $p < .0005$. Follow-up tests were conducted to evaluate pairwise differences among the four groups, controlling for multiple tests with the Bonferroni approach. There was a significant difference between Tinder and OkCupid (adjusted p = .032) and Tinder and POF (adjusted p < .0005). Tinder had a significantly lower age profile (Mdn = 24.00) than OkCupid (Mdn = 29.50) and POF (Mdn = 33.50).

A t-test confirmed a significant age difference between those who chose as their primary platform dating applications or dating websites, where dating application users were younger (M = 25.99, SD = 6.152) than website users (M = 35.72, SD = 12.995). The mean difference between the two groups was 9.73 and the 95% confidence interval for estimated population mean difference was between

5.707 and 13.746. The effect size was large (g = 1.107). An independent t-test showed that the difference between conditions was significant (t = 4.852, df = 53.71, p < .0005, two-tailed, equal variances not assumed.

Hypothesis testing

Differences in expression of personality and self-presentation between contexts

There were two measurements of trait-related content in this study, the first the relationship of LIWC language variables to traits, and the second the content analysis of high and low trait specific statements in dating profiles. As previously mentioned, due to the shortness of the profiles submitted, a comparison of website and applications using LIWC categories was not possible. However, it was possible to conduct paired t-tests between participants who submitted both website and dating application profiles in order to determine differences in trait expression and content of profiles using the content analysis variables for all profiles.

H1. The analysis to test hypothesis one, that expression of personality and other content would be higher in website dating profiles than app profiles, used paired t-tests to examine differences in content analysis variables (n = 55). A Bonferroni corrected alpha value of p < .01 was used for the set of multiple tests (α =.05/20 = .003).

Ten paired t-tests were conducted on high and low trait content analysis variables between the website profile and app profile conditions and five significant results were found. Participants were significantly more likely to make one or more statements related to high emotional stability in web profiles than in app profiles (t = 2.803, df = 55, p = .0035, one-tailed). The mean difference between types of profile was 0.12 and the 95% confidence interval for the estimated population mean difference was between .036 and .214, the effect size was large (d = 0.45).

There was also a significant difference in statements related to several other traits, though they did not reach significance at the adjusted alpha level. In web profiles there were more statements relating to high extraversion (p = .017, one-tailed), low extraversion (p = .012, one-tailed), high agreeableness (p = .01, one-tailed), and high conscientiousness (p = .012, one-tailed) than in app profiles.

Of the 10 content analysis variables related to self-disclosure and other content mentioned in profiles, three had significant differences in the paired t-tests between the web and app profiles, ideal partner preferences (p = .025, one-tailed), hobbies and interests (p = .01, one-tailed), but only work or education met the adjusted alpha value of .003. The difference between web and app profiles for statements related to work or education was significant with more statements in web profiles than apps (t = 2.886, df = 55, p = .003, one-tailed). The mean difference between types of profile was 0.16 and the 95% confidence interval for the estimated population mean difference was between .049 and .272, the effect size was moderate (d = 0.34).

Hypothesis one was partially supported as there was a trend of evidence for greater expression of traits and other content on web profiles than app profiles by individuals who had profiles on both platforms, however few of the results were significant at the adjusted alpha for multiple tests. Most of the near significant results were for the high, desirable, pole of the traits, with the exception of extraversion which had differences for both high and low, and openness which had no differences.

Relationship between expressed trait-related statements and self-reported traits

It was predicted that due to each trait having a more desirable pole, participants would actively self-present their desirable traits, and avoid mentioning

their negative traits, with the exception of extraversion which both high and low poles were expected to be presented.

H2. Hypothesis two expected that high poles of each trait as well as the low pole of extraversion would be related to the self-reported author traits. Five regression analyses were conducted with each of the self-reported traits as the dependent variable and the high and low trait statement content analysis variables from the first platform choice for each participant as the predictors. A power analysis using G*Power indicated that this study met the required sample size for an f2 effect size of at least 0.33, power of .95 and an alpha value of $p < .05$. The required sample size for this regression was 50 participants. Significant models were found for extraversion, agreeableness, emotional stability and intellect, but not conscientiousness. There were however some issues with violation of assumptions in the regressions, in particular for agreeableness, reducing the generalisability of their results beyond this sample.

For extraversion an analysis of standard residuals was carried out, which showed that the data contained outliers (Std. Residual Min = -4.49, Std. Residual Max = .76). Using the enter method a significant model emerged: F (2, 153) = 4.060, $p = .019$. The model explains 3.8% of the variance (Adjusted $R^2 = .038$). Statements of low extraversion emerged as a significantly unique negative predictor of extraversion (β = -.215, $t(153) = -2.724$, p = .007), but statements of high extraversion did not.

For agreeableness an analysis of standard residuals was carried out, which showed that the data contained outliers (Std. Residual Min = -3.31, Std. Residual Max = 2.63). The scatter plot testing homoscedasticity indicated that the errors were not quite normally distributed indicating a violation of the assumption, the normal P-P plot of standardised residuals showed points that were not completely on the line. The violation of assumptions reduced the generalisability of this model

outside of this sample. Using the enter method a significant model emerged for the prediction of agreeableness by the two content analysis variables related to high and low agreeableness: F (2, 153) = 4.621, p = .011. The model explains 4.5% of the variance (Adjusted R^2 = .045). Statements of high agreeableness emerged as a significantly unique positive predictor of agreeableness (β = .196, t(153) = 2.496, p = .014), but statements of low agreeableness did not.

For emotional stability an analysis of standard residuals was carried out, which showed that the data contained outliers (Std. Residual Min = -3.95, Std. Residual Max = 2.46). Emotional stability was predicted in a significant model: F (2, 153) = 3.374, p = .037, where statements related to low emotional stability emerged as a significantly unique negative predictor (β = -.183, t(153) = -2.312, p = .022), but those related to high emotional stability did not. The model explains 3% of the variance (Adjusted R^2 = .030).

For intellect an analysis of standard residuals was carried out, which showed that the data contained outliers (Std. Residual Min = -0.51, Std. Residual Max = 4.50). Intellect was predicted in a significant model: F (2, 153) = 3.266, p = .041, where statements related to high intellect emerged as a significantly unique positive predictor of intellect (β = .189, t(153) = 2.382, p = .018), but not those statements related to low intellect. The model explains 2.8% of the variance (Adjusted R^2 = .028).

The findings for hypothesis two were mixed, only agreeableness and intellect were predicted by the socially desirable pole of their trait, while emotional stability and extraversion were predicted only by the less desirable pole.

Relationship of LIWC variables to traits

H3. Hypothesis three predicted that LIWC variables that had correlated with individual traits in at least three previous studies would predict those traits in this

sample. As previously mentioned LIWC analysis is best conducted on texts of over 50 words, and only 52 profiles met this standard of analysis in this study. Five multiple regression analyses were carried out with the self-reported traits of the daters as the dependent variables, and the LIWC dictionary categories that have been replicated at least three times in previous studies as the predictor variables, as in Table 11. A decision was made to use thrice replicated variables rather than twice replicated to increase the reliability of the variables used, and to reduce the number of predictor variables given the low sample size available for analysis.

Table 11. Correlations of LIWC language variables to personality traits replicated in previous research (in three or more studies)

E	A	C	N (ES rev)	O (I)
+ Affect (3)	– Anger (4)	+ Achievement (3)	+ Anger (4)	+ Adverbs (3)
– Articles (3)	– Body (3)	– Anger (4)	+ Anxiety (6)	– Affect (3)
– Causation (3)	– Causation (4)	– Death (6)	– Articles (3)	+ Articles (5)
+ Family (4)	– Death (3)	– Discrepancies (4)	+ Causation (3)	– Assent (3)
+ Humans (4)	+ Family (3)	– Exclusive (4)	+ Discrepancies (4)	+ Exclusive (3)
– Impersonal pronouns (3)	+ Inclusive (3)	– Negations (4)	+ Exclusive (3)	+ Inclusive (3)
+ Inclusive (3)	– Money (3)	– Negative emotion (5)	+1st p sing (5)	– Negative emotion (5)
– Negative emotion (3)	– Negative emotion (4)	– Sadness (3)	+ Future (3)	– Positive emotion (5)
– Numbers (5)	+ Positive emotion (4)	– Swearing (3)	+ Hearing (3)	+ Prepositions (4)
+ Positive emotion (6)	+ Space (3)	– Perceptual process (3)	+ Ingestion (3)	
+ Sexual (3)	– Swearing (3)	+ Work (3)	+ Negation (3)	
+Social (7)			+ Negative emotion (7)	
– Tentative (3)			+ Swearing (3)	
– Work (3)			– Work(3)	

E = Extraversion, A = Agreeableness, C = Conscientiousness, N (ES rev) = Neuroticism (Emotional stability reversed), O (I) = Openness to Experience (Intellect).
+ Positive correlation. – Negative correlation.(Number of studies in which the variable has been significantly correlated with the trait).

A power estimate of required sample size using G*power for an f^2 effect size of at least 0.33 and power of .80 was 68 participants for emotional stability and extraversion which each had 14 predictor variables, 61 for conscientiousness and agreeableness which each had 11 predictors, and 56 for intellect which had nine

predictors. None of the regressions had the required power, intellect and conscientiousness had a sample of 55 and extraversion, agreeableness and emotional stability had 54, thus any results should be interpreted with considerable caution. Four of the five traits had non-significant models, extraversion, emotional stability, conscientiousness, and intellect, while the model for agreeableness was significant.

An analysis of standard residuals for agreeableness was carried out, which showed that the data may have contained outliers as the value of the minimum was just under 2 (Std. Residual Min = -2.30, Std. Residual Max = 2.01). The normal P-P plot of standardised residuals showed points that were not on the line indicating a violation of the assumption and reducing generalisability for the results. Using the enter method a significant model emerged for agreeableness: F (11, 43) = 2.010, p = .05. The model explains 17% of the variance (Adjusted R^2 = .171).

Table 12 gives information for the predictor variables entered into the model. Swear words emerged as a significantly unique positive predictor of agreeableness, and body related words (body parts like hair, face, and clothes related words) emerged as a significantly unique negative predictor. As predicted, more agreeable participants in this study used less body related words. However, they also used more swear words which was the opposite to predicted.

Table 12. Multilevel regression of agreeableness on LIWC language variables

LIWC variables	R squared	B	SE B	β
	.34*			
Family		.420	1.132	.056
Positive emotion		.281	.263	.161
Negative emotion		.993	.814	.218
Anger		-3.695	1.985	-.416
Causation		-1.447	1.026	-.188
Inclusive		.384	.359	.158
Body		**-4.574**	**1.567**	**-.417****
Death		1.143	3.388	.053
Money		-.723	1.496	-.074
Space		-.241	.388	-.098
Swear words		**6.197**	**2.731**	**.419***

*$p < .05$. **$p < .001$

Correlations between LIWC variables and traits

Correlational analysis was carried out between the LIWC variables drawn from the longest profile texts, and the Big-Five personality traits. Although the previously replicated correlations were tested with regression analysis and only agreeableness was significant, the correlations between all LIWC variables and traits were examined to see if there were particular relationships between language and traits that could be compared to previous research and might be explained by the online dating context.

Table 13 displays the results of the significant correlations and the correlations for all variables are available in Appendix 5. Body words were correlated negatively here with agreeableness as in the regression analysis, but swear words were not correlated in either direction. In order to understand the correlations in the context of dating profiles, the five participants with the highest and lowest levels of each trait who had profiles over 50 words included in the LIWC analysis were identified and the sample profile texts are available in Appendix 6. These sample texts will be discussed in the discussion section of this chapter.

Table 13. Correlations between LIWC dictionary categories and Goldberg's Big-Five Factor Markers

LIWC Dictionary categories	E	A	C	ES	I
Word Count	-.182*	.046	.023	.041	.077
Long words over 6 letters	.089	.041	-.262*	.064	.153
All pronoun	-.514***	.108	.042	-.193	.024
Personal pronouns	-.388**	.050	-.007	-.090	.027
1st person singular (I)	-.351**	.212	.055	.042	.079
1st person singular (you)	-.014	-.229	-.222	-.300*	-.147
Impersonal pronouns	**-.295***	.097	.065	-.170	.004
Past tense	.213	-.409**	-.268*	.217	-.052
Future tense	-.192	.150	.041	.101	**.292***
Family	.109	.143	.078	.264*	-.169
Affective processes	.233	**.344****	.124	.107	-.047
Positive emotion	**.279***	**.354****	.117	.145	-.177
Negative emotion	-.137	-.047	.022	-.093	.319*
Anger	-.199	-.130	.288*	-.052	.208
Hear	**-.263***	.055	.052	.071	-.137
Body	.002	**-.363****	-.039	.059	.044
Sexual	-.008	**.453*****	.266*	.097	.060
Money	.193	.018	-.332*	-.053	-.063

*$p < .05$. **$p < .01$. ***$p < .001$

N = 55 for LIWC variables and extraversion, agreeableness and emotional stability correlations.

N = 56 for LIWC variables and conscientiousness and intellect correlations.

Extraversion (E), agreeableness (A), conscientiousness (C), emotional stability (ES), intellect (I).

Correlations in bold replicate those found in at least one previous study.

Only variables with significant correlations are shown. See Appendix 6 for a full table with all correlations.

Self-disclosure in dating profiles

H4. Hypothesis four predicted that there would be higher self-disclosure in web profiles than app profiles, more blank profiles in dating apps than web, and lower word count on apps than web. The seven content analysis variables related to self-disclosure were positive or negative thoughts and feelings about the self or others, hopes and goals, fears and worries, and finally physical characteristics.

H5. Hypothesis five expected that those higher in extraversion would self-disclose more than those lower in the trait.

H6. Hypothesis six expected that participants would feel that their profiles reflected themselves less on dating apps than websites.

The self-disclosure variables as well as the proportion of blank or non-blank profiles were compared between the app or web profiles of each participant's first choice of dating platforms. Chi-square tests were used for the analysis, or Fisher's exact test where sample size was an issue. Word count difference between web and app profiles, and the difference in how much daters felt their profiles reflected themselves between web and app profiles were analysed using t-tests. Word count was also examined between the top four platforms chosen by participants as their primary platform and a Kruskal-Wallis H test measured the differences between platforms. Multiple regression was used to test whether extraversion was predicted by self-disclosure. A Bonferroni corrected alpha value of $p < .004$ was used to correct for multiple tests ($\alpha = .05/12 = .004$).

Due to small sample sizes for one of the levels in each of the following self-disclosure variables, Fisher's exact test was used instead of chi-square; positive thoughts and emotions about others and negative thoughts and emotions about others, negative emotions about self, fears and worries. The remaining variables had sufficient sample size for chi-square to be used, positive thoughts and emotions about self, hopes and goals, and physical characteristics. Two tests were significant at the level of the adjusted alpha, positive thoughts and emotions about the self and hopes and goals, both of which had sufficient sample size for analysing with chi-square tests.

In the dating application group five participants (4.1%) included statements of positive thoughts and emotions about the self while 118 did not (95.5%), whereas in the dating website group, 19 participants (38%) included such statements while 31 did not (62%), a statistically significant difference in proportion of .3, $p < .0005$.In the dating app group twelve participants (9.8%) included statements about their hopes and goals while 111 did not (90.2%), whereas in the dating website group, 16 participants (32%) included such statements while 34 did not (68%), a statistically significant difference in proportion of .2, $p < .0005$.

It was predicted that there would be more blank profiles on apps than websites. More app profiles were blank (25, 24%) than website profiles (6, 10%), however a chi-square test indicated that there was no significant difference between the two. See Table 7 for details on the numbers of blank profiles on each platform.

It was predicted that word count would be lower on apps than web profiles. The word count of first choice profiles ranged from zero to 1169 words (M = 47.27, SD = 111.621). Word count data was non-normally distributed and was highly skewed towards less text than more text, with skewness of 6.858 (SE = 0.19) and kurtosis of 61.24 (SE = 0.38). There were a number of outliers who wrote considerably more in their profiles than others. There was one extreme outlier for word count who wrote 1169 words, with the next highest profile being only 470 words. A decision was made to cap the outlier word count at 494, four times the standard deviation (111.62) plus the mean (47.27) and this allowed for all texts except the single extreme outlier to be included in the analysis. A Kruskal-Wallis H test showed that there was a statistically significant difference in WC between the different dating platforms, $\chi^2(3, N = 166) = 36.193$, $p < .0005$. Pairwise comparisons showed significant differences between Tinder and POF (adjusted $p < .0005$), Tinder and OKCupid (adjusted $p = .001$), where Tinder (*Mdn* = 9) had shorter profiles overall than POF (*Mdn* = 56) or OKCupid (*Mdn* = 66). Adjusted Bonferroni correction was used to account for multiple tests.

A t-test confirmed that there was a significant difference between app and web profile length, with website profiles longer on average ($M = 103.70$, $SD = 124.12$) than app profiles ($M = 18.84$, $SD = 24.08$) ($t = 4.798$, df = 50.51, $p < .0005$, one-tailed, equal variances not assumed). The mean difference between types of profile was 84.86 words and the 95% confidence interval for the estimated population mean difference was between 49.35 and 120.38, the effect size was very large ($g = 1.22$). Despite the size of the effect, it is unlikely in this case that the

effect size is an overestimation, as the difference between web and app is mainly due to the deliberate restrictions of the platform and is highly observable. Thus hypothesis four was partly supported, there was some higher self-disclosure in web profiles than apps, word counts were lower on apps generally, they were also lower on Tinder than POF and OkCupid, but Bumble the second popular app in this study was not significantly lower than website profiles, and the difference in blank profiles on apps and web was not significant.

Hypothesis five predicted that those with higher extraversion would have more self-disclosure in profiles than those with lower extraversion. Regression analysis was conducted with extraversion as the dependent variable and the seven self-disclosure variables as the predictors. The model was non-significant, thus hypothesis five was not supported.

Hypothesis six predicted that due to the restriction on word count in apps, daters would feel that app profiles reflected themselves less than web profiles. Participants completed a five-point Likert scale from not at all like me (1) to a lot like me (5), (M = 3.72, SD = 1.105). A t-test found that those who chose a dating website as their first choice of platform indicated that their profile more closely reflected who they are (M = 4.11, SD = 0.814) than those who chose an app (M = 3.56, SD = 1.17), (t = 3.377, df = 121, p = .0005, one-tailed, equal variances not assumed). The mean difference between the two groups was 0.55 and the 95% confidence interval for estimated population mean difference was between 0.224 and 0.860. The effect size was moderate (g = 0.51), and thus, hypothesis six was supported.

Additional exploratory correlational analysis between how much the first choice of platform reflected themselves and traits, found that those higher in emotional stability felt that their profiles reflect themselves more (r = .252,

p = .002). The other four of the Big-Five traits did not correlate significantly with how participants felt their profiles reflected themselves.

Emoji use, spelling and grammar

H7. Hypothesis seven predicted that those higher in extraversion and agreeableness would use more positive and neutral emoji in their dating profiles than those lower in the two traits. It also expected that those with low emotional stability would use more negative emoji than those with high emotional stability. However, there were no negative emoji used by the daters in this study and meaning this hypothesis could not be tested.

T-tests analysed the difference in the levels of each trait between the two groups, those who used each kind of emoji and those who did not, and those who had spelling and grammar errors and those who did not. A Bonferroni corrected alpha value of $p < .01$ was used to correct for multiple tests ($\alpha = .05/5 = .01$).

For neutral emoji there was no significant difference for extraversion, but there was for agreeableness. Those who used neutral emoji were significantly higher in agreeableness ($M = 44.91$, $SD = 3.727$) than those who did not ($M = 40.38$, $SD = 5.962$), ($t = 2.479$, df = 154, $p = .007$, one-tailed). The mean difference between the two groups was 4.53 and the 95% confidence interval for estimated population mean difference was between 0.920 and 8.139. The effect size was large ($g = 0.77$). For the use of positive emoji, there was no significant difference for extraversion or agreeableness, indicating little support for hypothesis seven.

H8. Hypothesis eight expected that those higher in conscientiousness would be less likely to have spelling and grammar errors in their profile texts than those low in the trait.

It was predicted that spelling and grammar errors would appear more in profiles of authors with low conscientiousness than high conscientiousness. An t-test was conducted to test for differences in conscientiousness between two groups, those with no errors, and those with errors of spelling and grammar. No significant difference was found for conscientiousness, meaning no support for hypothesis eight.

Additional t-tests were conducted to explore any possible differences in self-presentation between the traits on these variables, positive and neutral emoji and spelling and grammar errors. A Bonferroni corrected alpha value of $p < .003$ was used to correct for multiple tests, including the five just discussed ($\alpha = .05/15 = .003$). There were no further differences in using neutral emoji for conscientiousness, emotional stability, or intellect. However, those using positive emoji had significantly lower emotional stability than those who did not, but this did not reach significance at the adjusted alpha value ($p = .019$, two-tailed). It should be noted that very few participants used emoji in their profiles, only eleven profiles with neutral and ten with positive emoji were found in the 157 profiles examined in this analysis. There was no difference for agreeableness, extraversion or emotional stability in spelling and grammar errors, however those who had no errors in spelling and grammar were significantly higher in the trait intellect ($M = 39.01$, $SD = 5.842$) than those who did not ($M = 34.45$, $SD = 6.637$), ($t = 3.201$, df = 154, $p = .002$, two-tailed). The mean difference between the two groups was 4.56 and the 95% confidence interval for estimated population mean difference was between 1.744 and 7.370. The effect size was large ($g = 0.76$).

Exploratory analysis

Age differences in self-disclosure

Additional exploratory analysis was also conducted to look at difference in age and word count and self-disclosure in order to compare this with profiles in the second study in this thesis. Significant and substantial correlations were found between age and word count in web profiles (r = .597, p < .0005), and app profiles (r = .207, p < .016) with older people writing more in both.

Research has found that there are differences in self-disclosure between younger and older people, with younger revealing more than older (Fullwood et al., 2013; Hollenbaugh & Everett, 2013; Nosko, Wood, & Molema, 2010). Age was examined in relation to self-disclosure on the seven content analysis variables related to self-disclosure; positive and negative expression of emotion about the self or others, expressions of hopes and dreams, or expression of fears and worries, physical attributes. T-tests were used to determine if self-disclosure differed with age, with age as the dependent variable and each content analysis variable as the grouping variable. Significant results were found for a number of variables; positive expression of emotion about others, and about the self, as well as fears and worries. A Bonferroni corrected alpha value of p < .007 was used to correct for multiple tests (α =.05/7 = .007). Those who expressed goals or hopes in their profiles were also significantly older than those who did not, however this was not quite significant at the adjusted alpha (p = .008, two-tailed, equal variances not assumed).

An independent t-test showed that the difference in age between participants who positively expressed emotions about others and those who did not was significant (t = 4.114, df = 153, p < .0005, two-tailed). Participants who expressed

positive emotions about others were older on average (*M* = 40.60, *SD* = 12.42) than those who did not (*M* = 28.07, *SD* = 9.09). The mean difference between the two groups was 12.53 years and the 95% confidence interval for estimated population mean difference was between 6.51 and 18.55. The effect size was large (*g* = 1.34). The age of participants who expressed positive thoughts or emotions about themselves was significantly higher (*M* = 40.83, *SD* = 15.46) than those who did not (*M* = 26.80, *SD* = 6.56), (*t* = 4.287, df = 23.40, *p* < .0005, two-tailed, equal variances not assumed), The mean difference between the two groups was 14.03 years, the 95% confidence interval for estimated population mean difference was between 7.27 and 20.80, and the effect size was large (*g* = 0.96). An independent *t*-test showed that the difference in age between participants who expressed fears or worries and those who did not was significant (*t* = 3.046, df = 153, *p* = .003, two-tailed). Those who expressed fears were older on average (*M* = 38.88, *SD* = 13.67) than those who did not (*M* = 28.33, *SD* = 9.29). The mean difference between the two groups was 10.55 years and the 95% confidence interval for estimated population mean difference was between 3.71 and 17.38. The effect size was large (*g* = 0.78). Contrary to previous research, older daters were more likely to self-disclose than younger on all significantly different variables.

Discussion

This study set out to examine three research questions. It sought to determine whether personality was expressed in online dating profile texts, if the type of online dating platform affected the expression of traits, and to identify which language cues were related to personality. The evidence around expression of traits was mixed, with possibly greater expression of traits in web profiles than apps but difficulties with the regression analysis make the findings unreliable. The relationships between LIWC variables and traits were mostly not in line with previous findings, and LIWC variables that had previously correlated with traits in multiple studies did not predict traits in this study. The findings supported the

hypotheses regarding the differences between online dating website profiles and app profiles. Shorter word count, and lower self-disclosure and self-presentation content in the app profiles may have reduced daters' ability to portray themselves in a way that reflected who they are.

Dater characteristics

The first set of tests examined gender, age, and platform differences in traits, and found no gender differences. Previous research had found differences in traits between Tinder users and non-users, with Tinder users scoring higher on extraversion and openness (Timmermans & De Caluwé, 2017b). This research found daters who chose Plenty of Fish as their primary platform had significantly higher conscientiousness than those who chose Bumble, but not Tinder or OkCupid users. This is the first study which has looked at traits of Bumble users. There were also significant differences between those who chose apps over websites as their primary platform, with those who preferred apps being more extravert, in line with Timmermans and De Caluwé's (2017) findings, and less conscientious, most likely because of the fact that more conscientious participants here were more likely to choose POF. There was no difference in openness however, which could be due to volunteer survey respondents being higher in openness generally than other samples, and thus all participants having higher openness (Buchanan, 2018), or it could be that while there are differences in openness between Tinder users and non-users, there is no difference between dating app and website users in general.

Older participants in this study were more emotionally stable and agreeable which fits with research that people become more emotionally stable and agreeable with age (Soto et al., 2011). In this study older age was also related to choosing online dating websites over apps, as well as choosing POF and OkCupid over Tinder as the first choice of platform. This is supported by previous research

which found that dating app users were younger on average than dating website users (Gatter & Hodkinson, 2016).

Self-presentation differences on web and app profiles

Hypothesis one predicted that there would be differences in how daters presented content and expressed their traits in app and web profiles. A number of significant differences were found between dating apps and website profiles for expression of trait and other self-presentational content, with the trend in findings towards greater expression of all variables in web profiles than apps. However, due to the number of paired t-tests that were conducted, an adjusted alpha value was used and only one trait statement difference remained significant, increased expression of high emotional stability content in website profiles. The age of website users in this study was older than app users, and emotional stability was significantly higher in older participants, and this may have resulted in the more frequent use of high emotional stability statements in web profiles. Similarly, only one difference remained significant for self-presentation differences, mentions of work or education, which again was higher in website profiles. The substantially higher word count on web profiles which allows daters to express themselves more can partly explain this trend in findings. However, the lower self-disclosure and reduced expression of personality traits through explicit statements in dating app profiles may also be related to the centrality of photographs on those platforms, where the focus is on self-presentation by that means, and less on profile texts. Perhaps not only the platform design, but also the resulting norms of dating apps encourage less self-disclosure and presentation of content than website profiles.

Hypotheses seven and eight examined personality traits and self-presentation of emoji as well as spelling and grammar errors and had mixed results. It was predicted that both positive and neutral emoji use would be related to extraversion and agreeableness as they increase perceptions of friendliness and intimacy (Ernst

& Huschens, 2019; Liu et al., 2013) and positive emoji have previously been correlated with both traits (Marengo et al., 2017). However, only neutral emoji showed a difference with agreeableness where more agreeable individuals were more likely to use neutral emoji. It was also hypothesised that negative emoji would be used more by those lower in emotional stability as was found by Marengo and colleagues, however there were no negative emoji used by any of the participants in this study. Emoji were used very little overall by participants in their profiles, only nine profiles contained neutral emoji and ten contained positive emoji in the sample of 155 examined in the analysis, and as mentioned no negative emoji were used. Derks, Bos, and von Grumbkow (2008) found that emoji are more commonly used with friends than strangers, and positive emoji are used at a higher frequency overall than negative ones, which explains the lack of use in dating profiles. Many of the profiles that contained emoji had more than one present, so those who did use them, tended to do so frequently. Emoji may not be as useful means of detecting personality traits in texts that are written to be read by strangers due to their lack of frequency in such texts but may be more useful in texts to well-known others.

Spelling and grammar errors were not related to conscientiousness as had been predicted. Many online daters state that errors indicate to them that the profile author is not serious or is not taking care with their profile (LeFebvre, 2018; Zytko et al., 2014) which could indicate a lack of conscientiousness. But it appears perhaps that it may be more related to self-presentation instead. While the t-test was not significant at the adjusted alpha level, it was approaching significance and trended towards the finding that those higher in intellect were more likely to have no errors in their profiles. Given that displaying intelligence is important in dating profiles (Whitty, 2008), and those who are higher in intellect are more likely to value intellectual pursuits, it would seem that they attend more to those cues that would reflect that trait, and spelling and grammar errors are also commonly interpreted as a lack of education (Zytko et al., 2014). Additionally, Schwartz et al.'s (2013) big data study looking at language use on Facebook produced word clouds of

the most used words for each pole of each trait, and the low openness word cloud had substantial numbers of misspellings, errors and textspeak. Therefore, openness may be detectable in online texts through spelling and grammar errors.

Relationship between trait-related statements and self-reported traits

It was predicted that personality trait-related statements in profiles would be related to self-reported traits of participants. Specifically that the socially desirable poles of traits would be expressed more and would therefore more likely be related to self-reported traits than the less socially desirable poles of each trait which daters would avoid mentioning in profiles. The exception was lower extraversion which has previously been rated as more attractive in a dating profile study (Jin & Martin, 2015) and is a less evaluative trait (Funder & Dobroth, 1987; Vazire, 2010) and hence both poles are socially acceptable and were expected to be mentioned in profiles and related to the trait. The findings for testing the hypothesis were mixed, four of the five Big-Five traits were significantly predicted by expressions in profiles related to those traits, extraversion, agreeableness, emotional stability, and intellect, while conscientiousness was not. However, only agreeableness and intellect were predicted by the high trait statements, extraversion was predicted by low trait statements as predicted, but not by high, and emotional stability was predicted by low trait statements. It should be noted that there were some issues of violation of assumptions in the regression for agreeableness, and those findings should be treated as less generalisable outside of this sample as a result.

Agreeableness and intellect were predicted by the socially desirable pole of their trait as predicted. Given that agreeableness is a highly sought after trait in romantic relationships as it increases relationship satisfaction (Botwin et al., 1997; Karney & Bradbury, 1995), it makes sense that those high in the trait would emphasise it in their dating profiles, making statements that people are important

in their life and that they care about others, as these are desirable attributes. Those low in agreeableness would potentially focus on other qualities instead and avoid mentioning their lack of agreeableness. Indeed, over twice as many people mentioned qualities related to high agreeableness (16) as those related to low (7). Online daters feel it is important to emphasise their uniqueness through showing their interests, humour, and intelligence (Whitty, 2008), thus it was expected that those higher in intellect would emphasise those qualities about themselves, with many mentioning valuing education, the arts, or liberal politics for example, while those lower in intellect would not mention it explicitly as statements related to low openness would involve saying that a person did not enjoy these things, whereas people tend to focus on positives about themselves in profiles (Ellison & Hancock, 2013; Ellison et al., 2006; Whitty, 2008; Zytko et al., 2014). This was particularly the case with intellect where 35 people mentioned qualities related to high intellect while only one participant made a statement related to low intellect.

Extraversion was not predicted by high extraversion related statements, despite 19 people making statements that appeared related to the trait. It may be that many people emphasise their social circle or enjoying activities with others in their profiles in order to appear more socially attractive or popular, but that those may not be indicators of extraversion. However, extraversion was predicted by low statements as predicted, with seven people making statements about being a quiet person, preferring reading a book to going out, or other similar qualities. Introverted profiles have been perceived as more trustworthy, and therefore more attractive (Jin and Martin, 2015).As the trait is not evaluative (Funder & Dobroth, 1987; Vazire, 2010) and lower extraversion is also socially desirable, it may be advantageous for introverts to state this fact in order for them to meet a partner who is suitably matched, as they do not risk losing appeal to the suitors they are seeking to match with.

Emotional stability was predicted only by the less socially desirable pole. While statements related to the undesirable poles of traits were used infrequently in profiles, emotional stability was mentioned more than the other traits. Eight participants had low emotional stability statements. Previous research has found that individuals lower in emotional stability were more likely to use online dating to build their identity, as a distraction (Timmermans & De Caluwé, 2017b), for social approval or to get over an ex-partner (Clemens et al., 2015). It is possible that some of those daters with lower emotional stability were engaging in self-presentation for different reasons, leading to a more honest display of socially undesirable qualities. They may also have been attempting to control their online dating experience, in being upfront about their emotional instability, they could ensure that those who chose to meet them would be less likely to reject them in a face to face setting for those attributes, thereby reducing their anxiety about the process. Alternatively, a study of self-presentation on Facebook found that those who posted status updates which were rated as derogatory, presenting the self in a negative way, were younger than those who did not (Bareket-Bojmel, Moran, & Shahar, 2016). The younger participants in the current study were less emotionally stable than the older participants, and this may provide an explanation for why those lower in emotional stability were more likely to present themselves in that way. However, only eight participants presented statements relating to lower emotional stability indicating that this is not a common approach. Only eight participants mentioned positive aspects of emotional stability, and these were not related to the self-reported trait. Given that it is an important trait in romantic relationship satisfaction, it was predicted that there would be more positive self-presentation of this trait (Botwin et al., 1997; Karney & Bradbury, 1995). However, emotional stability is not one of the more observable traits, in that it is more concerned with internal thoughts and feelings, rather than external behaviours, and typically an amount of intimacy is required before this trait can be accurately perceived (Connelly & Ones, 2010).

Conscientiousness was not predicted by statements related to either pole of the trait. Conscientiousness is also a desirable trait in romantic relationships, and women particularly value men that are dependable (Shackelford et al., 2005). Few daters specifically mentioned aspects of this trait, with only 10 mentioning high conscientiousness and five low, with statements like “I know how to be responsible…”, or “…can be impulsive”. Low conscientiousness has been associated with more deception in online dating profiles, thus it may be that these daters are making deceptive statements in their profiles unrelated to their traits (Jeffrey Hall, Park, Song, & Cody, 2010), while higher conscientiousness can result in more cautious self-presentation (Lee et al., 2014), thus those daters may not be as revealing about their personality. This may result in online daters having difficulty in perceiving conscientiousness in others on dating platforms, resulting in first dates where perceptions do not meet expectations.

The question of whether personality is detectable in online dating texts is partly answered by these findings. Several aspects of traits may be available to daters through specific statements related to those traits in dating profiles. This is the case particularly for the higher poles of agreeableness and intellect, but the lower poles of traits are infrequently mentioned even in cases where they predict the self-reported trait. This may result in a gap between expectations and reality upon first meeting through online dating.

Self-disclosure

Self-disclosure was examined in this study in the expectation that higher self-disclosure, while revealing more information about the self, might lead to higher detection of trait-related information, thus helping to explain content differences between different platforms. It was expected that online dating apps would encourage lower self-disclosure through restricted word counts and a greater centrality of photographs in the application design. As with hypothesis one, where

platform type was related to differences in expression of trait statements and other content by participants who had profiles on both platforms, platform type was important in self-disclosure. As predicted in hypothesis four, daters self-disclosed more when their first choice of platform was a dating website rather than a dating app, particularly with positive information, positive thoughts and emotions about the self and hopes and goals. Web profiles were substantially and significantly longer than apps profiles due to the platform design as predicted, which meant that daters had less space to express themselves on dating apps resulting in less self-disclosure. Thus, the design and resulting norms of dating apps appear to encourage less self-disclosure in profiles. Daters subsequently felt that their profiles on apps less reflected who they were than those on dating websites, which could contribute to the frustration felt by many in trying to represent themselves accurately as a complex person within the limitations of dating platforms (Zytko et al., 2014). This provided support for hypotheses six. Finally, age might interact with platform choice to affect self-disclosure, as older daters had significantly higher word count on both their web and app profiles, and they were more likely to self-disclose positive thoughts and emotions about themselves and about others, their hopes and goals, and their fears and concerns than younger daters. Traits were not related to self-disclosure, thus the fifth hypothesis, that higher extraversion would lead to greater self-disclosure, was not supported.

Relationship between LIWC variables and personality traits

In answering the research question about whether personality is detectable in dating profiles through linguistic analysis, previous research was examined to find trait language relationships that had replicated in multiple studies. It was expected that at least some of LIWC variables previously found to have a relationship with personality traits would predict the traits in this study. Variables that had been replicated in three studies previously were used to predict traits, but the results for four of the five traits were non-significant, while agreeableness was predicted by

less use of body related words as expected and use of more swear words which was the opposite of predicted. Thus, hypothesis three was not supported, indicating that while traits and language variables are often found to have a relationship, and some of those relationships are stable across many contexts, this is not necessarily a reliable measure of personality as the context and participant sample appear to greatly affect the variation in results. Even the most reliable of relationships, such as social words and extraversion, or negative emotion words and low emotional stability are found only in about half of the studies undertaken, as can been in Table 4, chapter three.

While LIWC is a useful tool for analysing language, it is also a relatively crude tool that counts word categories and cannot examine context, irony or words that have multiple meanings (Pennebaker & King, 1999). Some of the dictionary categories are very broad, encompassing a variety of types of expression of a concept, for example the sexual words category contains all variations of the word love, as well as sexually transmitted disease related words. Yarkoni's (2010) very large-scale study of bloggers found that the broadness of the LIWC categories could create confusion when trying to interpret results, and that individual word usage needed to be examined for some categories in order to understand the context and meaning. The exploratory correlational analysis of the relationships between traits and LIWC categories revealed a number of significant results, few of which matched previous research findings, again showing the unreliability of language trait relationships. It is also worth noting that with the number of statistical tests conducted, there is a possibility that some of the valid cues found here might be Type I errors, and that results here, particularly those not previously found in research should be interpreted with caution.

Extraversion had the highest number of significant correlations with LIWC cues, with seven in total. As a typically observable trait (Funder & Dobroth, 1987; Vazire, 2010), it fits that extraversion was expressed more in language. Two of these

correlations, increased use of positive emotion words and less use of impersonal pronouns, were in line with previous research. One correlation had mixed results in previous research, where hearing words had been both positively and negatively related to extraversion. The remaining four, lower word count, fewer personal pronouns, first person singular, and total pronouns were either in the opposite direction to previous research, or new findings.

Five LIWC variables each were significantly correlated with agreeableness and conscientiousness. Three of the correlations with agreeableness fit with previously replicated research, positive emotion, affect and decreased use of body related words. One correlation, increased sexual words, had previously been related both positively and negatively to agreeableness, and one correlation had not been found in previous research, fewer words in past tense. None of the five correlations with conscientiousness had previously been found in research, and of the five, four were in the opposite direction to previous findings: less use of long words, and money words, and more use of anger and sexual words. Finally, conscientious individuals used less past tense which had not been previously found. There were two correlations with emotional stability, less use of second person singular which had been both positively and negatively correlated previously and more family words which had not been found before. Finally, two LIWC cues correlated with intellect, more future tense which had been both positively and negatively correlated previously and increased negative emotion words which was in the opposite direction of previous research. In order to understand the correlations in the context of dating profiles, the five participants with the highest and lowest levels of each trait who had profiles over 50 words included in the LIWC analysis were identified, and their profiles were examined in the context of the LIWC correlations for that trait. These are available in Appendix 6.

The findings for extraversion were primarily concerned with less use of pronouns of different kinds, more positive emotion and less hearing related words.

There is evidence that extraverts are likely to use less concrete and precise language than introverts (Beukeboom et al., 2013). This often manifests in using fewer articles (a, the) which tend to be used when describing physical attributes and details, indicating concrete content (Beukeboom et al., 2013), but can also manifest in a less precise or "looser" style (Chung & Pennebaker, 2007; Gill & Oberlander, 2002). Use of pronouns indicates a shared understanding between the two communicators, if one says "she gave the box to him" both have to know who she and him are in order to understand the sentence (Chung & Pennebaker, 2007). Online daters do not know each other enough to have a shared understanding. More detail is probably needed to communicate context in a dating profile. This may explain the lack of pronouns in extraverts' language here. The profiles for high extravert participants had a looser style of writing than that of the most introverted participants who were more precise in their descriptions and use considerably more pronouns in how they described themselves and what they liked.

Extraverts tend to talk more than introverts, however some extraverts in the current study had a lower word count. This is not supported by previous research; however, extraverts may rely more heavily on photographs to present themselves in online dating. They have been found to upload more photographs in social media (Eftekhar et al., 2014), and sociable people, higher in extraversion and agreeableness, appear to be more physically attractive to others (Meier, Robinson, Carter, & Hinsz, 2010), thus it may be a successful strategy for them to do so. In this study they were also more likely to prefer using dating apps than websites, which are more heavily based on photographs than text providing support for this theory. Positive emotionality is associated with extraversion (John et al., 2008), and the use of more positive emotion words is consistently replicated in previous studies (Nowson, 2006; Pennebaker & King, 1999; Qiu, Lin, Ramsay, & Yang, 2012; Schwartz et al., 2013; Yarkoni, 2010). Extraverts in this study also use more positive emotion words, describing how they love and enjoy particular activities or people, and talk about having fun and laughing more than the introverted profiles. The final

category is the hearing-related words, which includes not only words like ear and deaf, but also listen, song, audio, music, quiet, and noise. These words are used more by introverts in how they describe themselves as a quiet person, or describe their likes, listening to music or audiobooks. In the context of a dating profile where daters are likely to describe their interests and themselves in these terms, it makes sense that introverts would use more of these words in order to attract similar others who would be better romantic matches for them. As previously mentioned, extraversion is not an evaluative trait, and introverts would not risk losing social attraction by stating their quieter attributes in this manner.

Agreeableness was associated in this study with greater use of affect words generally, positive emotion words, and sexual words, and fewer body related words and past tense. The relationship between positive emotion words and agreeableness has been found a number of previous studies (Golbeck, Robles, & Turner, 2011; Pennebaker & King, 1999; Schwartz et al., 2013; Yarkoni, 2010). In light of the fact that agreeable people are more socially oriented and tender-minded, seeking smooth social interactions, they would want to encourage people to view them positively (John et al., 2008). Therefore, it makes sense that they would create profiles that are positive and that express positive emotions. Older people are also significantly more likely to use positive emotion words than younger (Pennebaker & Stone, 2003; Schwartz et al., 2013), and agreeable people in this study were older. The sexual words category is one of those which contain a broad range of concepts grouped together, and one previous study on blogging has found that more agreeable people use more of these words (Yarkoni, 2010) while two others have found less use in Twitter and Facebook (Qiu et al., 2012; Schwartz et al., 2013).

Yarkoni's study used data analysis to find the most commonly used words as well as LIWC categories, and found that the words most frequently used in the sexual words category were those related to love rather than to other aspects of

sex. The sample profiles examined in this study similarly show that agreeable people are likely to mention being passionate about something or loving doing something rather than those to do with sexual behaviours. This study also found that less agreeable people use more body-related words which has been found in previous research on self-narratives, Facebook and blogging (Hirsh & Peterson, 2009; Schwartz et al., 2013; Yarkoni, 2010). In this context they were used in two ways, derogatory statements about the self, or to describe qualities in a desired partner. Research has found younger people more likely to make derogatory statements about themselves on social media, which attract a high number of likes and comments (Bareket-Bojmel et al., 2016). Younger participants in this study are less agreeable than older participants, and this may explain the use of body related words here in the derogatory context. Schwartz et al. (2013) also found that younger people were more likely to use body-related words than older people in a study on language use in Facebook status updates. Finally, less agreeable participants were more likely to use the past tense and previous research has found that as people age they use less past tense language (Pennebaker & Stone, 2003). The less agreeable participants in this study are on average younger, thus the age difference here might be driving this use of language. In this sample it appears that context, age, and traits interact in expression of traits in language.

Five LIWC categories correlated with conscientiousness, none of which matched previous research. Highly conscientiousness daters used fewer long words, past tense, and money words, and more of anger and sexual words. The higher use of anger words is unusual as previous research has found that conscientious people are less likely to use anger words in four studies on blogging, text messages and Facebook (Hirsh & Peterson, 2009; Holtgraves, 2011; Schwartz et al., 2013; Yarkoni, 2010) and particularly as the context here is online dating where it is important to create a positive impression. The use of anger words was quite low, but still higher for high conscientious individuals. This may be related to the fact that LIWC is poor at identifying context and multiple meanings of words (Chung & Pennebaker, 2007),

and that anger words were misinterpreted in this case. Like agreeableness, sexual words were correlated with conscientiousness, and for similar use of the words love and enjoy. However, they were also more likely to make more direct statements about what they find sexy. Given that conscientiousness is related to goal oriented behaviours (John et al., 2008), and to seeking long-term relationships in online dating (Clemens et al., 2015; Timmermans & De Caluwé, 2017b), these daters may see explicit statements of what they are looking for, or want to avoid, as the best way to meet their relationship goals. For example, Fiore et al. (2010) found that women who stated their preferences for an ideal partner were more likely to receive a reply to their messages than those who did not, thus this may be a successful strategy for meeting goals in online dating. This is a further illustration of the importance of context in interpreting the relationship between language and personality traits, and an indication of how cues might be misleading to perceivers when they involve non-trait-typical language.

Two variables correlated with emotional stability: less use of second person singular which previous research had found both high usage in Second Life chat (Yee et al., 2011) and low usage in blogging (Yarkoni, 2010), and more family words which was not previously found. This trait had the least number of language correlations, indicating less expression in profiles. Emotional stability is a less visible trait in that it is primarily concerned with internal thoughts and emotions rather than expressive external behaviours which for this trait tend only to appear in certain circumstances such as stressful face to face encounters (Funder & Dobroth, 1987; Vazire, 2010). Thus, it is not unexpected that this trait would be less detectable in dating profiles than other traits. The daters with low emotional stability use of second person pronouns here was typically used in directly addressing others. While there were some statements like this in the high emotional stability profiles, they were considerably fewer. Perhaps knowing that low emotional stability is a socially undesirable trait, particularly in romantic relationships where it contributes to lower relationship satisfaction (Karney &

Bradbury, 1995), daters are attempting to deflect attention from themselves and onto to the reader instead but addressing them directly. Family words have been found in a previous study on Facebook status updates to be used more by older individuals (Schwartz et al., 2013), and the older daters in this study are significantly more emotionally stable, which might explain their greater focus on this topic in their profiles. Higher emotional stability may also increase the likelihood of satisfying and close relationships with family members, leading them to mention them more in their profiles as important to them.

Intellect correlated with two LIWC variables, more future tense usage which had mixed previous findings with increased use found in Facebook status updates (Schwartz et al., 2013), and decreased use in blogging (Yarkoni, 2010), as well as increased use of negative emotion words which was in the opposite direction to previous research (Dunlop et al., 2017; Schwartz et al., 2013; Yarkoni, 2010). The use of future tense was low overall, but it is possible that as individuals higher in intellect are more open to new experiences that they are expressing themselves in a more future oriented way in online dating. The use of higher use of negative emotion words is entirely different from previous research where intellect was associated with less negative emotion in personal goals, Facebook and blogging. In the high intellect profiles negative emotional language was used as a joke, in a self-depreciating manner, or as adjectives in anecdotes.

Daters have expressed their difficulty with creating a profile that reflects who they really are, leading them to create simplified profiles that can be easily misinterpreted (Zytko et al., 2014). As higher intellect is concerned with originality, complexity, breadth and depth of an individual's mental and experiential life (John et al., 2008), it may be more difficult for them to express that accurately in profile texts and they may attempt to be creative, stand out, or be unconventional in order to do so. This might lead them to use language that is atypical for their trait, or to frustration with the limitations of the process which also might increase their

negative effect and be reflected in the language they used. Where research has previously found less use of negative emotions over hundreds of status updates on Facebook (Schwartz et al., 2013), or many blog entries (Yarkoni, 2010) there has been a greater freedom of expression through choice of topic and the space to write as much as is needed. Dating profiles on the other hand are short, limited in content, and effortful and difficult to create (Whitty, 2008; Zytko et al., 2014).

These findings indicate that the answer to the research question of whether traits are detectable in online dating profile language is a complex one with many interacting factors. It appears that the relationships between traits and language varies considerably by the characteristics of the sample, for example their age, by the specific characteristics of the context, and by individual traits, whether they are more or less expressive or evaluative. The language cues that are available to online daters in profiles that are related to traits are not necessarily consistent with typical trait language, thus this may partly account for the lack of success of online daters in perceiving others accurately.

Strengths and limitations

As previously mentioned, this study was difficult to recruit for, and the sample that participated may differ significantly from the general population, reducing the generalisability of the study. Agreeableness was significantly skewed towards the higher pole of the trait in this sample, and it is possible that agreeable individuals were more likely to complete the survey than others and the results should be considered with this in mind.

This study uses a valid and reliable instrument as a self-report measure of personality. However, it is known that self-report can be biased, and the gold standard of measurement is to aggregate self-report with known associates of the target (Back & Nestler, 2016). That would have been difficult to achieve in the time and with the resources available in this research, and thus the decision was made to

use only self-report. One obvious weakness in this study was the shortness of the profiles that were submitted, most of which could not be used for LIWC analysis, meaning that some of the intended analysis was not possible, and the regressions of LIWC variables to traits were underpowered. The second study in this research will attempt to address that by asking participants to create dating profiles of 60 words or more which can be analysed as needed.

This study was very difficult to recruit participants for, and of those who did start the online survey, many dropped out when asked to share their dating profile, possibly because of privacy concerns, or perhaps because it required effort to go to the website or app and copy and paste their profile into the survey. Many more did not complete the 50-item personality inventory. The next study addressed the issue of the personality inventory length by using the Ten Item Personality Inventory (TIPI; Gosling et al., 2003), and also did not require participants to share their own profile.

Conclusion

This research contributes valuable understanding of how context can affect the language that people use to express their traits and to self-present themselves, both in the different contexts of dating platforms, and through comparison with previous research on correlations between traits and LIWC variables. While some findings have aligned well with the literature such as traits and age influencing choice of dating platform, and dating applications design features limiting self-expression and ability to create a profile that reflects the self, others have illustrated why atypical patterns of language might occur when using LIWC analysis in the specific environment of an online dating profile.

The second study in this research was concerned with expression and self-presentation of traits in text and examined the differences in two diverse contexts,

a dating profile and a story, both approximately the same length. This allowed comparisons about trait expression to be made that were not possible in this study, and to avoid the confounding factor of word count constricting expression in one context.

Chapter five: Study two – expression of personality in two contexts

Study two sets out to examine the same three research questions as study one, namely whether personality is expressed in text, whether context affects that expression, and which cues, if any are related to traits. Specifically, it examined the differences between two contexts by the same authors: online dating profile texts and creative writing story texts, one self-related and public oriented, and the other non-self-related and non-public, in order to answer these questions.

Study one was limited in its findings due the fact that the word count on dating applications (apps) is restricted. This means that any differences found between contexts, dating platforms specifically, could have been caused by these restrictions on word count in dating apps. Study two therefore sought to compare two sets of text of similar length, but with different content to examine variation in expression. Linguistic Inquiry and Word Count programme (LIWC) and content analysis were again used to elicit cues from the texts. Additionally, the profiles written by participants in study two were compared with the actual dating profiles of online daters in the study one in order to determine how valid they were, before their use in the final third study of this research looking at perception of traits in text.

Creative writing and personality

Much of the relevant background literature relating to dating site user characteristics, expression of personality, and self-disclosure was discussed in the introduction to study one in chapter four. However, this study added the component of a creative writing piece to the examination of personality expression and self-presentation in text. A creative writing text was chosen for the comparison of explicit differences in context. In comparison to online dating texts story-writing

is non-self-related, less oriented towards a public audience, and contains less self-related expression and self-presentation than dating profiles.

Only one previous study examined personality expression in this specific context, and it also looked at creativity and trait relationships (Küfner et al., 2010). Küfner et al.'s study was not included in the Rapid Structured Literature Review of expression of personality because, instead of examining each LIWC category separately, it combined them with content analysis variables to form larger cue aggregates. These aggregates were then correlated with traits, and so the individual LIWC variables relationships with traits could not be directly measured. They found that openness was related to more sophisticated writing, creative expression in writing, and to positive emotional writing, but not to socially orientated writing. They also found that agreeableness was related to more positive emotional writing and more socially oriented writing, but not to sophisticated or creative writing. This indicates that traits may be expressed and detectable in story texts, but that the available traits in this context may be different to those in dating profiles.

Stability of language

Pennebaker and King's research (1999) would suggest that over time and in different contexts, the ways that people express themselves through language are relatively reliable. However, they do point out that the words people use may vary substantially by topic or by the constraints, explicit or implicit, under which they are written. Significantly, the researchers identified 15 language variables from LIWC 2001 which appeared to be common to different writing contexts. From the extensive reliability studies that they conducted using multiple writing samples, covering a variety of subjects, by different groups of participants, they retained only those LIWC variables which showed a mean reliability of .60 or greater. Pennebaker and King suggest that these reliability studies illustrate that "word category usage is remarkably stable across time and writing topic' (p. 1300).

Secondly, the LIWC variables retained could not overlap with other variables substantially. For example, prepositions were excluded as they overlapped with inclusive and exclusive words. Thirdly, categories not referring directly to meaning or features of specific words were excluded, such as word count and words per sentence. Fourthly, current concern words such as home, money, and work, were excluded as these words are topic dependent and therefore vary in different contexts. Additionally, the final criteria for selection was that the LIWC variable should have a mean usage of at least 1% per text (Pennebaker & King, 1999). Those dictionary categories that remained were: long words, first person singular, negations, articles, positive emotions, negative emotions, causation, insight, discrepancy, tentative, social processes, past tense, present tense, inclusive, and exclusive words which were used in a factor analysis that created four categories used in an attempt to determine writing style in subsequent studies (Pennebaker & King, 1999).

However, these four categories found through factor analysis have been difficult to replicate since. Interestingly, two replicate well, but the remaining two do not (Gill, 2003; Nowson, 2006). Consequently, they will not be used in this research, but each of the 15 categories will be examined individually instead.

Some researchers have since argued that eliminating those categories that do not reach a mean usage of 1% can remove informative information. For example sexuality words or swear words are often used very little, but have more impact than their limited use would suggest (Fast & Funder, 2008). For the purpose of this study, these 15 categories will be utilised in examining the consistency of language used across contexts whether or not they meet the required 1% mean usage.

Hypotheses

Study two sought to answer three research questions. First, was personality detectable in texts, secondly, what textual cues were associated with traits, and third, whether or not context affects the detection of traits and the cues associated with them. As in study one of this research, a number of hypotheses were developed around the expression of personality in language as well as self-disclosure. Several of these remain the same in this second study.

H1. It is hypothesised that the LIWC variables that most reliably correlated with traits, found in at least three previous studies, will predict participants' traits in this sample.

H2. Hypothesis two expects that trait-related statements as measured by content analysis will predict those traits that they relate to. Specifically, that the desirable pole, the high level of each trait, will predict the self-reported trait, and that statements related to the low level of the trait will not, with the exception of extraversion where statements of introversion will also predict the trait.

Hypotheses three and four are competing predictions about the stability of language-trait correlations. Pennebaker and King (1999) found 15 LIWC variables to be stable in a variety of contexts. In addition, there are 15 variables that have replicated in at least four previous studies, and nine of those overlap with Pennebaker and King's 15 stable variables. Of those total 21 variables that are most consistent or stable in previous research it would be expected that there would be few differences between their use in story and profile texts if personality expression is consistent across contexts.

H3. Hypothesis three predicts that there will be little or no variation in an individual's use of stable LIWC variables between the two contexts, profiles and stories.

Hypothesis four was less concerned with individual's stability of language and more with the effect of context on trait language relationships. In the previous research as outlined in the structured literature review there are mixed findings on language and trait relationships in various contexts. Some aspects of language as measured in LIWC variables have replicated in well varied contexts, however even the most replicable variables have differences between studies as shown in chapter three. For example, in the literature review in chapter three, social words have been positively correlated with extraversion in seven studies, (Golbeck, Robles, Edmondson, et al., 2011; Hirsh & Peterson, 2009; Nowson, 2006; Pennebaker & King, 1999; Qiu et al., 2012; Tskhay & Rule, 2014; Yarkoni, 2010), one of the most highly replicable relationships. However, they have not been correlated in a further seven studies. Furthermore, even within the same context there can be considerable variation. For example, in two studies looking at language on Twitter only two of the total 42 correlations between language and traits overlapped in the two studies (Golbeck, Robles, Edmondson, et al., 2011; Qiu et al., 2012).

H4. Thus, hypothesis four expects that while there might be some overlap between profile and story texts in this study, there will be considerable differences between the two contexts for the relationships between language and traits.

H5. As in study one, hypothesis five expects that those higher in extraversion will self-disclose more in profiles than those lower in extraversion.

H6. Hypothesis six expects that those individuals with higher openness will have higher creativity and higher quality of story writing than those with lower openness as per Küfner et al. (2010).

H7. Hypothesis seven expects that those individuals with higher openness and agreeableness will be more likely to use a positive emotional tone in the stories than lower openness and agreeableness.

H8. Hypothesis eight predicts that those with higher agreeableness will be more likely to include character interaction than those with lower agreeableness.

H9. Hypothesis nine predicts that those with lower emotional stability will be more likely to write about the fears, worries or concerns of the characters in their stories than those with higher emotional stability.

Methodology

Design

This was a cross-sectional study. An online survey was used to gather data from participants including a dating profile text and a story text, the Ten Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003) and demographic questions. Content analysis and linguistic analysis were employed in exploring and describing the differences between dating profile texts and the story texts. Both a within-groups and between-groups design was used in this study. Participants' language use was compared within their own profile and story texts, as well as compared to others' texts.

The dependent variables were the language and content of the texts, as defined by the content analysis categories, primarily measured as absent or present, and LIWC dictionary categories, measured as a percentage of the total profile text. The independent variables were the Big-Five personality traits as measured by the TIPI.

Participants

A sample of 159 adults, comprising 117 women, 41 men, and one gender diverse participant, was recruited using multiple site entry technique (Reips, 2002; Reips, 2000) through convenience, and snowball recruitment on social media platforms including Facebook, Twitter and LinkedIn, the Hanover College Psychology Research page, student research posting boards, as well as through the University of Wolverhampton participant pool Sona. Participants were recruited from native English-speaking countries – mainly the USA (*n* = 47), Ireland, (*n* = 27) and UK (*n* = 63), as well as 22 participants from various other English-speaking countries such as Australia, New Zealand, Canada and Singapore. All participants were required to be native English speakers.

Participants ranged from 18 to 68 years old (*M* = 25.15, *SD* = 9.005) and a *t*-test found no significant difference in age between male and female participants. One hundred and forty-nine participants were heterosexual, while ten comprised participants who were homosexual, bi-sexual, or identified with another sexual orientation. Sixty of the participants had previously tried online dating, and 99 had not. Of the 159 participants, 56 were single, 69 were dating, 17 were married, 11 were in a long-term relationship or engaged, five were divorced or separated, and one was widowed. The sample was screened for duplicate entries, and for inconsistencies such as stating education level as PhD at less than 21 years of age. No participants were removed.

Materials

The study was conducted through an online questionnaire, the full survey is available in Appendix 7. Data collected included an "About me" dating profile text, a short story, the ten-item personality inventory, demographics and online dating information.

About me profile text

The online dating profile text was comprised of an open text box in which participants were asked to write a short self-description similar to the "About Me" text field in an online dating profile. They were asked to write between 60 and 300 words. The instructions for writing the profile text were similar to those given on a number of online dating websites popular at the time, including Match, Plenty of Fish, and OkCupid and were as follows:

> *"Please write a short description of who you are, as though you were writing a profile for an online dating site. Consider that this would be the first impression that site members would have of you. Talk about yourself and what makes you unique, your interests and tastes. How would people closest to you describe you?"*

Of the 159 participants, 19 did not write a profile text and two profiles were removed after screening, one because it was clear from the content and quantity of errors that no effort had been made, and one because it was written about a bad relationship with a current partner, leaving 138 usable profiles.

On the survey page following the profile text section they were asked to indicate on a five-point Likert scale how honest they had been in their profile, with the overall score showing that participants were very honest (M = 4.51, SD = .742).

Short story text

Participants were asked to write a short story, 60 to 300 words in response to an ambiguous image. The image depicts and man and a woman walking together but could be a depiction of many situations including romantic, or business, see Figure 5.

Figure 5. Image used as creative writing prompt for the short story

One previous study examined linguistic expression in a short creative story writing context in a lab based study, and used a selection of unrelated words to prompt the story (Küfner et al., 2010). A common approach to prompting creative writing, however, is to use image-based prompts. Stimuli images that contain at least two characters in an interesting or novel scene, where there is potential conflict between the protagonist and antagonist that must be resolved are more likely to product narratives that are cohesive and of higher quality (Cole, Muenz, Ouchi, Kaufman, & Kaufman, 1997). Ambiguous images are more likely to generate a wide variety of associations and connotations in an audience (Pettersson, 1995), and thus, this image was considered appropriate. Writing a narrative about an image, rather than describing it, is a more creative and advanced form of writing (Cole et al., 1997), thus the instructions to participants were as follows:

"Please write a short story about the image that you see below. Avoid describing exactly what you see, instead describe what is going on in the picture, what are the characters thinking or feeling, what happened before or what will happen after this moment."

However, these instructions could have been better phrased to place more emphasis on a creative narrative. Many participants literally described what was happening in the photo and what the characters were thinking, rather than creating a story in order to do so and this may have been as a result of the instructions.

Fifty-six participants described the photograph and what the characters might be thinking, 38 used some narrative, and 39 had a well-developed narrative that told a story. Twenty-six participants did not complete the story writing component of the survey leaving 133 usable story texts.

In many ways the use of the image prompt for a story involving an ambiguous image of two characters and asking participants to describe each character's thoughts, feelings and the outcomes of the scene is similar to the methodology used in a thematic apperception test (TAT; Morgan & Murray, 1935 as cited in Faris, Hall, & Lindzey, 1957). However, this was not an attempt to mimic the analysis involved in the TAT test or to achieve the same outcomes related to motivation of that test. The purpose here was merely to create text content that was non-self-related and involved creative writing.

Demographic and dating information

Participants completed the demographic section of the survey which included questions on gender, age, sexual orientation, nationality, and educational level. It also included a number of questions on dating behaviour: whether or not they had ever dated online, attitudes towards online dating as a tool to meet people, and their current relationship status.

The Ten Item Personality Inventory

In recent years very brief measures of the Big-Five such as the Ten Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003) have been developed for use in situations where time is very limited, or in cases where a longer measure would be a high burden for participants.

The TIPI measures the Big-Five personality dimensions with two items for each trait, consisting of the phrase "I see myself as…" and two descriptors separated by a comma; extraversion is measured with 'extraverted, enthusiastic' and 'reserved, quiet', agreeableness with 'critical, quarrelsome' and 'sympathetic, warm', conscientiousness with 'dependable, self- disciplined' and 'disorganised, careless', emotional stability with 'anxious, easily upset' and 'calm emotionally stable', and finally openness with 'open to new experiences, complex' and 'conventional, uncreative'. See Appendix 8 for the scale. While most scales are designed to maximise internal consistency, that is not the purpose of the TIPI. In fact, to achieve internal consistency in this scale would defeat the purpose of it, which was to optimise the validity of the scale, including content validity. Consequently, each short measure attempts to encompass a very broad domain with items from both the positive and negative poles. Thus, Cronbach's alpha scores can be very low for this inventory, ranging from .73 for emotional stability and .68 for agreeableness, to .45 for openness to experience and .40 for agreeableness (TIPI; Gosling, Rentfrow, & Swann, 2003). However, the TIPI has substantial convergent correlations with the BFI comparable to other multi-item inventories, ranging from .87 for extraversion to .65 for openness, and with the NEO-PI-R, ranging from .68 for conscientiousness to .56 for openness. The correlations between the TIPI and NEO-PI-R are only marginally less than those for the BFI and NEO-PI-R (Gosling et al., 2003).

The Cronbach's alpha scores for the TIPI in this study were below typically-acceptable standards for some traits as would be expected, including extraversion

(2 items; α = .65), agreeableness (2 items; α = .25), conscientiousness (2 items; α = .52), emotional stability (2 items; α = .60), and openness (2 items; α = .46). Despite the validity of the TIPI, it should be noted that a particular issue with the use of such a reduced scale is that the content that can be assessed is also reduced, which can lead to an increase in Type II errors where the importance of personality is underestimated (Credé, Harms, Niehorster, & Gaye-Valentine, 2012). However, given the evidence for the validity of the TIPI and the brief nature of the scale, it was chosen as a measure to examine expression of personality, as well as perception of traits in dating profiles and stories in the third study of this thesis. This choice was designed to maximise participant recruitment and minimise the drop-off in participants that was seen in study one.

Procedure

The study was administered online. Daters were made aware in the information and consent sheet that their profile texts and stories could be presented to participants in a further study, but that their other information would be confidential and held securely, see Appendix 7. The first section of the survey comprised demographic and online dating information and was followed by the profile and story texts components, and finally the TIPI. They were then thanked and debriefed, and there was a link to a separate survey where they could submit their email addresses for the results of the study at a later date.

Ethics

This study was approved by the Faculty of Education, Health and Wellbeing Ethics Panel (Health Professions, Psychology, Social Work & Social Care) in the University of Wolverhampton. Please see Appendix 9 for details.

Analysis

As in study one of this thesis on self-presentation and expression of traits in text, the texts were analysed using LIWC. Two content analysis codebooks were also created, one for the profile texts, see Appendix 10, and one for the stories, see Appendix 11, adapted from the codebook used in study one.

Codebook

The codebook for the profiles was very similar to study one and contained 22 items related to communication and language use. Ten items related to statements of high and low trait attributes were again used, as well as the six items related to self-disclosure, as well as humour, and ideal mate preferences. As participants were typing their profiles into an online survey, they could not use emojis, and no negative emoticons were used, thus only positive emoticons were measured. Spelling and grammar errors were measured as absent or present. Mentions of work or education were again measured, as were mentions of hobbies or interests. Categories related to physical attributes and swear words were removed as LIWC measured them comprehensively in its body and swearing categories. See Appendix 10 for the full codebook.

The story codebook was considerably different to the profile codebook as the writing was not self-related and thus many of the variables were not relevant. Codebook items that matched the profiles were those for the use of humour, positive emoticons, and two of the self-disclosure items, positive goals and hopes, and fears and worries, which were assessed in the context of the characters in the story. A number of items were adapted from the Peabody Individual Achievement Test-Revisited (PIAT-R; as cited in Cole et al., 1997), one section of which measures the structural components of creative writing. The first assessed whether a story was told rather than merely described the photograph. This was measured on a three-point scale (1 = description only, 2 = some narrative, 3 = well developed

narrative). A second item measured whether the story had an identifiable conclusion (present or absent). A third measured whether or not there was interaction between the characters (present or absent). A fourth code measured whether or not there was any reference to events before or after the scene in the photograph (present or absent). The fifth code measured creativity on a three-point scale (1 = no creativity, 2 = some creativity, 3 = very creative). These five codes together gave an indication of the quality and creativity of the story writing. These five variables were also added together to create a single variable measuring overall quality of the story, where the lowest possible quality score was two and the highest was nine. The average score was 5.70 (*SD* = 2.611). This item had a Cronbach's alpha of .87 indicating high internal consistency. The final code emerged from reading the stories, and measured whether the story overall was positive, neutral or negative in emotional tone, where many participants wrote about the couples arguing, others wrote about them being happy, others composed a neutral narrative. In total there were eleven codes assessing the story texts, see Appendix 11 for the full codebook.

Given that the profile codebook was the same as study one, no inter-rater reliability was required. A sample of story texts (20%) was rated by a second coder to determine inter-rater reliability. Cohen's kappa was used to determine agreement for each variable, and almost all were above .70 which is acceptably reliable (Landis & Koch, 1977). Humour reached agreement of .67, narrative development of the story was .62, and creativity of the story was .51 which is below ideal. However, these are similar coder agreements to previous work examining creativity and quality of written stories , where a mean inter-rater reliability of .66 ranging from .42 to .82 was found for the variables studied (Küfner et al., 2010). There is an amount of subjectivity in judging humour, creativity and narrative development, and thus these results were cautiously considered acceptable for analysis.

Results

The descriptive statistics will be presented first, followed by the inferential statistics related to the participant characteristics, and then hypothesis testing for language and trait relationships. As in study one, effect sizes were reported as standard, and the same guidelines were followed. As many tests were conducted, the conservative Bonferroni method was used to control for the increased risk of Type I error (α =.05/number of tests conducted).

Significant results are presented in full in this section and the details of all non-significant results can be found in the appendix of data outputs for this study, Appendix 18. For the regression analysis conducted in this chapter, all assumptions were tested and were met unless otherwise stated. The detailed information for each set of assumption tests in this chapter is provided in Appendix 12A.

Descriptive statistics

Table 14 shows the means and standard deviations for each of the Big-Five traits as measured by the Ten Item Personality Inventory (Gosling et al., 2003) for all participants.

Table 14. Descriptive statistics for the five traits in the Ten Item Personality Inventory

Big-Five Trait	N	Min	Max	M	SD	Skew	Kurtosis
Extraversion	153	2.00	14.00	8.58	2.96	-.226	-.635
Agreeableness	153	4.00	14.00	9.86	2.29	-.090	-.029
Conscientiousness	152	2.00	14.00	9.90	2.68	-.357	-.600
Emotional Stability	150	2.00	14.00	8.51	2.75	.021	-.636
Openness	151	4.00	14.00	10.70	2.34	-.440	-.493

The content analysis variables from the profiles in this study were compared with the profiles from the previous study in order to see if these profiles were similar in self-presentational and trait-related content. Table 15 describes the

data from both studies as the percentage of profiles that contained the particular content analysis variable out of all profiles in the sample. In the last study this was calculated for the first profile that each participant shared, in this study for all profiles. Table 15 illustrates the considerable differences in self-disclosure, trait-related statements and self-presentation content between the sets of profiles from each of the two studies. For the majority of the variables, participants in study three were more likely to include this content in their profiles than those in study two.

Table 15. Comparison of content analysis variables for profiles in study one and two of this research

Content analysis variable		Study one: dating profiles	Study two: survey profiles
Self-presentation			
Hopes, goals, fantasies		15.6%	33.3%
Fears, worries, concerns		4.6%	9.4%
Positive thoughts about self		13.9%	51.4%
Positive thoughts about others		6.4%	17.4%
Negative thoughts about self		8.7%	22.5%
Negative thoughts about others		4.6%	1.4%
Ideal mate preferences		26.6%	21.7%
Humour		28.9%	19.6%
Positive emoji or emoticons		5.7%	10.9%
Spelling and grammar errors		12.0%	48.6%
Work or education		29.5%	48.6%
Hobbies and interests		52.0%	77.5%
Trait-related statements			
Emotional stability	- high	4.6%	11.6%
	- low	4.6%	8.7%
Extraversion	- high	11.0%	39.9%
	- low	4.0%	21.7%
Agreeableness	- high	9.2%	45.7%
	- low	4.0%	5.8%
Openness	- high	20.3%	25.4%
	- low	0.6%	5.8%
Conscientiousness	- high	5.8%	23.9%
	- low	2.9%	3.6%

Inferential statistics

Big-Five trait differences in gender and age

T-tests were conducted to test whether there were differences in the Big-Five traits between men and women in the study and no significant differences were found with a Bonferroni corrected alpha value of $p < .01$. ($\alpha = .05/5 = .01$).

Regression analysis tested whether age was predicted by the Big-Five traits and the model was not significant, thus age was not related to traits in this sample.

It was also expected that there might be differences in self-disclosure with age. In study one older people self-disclosed more in their profiles, contrary to previous research. This may have been due, in part, to the age difference in web profile and app profile users, where older people were more likely to use website rather than apps which constrain their word count, allowing them to share more than those using apps. Thus, the same analysis was conducted in this study as a comparison with study one. Six t-tests were conducted with the content analysis variables as the grouping factor, absent or present, and age as the dependent variable. In this study there were no significant differences for age on any of the self-disclosure variables.

Differences between online dating site users and non-users

Five t-tests were conducted to test whether there were differences in the Big-Five traits between online daters and non-users and no significant differences were found with a Bonferroni corrected alpha value of $p < .01$. ($\alpha = .05/5 = .01$). Conscientiousness was higher in non-users and openness was higher in online daters, however their alpha values were not less than .01, and both sets of confidence intervals were broad and approached zero, indicating that these were not reliable results.

A t-test indicated that there was a significant difference in age, where online daters were older on average (M = 27.38, SD = 9.469) than non-users in this sample (M = 23.79, SD = 8.470), (t = 2.411, df = 114.28, p = .017, two-tailed, equal variances not assumed). The mean difference between the two groups was 3.59 and the 95% confidence interval for estimated population mean difference was between 0.642 and 6.553. The effect size was moderate or typical (g = 0.40).

Additional analysis examined whether there might be self-disclosure differences between online daters and non-online dating site users, to see if this might explain the differences found in profile texts between study one and two. Five chi-square tests were conducted, and one Fisher's Exact Test where there was too small a sample size for negative thoughts and feelings about others. One significant result was found for statements of positive thoughts and feelings about others, where online daters were more likely to state positive thoughts and feelings about others (15, 27.3%) than those who had never used online dating (9, 10.8%), $X^2(1, N = 138) = 6.215$, p = .013. The association was of low strength: Φ = .212 and accounted for 4.5% of the variance.

Hypothesis testing

Language and the Big-Five traits

H1. Hypothesis one expected that the LIWC variables that most reliably correlated with traits, found in at least three previous studies, would predict participants traits in this sample.

As in study one, thrice replicated LIWC variables were regressed against each of the Big-Five traits to test hypothesis one. This was conducted for the profile text and the story text LIWC variables individually. Table 16 provides a summary of the LIWC variables that have been significantly correlated with each trait in at least three studies.

Table 16. Correlations of language variables to personality traits replicated in previous research (in three or more studies)

E	A	C	N (ES rev)	O (I)
+ Affect (3)	– Anger (4)	+ Achievement (3)	+ Anger (4)	+ Adverbs (3)
– Articles (3)	– Body (3)	– Anger (4)	+ Anxiety (6)	– Affect (3)
– Causation (3)	– Causation (4)	– Death (6)	– Articles (3)	+ Articles (5)
+ Family (4)	– Death (3)	– Discrepancies (4)	+ Causation (3)	– Assent (3)
+ Humans (4)	+ Family (3)	– Exclusive (4)	+ Discrepancies (4)	+ Exclusive (3)
– Impersonal pronouns (3)	+ Inclusive (3)	– Negations (4)	+ Exclusive (3)	+ Inclusive (3)
+ Inclusive (3)	– Money (3)	– Neg emotion (5)	+1st p sing (5)	– Neg emotion (5)
– Neg emotion (3)	– Neg emotion (4)	– Sadness (3)	+ Future (3)	– Pos emotion (5)
– Numbers (5)	+ Pos emotion (4)	– Swearing (3)	+ Hearing (3)	+ Prepositions (4)
+ Pos emotion (6)	+ Space (3)	– Perceptual process (3)	+ Ingestion (3)	
+ Sexual (3)	– Swearing (3)	+ Work (3)	+ Negation (3)	
+Social (7)			+ Neg emotion (7)	
– Tentative (3)			+ Swearing (3)	
– Work (3)			– Work(3)	

E = Extraversion, A = Agreeableness, C = Conscientiousness, N (ES rev) = Neuroticism (Emotional stability reversed), O (I) = Openness to Experience (Intellect).
+ Positive correlation. – Negative correlation.
(Number of studies in which the variable has been significantly correlated with the trait).

As in study one, a power estimate of required sample size was conducted using G*power. The sample size available in this study met the required sample size for an f^2 effect size of at least 0.33, power of .95 and conservative alpha value of $p <$ .01 corrected for the five multiple regression tests. Reaching a power level of .95 is one of the suggested ways to improve dependability of research in the psychological sciences (Funder et al., 2014). The required sample size for each test was 120 participants for emotional stability and extraversion which each had 14 predictor variables, 110 for conscientiousness and agreeableness which each had 11 predictors, and 103 for intellect which had nine predictors. A significant model emerged for extraversion in the profile texts.

Tests for assumption of collinearity indicated that multicollinearity was a concern, positive emotion and affect were highly correlated (r = 9.31). As positive

emotion is the LIWC variable that has most often correlated with extraversion in the past, the regression was rerun without affect as a predictor and assumption tests were conducted again. An analysis of standard residuals was carried out, which showed that the data may have contained outliers as the values were just under and over 2 (Std. Residual Min = -2.50, Std. Residual Max = 2.39). Tests for assumption of collinearity indicated that multicollinearity was no longer a concern. For the profile texts a significant model emerged for extraversion using the enter method: F (13, 121) = 2.372, p = .007. The model explains 11.7% of the variance (Adjusted R^2 = .117). Table 17 gives information for the predictor variables entered into the model. Tentative language (maybe, perhaps, guess) emerged as a negative predictor of extraversion as expected, and positive emotion words emerged as a positive predictor of extraversion as predicted. All four other traits had non-significant models for the profile texts.

For the story texts none of the traits produced significant models, indicating that the typical language associated with the traits as replicated in previous studies did not predict them here in stories, and only for extraversion in profiles, and hypothesis one was not supported.

Table 17. The unstandardized and standardised regression coefficients for the variables entered into the model

LIWC variables	**R squared**	B	SE B	β
	.20*			
Social processes		.085	.081	.125
Affect		-.482	.647	-.632
Positive emotion		**.165**	**.078**	**.218***
Negative emotion		-.172	.184	-.081
Articles		-.135	.108	-.113
Causation		.386	.206	.161
Inclusive		-.146	.078	-.170
Family		.219	.287	.072
Humans		-.147	.185	-.089
Impersonal pronouns		-.013	.107	-.012
Tentative		**-.342**	**.117**	**-.270****
Sexual words		.022	.165	.013
Work		.015	.084	.016

Numbers	.309	.271	.102

*$p < .05$. **$p < .005$

Relationship between expressed trait-related statements and self-reported traits

H2. Hypothesis two predicted that trait-related statements, as measured by content analysis, would predict those traits. Specifically, that the high level of each trait will predict the self-reported trait, and that statements related to the low level of the trait will not, with the exception of extraversion where statements of introversion will also predict the trait.

A power analysis using G*Power indicated that this study met the required sample size for an f2 effect size of at least 0.33, power of .95 and an alpha value of $p < .05$. The required sample size for this regression was 50 participants. Five regression analyses were conducted with each of the self-reported traits as the dependent variable and the high and low trait statement content analysis variables from profile texts as the predictors. Significant models were found for all five traits and hypothesis two was partially supported. However, there were problems with violations of assumptions in a number of the regressions indicating that the results are less generalisable outside of this sample.

An analysis of standard residuals for extraversion was carried out, which showed that the data contained outliers (Std. Residual Min = -3.13, Std. Residual Max = 2.32). The normal P-P plot of standardised residuals showed points that were not completely on the line indicating a potential violation of the assumption and reducing generalisability of the results. A significant model emerged for extraversion using the enter method: F (2, 130) = 19.764, $p < .0005$. The model explained 22.1% of the variance (Adjusted $R^2 = .221$). Statements of high extraversion emerged as a positive predictor of extraversion (β = .281, t(130) = 3.543, $p = .001$) and low extraversion emerged as a negative predictor of extraversion negative predictor (β = -.328, t(130) = -4.137, $p < .0005$) as predicted.

An analysis of standard residuals for agreeableness was carried out, which showed that the data contained outliers (Std. Residual Min = -2.61, Std. Residual Max = 2.56). The scatter plot testing homoscedasticity indicated that the errors were not quite normally distributed, the normal P-P plot of standardised residuals showed points that were not completely on the line indicating violations of the assumptions. Using the enter method a significant model emerged for the prediction of agreeableness: F (2, 130) = 5.148, p = .007. The model explains 5.9% of the variance (Adjusted R^2 = .059). Statements of high agreeableness were a not significant predictor, but statements of low agreeableness emerged as a significant unique negative predictor of agreeableness (β = -.248, t(130) = -2.922, p = .004). This is the opposite to what was predicted where high agreeableness statements were expected to predict agreeableness, but low statements not to. The violation of assumptions reduced the generalisability of this model outside of this sample.

An analysis of standard residuals for conscientiousness was carried out, which showed that the data contained outliers (Std. Residual Min = -2.86, Std. Residual Max = 1.67). The scatter plot testing homoscedasticity indicated that the errors were not quite normally distributed, the normal P-P plot of standardised residuals showed points that were not completely on the line indicating violations of the assumption. A significant model emerged for conscientiousness using the enter method: F (2, 128) = 4.379, p = .014. The model explained 4.9% of the variance (Adjusted R^2 = .049). Statements of high conscientiousness emerged as a unique positive predictor of conscientiousness (β = .236, t(128) = 2.762, p = .007) and low conscientiousness statements were not a significant predictor of conscientiousness as predicted. The violation of assumptions reduced the generalisability of this model outside of this sample.

An analysis of standard residuals for emotional stability was carried out, which showed that the data contained outliers (Std. Residual Min = -2.40, Std. Residual Max = 2.16). The scatter plot testing homoscedasticity indicated that the errors

were not normally distributed, the normal P-P plot of standardised residuals showed points that were mostly not on the line indicating violations of the assumptions. The violation of assumptions reduced the generalisability of this model outside of this sample. A significant model emerged for emotional stability using the enter method: F (2, 127) = 4.139, p = .018. The model explained 4.6% of the variance (Adjusted R^2 = .046). Statements of high emotional stability emerged as a positive predictor of emotional stability (β = .221, t(127) = 2.565, p = .011) and low emotional stability statements were not a significant predictor as predicted.

An analysis of standard residuals for openness was carried out, which showed that the data contained outliers (Std. Residual Min = -2.24, Std. Residual Max = 2.16). The scatter plot testing homoscedasticity indicated that the errors were not normally distributed, the normal P-P plot of standardised residuals showed points that were not on the line indicating violations of the assumptions. Finally, a significant model emerged for openness using the enter method: F (2, 127) = 4.139, p = .018. The model explained 4.6% of the variance (Adjusted R^2 = .046). Statements of high openness emerged as a unique positive predictor (β = .221, t(127) = 2.565, p = .011) and low openness statements were not a significant predictor of openness as predicted.

As mentioned, there were issues of violation of assumption in each regression, and thus the results should be interpreted with caution.

Comparing content and language in two contexts

H3. Hypothesis three predicted that there would be little or no variation in individual's use of stable LIWC variables between the two contexts, profiles and stories.

Pennebaker and King's (1999) 15 stable and reliable LIWC categories, that they had indicated as likely to remain the same in different contexts, were

examined between the two texts using paired t-tests. Those categories were: long words, first person singular, negations, articles, positive emotions, negative emotions, causation, insight, discrepancy, tentative, social processes, past tense, present tense, inclusive, and exclusive words. In addition to those, the most replicable of the LIWC categories that correlate with traits were also tested, those that replicated four times or more, of which there were also 15. Nine of these overlapped with the 15 that Pennebaker and King put forward as reliable and these were: positive and negative emotion, social words, articles, first person singular, negations, causation, discrepancies, and exclusive words. The additional seven categories were: anxiety and anger words, family, human, preposition, numbers, and death related words. In addition, there were four content analysis variables that were present in both profiles and stories and paired t-tests were used to test for differences between them in the two contexts. The significant paired t-test results are displayed in Table 18.

An adjusted alpha value of p =.0023 (α =.05/26 = .002) was used to compensate for the 21 tests that were conducted, and eleven tests were significantly different, while two more were significant at p = .006 and p = .005. The tests for long words, anxiety, family, causation, discrepancies, present tense, numbers, prepositions, and death words were all non-significant indicating similar use of these types of language over two different contexts. Given how many variables were significantly different between contexts, hypothesis three was not supported.

In addition to the LIWC variables, there were four variables that were measured across both the profile and story texts from the content analysis codebook, use of positive emoticons, hopes and goals, fears and concerns, and humour. Paired t-tests were conducted to examine whether participants used these significantly differently in the two contexts. Three tests showed significant difference for use of

emoticons, hopes and goals, and fears and worries as shown in Table 19, only humour was not significant.

Table 18. Paired t-test results comparing LIWC category usage in story texts and profile texts

LIWC	*N*	Profile *M (SD)*	Story *M (SD)*	*t*(127)	*p*	95% CI
Pos emotions	128	9.87 (3.72)	3.58 (2.15)	16.226	.000	[5.53, 7.06]
Neg emotions	128	1.03 (1.39)	1.66 (1.67)	3.454	.001	[.27, 1.01]
Anger	128	0.20 (0.50)	0.43 (0.79)	2.880	.005	[.07, .38]
Social	128	9.91 (4.22)	17.61 (5.56)	14.352	.000	[6.64, 8.77]
Humans	128	2.05 (1.73)	2.79 (2.53)	2.790	.006	[.22, 1.28]
Articles	128	5.38 (2.45)	8.47 (3.28)	9.068	.000	[2.41, 3.76]
1st p singular	128	11.14 (3.58)	1.09 (2.22)	27.980	.000	[9.34, 10.76]
Negations	128	0.92 (1.03)	1.53 (1.76)	3.439	.001	[.26, .96]
Exclusive	128	2.16 (1.85)	3.54 (2.39)	5.357	.000	[.87, 1.89]
Inclusive	128	8.04 (3.42)	5.57 (2.64)	6.802	.000	[1.74, 3.19]
Insight	128	1.77 (1.73)	3.40 (2.36)	6.494	.000	[1.13, 2.13]
Tentative	128	2.93 (2.21)	4.41 (3.65)	3.931	.000	[.74, 2.23]
Prepositions	128	12.70 (3.21)	14.46 (3.43)	4.275	.000	[.95, 2.57]
Past	128	0.80 (1.12)	3.27 (3.78)	7.045	.000	[1.78, 3.17]

Table 19. Paired t-test results comparing content analysis variable usage in story texts and profile texts

Content analysis variable	*N*	Profile *M (SD)*	Story *M (SD)*	*t*(127)	*p*	95% CI
Positive emoticons	127	.09 (.29)	.01 (.08)	3.457	.001	[.037, .136]
Hopes and goals	127	.35 (.48)	.21 (.41)	2.930	.004	[.046, .237]
Fears and worries	127	.09 (.29)	.26 (.44)	3.509	.001	[.072, .259]

H4. Hypothesis four expected that due to the variation in previous findings of relationships between LIWC variables and traits, while there might be some overlap between profile and story texts in this study, there would be considerable differences between the two contexts for the relationships between language and traits. The trait-language relationships were examined through correlational

analysis between LIWC variables and author self-report traits in the profiles and stories.

As in study one, each LIWC category was correlated with the Big-Five traits, and this was conducted separately for the profile and the story texts to see if differences emerged. Table 20 contains all of the variables with significant correlations to traits for both sets of texts, compared side by side. The full table of all correlations significant and non-significant is available in Appendix 12B. In this instance an adjusted alpha value was not used, as the size of the correlation indicates the effect and is a more effective manner of determining the validity of the test than significance level, and the significant correlations here are all of a typical size for this type of research (Funder & Ozer, 2019; Gignac & Szodorai, 2016). Correlations that match previous findings, in at least one other study, are marked in bold. Only a single correlation was significant in both story and profile texts in this study, more extravert participants wrote shorter texts. Thus, hypothesis four, that there would be substantial differences found between contexts, was supported.

As in study one, the profiles and stories written by those participants with the highest and lowest scores on each trait were identified in order to show examples of typical language use in these contexts, and to assist with interpretation of the results of the correlational analysis. These are available in Appendix 13 and will be referred to in the discussion section of this chapter.

Table 20. Correlations between the Big-Five traits and LIWC variables generated from profiles and stories

LIWC category	E		A		C		ES		O	
	Profile	Story	Profile	Story	Profile	Story	Profile	Story	Profile	Story
Word count	-.202*	-.362***	.069	.115	.013	-.003	.043	.020	.156	.173*
Personal pronouns	.034	-.007	.001	-.015	.012	-.004	-.084	-.169*	**-.170***	.042
3rd pers sing	.090	.007	-.077	-.045	-.015	-.081	-.005	-.214**	-.010	-.034
They	-.044	.162	-.008	.033	-.010	.058	.060	.083	-.213**	.131
Impersonal pronoun	-.036	**-.241*** **	.072	-.104	.104	.111	-.071	-.024	.138	-.122
Article	-.038	.137	.111	.061	-.148	-.028	-.026	.195*	.013	-.018
Past	.260***	-.095	.038	.034	-.003	-.096	.006	-.104	.079	.086
Prepositions	-.103	-.075	.107	-.040	-.026	.082	.046	.018	.070	-.189*
Conjunctions	-.152	.278***	.047	.010	.136	.049	.051	.037	-.196*	.052
Social	**.176***	.028	-.006	-.080	.030	-.002	-.015	**-.192***	-.111	-.058
Friend	.015	-.029	.148	.014	.033	-.010	.045	-.144	**-.184***	.072
Humans	.018	.039	-.015	**-.192***	-.019	.010	-.029	-.045	-.134	-.159
Affect	**.184***	.071	-.027	.063	.057	.010	.132	-.099	.001	.151
Pos emotion	**.214****	.027	.004	.111	.077	.057	.156	-.019	-.024	.039
Neg emotion	-.060	.082	-.069	-.031	-.063	-.072	-.068	-.125	.066	.194*
Anxiety	-.040	.003	-.151	-.046	-.060	**-.183***	-.127	-.140	.032	-.019
Anger	.055	-.053	-.029	.048	.000	.108	.022	-.081	.149	**.175***
Sadness	-.079	.208*	-.007	-.015	-.069	-.046	.018	.025	-.086	.213*
Cognitive processes	**-.171***	-.082	.020	-.053	.053	.040	.109	-.087	.045	-.110
Insight	-.139	-.161	.098	-.051	.007	**-.173***	-.085	-.107	.017	-.175*
Causation	.143	.002	.040	-.077	.118	-.127	.010	-.149	**.245*****	-.004
Tentative	**-.256*****	-.087	.050	-.053	-.110	.017	-.055	-.022	-.016	-.264***
Certainty	.086	.107	-.094	.094	.076	.169	.043	.079	.103	**.197***
Inhibition	-.133	.090	-.228**	.042	-.064	.096	.143	.082	.082	.234**
Inclusive	-.060	.046	-.005	.013	.125	.119	**.187***	.004	-.148	.087
See	.012	.104	.014	.074	-.184*	.163	-.040	.204*	-.080	-.041
Feel	.109	-.021	.075	-.046	.147	**-.174***	.026	-.069	.072	-.007
Sexual	.154	-.015	-.070	.074	.023	.091	.043	-.082	.033	.177*
Motion	-.041	-.066	-.184*	-.047	-.069	.061	-.058	-.045	**-.214****	.043
Space	-.137	-.129	-.072	.007	-.201*	.018	.059	.207*	.104	.051
Time	-.056	.169*	.030	-.042	-.010	.052	-.137	.015	-.107	.131
Achieve	-.020	.038	.036	.116	.101	-.138	.096	.027	.175*	.030
Leisure	.032	.077	-.074	**.198***	-.012	-.092	.051	.010	.071	-.022
Home	.017	.140	.092	.002	.105	.018	**.209***	.120	.069	.151

Assent	.031	-.108	-.139	**.176***	-.092	.059	-.155	-.004	.090	.095

Pearson's correlations. *$p < .05$. **$p < .01$. ***$p < .005$
Extraversion (E), agreeableness (A), conscientiousness (C), emotional stability (ES), openness (O).
Profiles: E, A (n = 135), C (n = 134) , ES (n = 132), O (n = 133). Stories: E, A (n = 133), C (n = 133) , ES, O (n = 131).

Correlations in bold replicate those found in at least one previous study.
Only variables with significant correlations are shown. See Appendix 12 for a full table with all correlations.

Self-disclosure

H5. Hypothesis five predicted that those higher in extraversion would self-disclose more in profiles than those lower in extraversion.

The six self-disclosure content analysis variables were the predictors in a regression for extraversion. The regression met the required sample size for an f^2 effect size of at least 0.33, power of .95 and an alpha value of $p < .01$, and the model for was significant.

An analysis of standard residuals for extraversion was carried out, which showed that the data contained outliers (Std. Residual Min = -2.27, Std. Residual Max = 2.40). Using the enter method a significant model emerged for extraversion: F (6, 126) = 2.679, $p = .018$. The model explained 7.1% of the variance (Adjusted $R^2 = .071$). Statements of positive thoughts and emotions about others emerged as the unique positive significant predictor of extraversion (β = .269, $t(130) = 3.152$, $p = .002$).

Relationship between quality of story writing and self-reported traits

H6. Hypothesis six predicted that those individuals with higher openness would have higher creativity and higher quality of story writing than those with lower openness, as in Küfner et al.'s study of creative writing and trait perception (2010).

Six content analysis variables measured the quality of the stories written in this study, and these were tested to see if openness was related to their use in stories for hypothesis six. The overall quality variable was correlated with openness, two one-way ANOVAs were conducted to test the relationship between openness and narrative, and openness and creativity. Three t-tests were used to test whether there was a difference in openness between those who included a conclusion to their story or not, those who had character interaction of not, and those who mentioned events outside the immediate scene or not. An adjusted alpha value of p =.01 (α =.05/5 = .01) was used to compensate for the five tests, two ANOVAs and three t-tests.

The overall quality of stories variable was significantly correlated with openness (r = .345, p < .0005).

Two one-way ANOVAs with openness as the dependent variable and narrative and creativity as the independent variables were conducted. There was a statistically significant effect of openness on the use of narrative; $F(2, 128) = 9.542$, p < .0005, with an overall large effect size (f = 0.58). Employing the Tukey HSD post-hoc test, a significant difference was found between those who merely described the photograph versus those who used some narrative, where descriptive writers had lower openness (M = 9.82, SD = 2.31) than those with some use of narrative (M = 11.19, SD = 2.15, p = .013, f = 0.38), and between descriptive writers (M = 9.82, SD = 2.31) and well developed narrative writers (M = 11.77, SD = 2.19, p < .0005, f = 0.55). There was a statistically significant effect of openness on the level of creativity displayed in the stories; $F(2, 128) = 9.196$, p < .0005, with an overall large effect size (f = 0.56). Employing the Tukey HSD post-hoc test, a significant difference was found between those whose stories were not creative versus those who were a little creative, where uncreative writers had lower openness (M = 9.84, SD = 2.33) than those with some creativity (M = 11.32, SD = 2.29, p = .008, f = 0.41), and between uncreative writers (M = 9.84, SD = 2.33) and very creative writers (M =

11.67, *SD* = 2.06, *p* < .0005, *f* = 0.51). Overall the significant differences in openness were between those who were entirely uncreative and had no narrative and those who had some or a lot of creativity and narrative.

Three t-tests were conducted with the content analysis variables of conclusion, character interaction and events as the grouping variables and openness as the dependent variable. An independent *t*-test showed that the difference in openness between those who wrote a conclusion and those who did not was significant (*t* = 3.046, df = 129, *p* = .0015, one-tailed). There was higher openness in the group who wrote a conclusion to their story (*M* = 11.32, *SD* = 2.19) than those who did not (*M* = 10.09, *SD* = 2.44). The mean difference between the two groups was 1.23 and the 95% confidence interval for estimated population mean difference was between 0.433 and 2.04. The effect size was large (*d* = 0.53). Those with higher openness were significantly more likely to include events outside the immediate scene in the photograph (*M* = 11.14, *SD* = 2.24) than those with lower openness (*M* = 9.65, *SD* = 2.48), (*t* = 3.165, df = 129, *p* = .001, one-tailed). The mean difference between the two groups was 1.49 and the 95% confidence interval for estimated population mean difference was between 0.560 and 2.430. The effect size was large (*g* = 0.64). Openness was significantly associated with use of narrative and with creativity, and with the use of conclusions to stories and descriptions of events occurring before or after the scene in the photograph, supporting hypothesis six.

H7. Hypothesis seven expected that those individuals with higher openness and agreeableness will be more likely to use a positive emotional tone in the stories than lower openness and agreeableness.

Two one-way ANOVAs were conducted to test the relationship between openness and emotional tone, and agreeableness and emotional tone. Both ANOVAs were non-significant and hypothesis seven was not supported.

H8. Hypothesis eight predicted that those with higher agreeableness would be more likely to include character interaction than those with lower agreeableness.

A t-test was conducted to test the difference in agreeableness between the two groups, those who had included character interaction and those who had not. There was no significant difference.

H9. Hypothesis nine expected that those with lower emotional stability would be more likely to write about the fears, worries or concerns of the characters in their stories than those with higher emotional stability.

A t-test was conducted to test the difference in emotional stability between those who had characters express fears or worries, and those who had not, and a significant difference was found. Those authors whose characters expressed fears had significantly lower emotional stability (M = 7.50, SD = 3.02) than those who did not (M = 8.82, SD = 2.55), (t = 2.480, df = 129, p = .007, one-tailed). The mean difference between the two groups was 1.32 and the 95% confidence interval for estimated population mean difference was between 0.268 and 2.381. The effect size was moderate (g = 0.49) and hypothesis nine was supported.

Discussion

This study sought to answer three research questions: whether or not personality is detectable in texts, what textual cues are associated with traits, and whether or not context affects the detection of traits and the cues associated with them. Many of the hypotheses in this study were not supported in areas where there are previous mixed research findings, while others were clearly supported. Overall it appears that the relationship between LIWC language variables and traits is one that changes considerably depending on context, as there was little consistency between profiles and stories, and previously replicated LIWC category

trait relationships did not predict traits here for the most part. The exception was extraversion, where positive emotional language and less use of tentative language were predictors. Personality was detectable in these texts, as there were relationships between traits and language, however these may not be reliable in other contexts. However, in this study the statements that participants made in the profile texts about their traits were accurate for most of the socially desirable poles of the traits, with the exception of agreeableness, as well as low extraversion as predicted. The findings for self-disclosure were mixed and will be discussed further below. The quality of story writing was clearly linked to higher openness as expected, while low emotional stability was linked to characters expressing more fears, worries or concerns in the stories.

Validity of dating profiles in this study

The content analysis of the profiles in study one and this study were compared in order to determine the validity of the profiles written by participants in this study. As was seen in Table 15 there were considerable differences in self-disclosure, self-presentation and content between the two sets of profiles. While this study attempted to approximate the cues that online daters receive with the instructions given on writing a profile, it is clear that the profiles were not the same as those written on a dating site. It was expected that those writing profiles on a dating site would have a higher level of motivation in self-presentation as the intended purpose of the profile is to facilitate meeting a romantic partner. Indeed the research suggests that considerable thought and effort is expended in the creation of dating site profiles with the intention of meeting face-to-face with a potential partner in the near future, and thus motivation is high in creating profiles (Gibbs et al., 2006; Whitty, 2008; Zytko, Grandhi, et al., 2014). That motivation to meet others face-to-face was not present in the participants in this study, which would change how participants wrote about themselves.

In addition, daters are aware that their dating profile will be viewed critically by many other online daters, as they view others in the same way (Whitty, 2008; Zytko, Grandhi, & Jones, 2014), and awareness of that audience can change self-presentation. A fear of negative evaluation is associated with a desire to manage the impressions others form (Leary & Batts Allen, 2011), and online daters are particularly concerned with creating a positive impression in others (Gibbs, Ellison, & Heino, 2006; Whitty, 2008; Zytko, Grandhi, & Jones, 2014). As can be seen in Table 15 there is higher self-disclosure in all except one of the relevant content analysis variables in the profile texts created in the survey for this study. In fact, in almost all of the variables examined, including trait statements, there is higher prevalence in the profiles created for this study than actual online dating profiles. The exceptions are explicit statements regarding ideal mate preferences, negative thoughts or feelings about others, and the use of humour.

We know from previous research that stating mate preferences can lead to more replies to messages (Fiore, Shaw Taylor, Zhong, et al., 2010) , and that daters consider showcasing their humorous side to be important (Whitty, 2008), thus it makes sense that these might have been more salient to actual online daters than those who might not currently be dating online. However, it was interesting in this study that there was only one difference in self-disclosure and self-presentation in profile texts between those who had used online dating and those who had not, online daters were more likely to mention positive thoughts or feelings about others. Thus, the differences in profiles between the two studies were not necessarily about whether these participants were not familiar with writing online dating profiles and how much is normal to reveal in them. It appears that the context in which they are written might be the more salient factor. While participants were aware that participants in a future study would see their profiles, they were not aware of who that audience would be, how many people might view the profiles, or what the context would be. There is some evidence that difficulty in

visualising the size of the audience that will view content leads to greater self-disclosure (Caine, Kisselburgh, & Lareau, 2011; Emanuel et al., 2014).

Finally, while online dating profiles do not reveal a person's full name and are not fully identifiable, they do contain photographs of a person, and Tinder and other apps often contain a first name, thus individuals are more identifiable in an online dating context than in this study. Where individuals have a fear of being recognised, it can negatively affect self-disclosure (Gibbs, Ellison, & Lai, 2011), and this may have been one reason for the disparity in self-disclosure. While the dating profile type texts created in this study may not be the same in terms of self-disclosure as actual profiles, they do contain the same type of information. Therefore, it is still worthwhile considering them in the context of examining expression differences between two contexts for the same participants, the profile type text self-related with self-presentation concerns, and the story non-self-related with less self-presentation.

This study also examined differences in self-disclosure with age, as previous research has found that there are differences in self-disclosure between younger and older people, with younger revealing more than older (Fullwood et al., 2013; Hollenbaugh & Everett, 2013; Nosko et al., 2010). In study one older people self-disclosed more in their profiles than younger, in contrast to previous findings. This may have been in part due to the age difference between web profile and app profile users, where younger people were more likely to use apps, which constrained their word count allowing them to share less. Thus, the same analysis was conducted in this study as a comparison with study one. Six t-tests were conducted with the content analysis variables as the grouping factor, absent or present, and age as the dependent variable. In this study there were no significant differences for age on any of the self-disclosure variables, indicating that word count limitations may indeed have been responsible for the differences in study one.

In testing differences in self-disclosure between those who had tried online dating and those who had not, only one difference emerged. These tests were conducted in order to see if the differences in self-disclosure between profile texts in study one and two were related to experience with online dating. Those who had tried online dating were more likely to make statements related to positive thoughts and feelings about others, perhaps having learned through their experience of online dating that indicating good relationships with others is an effective way of demonstrating an attractive personality.

Language and the Big-Five traits

This section addresses the questions of whether personality is detectable in text through connections between language and self-reported traits, and whether context affects the pattern of those connections. As in study one, the LIWC variables most reliably related to traits were regressed to their respective traits for both the profile and story texts and were generally found not to predict those traits, meaning hypothesis one was unsupported. The exception here was for extraversion in profile texts where, of 13 variables tested as predictors, only increased use of positive emotional language and decreased use of tentative language predicted extraversion, both in the direction expected. Extraverts tend to be more talkative and therefore are likely to be less hesitant and more fluid in their language than introverts (John et al., 2008). The finding of positive emotional use in language is one that has replicated in six previous studies indicating a more reliable relationship between the trait and this language use (Li & Chignell, 2010; Nowson, 2006; Pennebaker & King, 1999; Qiu et al., 2012; Schwartz et al., 2013; Yarkoni, 2010), and extraversion is associated with positive affect (Costa & McCrae, 1980).

However, overall there was a lack of support for hypothesis one, which reflects the overall trend of findings in this thesis. Although some LIWC language variables provide relatively consistent results, they are not consistent across all

samples and contexts, and do not necessarily work well to predict personality traits. Two big data studies have previously been conducted which looked at extremely large corpuses of text, one with Facebook status updates and one with blogs (Schwartz et al., 2013; Yarkoni, 2010). These were included in the first structured literature review on expression of personality in language and they both found many relationships between language and traits. However, even with the benefits of big data sets there were still substantial differences in the patterns of results for those two studies, particularly for the trait openness where many of Schwartz and colleagues' findings contradicted those of Yarkoni's study.

Individuals' statements in their profile texts regarding their own trait attributes were a more reliable indicator of their self-reported traits in this study. It was expected in hypothesis two that those higher in each trait would emphasise those socially desirable characteristics by explicitly mentioning them and that these would therefore predict each trait. It was also expected that those low in each trait would not draw attention to their less socially desirable attributes, with the exception of introversion which has been found to be more trustworthy and receive higher attractiveness ratings as a result (Jin & Martin, 2015). The findings supported hypothesis two, and found that statements related to high extraversion, conscientiousness, emotional stability, and openness all predicted the self-reported trait, however high agreeableness statements did not. Agreeableness as a trait is highly evaluative, in that it is highly socially desirable (Funder & Dobroth, 1987; Vazire, 2010), and thus in writing a dating profile text it may be a trait that many people wish to present themselves as possessing. In this study 45% of profiles contained a statement relating to high agreeableness, higher than any other trait, indicating that many people find it desirable to self-present as highly agreeable, not only those who are actually higher in the trait, which may help explain this finding. As predicted the less socially desirable poles of each trait did not predict the traits, with the exception of introversion as predicted, and agreeableness. It is possible that those low in agreeableness are less concerned with pleasing others and

smooth social interactions, which agreeable people are more concerned with (John et al., 2008), and thus are more likely to make statements relating to their low agreeableness.

Comparing content and language in two contexts

The language used by participants in the texts was compared in two ways for hypotheses three and four, examining stability or differences between contexts. Paired t-tests assessed the consistency of the language used between the profile texts and story texts by each participant. The LIWC variables chosen were those considered to be consistent in two ways, those identified by Pennebaker and King (1999) through rigorous testing and selection, and those that have replicated most reliably in four or more studies. In total 21 LIWC variables were tested, and significant differences were revealed. Thirteen of those variables were significantly different between contexts, including eleven of Pennebaker and King's (1999) variables, indicating that language use did not remain stable between contexts in this study. Again, this reflects previous findings, where even the most replicable connections between language and traits only replicate in about half of studies, and this variance is not only in content related words, but also in function words which are unrelated to content.

Additionally, the examination of trait language correlations in both the profile texts and story texts revealed two very different patterns of results. In fact, only one variable was consistently linked to a trait in both texts, that extraverted participants write less than introverted participants. This correlation with word count was also found in the first study in dating profile texts. However, this is not a finding that has replicated in previous research, only one previous study linked extraversion and word count, and it found that extraverts wrote more than introverts in emails describing past and future activities (Gill & Oberlander, 2002). The finding in study one theorised that the shorter word count in profiles might be

explained by a greater reliance on photographs in dating profiles. This was not the case in this study, however, as no photographs were involved. Perhaps introverts' ability to control their arousal to maintain interest in a task that is not highly engaging (Beauducel, Brocke, & Leue, 2006) allowed them to focus for longer and expend greater effort in writing texts in this section of the study. Similarly, to study one, closer examination of profile and story texts at the high and low pole of each trait revealed contextual use of the LIWC variables that correlated with traits, helping to provide understanding of the language use in relation to traits, see Appendix 13 for these texts. Once again, there is a possibility that some of the cues correlating with traits here might be Type I errors due to the number of tests conducted, and some caution should be taken in interpreting the findings, particularly for new LIWC trait findings not found in previous research, and for those with low overall usage. Several of the LIWC categories with trait relationships have low usage in the texts, and while some variables can have meaningful impact even at low levels of usage, such as swear words and sexual words, others may not have this impact and may not be psychologically meaningful (Fast & Funder, 2008).

Extraverts used more social, affective, positive emotional language, and less complex, past tense and tentative language in their profiles. All except less use of past tense have been found in previous research for extraverts across many contexts such as Twitter (Golbeck, Robles, Edmondson, et al., 2011; Qiu et al., 2012), personal essays (Pennebaker & King, 1999), blogs (Li & Chignell, 2010; Yarkoni, 2010), self-narratives (Hirsh & Peterson, 2009) and Facebook (Schwartz et al., 2013), see Table 4 in chapter 3 for the full list of references. Additionally, positive emotion words were correlated with extraversion in profiles in the first study. The pattern that emerged here is that extraverted participants were more likely to have profiles that were socially oriented, with more fluid and less complex language and a more positive emotional tone, all of which fit with typical trait characteristics (John et al., 2008). In story texts, however, extraverts' typical characteristics were not visible, and instead they used more sad words, time related

words and conjugations. Thus, in non-self-related texts, it appears that there is not the same opportunity for extraverts' visible language cues to emerge. Many of the language cues related to extraversion result from the behavioural aspects of their traits, more social interaction and greater general happiness result in more socially oriented words and positive emotion for example (Costa & McCrae, 1980; Mehl, Gosling, & Pennebaker, 2006). In a story where personal behaviours are not as relevant, language use may fundamentally shift, offering further evidence of the variability in trait-language relationships across contexts.

Agreeableness was related to few correlations in either profiles or stories, making it, with conscientiousness, the two traits least related to language. Only five correlations with language were found in profiles and stories for both traits. As mentioned, agreeableness is an evaluative trait (Funder & Dobroth, 1987; Vazire, 2010) and thus might be less visible in dating profiles because people self-present to appear more agreeable. This is supported by the finding in this study that low agreeable trait-related statements predicted self-reported agreeableness, but high agreeableness statements did not, unlike other socially desirable traits where the higher trait-related statements predicted the trait. The two correlations found in profiles did not match previous research, less use of inhibitive words (wait, wary, block, constrain) and motion words (drive, walk, move, come). This evidence supports the idea that in a highly controllable environment with high levels of self-presentation, such as online dating, many individuals might make identity claims related to socially desirable traits, particularly agreeableness, through the use of language (Vazire & Gosling, 2004) thereby reducing the relevance of those cues. The remaining cues may be behaviour residue of low agreeableness as they are less controllable aspects of language and are related to the less desirable pole of the trait. Less evaluative traits are less likely to have identity claims made by those who do not actually possess the trait themselves, therefore the typical trait language is more likely to be related to self-reported traits as per extraversion above. Agreeable people are oriented towards others, and have a desire for successful

interactions with others, thus those low in agreeableness might be more likely to use inhibitive words indicating barriers than those high in the trait, however usage of this LIWC variable was actually very low overall at less than 1% of profile texts (*M* = 0.35, *SD* = .74), indicating the possibility that this may be a Type I error. Motion words were used in profiles of low agreeableness individuals in a number of ways, but mostly through the word going, they were "going somewhere", "going to do something", or "keeping a conversation going", for example. While motion words as a category was correlated, it appears that this is mainly through a small subset of words within that category. In stories, where there is potentially less self-presentation than dating profiles, agreeable people were more likely to mention leisure words, and to use assents (agree, ok, yes), both previously found in research, which could indicate stories that were relaxed and with smooth interpersonal interactions, however both variables occurred around 1% in texts, and so there is little visible evidence of them in the sample story texts. The use of more human words (man, women) by lower agreeableness participants occurred in the context of describing the photograph, four of the five least agreeable participants stories were descriptive in nature.

Less conscientious participants were more likely to use related to seeing (colours, view, beauty) and space related words (above, across, over, out) in their profiles. The seeing related words manifested in the use of colours, but at around 1% of the total texts were quite low in use. Space words (at, into, on, big, above, close) had higher usage and were used in a variety of ways that do not offer much psychological insight, going into a field of study or being into an interest, or being at university for example. In stories, on the other hand, the results indicated a theme for those lower in conscientiousness. They used more anxiety, insight and feeling related words. The insight and feeling words had considerable overlap, mainly through the use of the words *feeling* and *feel*, which can mean to feel something physically or emotionally, and additionally the word *through* was the primary manifestation of the insight category. The anxiety words manifested in stories with

a negative emotional tone, and a common theme that emerged was that of rejection or feeling inferior, which the characters thought about or felt. Low conscientiousness is expressed in low impulse control which can lead to risky behaviour and poor health outcomes (Bogg & Roberts, 2004) and low relationship satisfaction (Karney & Bradbury, 1995), meaning that individuals lower in conscientiousness might have higher anxiety about relationship outcomes, resulting in stories reflecting this anxiety.

Emotional stability manifested in only two variables in profile texts, the use of more inclusive (both, close, along, with, we) and home related words (sofa, cooking) in dating profiles texts, though home related words were on average less than 0.5% of texts. Emotional stability is another socially desirable trait that increases relationship satisfaction, and thus dating profile writers might be expected to engage in self-presentation and highlight this trait resulting in a lack of correlations with language. The use of inclusive words has been found in one previous large scale study looking at Facebook status updates (Schwartz et al., 2013), and could indicate more inclusive social interactions which would fit with more emotionally stable individuals' higher satisfaction in relationships (Karney & Bradbury, 1995). However, after examining the profiles, this variable appeared mainly as the word *and* linking sections of sentences together, more so in high emotional stability profiles than low. There were also some uses indicating relationships such as being close to family or getting together. There were many more significant correlations in stories however, where there should be considerably less self-presentation than in profiles, perhaps leading to greater expression of the trait. Those higher in emotional stability used more articles, seeing words and space related words, and this manifested as more concrete descriptive stories that described the couple from the perspective of an observer. Low emotionally stable participants on the other hand used more personal pronouns and more social words and created stories that were more focused on the characters interactions and internal thoughts. Emotional stability is a low

observability trait, in that it is internally focussed rather than behaviourally expressed (Funder & Dobroth, 1987; Vazire, 2010), and it makes sense that those with more emotional instability, which results in anxiety and negative emotions, would focus on these in telling the story of two characters. In addition, there is evidence that those lower in emotional stability score higher on the personal distress sub-scale of the Interpersonal Reactivity Index, which involves feelings of self-oriented unease and anxiety in tense interpersonal situations (Melchers et al., 2016), which could have been evoked by asking participants to consider the thoughts and emotions of the couple in the ambiguous relationship in the photograph.

Finally, openness resulted in the greatest number of correlations in both profiles and stories, and in profiles four of the seven correlations matched with previous research, while only two of the ten in stories matched previous findings. This is further evidence of the considerable variation in findings for this trait in particular across different contexts. However, given that the facets of openness are the most loosely related of the five traits, and it replicates less well than the other traits, this is not surprising (McCrae & Sutin, 2009). High openness individuals used more causation and achievement related words, mainly related to education and work, which makes sense given that intellect is an important aspect of this trait. Low openness individuals used more personal pronouns, more use of they, more motion words and friend related words, all of which combine to create profiles focused on themselves and the importance of people they know well, like close friends and family, with more concrete and less complex language. Those lower in openness are less likely to be seeking new ideas and change, and more likely to be oriented towards what they are comfortable with (McCrae & Sutin, 2009). In the stories higher openness was associated with greater use of emotional words, particularly negative emotions, anger, and sadness, as well as more certainty, and inhibition words and sex related words. They also had a higher word count. Given that openness was strongly associated with the quality, creativity, and narrative of

the stories, it makes sense that they may have invoked the use of emotions and words in the sexual LIWC category to tell a compelling and creative story when the image prompt showed two people in an ambiguous scene, that they may have used inhibition related language to evoke narrative tension, and less tentative language in confidently telling a creative story. This is evident in the stories of the most open participants. Low openness on the other hand was associated with more tentative language, and greater use of insight words, which appear primarily in the context of indicating what the participant thinks is happening in the photograph in a descriptive way, for example*, I think that they're talking*, or *it seems the couple is*...

Given these findings, hypothesis four which expected that there would be differences in the patterns of trait language relationships between contexts was supported, while hypothesis three which expected consistency was not. Previous research has found that even the most reliable LIWC variable correlations with traits are at best replicated in 50% of studies, for example social words with extraversion (Golbeck, Robles, Edmondson, et al., 2011; Hirsh & Peterson, 2009; Nowson, 2006; Pennebaker & King, 1999; Qiu et al., 2012; Schwartz et al., 2013), and negative emotion words with emotional stability (Dunlop et al., 2017; Hirsh & Peterson, 2009; Holtgraves, 2011; Li & Chignell, 2010; Pennebaker & King, 1999; Schwartz et al., 2013; Yarkoni, 2010). Even the same context, such as Twitter, with a different sample of participants can produce very different patterns of results (Golbeck, Robles, Edmondson, et al., 2011; Qiu et al., 2012). Although traits can be detected in language in text through correlations with language variables, these change between contexts. Together with previous research the findings of this study indicate that language use is not a reliable predictor of personality.

Self-disclosure

Hypotheses five expected that extraverts would have higher self-disclosure than introverts. Extraversion was related to self-disclosure, but only for one aspect of it, positive thoughts and emotions about others; all five other variables were not significant and thus hypothesis five was mostly unsupported. Given that extraversion is strongly oriented towards sociability, it is unsurprising that extraverted individuals would be more inclined to make positive statements about others in their lives. However, there was no evidence to support any higher disclosure about the self.

Relationship between quality of story writing and self-reported traits

As expected in hypothesis six, there was a significant relationship between openness and creative writing. This was visible in most of the variables that measured the quality and creativity of the story writing. Given that creativity is an important aspect of openness, this makes sense and also fits well with previous research (Küfner et al., 2010).

However, other associations predicted between story writing and traits were mixed. Hypothesis seven predicted that a positive emotional tone in the stories would be related to openness and agreeableness but this was not the case. Hypothesis eight predicted that those with higher agreeableness would be more likely to include character interaction and that was not supported by the results either. However, lower emotional stability did lead to greater expression of fear, worries and concerns in characters in the stories providing evidence for hypothesis nine. As mentioned, emotional stability is an internally focused trait, and thus

typically requires some intimacy between people for it to be expressed (Connelly & Ones, 2010), but within a story there is opportunity for it to be expressed in a way that does not interfere with self-presentation. Perhaps those with lower emotional stability felt more freedom in expressing fears and worries within a fictional context than about themselves in a profile.

Strengths and limitations

This study used the TIPI as a self-report measure which, while a valid measure, is problematic in terms of reliability, and increases the chances of Type II errors (Credé et al., 2012). Where possible, a longer and more reliable measure would be better practice, but it was chosen to reduce drop-off in the online survey, and this was considerably lower than in the previous study. As with study one, the resources available did not allow for an aggregate of self-report and known associates to be used as a measure of personality as is best practice (Back & Nestler, 2016) and this should be considered in future studies.

One weakness of this study was the clear difference observed between the profiles written by participants here and the actual dating profiles submitted in study one. It was expected that several differences would emerge, given that the motivations, environment and outcomes were different to creating a profile on a dating site, but the level of self-disclosure in this study was substantially higher. However, the actual content of the profiles remained similar despite higher levels in the profiles in this study, thus while the profiles may not have been entirely valid, they were a useful representation of online dating profiles with which to compare the story texts and to observe differences in expression between contexts. Ensuring participants created profiles of at least 60 words meant that LIWC analysis could be conducted on all texts, and that all analysis was adequately powered.

Many of the story texts were merely descriptive rather than having a narrative, and it is possible that the instructions to participants were not clear

enough. It is also possible that the use of description was related to lack of creativity rather than a result of the instruction, but future research should be careful in emphasising the use of narrative rather than description.

Conclusion

The research contributes further understanding of how context interacts with traits to affect the manner in which we express ourselves. This study sought to answer three research questions, whether personality traits were detectable in text, what textual cues were related to traits, and whether or not context affected those relationships. It is clear that self-presentation in online dating has a substantial impact on trait-related claims as well as on typical language use. Those with socially desirable traits are likely to emphasise their attributes through positive self-presentation, while those with less desirable traits may omit to mention them, or focus on other characteristics they see as desirable. What emerged from this study, and the previous chapter, is that the connection between LIWC language categories and traits is not reliable, and that changes in the sample of participants and the context in which texts are written significantly changes the pattern of results.

The final study in this thesis moved from examining expression of personality in text, to perception of personality in text. Few studies have looked at different pieces of text written by the same participant, at the same point in time, and examined the cues available and the cues utilised in making judgements of personality traits. A sample of the profile and story texts created in this study were utilised in the final study where they were judged for the author traits and attractiveness.

Chapter six: Study three – perception of personality in profile and story texts

Study one and two of this research set out to examine the cues related to expression of personality in written texts. Specifically examined were stories and online dating profile texts, both actual online dating profile texts and those written by participants in an online survey. The studies sought to determine whether the way in which personality is expressed varies in different contexts, across dating platforms, and with self-related content or not. Overall it was found that the expression of personality in text varies considerably between contexts when measured by LIWC dictionary category variables. Few previous relationships between traits and LIWC categories were replicated in the texts, or across contexts in these two previous studies. Trait-related statements from the content analysis were a more reliable indicator of traits, particularly the more socially desirable pole of each trait.

This final study of this thesis aimed to answer a number of research questions around two themes. The first theme asked four questions: whether individuals can accurately perceive traits in text, what cues they utilise to do so, whether those cues are valid or not, and whether context affects perception and utilisation of cues. The second theme addressed the effect of personality traits on attraction and aimed to answer whether actual or perceived traits as well as actual or perceived similarity of traits, are related to attractiveness ratings, what cues might be related to attractiveness in text, and again whether context affects those relationships.

The profile and story texts from study two were presented to a new sample of participants who rated the author's Big-Five traits and attractiveness in order to address the questions above. As discussed in chapter three, there are a number of

frameworks which help to examine interpersonal perception, of which the lens model and Funder's Realistic Accuracy Model (RAM; 2012) were used in this study to help understand the accuracy of perception in written text. While this study was not a complete lens model analysis, it did examine the validity and utilisation of cues in texts as well as accuracy of perception. A comprehensive range of cues from the LIWC and content analysis of the texts in study two were used to determine which cues were valid. Validity was determined by examining which of that range of cues correlated with self-reported author traits. Utilisation of cues, that is, which cues were detected and matched to the appropriate trait was also assessed. Utilisation was measured by looking at which of the range of cues correlated with peer-reported perceived traits, as this indicates that a cue may have been detected and connected to the appropriate trait. This does not give information on the detection stage of Funder's RAM but assumes the correlation between perceived trait and the relevant cue indicates that a cue was detected and utilised correctly. This allowed a detailed examination of how accurately raters could perceive traits, and what cues they might be utilising in the process as per the lens model of perception.

Accuracy of interpersonal perception

In online dating personal profiles are used to manage the impressions that others form, and to form impressions of potential dates. Creating a positive impression is important in attracting potential partners, and daters have described the process of creating profiles as effortful, and as eliciting anxiety and fear of rejection because of the difficulty in conveying a complex, accurate, and positive image of themselves through the constraints of a dating platform (Ellison et al., 2006; Whitty, 2008; Zytko, Grandhi, et al., 2014). Daters often experiment with multiple iterations and revisions to their profiles, and can resort to presenting a simplified version of themselves in their profiles to avoid misinterpretations of more subtle and complex presentations (Ellison et al., 2006; Zytko, Grandhi, et al.,

2014). Equally, daters experience frustration and confusion with gaining an accurate perception of the experiential characteristics of others on dating platforms, and as a result most first dates can be disappointing (Frost et al., 2008; LeFebvre, 2018; Zytko, Grandhi, et al., 2014). While many daters interpret the discrepancy between a date's online persona and offline presentation on a first date as a result of deliberate deception, others feel that they have misinterpreted cues in their online communications with the person, and that the difference was unintentional (Zytko, Grandhi, et al., 2014). Given that experiential attributes such as personality are consistently listed as one of the primary factors in attraction (Buss, 1989; Furnham, 2009; Todosijević et al., 2003), it is important to examine personality perception accuracy in online dating profiles to determine the level of accuracy, and the cues that might lead to accurate or inaccurate perceptions.

A meta-analysis of personality perception in social media and text found that some accuracy of perception was possible in these contexts (Tskhay & Rule, 2014). Overall accuracy was highest for extraversion at 0.33, conscientiousness was lower, but still retained some accuracy at 0.11, while the remaining three traits had considerably lower accuracy scores with wide confidence intervals which included zero - indicating that they were less reliable findings. While the meta-analysis did not find a significant difference overall between text-only and social media for accuracy, there was a wide variation across studies, indicating that some were more successful than others at eliciting accuracy. The rapid structured literature review in chapter three examined the available research on accuracy of Big-Five trait perception in text-only contexts in more detail. This included twice as many text-only studies as Tskhay and Rule's (2014) meta-analysis as research interest in this area has grown, and specifically examined some of the factors that can impact on accuracy of perception.

While there are many factors that affect perception accuracy, there are a number that are particularly relevant in the context of this study. Two

characteristics of personality traits affect perception by judges: observability and evaluativeness (Funder & Dobroth, 1987; Vazire, 2010). Traits that have higher observability, where the trait is expressed in observable behaviours like having more friends or a louder voice for extraversion have higher accuracy of perception, whereas traits that are more internal like neuroticism, which is more concerned with thoughts and feelings, are less visible to the observer. Additionally, traits that are highly evaluative, that is those that are considered as socially desirable like agreeableness or undesirable like neuroticism, tend to be more difficult to judge than neutral traits like extraversion (Funder & Dobroth, 1987; Vazire, 2010). The trait that tends to achieve the highest level of accuracy of perception is extraversion, being both observable and less evaluative, whereas neuroticism, agreeableness, and openness tend to achieve less accuracy, particularly in zero-acquaintance studies, because of their evaluativeness or lack of visibility (Borkenau & Liebler, 1993; Connelly & Ones, 2010).

In the most relevant previous research for this study, extraversion was the only trait accurately perceived in Craigslist personal ads, with accuracy of 0.11 to 0.12 in the two studies undertaken (Weidman et al., 2015). The same study was conducted with two separate samples, the first were undergraduates who were a mix of single and in relationships, and the second sample were recruited specifically to ensure that they were single and seeking a romantic relationship, and were led to believe that they might meet the authors of the personal ads in order to increase the validity of the study. Interestingly, this motivation did not improve accuracy of perception over the first sample. In the other study most relevant to this study, accuracy of perception was measured in creative writing stories (Küfner et al., 2010), where extraversion was not accurately perceived, but instead openness and agreeableness were, both traits not typically perceived accurately. This leads to the next factor affecting accuracy of perception, the context in which the texts are written.

There are a number of aspects of the text context that are important in influencing accuracy: the weakness or strength of the situation; whether or not the context is self-related; the richness of the information available; and the audience who will read it. A weak situation lacks structure and constraints, allowing personality to have a strong influence over behaviour, for example in stream of consciousness essays where the author can write any thought that enters their mind without constraint. This makes it easier to perceive traits accurately, such as in Burusic and Ribar (2014) and Holleran and Mehl's (2008) studies on stream of consciousness essays where accuracy was high for many traits. A strong situation can hinder expression of relevant personality cues by imposing boundaries or guidelines on behaviour, for example resumés which have a strong structure and prescribed content (Letzring et al., 2006) and can lead to less accuracy (Apers & Derous, 2017; Cole et al., 2005; Frauendorfer et al., 2015). Online dating profiles are a relatively strong situation, where the desire to meet a mate requires positive self-presentation and the careful management of cues (Ellison et al., 2006; Ward, 2016; Whitty, 2008; Zytko, Grandhi, et al., 2014), and daters tend to emphasise the aspects of themselves that others will find attractive such as their intelligence, interests, humour, and hopes and dreams (Whitty, 2008). Creative writing stories on the other hand are only constrained by the prompt which leads to their creation and the creativity of the writer, and thus are a weaker context in which personality may be more freely expressed. However, perception in stories is less accurate than other contexts where the content is self-related, such as life domain essays, lists of personal goals or stream of consciousness essays (Borkenau et al., 2016; Burusic & Ribar, 2014; Dunlop et al., 2017; Holleran & Mehl, 2008).When the context is self-related more trait relevant information is expressed leading to greater accuracy.

A rich context is one in which there are a variety of different kinds of valid cues available, for example verbal and non-verbal cues in face to face contexts, which tends to lead to greater perception accuracy, though different traits can be more accurately judged in different contexts where the trait-relevant information is

richer. For example, Wall, Taylor, Dixon, Conchie, and Ellis (2013) found that while extraversion and neuroticism were perceived more accurately as the richness of the context increased (with the highest accuracy) in face to face, conscientiousness and openness increased in accuracy as the richness of the context decreased, with the highest accuracy in text-based chat. Many of the cues to extraversion are expressed in a non-verbal manner such as gesticulating and louder voice, and thus extraversion is perceived well face-to-face, and neuroticism typically requires an degree of intimacy before it becomes detected accurately, which again might be more likely to occur face-to-face (Connelly & Ones, 2010). Several of the studies in the structured literature review in chapter three found that traits not typically accurately judged face-to-face, were perceived more accurately in written content, such as agreeableness and openness in creative writing (Küfner et al., 2010), agreeableness and neuroticism on Twitter (Qiu et al., 2012), openness, conscientiousness, and agreeableness in online dating usernames (Lange et al., 2019). Revealing more personal information such as thoughts and feelings rather than descriptive information such as hobbies and activities also leads to greater accuracy (Andersen & Ross, 1984). Dating profiles may vary in the degree of personal information and self-disclosure, and perhaps those with higher self-disclosure of thoughts and feelings might be rated more accurately than those that do not.

The final contextual factor affecting accuracy of perception is whether the text was written for a public or private context. The review of the literature revealed that in contexts where the audience is larger than merely the researchers or a small number of communication partners (for example Twitter, blogs or Craigslist personal ads) where there is potentially higher self-presentation, accuracy was low. Despite one study indicating that higher self-presentation motivation may lead to greater accuracy of perception (Human et al., 2014), this may not apply to all contexts. In the previous study in chapter five in which the texts used in this study were written, the participants were aware that future participants would read

them. However, the size of the audience and who it was comprised of was unknown to them. In a general online context where it is difficult to imagine the audience and the social norms of that audience (Emanuel et al., 2014), participants may have revealed more in their texts than they might in other contexts.

In examining the cues that led to trait perception in creative writing stories, creativity, sophisticated writing and positive emotion were strongly associated with openness. They were both valid whereby the more creative, sophisticated and positive writers were higher in openness, and utilised (where creative) sophisticated and positively emotional stories, were perceived as having more open authors. Stories that had a strong social orientation were more likely to be written by agreeable authors, and perceived as agreeable by raters (Küfner et al., 2010). In the study examining Craigslist personal ads, the validity of cues was not examined and the utilisation of just eight LIWC variables were examined (Weidman et al., 2015). Higher word count was utilised as a predictor of extraversion in both studies in the paper, and in the second study where the participants were single, seeking a romantic partner and primed to expect that they might meet face-to-face with the profile author, participants additionally utilised anger, anxiety and negative emotional words as cues to determine extraversion, not language typically associated with extraverts. They also used the anger and negative emotion LIWC dictionary categories as a positive cue to neuroticism, and as negative cues to agreeableness and conscientiousness which is in line with previous research. However, they used anxiety words to inform perceptions of conscientiousness which is not. This may be as a result of online daters relying on beliefs about an ideal partner when learning about a partner in the abstract, and small deviations from the ideal may negatively affect perception (Eastwick et al., 2011).

The two remaining factors that can affect perception accuracy are good judges and good targets. Research has found that women and those higher in intelligence, social skill, agreeableness, conscientiousness, emotional stability and

lower dominance, as well as those who take an interest in other's personalities, make better judges with greater accuracy of perception (J. A. Hall, Goh, et al., 2016; Letzring, 2008, 2014; Murphy & Hall, 2011). Good targets are those who are higher in the more observable and less evaluative traits such as extraversion, and thus are perceived more accurately (Human et al., 2014). These two factors play a role in the overall accuracy achieved in a study where there are only a very small number of judges or targets, and therefore the characteristics of either could influence the results towards accuracy or inaccuracy. However, in this study that issue was avoided by employing a substantial number of each.

One of the reasons that some valid cues are not utilised by judges is that they are not observable to them. Funder's RAM (2012) breaks the cue validity stage into two steps in a process - where cues are relevant, they are directly correlated to the target trait, and when cues are available, they are observable to the judge. For example, in a dating profile a profile author might say that they often feel anxious, which if correlated with their trait neuroticism would be a relevant cue and would be an overt cue of neuroticism available to a judge. However, they might also use more first-person singular which may correlate with their trait neuroticism but may not be an obvious and observable cue for a judge to utilise as a cue to neuroticism. Some of the cues that frequently correlate with traits across multiple studies are function words, which comprise the structure of language rather than the content of what we speak about. These words, and some other grammatical and less overt language may form relevant but unavailable cues which restrict the accuracy of perception. The cues that are utilised in this study were examined with this in mind.

Accuracy of interpersonal perception related hypotheses

A number of hypotheses were developed around the research questions associated with accuracy of interpersonal perception: whether individuals can accurately perceive traits in text, what cues they utilise to do so, whether those

cues are valid or not, and whether context, profile or story text, would affect perception and utilisation of cues.

In a context such as online dating where the attractiveness of personality traits is particularly salient and self-presentation is high, the more evaluative traits such as agreeableness, emotional stability, and openness may not be accurately perceived. While extraversion, despite reduced accuracy in less rich environments (Wall et al., 2013), being both more visible and less evaluative may be more accurately perceived, similar to Weidman and colleagues' findings (2015). Conscientiousness may also be perceived accurately as in Tskhay and Rule's (2014) meta-analysis and in the decreased richness of online chat in Wall et al. (2013).

H1. Hypothesis one predicts that in profile texts agreeableness, emotional stability and openness will not be perceived accurately, while extraversion and conscientiousness will be perceived accurately.

H2. Hypothesis two expects that profiles with higher self-disclosure will be perceived more accurately than profiles with lower self-disclosure.

H3. Hypothesis three expects that trait-related statements in profile texts will correlate with their related perceived traits.

H4. Hypothesis four predicts that word count and emotional language will be utilised as cues to traits in dating profile texts, though not that these will necessarily be valid cues, as in Weidman and colleagues' study (2015).

It was expected that in the creative writing stories the more observable traits such as extraversion and conscientiousness would not be as visible as the context was not self-related and less rich environments reduce accuracy for these traits (Wall et al., 2013), and thus would not be accurately perceived. However, it was

expected that openness and agreeableness would be more perceptible as per (Küfner et al., 2010).

H5. Hypothesis five predicts that in story texts extraversion and conscientiousness will not be perceived accurately, but that openness and agreeableness will be perceived accurately.

Hypothesis six predicted that openness would be perceived through the creativity of the writing, and agreeableness through the social orientation of the stories as in Küfner et al. (2010).

H6. Hypothesis six predicts that the content analysis variables related to creativity and quality of the story texts will be utilised as a cue for perceived openness, and the content analysis variable related to character interaction will be utilised as a cue to agreeableness.

Attraction

Several of the factors that influence attraction are particularly relevant to this study. Participants were judging the attractiveness of the author through only the text they had written, in a non-interaction, zero-acquaintance study, with no visual impression of their physical attractiveness, and no expectation of meeting in person.

Personality is an important factor in attraction, consistently listed as one of the primary considerations in mate preferences (Buss, 1989; Furnham, 2009; Todosijević et al., 2003), and online daters also list personality traits as an important preference in attractiveness (Whitty, 2008). Personality traits are important in successful and satisfying relationships, particularly emotional stability, conscientiousness and agreeableness (Karney & Bradbury, 1995). Low emotional stability and low agreeableness strongly predict negative romantic relationship

outcomes, while high conscientiousness and agreeableness predict relationship satisfaction. Emotional stability, conscientiousness and agreeableness are consistently rated as desirable personality characteristics in romantic partners (Botwin et al., 1997; Buss, 1989; Furnham, 2009; Todosijević et al., 2003). Openness has a different relationship with attraction which is strongly based on homophily - those who are high in openness find it socially desirable, while those who are low in openness find high openness strongly undesirable (Konstabel, 2007).

People also tend to choose partners who are like themselves, known as homophily, and assortative mating occurs across many characteristics, most strongly on age, and attitudes, physical attractiveness, socioeconomic status, and more weakly on values, intelligence and personality and attachment style (Luo, 2017; Montoya et al., 2008). Homophily has appeared in studies on online dating where daters choose others similar to themselves across a range of characteristics including ethnicity, religion, marital status, smoking and education, often more strongly in how daters act in contacting others than in their stated preferences on their profiles (Fiore, Taylor, & Zhong, 2010; Fiore & Donath, 2005). However there is a difference between actual similarity, where two people are measurably alike on a characteristic, and perceived similarity, where one or both people believe they are alike but are not alike when measured on that characteristic (Montoya et al., 2008). In stranger and lab interactions, actual and perceived similarity have an effect on attraction, but after a short interaction the effect of actual similarity diminishes and there is no effect in long-term relationships, while there is an effect of perceived similarity in existing relationships. In a study on speed dating, actual similarity was not a predictor of attraction, but perceived similarity was (Tidwell et al., 2013). It is likely that actual traits can only have an effect on attraction when they are perceivable, and in a speed dating situation the cognitive demands and high presentation involved may make determining actual traits difficult. In this study, if traits in dating profile texts prove difficult to perceive it is likely that actual traits and similarities will have little effect on attractiveness ratings of the authors, but

perceived traits and similarities may have an effect. There is little research on homophily (actual or perceived), in personality traits in online dating and this study seeks to fill that gap in the literature.

Most people believe that the more they know about someone the more that they will like them, however research has suggested that this is not the case, and more information typically provides information about dissimilarity which leads to less liking (Norton et al., 2007). Early impressions in online dating tend to be positive because the ambiguous nature of the information provided in dating profiles fails to provide evidence of dissimilarity, and thus a mistaken impression of similarity is made. However when daters meet face-to-face and gain further information, it tends to result in less liking due to evidence emerging of dissimilarity (Norton et al., 2007). This study is concerned with the initial impressions that people make on reading a dating profile and how those impressions may result in feelings of similarity due to the lack of information available to perceivers. It is possible that longer dating profiles, and those which reveal more information about their hobbies and other information will result in lower attractiveness ratings as they may reveal evidence of dissimilarity more than those that are short and vague about interests.

Attraction related hypotheses

This second set of hypotheses addressed the effect of personality traits on attraction and aimed to answer whether actual or perceived traits, as well as actual or perceived similarity of traits are related to attractiveness ratings, what cues might be related to attractiveness in text, and whether context affects those relationships.

High emotional stability, agreeableness, conscientiousness and openness are consistently rated as important in mate preferences (Botwin et al., 1997; Buss,

1989; Furnham, 2009; Todosijević et al., 2003). Despite the attractiveness of openness being strongly related to similarity (Konstabel, 2007), it is expected that it will be rated as attractive in this study. Respondents to online surveys may be higher in openness (Buchanan, 2018) and thus may be more likely to prefer this trait. However, whether or not actual traits predict attraction is dependent upon the accuracy with which they are perceived (Tidwell et al., 2013). Given that accuracy in text is possible, but the effect tends to be low (Tskhay & Rule, 2014), it was expected that the target's actual traits would not predict attraction, but that perceived traits would predict attraction

H7. Hypothesis seven predicts that perceived, but not actual, high emotional stability, agreeableness, conscientiousness and openness will be related to higher attractiveness ratings.

H8. Similarly, hypothesis eight expects that actual similarity of traits between rater and author will not be related to attraction, but that perceived similarity of traits between rater and author will be related to higher attractiveness ratings.

H9. Hypothesis nine predicts that content analysis variables measuring trait-related statements in profiles will be related to attractiveness. It is specifically expected that high extraversion, agreeableness, conscientiousness, emotional stability and openness statements as well as low extraversion statements will be more attractive than low agreeableness, conscientiousness, emotional stability and openness statements.

As mentioned, additional information in dating profiles tends to reveal dissimilarity leading to less liking (Norton et al., 2007). Therefore, lower word count, and less disclosure of interests and preferences may lead to overall higher attractiveness ratings.

H10. Hypothesis ten expects that profiles with lower word count, lower self-disclosure, less humour, less mention of ideal partner preferences, and those that do not mention hobbies will be related to higher attractiveness ratings.

Online daters attend carefully to cues such as spelling and grammar errors in their own and others profiles, and form negative impressions when errors are present (Ellison et al., 2006; Zytko, Grandhi, et al., 2014).

H11. Hypothesis eleven expects that the presence of spelling and grammar errors in dating profile texts will be related to lower attractiveness ratings.

Methodology

Design

This was a cross-sectional study. An online survey was used to gather data from participants including self- and peer-report Ten Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003), attraction, and demographic questions. This was a between-subjects design where the dependent variables were the author's self-report personality traits as measured by the TIPI, and their written texts as analysed using content analysis and Linguistic Inquiry and Word Count (LIWC). The independent variables were the rater's peer-reported TIPI scores and attractiveness rating for each author.

Participants

A sample of 198 adults, 123 female, 75 male was recruited using the *multiple site entry technique* (Reips, 2002; Reips, 2000) through convenience, and snowball recruitment on social media such as Facebook, Twitter and LinkedIn, the Hanover

College Psychology Research page, student research posting boards, as well as through the University of Wolverhampton participant pool Sona. Participants were recruited from native English-speaking countries – mainly the USA (*n* = 130), Ireland, (*n* = 19) and UK (*n* = 19), as well as 30 participants from various other English-speaking countries such as Australia, New Zealand, and Canada. English was the predominant or only language of 80% of the participants, while 17.4% were bilingual with English as one of their two main languages, and 2.6% selected other.

Participants age data was collected in age brackets so that they could be shown an appropriately aged profile, the frequency of participants in each age brackets is shown in Figure 6, with the majority of participants aged 18 to 23 years old.

One hundred and eighty-three participants were heterosexual, while eight were homosexual, and seven were bisexual. Eighty-two of the participants had previously tried online dating, and 116 had not. Figure 7 shows the number of participants for each type of relationship status, with the majority single (*n* = 85) or dating (*n* = 68). The sample was screened for duplicate entries and no participants were removed.

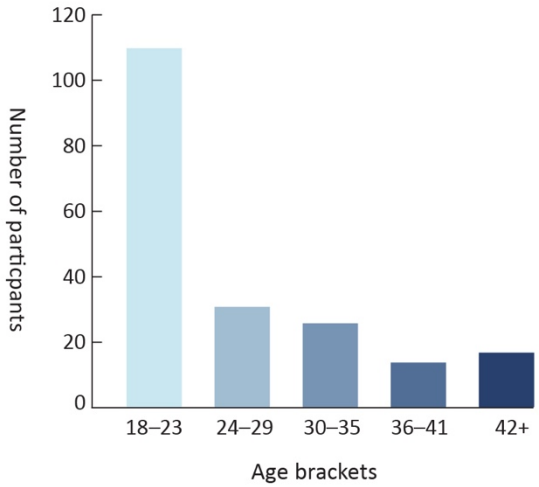

Figure 6. Number of participants in each age bracket

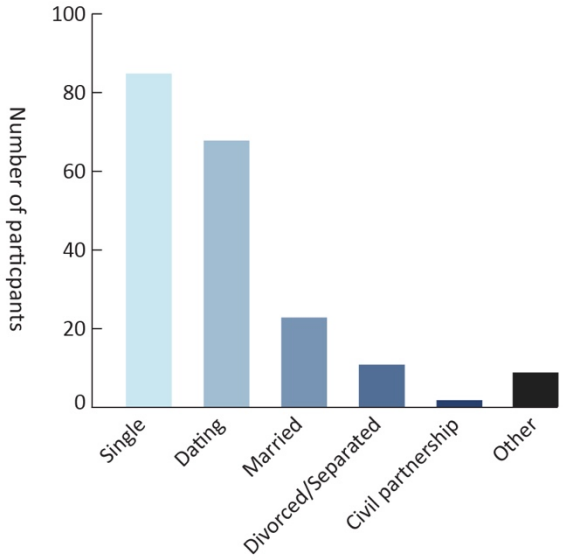

Figure 7. Number of participants for each relationship status type

Materials

The study was conducted through an online questionnaire, see Appendix 14 for the full survey. Data collected included demographics and online dating information, a self-report TIPI, a peer-report TIPI for the author of each text, and an attractiveness rating for each author.

Demographic and online dating information

Participants were asked their age in brackets rather than specific years so that they could be allocated an appropriately aged profile to rate, the brackets were: 18 to 23, 24 to 29, 30 to 35, 36 to 41, and over 42. Similarly, they were asked their sexual orientation so that an appropriate profile text could be shown to them. They were asked their gender, their national identity, if English was their predominant or only language or if they were bilingual, and their relationship status. Finally, they were asked if they had ever tried online dating, and how positive or negative they felt about online dating as a tool to meet a partner on a five-point Likert scale.

Profile and story texts

The profile and story texts used in this study were created in study two by participants in an online survey. Profile texts were chosen where the participant had completed a text that appropriately represented an online dating profile text, for example by not including information about a current partner and had completed a full TIPI for their own self-reported traits. Stories were chosen where participants had completed a full TIPI for their own self-reported traits.

Not all of the chosen texts were rated in this study due to the structure of the online survey. Participants were randomly allocated one of a number of profile texts within the appropriate age bracket and sexual orientation category – for example a heterosexual, nineteen-year-old, female participant would be allocated one of a number of heterosexual, 18-to-23 year old, male profiles. Gay or lesbian participants were allocated a same sex, gay or lesbian profile, and bisexual participants were treated as heterosexual and allocated an opposite sex profile due to the shortage of bisexual, lesbian or gay authors of profiles. Given that people match strongly on age in relationships starting both on and offline (Luo, 2017), it was considered important that the profile texts be allocated by age as well as gender and sexual orientation, however this was not considered as important for story texts as they do not contain the same personal information that might indicate age. Other than age, story texts were also allocated on the basis of gender and sexual orientation – for example a 45-year-old, heterosexual man would see a story written by a heterosexual woman aged over 42 years.

The purpose of the survey design was to ensure a wide range of texts were rated by a wide range of judges, avoiding good target and good judge effects, and this was achieved, with 61 profile texts, and 58 story texts rated by 122 (71 female, 51 male) and 116 (69 female, 47 male) participants respectively. Forty participants rated both a profile and a story text. However, the survey structure resulted in some profiles and stories only having one rating or no ratings, while other texts

were rated more than twice, making some data unusable for this study. All texts that were rated twice were included in this study. There were a total of 80 unique authors (45 female, 35 male), with 39 authors having both a story and a profile text rated. The profiles ranged from 60 to 300 words (*M* = 92.45, *SD* = 51.74), and the stories ranged from 60 to 299 words (*M* = 87.36, *SD* = 43.81).

The Ten Item Personality Inventory

The full details of the TIPI are located in chapter five, page 196, and the scale is located in Appendix 8. The Cronbach's alpha for the rater's self-report TIPI in this study was close to acceptable (10 items; α = .67).However, the Cronbach's alpha scores were below typically acceptable standards for some traits as expected: extraversion (2 items; α = .61), agreeableness (2 items; α = .37), conscientiousness (2 items; α = .45), emotional stability (2 items; α = .62), and openness (2 items; α = .44).

The Cronbach's alpha scores for the peer-report TIPI of the profile author's traits had slightly higher reliability overall for the whole TIPI (10 items; α = .75), extraversion (2 items; α = .67), agreeableness (2 items; α = .27), conscientiousness (2 items; α = .52), emotional stability (2 items; α = .50), and openness (2 items; α = .55).

The Cronbach's alpha scores for the peer-report TIPI of the story author's traits: for the whole TIPI (10 items; α = .65), extraversion (2 items; α = .45), agreeableness (2 items; α = .54), conscientiousness (2 items; α = .66), emotional stability (2 items; α = .49), and openness (2 items; α = .65).

Given the evidence for the validity of the TIPI and the brief nature of the scale, it was chosen as a measure to examine expression of personality in the previous study, as well as in this study so that the measures of perceived personality could be correlated with self-reports from the text authors.

Attractiveness

A seven-point Likert scale was used to determine attractiveness, from strongly unattractive (1) to strongly attractive (7). The wording used was “please indicate on the scale below how attractive the author of the profile text is to you”.

Linguistic and content cues

The Linguistic Inquiry and Word Count (LIWC) dictionary category data and the content analysis variables elicited from the profile and story texts in chapter five were used in this study as potential linguistic and content cues to personality traits. All details of the profile codebook are available in chapter four page 141 and chapter five page 198, and the story codebook in chapter five page 198. These are available in full in Appendices 10 and 11.

The full range of LIWC variables were utilised, as it is recommended in a lens analysis that as broad a range of possible cues be used, including non-valid cues (Back & Nestler, 2016).

The 20 content analysis variables for profiles were grouped by a number of themes. Profiles had trait-related statement variables, content and self-presentation variables, and self-disclosure variables, most of which were measured as the presence or absence of the item. The trait statements were 10 variables examining explicit statements related to the high and low pole of each trait. The variables related to content were mentions of hobbies and interests, work and education, those for self-presentation were spelling and grammar errors, positive emoticons, and attempts at humour.

There were six self-disclosure variables: positive thoughts or emotions about self and about others, and expressions of negative thoughts or emotions about self and about others, positive goals, hopes or fantasies, and expression of fears, and worries or concerns. The six self-disclosure variables for the profile texts were

added together to create an overall score for self-disclosure which had a possible range of zero to six, but in this sample ranged from zero to four, with only one participant scoring four. The sample of profile texts was divided into two categories: those with low self-disclosure who had scored zero or one, and those with more self-disclosure who had scored two, three or four in order for analysis to be conducted on the differences between low and high self-disclosure.

There were 11 content analysis variables for the stories, grouped by story quality, self-disclosure, and other. Story quality was measured with six variables: developments of narrative, identifiable conclusion, interaction between characters, reference to events before or after the scene in the photograph, creativity, and a variable that combined these five to measure total quality. In addition, there were two self-disclosure variables which measured whether or not the characters in the stories expressed positive goals, hopes or fantasies, or expression of fears, and worries or concerns. Finally, the use of positive emoticons, the overall emotional tone of the story and attempted use of humour were measured.

Procedure

The study was administered online and the survey is available in Appendix 14. Daters were made aware in the information and consent sheet that they would complete a personality inventory and demographic information, and would read two texts and rate them for personality and attractiveness. They then confirmed that they were over 18 years of age, and consented to take part in the study. The first section of the survey was comprised of demographic and online dating information and was followed by the self-report TIPI.

Participants were then randomly allocated one of a number of profile texts within the appropriate age bracket and sexual orientation category. For example, a heterosexual, nineteen-year-old, female participant would be allocated one of a number of heterosexual, 18 to 23 year old, male profiles. Gay or lesbian participants

were allocated a same sex, gay or lesbian profile, and bisexual participants were treated as heterosexual and allocated an opposite sex profile. Participants then read the profile text and completed the peer-report TIPI and the attractiveness scale for the author. They were then randomly allocated a story text based on their gender and sexual orientation, but not age as it was not considered as important that the story be from the same age bracket as it was with the profile text, where the age of the participant could be more obvious because of the content they chose to discuss. They rated the author's traits on the TIPI and attractiveness on the seven-point Likert scale.

They were then thanked and debriefed, and there was a link to a separate survey where they could submit their email addresses for the results of the study at a later date.

Analysis

As mentioned above, all profile and story texts that were rated by two separate raters were included in this study so that a mean score for each perceived trait could be computed. The average-perceiver approach was used, where the perceiver judgments per target stimuli are averaged and that average is used in the subsequent analysis (Borkenau & Liebler, 1992). Hence many tests in the study had a sample of 61 for profiles or 58 for stories where the average of two rater judgements was used. The average was found in both profile and story texts for the perceived author TIPI traits, and perceived and actual similarity of each trait.

Results

The descriptive statistics are presented first, followed by the inferential statistics related to the participant characteristics. This will be followed by hypothesis testing and the hypotheses are not addressed strictly in order of their numbering. Hypotheses one, five and two will be presented together as each relate

to accuracy of perception. After that section on accuracy, all hypotheses are in order of number. Addressed first will be accuracy of perception as well as the relationship between linguistic and content cues and perception of personality traits. Second, personality traits and attraction as well as text content and attraction will be examined. Finally, exploratory analysis will test rater characteristics in relation to attractiveness scores.

As in study one, effect sizes were reported as standard, and the same guidelines were followed. Where multiple tests were conducted the conservative Bonferroni method to control for the increased risk of Type I error was used (α =.05/number of tests conducted). Where multiple correlations were conducted an adjusted alpha value was not used, and the size of the correlation was used to indicate the effect as a more effective manner of determining the validity of the test than significance level (Funder & Ozer, 2019; Gignac & Szodorai, 2016).

Significant results are presented in full in this section and the details of all non-significant results can be found in the appendix of data outputs for this study, Appendix 19. For the regression analysis conducted in this chapter, all assumptions were tested and were met unless otherwise stated. The detailed information for each set of assumption tests in this chapter is provided in Appendix 15.

Descriptive statistics

Table 21 shows the means and standard deviations for each of the Big-Five traits as measured by the Ten Item Personality Inventory (Gosling et al., 2003) for the whole sample of raters. Table 22 contains the means and standard deviations for each of the perceived, peer-reported Big-Five traits for the profile and story authors.

Table 21. Descriptive statistics of all raters for the Ten Item Personality Inventory

Big-Five Trait	N	Min	Max	M	SD
Extraversion	197	2	14	8.40	3.06
Agreeableness	196	2	14	9.81	2.35
Conscientiousness	198	2	14	10.28	2.66
Emotional Stability	197	2	14	9.07	2.82
Openness	196	4	14	10.80	2.31

Table 22. Means and standard deviation of perceived Big-Five traits of profile and story authors

	Profile			Story		
Perceived Big-Five Trait	n	M	SD	n	M	SD
Extraversion	60	10.21	2.30	57	8.09	1.84
Agreeableness	60	10.13	1.68	56	7.99	2.02
Conscientiousness	60	9.78	2.23	58	8.60	2.11
Emotional Stability	61	9.55	2.01	57	8.17	1.73
Openness	58	10.49	2.03	57	7.82	2.17

Inferential statistics

Table 23 shows the mean and standard deviation for each of the two scales that measured attractiveness of the texts, one each for the profile and story. A paired t-test for the 40 participants who rated both a story and a profile showed a significant difference between the two (t = 2.756, df = 39, p = .009, two-tailed), with higher attractiveness ratings for the profile (M = 4.50, SD = 1.73) than the story (M = 3.68, SD = 1.29). The mean difference between the profile and story attractiveness ratings was 0.82 and the 95% confidence interval for the estimated population mean difference was between .22 and 1.43, the effect size was large (d = 0.53).

Table 23. Descriptive statistics attractiveness ratings of profiles and stories

	N	Min	Max	M	SD
Attraction scale profiles	122	1	7	4.69	1.65
Attraction scale stories	116	1	7	3.42	1.55

Correlations between traits

Table 24 displays the correlations between actual self-reported traits for both sets of authors with some significant correlations. Table 25 shows the correlations between perceived mean peer-reported trait scores for both sets of authors, profile and story. While no correlation was particularly large in the actual trait correlations, there were some stronger relationships between perceived traits for profiles, as well as more intercorrelation overall. For profile authors, a higher score on one perceived trait was related to higher scores on almost all other perceived traits. The strongest of these relationships were the positive relationship between emotional stability and conscientiousness, emotional stability and agreeableness, and openness and extraversion. The pattern of results was not as pronounced in story texts. The strong correlation between perceived traits in profile texts may affect the relationship between attractiveness ratings and perceived traits.

Table 24. Correlations between text author's Big-Five traits

	Profile author's trait correlations				Story author's trait correlations			
Trait	1	2	3	4	1	2	3	4
1. Extraversion	—				—			
2. Agreeableness	-.377**	—			-.402**	—		
3. Conscientiousness	.132	-.017	—		-.053	.068	—	
4. Emotional stability	.034	.082	.325**	—	-.004	.181	.293*	—
5. Openness	.348**	-.291*	.036	-.033	.368**	-.179	.114	.036

Pearson's correlations. *$p < .05$. **$p < .01$.

Table 25. Correlations between mean scores on peer-reported perceived Big-Five traits

	Profile perceived trait correlations				Story perceived trait correlations			
Trait	1	2	3	4	1	2	3	4
1. Extraversion	—				—			
2. Agreeableness	.095	—			-.030	—		
3. Conscientiousness	.122	.498***	—		-.200	.216	—	
4. Emotional stability	.273*	.541***	.589***	—	.156	.288*	.309*	—
5. Openness	.554***	.461***	.465***	.433***	.474***	.420***	-.110	.330**

Pearson's correlations. *p < .05. **p < .01. ***p < .001

Hypothesis testing

Accuracy of interpersonal perception

H1. Hypothesis one predicted that agreeableness, emotional stability and openness would not be perceived accurately, while extraversion and conscientiousness would be perceived accurately in profile texts.

In order to determine the accuracy of trait perceptions by raters, target self-report traits were correlated with the average of two rater peer-report traits on the TIPI. Ten correlations were conducted, one for each trait, and for the story and profile texts separately. For the profile texts emotional stability was accurately predicted (n = 61, r = .280, p = .029), and extraversion did not reach significance but was trending towards significant accuracy (n = 60, r = .246, p = .059), indicating that some accuracy might have been possible with a larger sample. Agreeableness, conscientiousness, and openness were not predicted accurately, providing little support for hypothesis one.

H5. Hypothesis five predicted that extraversion and conscientiousness would not be perceived accurately, while openness and agreeableness would be perceived accurately in story texts.

For the story texts none of the correlations were significant indicating that raters were unable to detect traits at all, meaning hypothesis five was unsupported.

H2. Hypothesis two expected that profiles with higher self-disclosure would be perceived more accurately than profiles with lower self-disclosure.

The sample of profile texts was divided into two categories, those with low self-disclosure and those with higher self-disclosure, as described previously. The correlational analysis was conducted again for each group to determine whether those profiles with higher self-disclosure led to more accuracy of perception. There was only one significant correlation: agreeableness was accurately perceived in the low self-disclosure group (n = 35, r = .343, p = .044). Emotional stability was not predicted significantly in either group, though with a larger sample size it might reach significance in the higher self-disclosure group (n = 25, r = .358, p = .079), and extraversion was not predicted in either group. Hypothesis two was therefore not supported.

Text content and trait perceptions

A number of hypotheses related to utilisation of cues, both LIWC and content analysis variables, are addressed in this section. It was expected that some LIWC and content analysis variables would be utilised as cues in trait perception, that is they would correlate with participant's perceptions of author traits, and that these variables may or may not be valid cues, that is they may or may not correlate with actual author traits.

H3. Hypothesis three expected that trait-related statements in profile texts would correlate with their related perceived traits.

H4. Hypothesis four predicted that word count and emotional language would be utilised as cues to traits in dating profile texts, though not that these would necessarily be valid cues.

H6. Hypothesis six expected that the content analysis variables related to creativity and quality of the story texts would be utilised as cues for perceived openness, and the content analysis variable related to character interaction would be utilised as a cue to agreeableness.

Both profiles and stories were examined separately, profiles for all LIWC variables, and all self-disclosure and self-presentation as well as trait statement variables. This analysis is for the texts included in this study only, and not the full set of texts in study two. These results are displayed in Table 26. The stories were examined for all LIWC variables, story quality variables, self-disclosure and self-presentation variables. These results are displayed in Table 27. The only content analysis variable not included was that of emotional tone in stories, as it was categorical data rather than ordinal as the others were. Only significant correlations are displayed in Table 26 and 27 for profiles and for stories, and the complete range of all correlations can be found in Appendices 16A and 16B.

There were few cues that were both valid and utilised between both sets of text. In profile texts affect and positive emotional words were both positively correlated with author self-report extraversion and with perceived peer-report extraversion, meaning these cues were utilised appropriately in judging extraversion. These are also cues that have been well replicated in previous research. In addition, statements of both high and low extraversion made by authors were related to their self-reported extraversion and perceivers correctly utilised these cues in judging extraversion. Ideal partner preferences was the final valid cue that was utilised appropriately in profiles and it was both related negatively to author emotional stability and negatively to perceived peer-reported

emotional stability. In story texts there was only one cue utilised appropriately, the use of personal pronouns was negatively related to emotional stability, both in the author self-report and the rater peer-report.

In addition, there were other significant correlations found between traits, perceived traits and cues. Several of these matched previous findings, but several were relationships that have not appeared in previous research. Those that replicate past results are marked in bold in the tables.

Table 26. Profile texts: Cue-validity and cue-utilization correlations for LIWC dictionary categories and content analysis variables and the Big-Five traits

Cue validity correlations						Cue utilisation correlations				
E	A	C	ES	O	Cues	E	A	C	ES	O
					LIWC Categories					
-.271*	.096	.200	.172	.044	Word count	-.186	-.024	.006	-.078	-.103
.061	.007	.142	-.002	.125	Words per sentence	-.237	.116	-.169	-.268*	-.150
.063	-.110	.031	-.029	.066	3rd person singular	-.327**	-.049	-.041	-.180	-.090
-.249*	-.141	-.057	**-.271***	-.059	Impersonal pronouns	-.052	-.137	-.149	-.188	-.055
.308*	.101	.098	-.135	.050	Past tense	.092	.006	.067	.030	.050
-.171	.004	-.136	-.116	-.184	Future tense	-.208	-.062	-.192	-.203	-.302*
-.058	.118	.008	-.106	.048	Negations	-.153	-.200	-.290*	-.153	-.262*
.010	**.279***	-.089	-.087	-.124	Quantifiers	-.019	.143	-.068	-.050	.215
.020	.012	.073	-.406***	-.214	Numbers	-.186	-.157	-.164	-.049	-.106
.215	-.154	**.245***	-.129	-.047	Family	.002	-.059	-.048	-.100	-.003
.364***	-.239	-.250*	-.018	.173	Affective processes	**.337****	.187	.068	.178	.187
.360***	-.211	-.269*	-.044	.139	Positive emotion	**.376*****	.179	.063	.178	.178
.085	-.179	.306*	.173	.110	Causation	.208	-.027	-.037	.016	.175
-.220	.145	-.158	-.174	-.265*	Tentative	.093	-.023	-.198	-.072	-.022
.045	-.129	.167	**.284***	.020	Inhibition	-.183	.059	.164	.131	.003
-.020	.246*	-.089	.014	.092	Exclusive	-.104	-.019	-.227	-.153	-.242
-.084	**.269***	-.076	-.034	-.249*	See	-.134	.068	-.089	-.009	.064
.018	-.148	.238	.155	-.077	Feel	.046	.191	.220	.149	.266*
.234	**-.291***	-.144	-.155	-.028	Sexual	.123	-.008	-.074	-.073	.007
-.103	**.246***	.050	-.149	-.043	Time	-.130	-.036	-.037	.037	-.195

.131	-.040	.111	.212	.220	Work	.043	.253*	**.386*** **	.317**	.201
-.002	-.122	.030	.181	.156	Achievement	.135	.160	.255*	.206	.226
.249*	-.151	.120	-.133	.022	Money	-.124	-.157	-.049	-.128	-.114
-.183	.066	-.113	.050	-.013	Religion	-.024	.181	.043	.004	**-.281***
.300*	.011	.153	-.233	-.037	Assent	.117	-.209	-.100	-.111	.014
.023	.178	-.040	.170	.039	Exclamation	.282*	-.028	.095	-.021	.134

E	A	C	ES	O	Content analysis self-presentation	E	A	C	ES	O
.166	.137	-.260*	.012	.127	Spelling and grammar errors	.161	-.071	-.128	-.070	-.028
.012	.047	.244*	.120	-.076	Positive emoticons	.116	-.008	-.156	-.077	.078
.014	-.055	.004	-.375***	-.099	Ideal partner preferences	-.280*	-.344**	-.344**	-.435***	-.379*
.169	-.021	.296*	.039	.060	Humour	-.072	.003	.056	-.022	.070
					Content analysis self-disclosure					
-.087	.057	.110	.297*	.019	Positive thoughts and feelings about self	.106	.365***	.174	.231	.082
.262*	-.144	.116	-.128	-.026	Positive thoughts and feelings about others	.082	-.088	.061	.051	.027
-.080	-.164	.017	-.154	.036	Negative thoughts and feelings about self	-.228	-.351***	-.043	-.211	-.055
					Content analysis trait statements					
-.194	.104	.071	.287*	-.076	High emotional stability	.043	.259*	.133	.144	.128
.319**	-.110	.102	.057	.167	High extraversion	.325**	-.015	.071	.218	.177
-.392***	.098	.067	-.047	-.161	Low extraversion	-.499***	-.089	.099	-.121	-.204
-.012	.082	.198	.187	-.032	High conscientiousness	-.120	.176	.344**	.091	.003

Pearson's correlations. *$p < .05$. **$p < .01$. ***$p < .005$
Extraversion (E), agreeableness (A), conscientiousness (C), emotional stability (ES), openness (O).

Cue utilisation correlations are between the mean of two raters perceived trait scores on the TIPI and the LIWC variables.

Correlations in bold replicate those found in at least one previous study. Shaded table cells indicate a match between valid and utilised cues.
Only categories that correlate significantly with at least one trait are shown. See Appendix 16A for a full table with all correlations.
Swearing was removed because there was none available to correlate with in this sample.

Table 27. Story texts: Cue-validity and cue-utilization correlations for LIWC dictionary categories and content analysis variables and the Big-Five traits

Cue validity correlations						Cue utilisation correlations				
E	A	C	ES	O	Cues	E	A	C	ES	O
					LIWC Categories					
-.368***	.148	.068	-.038	.032	Word count	.113	.223	.128	.320*	**.331****
.015	-.165	.046	**-.339****	.239	Personal pronouns	-.036	-.020	-.013	**-.293***	-.068
-.281*	-.028	.150	.102	-.011	1st person singular	.050	.009	**-.270***	-.217	.095
.026	-.159	-.010	**-.441*****	.046	3rd person singular	-.074	.083	.110	-.030	-.035
.004	.099	-.160	.051	-.140	Articles	.060	.010	.198	.278*	.009
.079	-.282*	.132	-.108	.081	Present tense	-.266*	.124	.058	-.149	-.168
-.111	.304*	-.115	-.064	-.081	Future tense	-.023	.039	-.100	.077	.065
-.111	.219	.131	.086	-.195	Prepositions	-.048	-.070	.017	.277*	.101
.303*	-.107	-.092	-.016	.055	Conjunctions	-.060	.177	-.147	-.218	.232
.136	-.293*	.038	**-.516*****	.150	Social processes	-.026	.015	.249	.007	-.211
.066	.061	.077	-.280*	-.038	Friend	-.004	.030	.154	.046	.041
.092	-.159	.081	-.073	.278*	Negative emotion	.129	-.190	**-.326***	**-.280***	-.238
.094	-.226	-.227	-.151	-.103	Anxiety	-.015	-.182	-.196	-.085	-.261*
.011	-.117	.199	.097	**.307***	Anger	.171	-.037	-.160	-.098	-.134
.030	-.070	.220	.066	.325*	Sadness	.091	-.018	.041	-.145	-.016
-.115	-.139	-.118	-.094	-.012	Cognitive processes	-.221	.185	-.255*	-.172	.004
-.177	-.125	**-.257***	-.230	-.106	Insight	-.086	.125	-.149	.054	.037
.014	**-.278***	-.149	-.097	.139	Causation	-.322*	.175	.015	-.154	-.243
-.211	-.052	-.069	**-.286***	-.183	Discrepancy	-.083	.042	.181	-.037	-.121
-.143	-.055	-.211	-.066	-.282*	Tentative	.136	.080	-.069	.026	.010
.033	.024	**.321***	.147	**.325***	Certainty	-.205	-.179	-.057	-.290*	-.045

.133	-.056	.098	-.013	.293*	Inhibition	-.096	.075	-.129	-.036	-.104
.110	.102	.130	.112	**.276***	Inclusive	-.071	.140	-.318*	-.143	.161
-.062	-.171	-.117	-.128	-.263*	Exclusive	-.008	.053	-.006	-.058	.010
-.167	-.087	.041	-.015	-.326*	Perceptual processes	.136	.258	.125	.190	.267*
-.139	.051	-.019	.004	-.287*	See	.322*	.180	.120	.184	.298*
.026	-.283*	.026	-.160	-.071	Hear	.026	.117	.076	.149	-.003
-.106	.001	.080	.110	-.170	Feel	-.264*	.070	-.011	-.041	.024
-.016	.061	.040	.112	.197	Biological processes	.121	-.014	-.420***	-.247	.284*
-.108	.049	.077	.046	-.071	Body	.090	-.188	-.285*	.076	.238
-.078	-.129	-.024	.166	-.103	Health	-.194	.043	-.180	-.298*	.055
.063	-.011	.223	.002	.379***	Sexual	.250	-.061	-.288*	-.355**	.135
.086	.253	.153	.173	.325*	Relativity	-.019	-.026	-.175	-.061	.153
.062	.205	**.267***	.217	.090	Motion	-.014	-.149	-.150	.147	.056
-.170	**.308***	.037	.216	.168	Space	.093	-.046	-.191	-.119	.286*
.232	.016	.110	-.041	**.267***	Time	-.028	.107	-.066	-.043	-.014
.262*	.239	-.183	.122	.147	Work	.011	-.223	.267*	.051	-.110
.007	.202	-.281*	-.075	.139	Achievement	-.181	-.032	.238	-.084	-.102
.079	-.005	-.332**	-.085	-.010	Home	-.098	.191	-.070	-.056	.058
.116	.009	.153	.172	.204	Death	-.006	-.268*	.152	-.091	-.144
-.374***	**.308***	.029	.081	.008	Assent	.231	.188	-.118	.151	.356**
.099	.102	-.068	-.156	.265*	Nonfluencies	-.093	-.070	-.007	-.111	-.057
-.141	.210	.047	.094	.301*	Comma	-.099	.148	.136	-.030	.017
-.162	.266*	.150	.161	.022	Semi colon	.029	.060	-.020	.065	.151
-.201	.153	-.083	.299*	.100	Question mark	-.024	.295*	-.128	-.159	.270*
-.275*	.277*	-.018	.100	.146	Exclamation	.077	.178	-.127	-.034	.213

-.452***	.191	.022	.152	.123	Quote	.069	.254	-.074	.072	.308*
-.337**	.126	.088	.102	.205	All punctuation	.019	.160	-.093	-.059	.199
E	A	C	ES	O	Content analysis story quality	E	A	C	ES	O
.011	.130	.111	.066	**.504*** **	Narrative	.023	.037	-.019	-.162	.223
.010	.306*	-.017	-.019	**.264***	Conclusion	-.081	-.032	.013	.007	.080
.122	.014	.109	.011	**.327***	Character interaction	-.048	-.022	.070	.090	.124
.196	.078	.001	.046	**.375*** **	Events before/after scene	-.019	-.051	.096	.000	.006
-.053	.125	.222	.059	**.465*** **	Creativity	-.081	-.048	.054	-.156	.076
.045	.156	.124	.046	**.487*** **	Total story quality	-.047	-.024	.044	-.084	.133
					Content analysis self-disclosure					
-.040	-.149	.088	-.130	.212	Story goals, hopes, fantasies	-.340**	.096	.172	-.130	-.230
-.054	-.078	.057	-.103	.172	Story fears, worries, concerns	-.290*	.076	-.086	-.174	-.072

Pearson's correlations. *$p < .05$. **$p < .01$. ***$p < .005$
Extraversion (E), agreeableness (A), conscientiousness (C), emotional stability (ES), openness (O).
Cue utilisation correlations are between the mean of two raters perceived trait scores on the TIPI and the LIWC variables.

Correlations in bold replicate those found in at least one previous study. Those shaded indicate a match between valid and utilised cues.
Only categories that correlate significantly with at least one trait are shown. See Appendix 16B for a full table with all correlations.
LIWC Numerals and the content analysis variable positive emoticons were removed because there was none available to correlate with in this sample. Emotional tone of the story was not included as it was categorical data.

Personality traits and attraction

A power estimate of required sample size was conducted using G*Power. The sample size available in this study met the required sample size for an f^2 effect size of at least 0.33, power of .95 and an alpha value of $p < .05$. The required sample size for each regression in this section was 66 participants which was met for all tests.

H7. Hypothesis seven predicted that perceived, but not actual, high emotional stability, agreeableness, conscientiousness and openness would be related to higher attractiveness ratings.

To test the effect of actual traits regression analysis was conducted with the attractiveness scale as the dependent variable, and the five target self-report traits as the predictor variables, for both the profile and story texts individually. Neither regression model was significant indicating that actual traits had no effect on attractiveness ratings as predicted.

To examine perceived traits, regression analysis was conducted with the attractiveness scale as the dependent variable, and the five peer-reported perceived traits as the predictor variables for both the profile and story texts, and both models were significant.

For the profile texts, a significant model was found using the enter method: $F(5, 112) = 7.442$, $p < .0001$. The model explained 21.6% of the variance (Adjusted $R^2 = .216$). Perceived openness emerged as a significant positive predictor of attractiveness scores ($\beta = .247$, $t(115) = 2.523$), $p = .013$). Perceived emotional stability was trending towards significance as a positive predictor of attraction ($\beta = .134$, $t(115) = 1.943$), $p = .055$).

A significant model emerged using the enter method for the story texts: $F(5, 122) = 13.546$, $p < .0005$. The model explains 33.1% of the variance (Adjusted $R^2 =$

.331). Perceived openness emerged as a significant positive predictor of attractiveness scores (β = .422, $t(115) = 4.519$), $p < .0005$), as did perceived conscientiousness (β = .251, $t(1153) = 2.988$), $p = .003$). Perceived agreeableness was also a positive significant predictor of attractiveness scores (β = .188, $t(115) = 2.099$), $p = .038$).

With attractiveness predicted by perceived rather than actual traits in both sets of text, hypothesis seven was supported.

Similarity of traits and attraction

H8. Hypothesis eight expected that actual similarity of traits between rater and author would not be related to attraction, but that perceived similarity of traits between rater and author would be related to higher attractiveness ratings.

For the regression analysis a power estimate of required sample size was the same as the tests above, the required sample size was 66 and was met for all tests.

The effect of actual similarity between the target's personality and the rater's personality on attractiveness scores was investigated, and the method of determining similarity followed Li and Chignell's approach (2010). The mean difference was calculated between the self-report TIPI scores on each trait for the target and rater, where a smaller mean difference indicated more similarity of scores on the TIPI and greater actual similarity of personality. Regression analysis with attractiveness scores as the dependent variable and actual trait difference scores as the predictor variables found no significant model for either the profile texts or story texts.

The effect of perceived similarity between the author's personality and the rater's personality on attraction was also examined. The process was the same as for actual similarity above, but instead of using the target self-report, the rater

peer-report TIPI scores were used for perceived traits. The mean difference was calculated between the rater's self-report TIPI score, and the rater's peer-reported TIPI scores for the author on each trait. A smaller mean difference indicated more similarity of scores on the TIPI and greater perceived similarity of personality. Regression analysis with attractiveness scores as the dependent variable and perceived trait difference scores as the predictor variables found significant models for both profile and story texts.

A significant model emerged for the profile texts using the enter method: F (5, 110) = 2.300, p = .05. The model explained 5.3% of the variance (Adjusted R^2 = .053). Perceived similarity of openness emerged as a significant positive predictor of attractiveness scores (β = -.229, t(113) = -2.358), p = .020).

A significant model emerged for the story texts using the enter method: F (5, 119) = 5.095, p < .0005. The model explains 14.2% of the variance (Adjusted R^2 = .142). Perceived similarity of openness emerged as a significant positive predictor of attractiveness scores (β = -.309, t(122) = -3.335), p = .001). Therefore, hypothesis eight was supported.

Trait-related statements in profile texts and attractiveness

H9. Hypothesis nine predicted that content analysis variables measuring trait-related statements in profiles would be related to attractiveness, particularly that high extraversion, agreeableness, conscientiousness, emotional stability and openness statements as well as low extraversion statements would be more attractive than those statements from the lower pole of each trait.

Correlations were conducted between each of the ten trait statements variables and the attractiveness scale for profiles. Only two significant correlations were found: a significant positive relationship between high emotional stability statements and attractiveness ratings (r = .267, p = 003), and a significant negative

correlation between high openness statements and attractiveness ratings (r = -.179, p = 05). Hypothesis nine was not supported.

Text content and attraction

H10. Hypothesis ten predicted that profiles with lower word count, lower self-disclosure, less humour, less mention of ideal partner preferences, and those that do not mention hobbies will be related to higher attractiveness ratings.

H11. It was also expected that the presence of spelling and grammar errors in profiles would be related to lower attractiveness scores.

The content analysis of the profile and story texts provided information on the self-presentation and self-disclosure cues of the authors. Correlations were conducted between the total self-disclosure score, word count, humour, ideal partner preferences, and the hobbies and interests variables and the attractiveness scale for profiles. Correlations were also conducted between spelling and grammar errors and attractiveness.

Only two variables were significantly correlated and both had a negative relationship with attractiveness ratings, attempts at humour (r = -.167, p = .033) and spelling and grammar errors (r = -.189, p = .038). Ideal partner preferences also trended towards a significant negative relationship with attractiveness but was not significant at $p < .05$ (r = -.167, p = .067). Hypothesis ten was not supported, but hypothesis eleven was, that spelling and grammar errors would be related to lower attraction.

Additional analysis of the content of the story texts and attractiveness was carried out. The two self-disclosure related variables for stories were: positive goals, hopes or fantasies, and expression of fears, worries or concerns, as expressed by story characters. The story quality variables were: narrative, conclusion, interaction

between characters, events outside the scene, creativity, and total quality. There were two additional content analysis variables: attempted humour and emotional tone which as positive, negative or neutral. Word count was also examined. Correlations were conducted between each of these variables and the attractiveness scale for stories, with the exception of emotional tone which was categorical data. An ANOVA was conducted to test for differences in attractiveness ratings between those who used positive, negative or neutral tone in their stories.

The only significant correlation was between word count and attractiveness (r = .309, p < .0005), where higher word count was related to higher attractiveness. There were no significant correlations between any of the other variables and attractiveness ratings, nor was the ANOVA significant for emotional tone and attractiveness ratings.

Additional exploratory analysis

Rater characteristics and attractiveness scores

Analysis was conducted to test whether characteristics of raters, traits, age and gender, and whether or not they had tried online dating previously, influenced the attractiveness scores they gave the authors of the texts. This was conducted separately for the profile and story texts. Regression analysis was used to determine whether rater traits affected attractiveness scores awarded to texts, and two two-way ANOVAs were used to test whether gender and age had an impact. A power analysis using G*Power indicated that this study met the required sample size for regression with an f^2 effect size of at least 0.33, power of .95 and an alpha value of p < .01. The required sample size for this regression was 86 participants.

A regression was carried out for the profile texts using the enter method with the attractiveness score as the dependent variable, and the rater traits as the predictor variables and a significant model emerged: F (5, 112) = 2.673, p = .025.

The model explains 6.7% of the variance (Adjusted R^2 = .067). Agreeableness was a positive predictor of giving higher attractiveness ratings in profiles (β = .271, t(115) = 2.748), p = .007).

The Durbin-Watson test for the story texts was .415 indicating that the residuals were correlated, and this violation of the assumption decreases the generalisability of the results. A significant model emerged for the story texts using the enter method: F (5, 107) = 2.897, p = .017. The model explains 7.8% of the variance (Adjusted R^2 = .078). Higher rater conscientiousness emerged as a unique positive predictor of giving higher attractiveness ratings in stories (β = .207, t(110) = 2.148), p = .034), and higher rater openness emerged as a unique negative predictor of giving higher attractiveness ratings in stories (β = .204, t(110) = -2.109), p = .037).

Two two-way ANOVAs were used to determine whether age and gender influenced attractiveness ratings in profiles and in stories, and were not significant - indicating that men and women of any of the age bands were not significantly different in the ratings of attractiveness they awarded authors.

For the profiles a correlation between attitudes towards online dating and attractiveness ratings for profiles was trending towards significance, where more positive attitudes towards online dating were related to higher attractiveness scores given to profile text authors (r = .178, p = .051). However, a t-test examining attractiveness ratings given by participants who had tried online dating and those who had not was non-significant. The correlation and t-test analysis for story texts were both non-significant. Online dating experience was not related to attractiveness scores given to authors, but attitudes towards online dating were relevant for profiles only.

Discussion

There was little accuracy of perception in this study, with only emotional stability, and a statistical trend towards extraversion, achieving accuracy in profile texts, and no traits perceived accurately in story texts. This in turn impacted on the effect of traits on attraction, with actual traits having no effect and perceived traits having an effect instead, as predicted. Very few cues were both valid - that is, correlated to the author's self-reported traits, and utilised - that is, correlated to the peer-reported perceived trait ratings by judges. In profiles, statements related to both high and low extraversion were both valid and utilised in judging extraversion accurately, as well as the LIWC dictionary categories of affect and positive emotion. Additionally, ideal partner preference statements were both valid and utilised in judging emotional stability accurately, where lower emotional stability was associated with stating preferences. Only the use of quotes was valid and utilised in stories negatively for judging extraversion. A variety of other cues were either valid but not utilised, or utilised but not valid. The findings for self-disclosure content on attraction were not significant. Profile raters who were higher in agreeableness and had positive attitudes towards online dating were more likely to award higher attractiveness ratings, while story raters who were higher in conscientiousness and lower in openness were more likely to do so.

Accuracy of interpersonal perception

There was little accuracy of perception in this study, with no accuracy at all in story texts, and accuracy for only two traits, emotional stability and extraversion, and extraversion only trending towards significant, in the profile texts. The first hypothesis expected that extraversion and conscientiousness might be accurately perceived, but that emotional stability, agreeableness and openness would not be.

Emotional stability was perceived accurately in profile texts which was not hypothesised. Emotional stability is both a highly evaluative trait, whereby it is

considered socially desirable and thus is subject to considerable self-presentation, and a less observable trait, where it is primarily internally focused rather than expressed in observable external behaviours. Thus it is often not accurately perceived, particularly by strangers (Borkenau & Liebler, 1993; Connelly & Ones, 2010; Funder & Dobroth, 1987; Vazire, 2010). There are mixed findings regarding the expression of emotional stability online: one study that examined expression of traits offline and online found that emotional stability was the only trait that showed more expression online than off (Blumer & Doering, 2012).In contrast, Marriott and Buchanan (2014) found that while people may feel that they are more able to express their true self-online, their offline social circle remain better judges of their traits, particularly for lower emotional stability.

From the review of the literature on perception in text, previous research contexts in which emotional stability has been accurately perceived have been primarily been offline, where the researchers were the only audience, and with self-related content such as lists of goals, life domain essays, and steam of consciousness essays (Borkenau et al., 2016; Burusic & Ribar, 2014; Dunlop et al., 2017; Holleran & Mehl, 2008). Only in one online, public context was neuroticism accurately perceived, and that was on Twitter (Qiu et al., 2012), and one other offline public context which was a resumé study (Frauendorfer et al., 2015). The profiles written for this study were written in an online research survey rather than for an actual dating site, and when compared to the actual profiles in the first study had considerably higher self-disclosure than typical dating profiles. It is possible that these profiles are closer in context to the private self-related content mentioned, rather than to the public, online context that was intended. In writing the profiles, participants perception of privacy or trust in the research context could have resulted in higher self-disclosure as per Joinson, Reips, Buchanan and Schofield (2009).

It is also possible that in writing these texts participants were aware that unlike online dating, they would not be contacted, nor could they be rejected, by other online daters, which can lead to anxiety in profile creation (Frost et al., 2008; Zytko, Grandhi, et al., 2014). Thus, they may have felt more freedom in expressing themselves in these profile texts than daters typically would. This could perhaps explain the higher accuracy of perception for emotional stability in these profiles than in the Craigslist personal ads of Weidman et al.'s study (2015) which are the closest context to online dating profiles, or in other online public contexts such as blogs or online chat (Li & Chignell, 2010; Markey & Wells, 2002; Rouse & Haas, 2003). However, the participants who wrote the texts were made aware in the information sheet and consent form that their texts might be seen by future participants in research, so while the size and make-up of the future audience was unknown, there was an awareness that there could be an audience for the texts, lending some validity to them as a public text.

Extraversion was also trending towards being accurately perceived, and might be with a larger sample size in future research, as per the results of the findings in Craigslist personal ads (Weidman et al., 2015). Extraversion is a less evaluative trait, both poles are considered socially desirable, and it is typically the most observable trait, with many external and visible behaviours associated with the trait (Funder & Dobroth, 1987; Jin & Martin, 2015; Vazire, 2010), thus it tends to be more accurately perceived (Connelly & Ones, 2010; Tskhay & Rule, 2014).

Despite evidence that extraversion is less well perceived when context richness decreases (Wall et al., 2013), it was trending towards being accurately perceived in this text-only profile. However, it was not perceived at all in the story context, which, in terms of richness, may provide very few channels for cues of extraversion to be expressed, thus lending support to Wall and colleagues' findings that decreases in richness decrease accuracy for extraversion (2013). Wall and colleagues also found that emotional stability was perceived with less accuracy as

richness decreased, whereas in profiles it was perceived most accurately - possibly the level of self-disclosure in the profiles increased the richness of the context for this trait. The most similar context to the dating profiles in this study was the Craigslist personal ads, where only extraversion was perceived with any degree of accuracy, and the correlation value was only 0.11 and 0.12 in the two studies in that paper (Weidman et al., 2015), whereas here the accuracy correlation for extraversion was .25 and for emotional stability was .28, substantially stronger. However, the correlations for both traits here were more similar in size to those found in private self-related contexts as discussed above, another indication that these profiles may have been more similar to those than to an online dating or personal ads context. Future research should test actual dating profiles for accuracy rather than ones created for the purpose of the study to avoid this issue.

It was expected that agreeableness would not be perceivable as it is a socially desirable trait which is typically difficult to perceive accurately, and in the two previous studies there was evidence that many individuals sought to self-present as more agreeable than they were, thus this finding was as predicted. It was expected that conscientiousness might be accurately perceived as it and extraversion were found to be the two more perceivable traits in Tskhay and Rule's (2014) meta-analysis, and it was found in Wall and colleagues (2013) study to increase in accuracy as the richness of the context decreased. However, it is a socially desirable trait and was in presented in the context of an online dating profile. It is possible that self-presentation of this trait by authors meant that it was not accurately perceived in this study.

Despite the fact that the profile texts appear to be closer in context to private self-related texts than public dating profiles, this study offered valuable insight into the difference in accuracy of perception when two texts in different contexts are judged for accuracy. Story texts had no accuracy of perception at all, indicating that non-self-related contexts offer fewer cues to personality traits as there are fewer

opportunities or channels through which to express those traits in ways that are valid and observable to judges. Thus, whether or not personality can be accurately detected in text is very dependent upon the context in which the text is written.

An additional interesting finding was that higher self-disclosure did not lead to greater accuracy of perception, and in fact some of the accuracy achieved overall was lost when the sample was divided by self-disclosure levels. In the lower self-disclosure group, accuracy of perception was achieved for agreeableness, which was not perceived well overall. It is possible that in the higher self-disclosure group more individuals were self-presenting as being agreeable obscuring the actual trait. Positive thoughts and feelings about self was the most commonly occurring self-disclosure variable, and many of these statements were made in relation to other people, such as being a kind or loyal friend. High agreeableness statements were one of the two most common type of trait-related statement, and were correlated with the trait agreeableness, indicating perhaps that many individuals were presenting these statements in an attempt to appear agreeable. However, as hypothesis two expected that higher self-disclosure would lead to greater accuracy, it was not supported by this research.

Text content and trait perception

The use of cues in making judgments of accuracy was examined, both in terms of which cues were valid and correlated with self-reported author traits, and which cues were utilised, and correlated with rater's peer-reported perceived traits. Given the number of statistical tests conducted, there is a possibility that some of the valid or utilised cues found might be Type I errors, and some caution should be taken in interpreting the findings, particularly for cues that have not been replicated in any previous studies.

Very few cues were both valid and utilised in either set of texts, but more were so in profile texts than in stories. In profile texts, the content analysis variables

of high and low extraversion-related statements were both valid and utilised in accurately judging extraversion, while the LIWC variables of affect and positive emotion were both also valid and utilised. The content analysis variables of high and low extraversion are both explicit content that relate to the trait which can be easily observed by judges in perceiving traits. However, not all trait statements were utilised appropriately. Extraversion is the least evaluative of the Big-Five traits, and both lower and higher levels of the trait are socially desirable, whereas each of the other traits has one pole that is more socially desirable. The evidence from this study indicates that with other traits people may be more inclined to self-present as possessing those socially desirable qualities when they do not have them or exaggerating them when they do. However, extraverts and introverts are more likely to accurately state explicitly their trait, and this can then be utilised accurately be judges. The two LIWC categories that were utilised accurately were affect and positive emotion, both previously found to correlate with extraversion repeatedly, indicating trait typical language. These two cues have also been appropriately utilised as cues to extraversion in previous research (Qiu et al., 2012). As extraversion is associated with positive effect, it makes sense that these cues would be utilised in judging the trait (Costa & McCrae, 1980).

Despite being accurately perceived, emotional stability had only one cue that was both valid and utilised, and that was ideal partner preference statements which had a negative relationship with the trait. All correlations were above .30 in both validity and utilisation. The use of personal pronouns (I, her, we, they, you) was the only valid and utilised cue in story texts, and it was negatively associated with actual and perceived emotional stability. Those lower in emotional stability created stories that were more focused on the character's interactions and internal thoughts, and personal pronouns were used, along with social words to describe these and the interactions between characters. In stories you would expect less self-presentation of evaluative traits, and this may be one way in which lower emotional stability was expressed in a way that was observable. However, emotional stability was not

perceived accurately in story texts, indicating that this cue alone was not enough information to perceive the trait.

A variety of other cues were either valid but not utilised, or utilised but not valid. Using Funder's RAM (2012) to help interpret these cues offers some insight into why particular valid cues may not have been utilised by judges. Funder breaks the validity of cues from the lens model into two stages: relevance, where they are correlated with the target trait, and availability, where they are observable to the judge. Several types of words may not be as observable to judges: function words which form the structure of language but which we gloss over quickly while reading (Van Petten & Kutas, 1991), some grammatical constructs such as types of pronoun which may not be obvious or important to a reader in making interpersonal judgments, and words categories with very low usage, where they are practically undetectable to judges. Word categories like emotion words are ones that are available because they are observable in text, as are content such as trait-related statements. For example, the cues that were valid and utilised for extraversion were those relating to affect and positive emotion, high and low trait statements from the content analysis. However, several of the other valid cues for extraversion in profiles, such as less use of impersonal pronouns, or more past tense words for example, are not as observable as emotion words, and thus may not be available to use as utilised cues. To take another example, there were 21 valid cues to openness in story texts, but only three invalid cues were utilised for perception, and the trait was not accurately judged. The valid cues relating to openness were a mix of observable and non-observable cues, such as negative emotion words and sadness words which are more visible, and relativity, time, and exclusive words which may be less visible to judges. Of the valid cues that were more visible for openness, several were correlated in the opposite direction to previous findings, indicating trait-atypical language. For example, negative emotion words have been related to lower self-reported openness in three previous studies (Dunlop et al., 2017; Schwartz et al., 2013; Yarkoni, 2010), whereas here it was related to higher

openness. Sadness words were not found in previous research as valid cues, but in one study sadness words were utilised as a cue for lower openness (Qiu et al., 2012), again indicating that it is not typically related to the trait. It is possible that creative writing allows openness to be more expressed than in profiles, but that creativity means that relevant cues are not available to judges because the story is not self-related.

Of the utilised cues for traits that were not valid, some were cues that were typical language use for that trait, where the language trait relationship has been replicated in multiple studies - but they were not valid in this particular study. The utilisation of work-related words for conscientiousness in both profiles and stories for example, which has been valid in three previous studies, and appropriately utilised in one study, was not valid in this study. In stories negative emotion was utilised as a cue to both conscientiousness and emotional stability, both relationships that are some of the most replicated in previous research, but were not valid in this case. This may indicate a degree of stereotyping, where cues associated with a trait through typical use by individuals with that trait are utilised in contexts even when they are not valid. Social identity-deindividuation theory (SIDE; Lea & Spears, 2009; Reicher, Spears, & Postmes, 1995; Spears & Lea, 1992) offers insight on why this might occur, where individuals can be viewed at a number of levels, including the personal and categorical self. In CMC where there are a lack of non-verbal cues and communicators are not co-located, deindividuation can occur, and the social identity of the communication partner can become more salient than their personal identity. This may lead to a social category-based perception of them rather than as an individual.

There were considerable differences between the two contexts, for example in the profile texts, openness had only two valid cues and four utilised cues that were not valid, indicating that there was little expression of openness in profiles. While there were 21 valid cues and nine non-valid utilised cues in the story texts,

indicating that there was considerably more expression of openness in stories with no accurate utilisation of cues. In the valid LIWC cues for profile texts, a considerable number of them matched previous research findings. For example, of the seven cues for extraversion, four matched previous research while in story texts only one of eight valid cues for extraversion matched in any way with previous findings.

One particularly interesting cue from this study was ideal partner preferences. As already mentioned, it was both valid and utilised appropriately as a cue to lower emotional stability. It was not a valid cue for any other trait; however, it was also utilised as a cue for the lower pole for every trait. Given that previous research found that women who stated their ideal preferences were more likely to receive a reply to their messages (Fiore et al., 2010), this seems counterintuitive. However, the correlations between perceived traits in profile text authors may explain this finding, where if it was perceived as socially undesirable to make those statements, this cue was then connected to all the socially desirable poles of traits. Examination of the profile texts indicated that the stated preferences were framed in different manners in different texts, some positive where authors stated the attributes they were seeking, some detailed with specific or many preferences, and some negative where they stated what they did not want. In forming an impression of a person in an online dating context, online daters rely on their own beliefs about an ideal partner and small deviations from the ideal may negatively affect perception (Eastwick et al., 2011). Therefore, it is possible that framing partner preferences in a negative way could negatively impact on trait perceptions making someone appear less agreeable, emotionally stable or conscientious. Additionally, stating many specific demands in a potential partner could make them appear less open to new experiences.

Personality traits and attraction

As there was little accuracy of personality perception in the profiles and none in the stories, this impacted on the attractiveness of author's self-reported traits. Actual traits did not predict attractiveness scores in either set of texts as predicted, similarly to Tidwell et al.'s (2013) study on speed dating. Unless there is accuracy of perception, actual traits cannot have an impact on attraction. However, perceived traits and perceived similarity of traits did predict attractiveness. In profile texts, perceived openness was a significant predictor of attractiveness, and emotional stability was trending towards significance as a predictor. In story texts perceived agreeableness, conscientiousness and openness were predictors of attractiveness. In both profile and story texts, perceived similarity of openness was a positive predictor of attractiveness.

It was predicted that perceived high emotional stability, agreeableness, conscientiousness and openness would be related to higher attractiveness ratings. Perceived openness was significantly, positively related to attractiveness as expected, with perceived emotional stability trending towards significance and may be significant in a larger sample. The higher poles of each trait are socially desirable, and are ranked highly in partner preferences in large worldwide samples (Shackelford et al., 2005; Todosijević et al., 2003), thus would be expected to be perceived as more attractive. It is interesting that emotional stability was the trait judged accurately in profiles, and yet the actual levels of emotional stability had no effect on attraction, while perceived levels did. Perhaps, as Hancock and Dunham found (2001), the impressions formed of profile authors were more intense than their actual personality traits, and therefore the intensified emotional stability became more attractive. Perceived openness, and perceived similarity of openness were both rated as attractive. This partially confirmed the hypothesis on homophily of personality traits leading to increased attraction (Fiore et al., 2010; Fiore & Donath, 2005; Hitsch, Hortaçsu, & Ariely, 2010; Luo, 2017). There is a particularly

strong similarity effect for openness, where those who are high in the trait prefer others who are also high in openness, and those who are low in openness dislike those who are high in it (Konstabel, 2007), which might explain why perceived similarity on this trait was related to higher attractiveness ratings in both profiles and in stories.

Extraversion is a less evaluative trait, and thus neither pole is more or less socially desirable, explaining the lack of effect of this trait on attraction in profiles as was predicted. Conscientiousness is a socially desirable trait that may be considered particularly salient in attraction in the context of an online dating profile. There is a perception amongst the general public that dating application users are less trustworthy than those who do not date online and are more likely to engage in hook-ups (LeFebvre, 2018; Silva et al., 2019). Thus conscientiousness, as a trait concerned with dependability and genuineness might be considered a particularly important trait for attraction to a potential partner in that context, particularly for those who are themselves conscientious. However, perceptions of conscientiousness were not found to be more attractive here, and perhaps daters are less trusting of perceptions of conscientiousness in an online dating context. Agreeableness, while a highly valued trait in relationships, was not a significant predictor of attractiveness here. However, given that nearly half of all profile authors included a statement related to high agreeableness in their profiles (see Table 15), the widespread presentation of agreeableness may have had an impact on its attractiveness.

It was predicted that there would be accuracy of perception for agreeableness and openness in story texts as the creativity and social nature of the texts might serve as cues to those traits (Küfner et al., 2010). However, while these perceived traits were both rated as attractive, they were not judged accurately, and those cues were not utilised in the judgment of the traits. As with profiles, attractiveness scores were higher for story authors when judges perceived the authors as similar

to themselves on openness, again supporting the homophilous nature of the trait. Perceived conscientiousness was also a predictor of attractiveness as expected. However, perceived similarity of conscientiousness was not related to attractiveness ratings, which is surprising given that this is a desirable trait. A study examining preferences in personality traits found that while individuals seek partners that are similar to themselves, they also look for partners who are higher in socially desirable traits than themselves, such as conscientiousness (Figueredo, Sefcek, & Jones, 2006), which may explain this finding. Perhaps the raters perceived the authors as similar in conscientiousness themselves but found those with higher conscientiousness more attractive.

Text content and attraction

Several elements of the content of the profile and story texts were hypothesised to be related to attractiveness, including trait-related statements, self-disclosure, humour, ideal partner preferences, hobbies and spelling and grammar. Few of these cues had a relationship with ratings of attractiveness, with only two trait related variables, as well as attempts at humour being significant in profiles, and only word count in stories.

It was expected that trait-related statements would predict attraction, particularly those at the desirable pole of each evaluative trait, because it was expected that these trait statements would be observable cues about desirable or undesirable traits. However, only two types of trait statements were related to attractiveness ratings in this study: high emotional stability which had a positive relationship with attractiveness scores and high openness which had a negative relationship with attractiveness.

Statements of higher emotional stability related to attraction in this study, and these statements were also valid cues of emotional stability. Despite this, the actual trait was not rated as more attractive, even though it was also judged more

accurately, and is considered important to relationships with high satisfaction (Karney & Bradbury, 1995). However, the perceived trait was trending towards significance as a predictor of attractiveness and may indicate that perceptions of traits are heightened when formed through text (Hancock & Dunham, 2001), particularly positive statements related to the trait, and those heightened impressions are more attractive. Emotional stability statements were not utilised as a cue for emotional stability in trait perception, but instead as a cue to agreeableness. Similarly, positive thoughts and feelings about the self was a valid cue for emotional stability but was utilised as a cue for agreeableness. This would be more understandable if there was also a significant correlation in actual author emotional stability and agreeableness, but there was none, or in trait-related statements for emotional stability and agreeableness, but again there was not. Given the correlations between perceived emotional stability and perceived agreeableness, it is likely that participants had considerable overlap in how they conceived of the attributes and expressions of these traits.

In comparison to the findings in both profiles and stories that perceived openness was related to attractiveness, high openness statements in profiles had a significant negative relationship with attractiveness. This may be due to the revealing of dissimilarity through the extracurricular activities and interests that they mentioned enjoying. As those higher in openness tend to be more interested in culture, politics, and creative pursuits, as well as being open to new experiences (John et al., 2008), they may have revealed dissimilarity through their expression of interests resulting in less attraction from those were who were not high in openness themselves, as well as those who disagreed with particular topics. This may also have been the case for the use of humour in profiles which was linked to lower attractiveness. There are many types of humour, not all affiliative and not all conducive to relationship satisfaction (Caird & Martin, 2014). Use of humour may reveal dissimilarity of humour and thus lower attraction.

In light of the relationship between the socially undesirable pole of each trait and statements related to ideal partner preferences as detailed above, it would be expected that this would lead to lower attractiveness ratings. However, the result of this test was not significant at $p = .067$, but perhaps would become significant in a larger sample. The data was trending towards lower attractiveness ratings for those who stated a preference for a partner. Again, the profile texts revealed a variety of ways in which preferences were stated, some of them framed negatively, some very detailed, and some framed positively, which may be why a clear finding in attractiveness was not found. Additionally, perceived openness was the only trait which had a relationship with attractiveness in the profile texts in this study, thus the relationship between ideal partner preferences and perceived socially undesirable traits may have had little impact on attractiveness ratings, while other factors may have been more important. Spelling and grammar errors were related to lower attractiveness ratings as expected, as previous research has found that people perceive these as indicating a lack or care or lack of education (Ellison et al., 2006).

Rater characteristics and attractiveness scores

Given that there was little effect of actual personality traits, and only perceived openness was related attraction in profile texts, exploratory analysis was conducted to see if characteristics of the judges themselves influenced the attractiveness ratings given to texts. Women tend to have stronger and more restrictive partner preferences than men as per evolutionary and socio-structural theories of attraction (Eagly & Wood, 1999; Shackelford et al., 2005). However, women did not give lower ratings of attractiveness in this study, nor did age affect the ratings given. The personality traits of the raters did play a part in ratings however, with profiles considered more attractive by raters higher in agreeableness, and stories by raters higher in conscientiousness and lower in openness. Agreeable people are concerned with smooth interactions with others,

and are more socially oriented and altruistic (Soto et al., 2011). In the context of online dating profiles they might be aware that authors have put their best face forward in profiles and may be more likely to award favourable ratings of attractiveness.

Attraction is essentially an immediate evaluation of whether an individual has the ability and the willingness to facilitate or obstruct one's goals (Montoya & Horton, 2014). In a story text, where the author is unknown and reveals little information about themselves, there may be considerably higher uncertainty in awarding attractiveness to the author, as their ability and willingness to meet the rater's goals are not explicitly stated in any way. Thus, other means of determining these factors may have to be used as cues. In story texts lower openness was associated with raters giving higher attractiveness scores. Perhaps raters who scored higher in openness, who themselves would more likely be higher creativity, perceived the stories as lacking creativity and thus as less attractive. Perceived similarity of openness was associated with higher attractiveness scores in stories, providing evidence to support this idea. Higher conscientiousness was also related to giving higher attractiveness ratings in stories, and again perceived similarity of conscientiousness was also related to higher score. Thus, the content of the stories may have provided cues related to conscientiousness that were utilised in attraction scores. For example, the LIWC category of work-related words was utilised for conscientiousness in story texts proving support for this supposition.

Finally, the effect of online dating experience and attitudes were investigated, and while dating experience did not affect the attractiveness ratings awarded, attitudes towards online dating for finding a partner did. Those who had positive attitudes were more likely to award higher attractiveness ratings than those who did not. It is possible that those who felt more positive about online dating were more positively disposed towards daters, and thus more likely to rate them as more attractive.

Limitations

The most obvious limitation of this study is the sample size and number of raters per text. Ideally a greater number of raters would have rated each text, and each rater would have rated multiple texts. The choice was made to use multiple texts in order to avoid the effect of the good target, where targets higher in observable and less evaluative traits are perceived more accurately (Human et al., 2014). By including multiple targets, a range of scores on each trait, as well as a range of expression associated with each trait was possible. Equally, by using a higher number of judges rating a small number of texts each, rather than a small number of judges rating all texts, the effect of the good judge could be avoided, where judges with qualities associated with higher perceptive accuracy could influence results (Judith Hall et al., 2016; Letzring, 2008, 2014). Also, survey drop-off due to a heavy participant burden could also be avoided. The participants and authors were close to gender balanced which also helped avoid the good judge and target effect, as research has found women to be better judges of traits than men (J. A. Hall, Goh, et al., 2016).

These were strengths of the research design which aimed to avoid confounding variables and gain more participants. Unfortunately, the survey design resulted in some data not being usable, whereby the survey randomly allocated texts to participants in the appropriate age, gender, and sexual orientation group, but presented some profiles to multiple raters, and did not present other texts at all. This unfortunately resulted in the data from some participants not being used, which is something that should be avoided where possible for ethical reasons as the effort taken by participants should result in useful knowledge to the best of the researcher's ability. All texts with two raters were used in the study as the best available outcome in study three.

Future research would be better using a smaller range of texts, and to have each judge rate multiple texts. This would also allow for the full lens analysis to be

conducted - where sensitivity to cues, response consistency, and predictability of cues could also be analysed. This was not possible here where many raters only judged a single text, and a full lens analysis relies on each rater judging multiple texts.

As discussed in the previous chapter, the profile texts used here were dissimilar to actual dating profiles in the level of self-disclosure they contained. This may have led to greater accuracy in perception of emotional stability, which was not predicted, and not typical in a public online context. If real online dating profiles were available as stimuli in future research, that would be a more ecologically valid method of testing personality perception and attraction in profiles.

While a single Likert item has been used to assess attractiveness in previous research (cf. Fiore, Taylor, Mendelsohn, & Hearst, 2008), the use of a single Likert scale to measure attractiveness here was less than ideal. The measure of attractiveness should have had at a minimum two items, one affective and one behavioural (Montoya & Horton, 2014). The single item used in this study "please indicate on the scale below how attractive the author of the profile text is to you" only measures affective attraction and not behavioural, which could have been measured with a question such as "'how likely would you be to contact the profile author on a dating website". There is evidence that as affective attraction increases, behavioural attraction can decrease, where for example someone of average attractiveness could be very attracted to a supermodel, but unlikely to act on that if they feel they would be rejected. This relates to the two evaluative components of attraction: ability and willingness to meet the goals of the perceiver, where a supermodel has the ability, but likely not the willingness to meet the goals of an average individual (Montoya & Horton, 2014). Physical attractiveness is one of the strongest predictors of initial attraction, particularly in zero-acquaintance scenarios (Olderbak, Malter, Wolf, Jones, & Figueredo, 2017). However, the behavioural factor in attraction may be less relevant in this study where physical attraction is

not relevant and where the participants will not meet the author. Future research should consider a more robust measure of attractiveness; however, it is likely that the findings in this research still offer valid results regarding attractiveness in text.

Conclusion

This study found that accuracy of perception in profile texts was possible for emotional stability and somewhat for extraversion, while story texts did not allow for any accuracy of perception to be achieved. As a result, the actual traits of the authors, and actual similarity between rater and authors did not affect attraction. However, perceived traits and similarity did, as predicted. An analysis of the cues involved in perception revealed that very few cues were appropriately utilised - that is, they were both valid, detected and correctly used in perception. Also, those that were utilised correctly were particularly visible cues, which in Funder's RAM (2012) would mean that they were available to observation by the judges. Interestingly, many of the valid cues in story texts were not typical trait language found in previous studies, which tended to be more self-related in content.

The research questions asked whether accuracy of perception was possible in texts, whether the context of the text would affect perception, and whether valid cues would be utilised in judgments of traits. This study has shown that accuracy is possible in online dating type profile texts, though not for all traits. Extraversion was as expected detected, though only trending towards significance, as a more observable trait. Accuracy of emotional stability was a more unexpected finding, perhaps explained by higher self-disclosure in these profile texts than typical profiles such as in study two. The context certainly affected perceptive accuracy, with none at all possible in story texts, where the non-self-related context obscures observable cues to traits. Few cues were both valid and utilised, indicating that accuracy is impeded by the lack of valid cues utilised in perception, and the utilisation of non-valid cues in making judgements. Additionally, the effect of

personality traits on attraction was examined, and this study answered a number of research questions related to whether actual or perceived traits affected attractiveness ratings, and whether actual or perceived similarity of personality traits between the author and judge affected attractiveness ratings. Due to the fact that actual traits were not accurately perceived, particularly in stories, there was no effect of actual traits on attraction, nor on actual similarity of traits and attraction, as was expected. In order for traits to have an effect, they must first be available to the perceiver. However, perceived traits did have an effect in both profiles and stories. In profiles, perceived openness was related to attractiveness, and emotional stability was not significant as a predictor, but was trending towards significance. In stories perceived agreeableness, conscientiousness and openness were related to higher attractiveness ratings. Supporting the homophilous nature of openness, perceived similarity of openness was a predictor of attractiveness in both profiles and stories.

This research is the only study which has evaluated a wide range of cues through LIWC and content analysis of stimuli texts in two contexts, and examined both the validity of the cues in relation to self-reported personality traits of the authors, and their utilisation in peer-reported perceived traits by judges. Additionally, no studies have examined attraction and personality traits, particularly the effect of perceived traits, similarity and perceived similarity of traits in online dating or in creative writing texts. This study contributes valuable findings on the accuracy of trait perception in dating profiles. It helps to explain through the findings related to cues where the perception breaks down. This helps us understand why many online daters find that they are misunderstood or incorrectly perceived and why they find it difficult to correctly perceive others (Ellison et al., 2006; Frost, Chance, Norton, & Ariely, 2008; Zytko et al., 2014).

Chapter seven: Final discussion and summary

The research questions in this thesis fall under three main themes. The first – personality expression – concerns whether or not personality is detectable in texts, what textual cues are associated with traits, and whether or not context affects the detection of traits and the cues associated with them. The second theme – accuracy of interpersonal perception – relates to whether individuals can accurately perceive traits in text, what cues they utilise to do so, whether those cues are valid or not, and whether context affects perception and utilisation of cues. The third theme – personality traits and attraction – examines whether actual or perceived traits, as well as actual or perceived similarity of traits are related to attractiveness ratings, what cues might be related to attractiveness in text, and again whether context affects those relationships.

Personality expression

The Rapid Structured Literature Review (RSLR) of expression of personality in text, as well as study one and study two sought to answer the research questions in the first theme. If personality is detectable through language analysis, what cues are related to traits, and how does context affect expression of traits. Through analysing dating profiles by the same authors across different online dating platforms in study one, and online dating profile type texts and creative writing stories in study two, cues in language and content of texts were related to traits. Linguistic Inquiry and Word Count (LIWC) was used to extract linguistic cues from the texts, and content analysis was used to examine self-disclosure, trait-related statements, and self-presentation cues in texts.

The findings of the RSLR indicated that there was substantial variability in the relationship between LIWC language categories and traits, particularly for openness, and that context appeared to drive some of that variation in results. The

contexts that appear to elicit the most valid cues, and considerable overlap in valid cues, of personality in language are those which are self-related, such as personal narratives, goals, and essays (Dunlop et al., 2017; Hirsh & Peterson, 2009; Pennebaker & King, 1999). In study two which compared a self-related context, online dating profile texts, with a non-self-related context, creative writing stories, there was only one overlapping correlation between a LIWC variable and a trait. That was a negative relationship between word count and extraversion, in both stories and profiles, and this relationship was also found in study one. Despite previous evidence that self-related content provides the most valid cues, there were mixed findings in this research. Profile texts elicited the most cues for only extraversion in study two, while stories had more valid cues for all other traits. However, when the cues are examined in terms of how they match with previous findings, interesting patterns emerge. Many of the cues related to extraversion, emotional stability, and openness in profile texts match previous findings, indicating that individuals with these traits were expressing themselves in more trait-typical language in their profiles. In stories however, most of the valid cues for these traits were not ones that had been found in any previous studies, indicating trait-atypical language. This was particularly noticeable for openness where of the 10 valid cues in stories, only one matched a previous finding. On the other hand, agreeableness and conscientiousness had quite different results. Few valid cues were found for either trait in either context, only two valid cues for each trait in profiles and three each in stories. The cues found in profiles for each trait did not match any previous findings, indicating trait-atypical language in profiles for these traits, while the cues for stories all matched previous findings indicating trait-typical language. This is the opposite to extraversion, emotional stability and openness.

It is possible that self-presentation plays a role in explaining the findings, where many people seek to present themselves as agreeable and conscientious in dating profiles because those traits are desirable in a romantic partner. This evidence supports Gosling, Ko, Mannarelli, and Morris's (2002) framework of

identity cues and behavioural residue. In online dating profiles it appears that many individuals are using language to make identity claims related to higher agreeableness as it is a highly evaluative trait, even when they do not score highly in the trait. Thus, the language and content cues related to higher agreeableness are not valid in that context as they are obscured by exaggerated or deceptive self-presentation. Whereas in extraversion, which is less evaluative, there are clearer relationships between both LIWC and content analysis variables that would be expected for that trait. Vazire and Gosling (2004) found more self-presentation for agreeableness than any other trait on personal websites, another highly controllable and self-presentational environment. Deception is known to be widespread in online dating, therefore conscientiousness in particular may be a salient trait to enhance in self-presentation (Toma et al., 2008). This may result in many people using the language of these traits obscuring the connections between actual traits and language. However, in stories, where there is less self-presentation, the more typical language of those traits may become more apparent as it correlates with traits. This demonstrates one way in which context can influence the way in which personality is expressed in language in texts.

Despite differences in contexts, there are several language variables that relate more consistently than others across studies and with multiple traits. However, even the most consistent of those relationships have only been found in half of the studies examined in the RSLR. For example, negative emotional words have relationships with all five traits that have replicated between three and seven times (Dunlop et al., 2017; Golbeck, Robles, Edmondson, et al., 2011; Hirsh & Peterson, 2009; Holtgraves, 2011; Li & Chignell, 2010; Pennebaker & King, 1999; Schwartz et al., 2013; Yarkoni, 2010). Positive emotion words have been related to extraversion, agreeableness, and openness between four and six times, and twice with conscientiousness and emotional stability in previous research (Dunlop et al., 2017; Golbeck, Robles, & Turner, 2011; Li & Chignell, 2010; Nowson, 2006; Pennebaker & King, 1999; Qiu et al., 2012; Schwartz et al., 2013; Yarkoni, 2010).

Emotional words appear to convey valid information regarding personality in a relatively consistent manner. Other LIWC language variables offer consistent results for a single trait, for example social words are positively related to extraversion in half of the studies examined in the RSLR (Golbeck, Robles, Edmondson, et al., 2011; Hirsh & Peterson, 2009; Nowson, 2006; Pennebaker & King, 1999; Qiu et al., 2012; Schwartz et al., 2013; Yarkoni, 2010), and death words (die, bury, grief, fatal) are negatively related to conscientiousness in six studies (Golbeck, Robles, Edmondson, et al., 2011; Hirsh & Peterson, 2009; Holtgraves, 2011; Nowson, 2006; Schwartz et al., 2013; Yarkoni, 2010). Theory supports these consistent findings, for example, one of the primary concerns of extraversion is sociability, agreeableness is concerned with positive interactions with others, and lower emotional stability is typified by unstable moods and anxiety (John et al., 2008).

In study one and two several of these reliable cues were found to relate to traits in the same way as previous research. In study one, positive emotional words were positively related to extraversion and agreeableness, as in previous research. Only two other cues that had been replicated at least three times in previous studies were related to traits, impersonal pronouns negatively with extraversion and body words (arms, head, hair, shoes, clothes) negatively with agreeableness. In study two there were similar findings, there were only five correlations, all between extraversion and LIWC variables, that had previously been replicated at least three times. Four of those correlations were found in profile texts, where extraversion was positively related to affect, positive emotion, and social words, and negatively to tentative language. Only one was found in stories, where extraversion was negatively related to impersonal pronouns. Between the five traits in total there are 59 correlations between traits and LIWC variables that have replicated at least three times, and only four of those were found in study one, and five in study two, giving weight to the evidence suggesting that while personality can be detected in text to a degree, language use is not necessarily a reliable indicator of personality, and the cues that are related to traits vary considerably between contexts and samples.

The research also indicates that some traits are more expressed in language, making it possible to detect more cues related to them. Extraversion is typically the trait with the most expressive and visible cues in face-to-face or visual contexts, as extraverts tend to talk and gesticulate more, be louder and more assertive than other traits making this trait more observable (Funder & Dobroth, 1987; Vazire, 2010). Emotional stability tends to be one of the least observable traits as it is primarily internally focused on thoughts and feelings (Funder & Dobroth, 1987; Vazire, 2010). However, in text-based contexts extraversion and emotional stability both have more valid cues that have replicated at least three times than any other trait, as well as the least number of findings that contradict each other, indicating that emotional stability may be more easily detected in text than in face to face settings. However, Wall, Taylor, Dixon, Conchie, and Ellis (2013) found that as the richness of contexts decreased, from face-to-face to text-only, extraversion and emotional stability were less accurately perceived. A possible explanation for this discrepancy may be found using Funder's Realistic Accuracy Model (2012) which looks at valid cues in two stages. Valid cues are relevant where they are correlated with target traits, and available if they are observable, that is a reader of a text could readily perceive that particular cue. Many of the cues that are relevant are not necessarily available, for example function words like "a "and "an" which we gloss over while reading (Van Petten & Kutas, 1991). These words, and some other grammatical and less overt language like pronouns may form relevant but unavailable cues which restrict the accuracy of perception. Additionally, words with low overall usage may be valid, but may not be available to observers. In study one and two many of the cues that were relevant, that is correlated with the author traits, might not be observable or available to an individual attempting to perceive traits, for example the use of pronouns, past or future tense, conjunctions, space related (in, out, apart) and motion words (run, go, drive). This leads to the second theme which addressed accuracy of perception.

Accuracy of interpersonal perception

This theme addressed the research questions regarding whether or not traits could be accurately perceived by judges in text, what cues were used in doing so, and whether context impacted on either accuracy or utilisation of cues. The RSLR of interpersonal perception of personality and the third study in the thesis examined these research questions. In study three, participants were presented with a profile text and story text from study two, which they rated for perceived personality traits as well as attractiveness. This study examined the accuracy of their perception of author traits, as well as the cues they may have utilised in making those perceptions.

In study three accuracy of perception was low, only emotional stability was accurately perceived in profile texts, with a finding for extraversion trending towards accuracy but not statistically significant. There was no accuracy of perception for any traits in story texts. The findings from the RSLR on accuracy of perception indicated that a number of factors are involved in achieving or failing to achieve accuracy. Some traits are more observable with more expressions of trait relevant cues available to judges making accuracy possible, and some traits are more evaluative than others, where they are either socially desirable or undesirable making accuracy less likely (Funder & Dobroth, 1987; Vazire, 2010). As discussed above, extraversion is typically more observable, and even in text has many valid cues that have replicated multiple times. Extraversion is also less evaluative than other traits, both low and high values on the trait are considered socially desirable. In face-to-face settings it is typically judged most accurately of all traits, and this carries over into text contexts where it is often perceived accurately, as it was in 11 of the 19 papers included in the RSLR (Apers & Derous, 2017; Borkenau et al., 2016; Burusic & Ribar, 2014; Cole et al., 2009; Dunlop et al., 2017; Frauendorfer et al., 2015; Gill & Oberlander, 2001; Holleran & Mehl, 2008; Küfner et al., 2010; Lange et al., 2019; Markey & Wells, 2002; Weidman et al., 2015). However, in

communication channels with reduced richness, accuracy may be reduced (Wall et al., 2013). Emotional stability is typically one of the traits least accurately judged by strangers in face-to-face or visual contexts as it requires some intimacy before individuals typically share this internally oriented aspect of themselves (Connelly & Ones, 2010), and Wall and colleagues also found that accuracy of perception for emotional stability is reduced as the richness of the communication medium is decreased. Despite this, the RSLR showed that emotional stability can be detected in text in several studies, though it was one of the least detected traits overall, along with agreeableness, with only eight of 19 studies achieving accuracy (Back et al., 2008; Borkenau et al., 2016; Burusic & Ribar, 2014; Dunlop et al., 2017; Frauendorfer et al., 2015; Holleran & Mehl, 2008; Qiu et al., 2012). Evaluation of those studies identifies several reasons why emotional stability is more observable in some studies than others.

Examination of the cues related to emotional stability as discussed above, showed that there are as many repeatedly replicated valid cues related to emotional stability as there are for extraversion, yet it does not achieve the same level of accuracy. However, with both traits, the context of the text is important, particularly so for emotional stability, where it is more likely to be expressed in some contexts than others. Self-related, private or limited audience contexts are better for accurately perceiving both traits, particularly when self-presentation is reduced. In fact, only one study outside of these parameters has found accuracy for emotional stability, on Twitter (Qiu et al., 2012). Extraversion has been accurately perceived in two contexts relevant to this thesis, online dating usernames (Lange et al., 2019) and Craigslist personal ads (Weidman et al., 2015) and so the finding of a trend towards accuracy for extraversion, though it was not significant in this study, is supported by previous research. Though the dating profile type texts in study three were intended to produce texts that approximated public, self-related, and self-presentational texts, there was evidence that they may have been closer to a private context than actual dating profiles. A comparison of the actual dating

profiles in study one and the profile texts in study two written specifically for the research showed considerably higher self-disclosure in study two. Participants were made aware that their texts might be viewed by others in future research, but without the motivation of online dating to seek a partner, and the knowledge that others might contact them or reject their profiles in a romantic context, it appears that different information was shared in these texts than might be typical in dating profiles. This may explain the finding of accuracy for emotional stability.

Only a single cue was utilised appropriately in judging emotional stability accurately in profile texts in study three, that was statements of ideal partner preferences from the content analysis, which had a negative relationship with emotional stability. This cue was utilised in judging all traits, all with a negative relationship, though the only valid trait was emotional stability. There were only six valid cues for this trait in the texts, and the LIWC cues that were valid were ones that might not be observable. The two other content analysis cues that were valid were positive thoughts and feelings about the self which had a positive relationship with emotional stability and negative thoughts and feelings about the self which had a negative relationship with emotional stability. Both of these were interpreted by judges as relating to agreeableness rather than emotional stability, and yet the trait was perceived accurately and to a degree consistent with previous research. The reliance on a single valid cue in judging traits may be supported by SIP theory (Walther, 1992) and research of how online daters assess attractiveness where substantial inferences can be made in CMC from small cues (Ellison et al., 2006). However, it is also possible that despite efforts to elicit all possible cues from the text as is recommended in a lens analysis type study, perhaps there were other cues that were not recognised in this study that influenced judges perceptions of the trait.

The LIWC cues that were utilised appropriately for extraversion were those typical of the trait, affect and positive emotion words, and also matched the LIWC

cues that were utilised in Weidman and colleagues' (2015) study on Craigslist personal ads, the closest similar study to this one. However, Weidman did not measure whether the cues utilised in their studies were valid or not, which this study did. Additionally, statements of both high and low extraversion from the content analysis were utilised correctly. It is somewhat surprising that despite the use of four valid trait typical cues extraversion was not accurately perceived at a significant level, however with a larger sample size it is likely that it would. The results of the analysis of the cues lend further weight to the overall research findings that extraversion is an observable trait. In story texts there were a considerable number of valid cues, but less utilised cues. Only one that was utilised correctly, the use of personal pronouns was utilised for emotional stability. The personal pronouns were used describe character thoughts, feelings and actions in stories, which may have revealed a visible aspect of this typically less visible trait. In a non-self-related context, individuals may express their traits through valid cues, but those cues do not appear to offer the judges useful, germane information in perceiving the traits of the authors. These studies, using different contextual texts from the same individuals, show that context, particularly whether or not it is self-related and public or private, appears to be the most important factor in expression and perception of personality traits in text.

Personality and attraction

The third and final theme of the research concerns whether or not perceived and actual traits as well as similarity of traits relate to attractiveness ratings awarded to the text authors and study three addressed these questions. Given that self-reported target traits were perceived poorly in profile texts in study two, and not at all accurately in stories, it is unsurprising that actual author traits were not related to attractiveness This is the case even in profile texts where emotional stability was judged accurately. Perceived traits did however have an effect on attractiveness.

Personality is an important factor in mate preferences, and despite daters listing physical attractiveness as the primary factor in attraction in online dating, with personality a little lower on the list (Whitty, 2008), personality is consistently rated as one of the primary considerations in partner preferences offline (Buss, 1989; Furnham, 2009; Todosijević et al., 2003). Emotional stability, conscientiousness, and agreeableness are consistently rated as desirable personality characteristics in romantic partners (Botwin et al., 1997; Buss, 1989; Furnham, 2009; Todosijević et al., 2003). This is unsurprising given that low emotional stability and low agreeableness strongly predict negative romantic relationship outcomes, while high conscientiousness and agreeableness predict relationship satisfaction (Karney & Bradbury, 1995). The attractiveness of openness is strongly related to homophily, those who are high in openness find it socially desirable, while those who are low in openness find high openness strongly undesirable (Konstabel, 2007). While actual traits had no relationship with attractiveness ratings, perceived traits did have a substantial relationship with attraction in both profiles and stories.

In profiles it was expected that the desirable traits for romantic relationships of perceived agreeableness, conscientiousness, emotional stability and openness would have a positive relationship with attractiveness. In this research only perceived openness was a significant predictor, with emotional stability trending towards significance. It was not expected that perceived extraversion would have the same relationship as it is less evaluative than other traits, indicating that neither pole is undesirable (Funder & Dobroth, 1987; Vazire, 2010), and this was also the case. While physical attractiveness is clearly important to online daters, likely because the first stage of filtering potential partners is through photographs making this quality more salient, this study shows that perceptions of personality in text are also substantially related to attractiveness ratings, accounting for a fifth of the variance in scores. Fiore and colleagues (2008) conducted one of the only other studies where profile texts were examined for personality qualities that contributed

to attraction. They found that men's profile texts were rated as more attractive when they were perceived to be more genuine and extraverted, as well as more feminine, while the attractiveness of women's profile texts was not related to any of the qualities they measured. They did not specifically measure perceived traits other than the single item regarding extraversion, however genuineness could also be related to conscientiousness. The results of this study conflict with those from Fiore and colleagues, however, this study begins to fill the gap in the literature regarding perception of personality and attractiveness in online dating profile texts. In stories, perceived agreeableness, conscientiousness and openness were all related to higher attractiveness scores, and explained a third of the variance in attractiveness scores in stories. It was expected that openness and agreeableness would be perceived accurately as per Küfner et al. (2010), however they were not, but those perceived traits contributed to attractiveness scores.

As well as perceived traits and attractiveness, the relationship between similarity of traits and attraction was examined in study three. There is a substantial body of evidence showing that homophily plays a part in matching, particularly in online dating where many attributes are explicitly disclosed in profiles allowing people to easily match on a variety of characteristics (Fiore, Taylor, & Zhong, 2010; Fiore & Donath, 2005; Hitsch, Hortaçsu, & Ariely, 2010). However, there is little evidence on whether or not people match on personality traits in online dating. This study provides some evidence that individuals prefer others they perceive as similar on traits. In both profile and story texts perceived similarity of openness was related to attractiveness ratings.

Of the cues examined in relation to attractiveness few had any relationship with scores. As predicted, in profiles spelling and grammar errors reduced attractiveness, as online daters have reported that these imply a lack of care and possibly a lack of education, and find them less attractive (Ellison et al., 2006; Van Der Zanden, Schouten, Mos, & Krahmer, 2019). Attempts at humour were also

related to reduced attractiveness in profiles, most likely because there are various expressions of humour, such as affiliative, self-defeating and aggressive, and not all are conducive to relationship satisfaction (Caird & Martin, 2014). Statements related to high emotional stability were related to higher attractiveness and statements of higher openness were related to lower attractiveness. Higher emotional stability is important in positive relationship outcomes (Karney & Bradbury, 1995) and is a socially desirable trait, so it makes sense that these statements would evoke higher attractiveness ratings. Higher openness is also considered a desirable trait, but only by those who are also high in openness themselves (Konstabel, 2007), and it is possible that statements related to higher openness involved interests or activities that might reveal dissimilarity, such as interests in the creative arts or politics. It is possible that positive trait related statements made have led to more intense perceptions of desirable traits, as has previously been found in CMC (Hancock & Dunham, 2001), and thus those perceived traits predicted attractiveness. There were no content analysis cues related to attractiveness in stories other than word count, and creativity or story quality did not elicit higher ratings. Stories that were more creative or higher quality are not necessarily more likeable. Again, this reinforces the evidence found here and in previous research that context is important in perception of traits and attractiveness in text.

Summary of contribution to knowledge

There is evidence that daters find it difficult to convey an accurate impression of the complexity and subtlety of their attributes and characteristics and that this can result in anxiety and fear of rejection (Zytko et al., 2014). It is also difficult for daters to form accurate perceptions of others from online dating profiles, particularly of their experiential qualities such as personality, and chemistry, and this frequently leads to frustration, anxiety, confusion and often disappointment upon first meeting face-to-face (Frost et al., 2008; Smith, 2016; Zytko et al., 2014).

This research examined how people expressed their personality through language in dating profile texts and stories, and how others perceived their personality in those texts. It also examined the cues that were related to traits in expression and that were utilised in perception of personality, in an attempt to see where the process of accurate perception breaks down. The findings illustrate clearly how the process of perception of traits is made difficult. While there are relationships between language and personality, this thesis shows that these are not consistent across contexts, even when written by the same individuals at the same point in time, and thus trait-typical language is not a reliable source of information on personality. Individuals express themselves differently in different situations, and perceivers often utilise cues incorrectly in making judgements. Sometimes perceivers utilise trait-typical cues in situations where those are not valid, sometimes they utilise cues that are not trait relevant at all. While some accuracy of perception is possible, it is context dependent and unreliable, and given the findings of this thesis it is not surprising that online daters frequently misjudge the personality of others.

In addition, this research examined the effects of personality, and similarity of personality on attractiveness in online dating and story texts, which had not been examined previously. The results of study three support the findings Tidwell, Eastwick, and Finkel's (2013) that actual similarity can only affect attraction when it is perceivable, whereas perceived traits and perceived similarity can relate to attraction without accurate perception of traits. In their study the cognitive demands of the speed dating environment made it more difficult for daters to accurately perceive traits, whereas in online dating profile texts the unreliability of trait-language relationships in text drives the lack of perception.

Implications

This thesis illustrates the complexity of accuracy of interpersonal perception in text, and how context drives a considerable amount of the variation in achievement of accuracy. Two specific factors related to contexts are particularly important in this, whether or not the content of the text is self-related, and the perceived audience for the text, whether it is public or private.

It may be helpful for online daters to be aware that their lack of ability to express themselves in a way that can be perceived accurately, and similarly their inability accurately assess others' personality, is a result of the limitations of the context rather than of personal failure. This knowledge may reduce frustration and anxiety with the process of dating online. Beyond the frustrations of expression and perception in online dating there are practical implications. Unlike many CMC contexts, the purpose of online dating is to meet someone you do not already know, and to meet in real life. There are security and safety implications as to whether you get a good understanding of what someone might be like from their profile. Having knowledge that it is highly unlikely that you have an accurate perception may lead individuals to be more cautious with their safety in first meeting someone through a dating platform.

Future directions

While it was important to examine the accuracy of perception in text, particularly in relation to online dating profile texts where there was little previous research, a more holistic examination of personality perception in online dating profiles would be important in future research. Previous research has shown that photographs allow for a considerable degree of accuracy of perception (Connelly & Ones, 2010), and those combined with text may offer a more accurate perception of online daters. Given the focus on photographs in dating apps, which have become increasingly popular since this research began, this is an important

consideration. A full lens model approach which examined perceiver consensus would also give an insight into the effectiveness of self-presentation in profiles. For example, where perceivers have high agreement on perception of a trait, but that perception is not accurate, it may indicate that the profile has successfully self-presented a particular trait deceptively.

Conclusion

This thesis has offered insight into the complexity of perception of personality traits in text. It has illustrated the importance of the context and content of the texts in achieving or failing to achieve accuracy, and has shown how several factors related to context are particularly influential in achieving accuracy. While there are relationships between language and personality, some of which are relatively consistent, even the most reliable of these change with context, meaning that they are unreliable when judging traits. Self-related content, in contexts with a limited audience, are more likely to evoke replicable expression of traits in language, and are therefore more likely to result in accurate perceptions of those traits. Here online dating profiles offered limited accuracy, only emotional stability was judged accurately, with extraversion approaching significance. However, creative story texts did not allow for any accuracy of perception at all. The two contexts elicited different cues related to traits, and different cues were utilised in both contexts, indicating how varied the relationships with language are both in expression and perception. This thesis helps explain why online daters find it difficult to accurately convey an impression of themselves through their profiles, and how they find it difficult to form accurate perceptions of others in online dating.

References

Alterovitz, S. S.-R., & Mendelsohn, G. A. (2009). Partner preferences across the life span: online dating by older adults. *Psychology and Aging*, *24*(2), 513–517. https://doi.org/10.1037/a0015897

Andersen, S. M., & Ross, L. (1984). Self-knowledge and social inference: II. The impact of cognitive/affective and behavioral data. *Journal of Personality and Social Psychology*, *46*(2), 280–293. https://doi.org/10.1037/0022-3514.46.2.280

Apers, C., & Derous, E. (2017). Are they accurate? Recruiters' personality judgments in paper versus video resumes. *Computers in Human Behavior*, *73*, 9–19. https://doi.org/10.1016/j.chb.2017.02.063

Armitage, A., & Keeble-Allen, D. (2008). Undertaking a structured literature review or structuring a literature review: Tales from the field. *The Electronic Journal of Business Research Methods*, *6*(2), 103–114. Retrieved from http://books.google.co.uk/books?hl=en&lr=&id=3WJ6dTIr8iEC&oi=fnd&pg=PA35&dq=meta-ethnography&ots=rP0wf-196-&sig=NqsuitzEykhoB09fJ13CrRJuJSA

Attrill, A. (2012). Sharing Only Parts of Me: Selective Categorical Self-Disclosure Across Internet Arenas. *International Journal of Internet Science*, *7*(1), 55–77. Retrieved from http://www.ijis.net/ijis7_1/ijis7_1_attrill_v1.pdf

Bachrach, Y., Kosinski, M., Graepel, T., Kohli, P., & Stillwell, D. (2012). Personality and patterns of Facebook usage. *Proceedings of the 3rd Annual ACM Web Science Conference on - WebSci '12*, 24–32. https://doi.org/10.1145/2380718.2380722

Back, M. D., & Nestler, S. (2016). Accuracy of judging personality. In Judith A. Hall, M. Schmid Mast, & T. V. West (Eds.), *The social psychology of perceiving others accurately* (1st ed., pp. 98–124). Cambridge: Cambridge University Press.

Back, M. D., Stopfer, J. M., Vazire, S., Gaddis, S., Schmukle, S. C., Egloff, B., & Gosling, S. D. (2010). Facebook profiles reflect actual personality, not self-idealization. *Psychological Science*, *21*(3), 372–374. https://doi.org/10.1177/0956797609360756

Back, M. D, Schmukle, S. C., & Egloff, B. (2008). How extraverted is honey.bunny77@hotmail.de? Inferring personality from e-mail addresses. *Journal of Research in Personality*, *42*(4), 1116–1122.

Bareket-Bojmel, L., Moran, S., & Shahar, G. (2016). Strategic self-presentation on Facebook: Personal motives and audience response to online behavior. *Computers in Human Behavior*, *55*, 788–795. https://doi.org/10.1016/j.chb.2015.10.033

Baumeister, R. F. (1986). *Public Self and Private Self*. New York, New York: Springer. https://doi.org/10.1007/978-1-4613-9564-5

Beauducel, A., Brocke, B., & Leue, A. (2006). Energetical bases of extraversion: Effort, arousal, EEG, and performance. *International Journal of Psychophysiology*, *62*(2), 212–223. https://doi.org/10.1016/j.ijpsycho.2005.12.001

Beukeboom, C. J., Tanis, M., & Vermeulen, I. E. (2013). The language of extraversion: Extraverted people talk more abstractly, introverts are more concrete. *Journal of Language and Social Psychology*, *32*(2), 191–201.

Biesanz, J. C. (2010). The social accuracy model of interpersonal perception: Assessing individual differences in perceptive and expressive accuracy. *Multivariate Behavioral Research*, *45*(5), 853–885. https://doi.org/10.1080/00273171.2010.519262

Blackhart, G. C., Fitzpatrick, J., & Williamson, J. (2014). Dispositional factors predicting use of online dating sites and behaviors related to online dating. *Computers in Human Behavior*, *33*, 113–118. https://doi.org/10.1016/j.chb.2014.01.022

Blumer, T., & Doering, N. (2012). Are we the same online? The expression of the five factor personality traits on the computer and the Internet. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, *6*(3). https://doi.org/10.5817/CP2012-3-5

Bogg, T., & Roberts, B. W. (2004, November). Conscientiousness and health-related behaviors: A meta-analysis of the leading behavioral contributors to mortality. *Psychological Bulletin*. https://doi.org/10.1037/0033-2909.130.6.887

Borkenau, P., & Liebler, A. (1992). Trait inferences: Sources of validity at zero acquaintance. *Journal of Personality & Social Psychology*, *62*(4), 645–657. https://doi.org/https://doi.org/10.1037/0022-3514.62.4.645

Borkenau, P., & Liebler, A. (1993). Consensus and self-other agreement for trait inferences from minimal information. *Journal of Personality*, *61*(4), 477–496. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=1994-29578-001&site=ehost-live

Borkenau, P., Mosch, A., Tandler, N., & Wolf, A. (2016). Accuracy of Judgments of Personality Based on Textual Information on Major Life Domains. *Journal of Personality*, *84*(2), 214–224. https://doi.org/10.1111/jopy.12153

Botwin, M. D., Buss, D. M., & Shackelford, T. K. (1997). Personality and mate preferences: Five factors in mate selection and marital satisfaction. *Journal of Personality*, *65*(1), 107–136. https://doi.org/10.1111/j.1467-6494.1997.tb00531.x

Brody, L. R. (1993). On understanding gender differences in the expression of emotion: Gender roles, socialization, and language. In S. L. Ablon, D. Brown, E. J. Khantzian, & J. E. Mack (Eds.), *Human feelings: Explorations in affect development and meaning* (pp. 87–121). New York, New York: Routledge. https://doi.org/10.4324/9780203778821

Broniarczyk, S. M., & Griffin, J. G. (2014). Decision difficulty in the age of consumer empowerment. *Journal of Consumer Psychology*, *24*(4), 608–625. https://doi.org/10.1016/j.jcps.2014.05.003

Bryant, K., & Sheldon, P. (2017). Cyber dating in the age of mobile apps: Understanding motives, attitudes, and characteristics of users. *American Communication Journal*, *19*(2), 1–15.

Buchanan, T. (2018). Personality biases in different types of “internet samples” can influence research outcomes. *Computers in Human Behavior*, *86*, 235–244. https://doi.org/10.1016/j.chb.2018.05.002

Burusic, J., & Ribar, M. (2014). The Moderating role of self-presentation tactics. *Swiss Journal of Psychology*, *73*(4), 235–242. https://doi.org/10.1024/1421-0185/a000142

Buss, D. M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences*, *12*(01), 1. https://doi.org/10.1017/S0140525X00023992

Cacioppo, J. T., Cacioppo, S., Gonzaga, G. C., Ogburn, E. L., & VanderWeele, T. J. (2013). Marital satisfaction and break-ups differ across on-line and off-line meeting venues. *PNAS Proceedings of the National Academy of Sciences of the United States of America*, *110*(25), 10135–10140.

Caine, K., Kisselburgh, L. G., & Lareau, L. (2011). Audience visualization influences online social network disclosures. *Proceedings of the ACM SIGCHI Extended Abstracts Conference on Human Factors in Computing Systems. Vancouver, BC, Canada*, 1663–1668.

Caird, S., & Martin, R. A. (2014). Relationship-focused humor styles and relationship satisfaction in dating couples: A repeated-measures design. *Humor: International Journal of Humor Research*, *27*(2), 227–247.

Cairns, P., Cox, A., & Nordin, A. I. (2014). Immersion in digital games: Review of gaming experience research. In M. C. Angelides & H. Agius (Eds.), *Handbook of digital games* (pp. 337–361). Hoboken, New Jersey: Wiley-Blackwell. Retrieved from https://www-users.cs.york.ac.uk/~pcairns/pubs/Cairns_Handbook_Draft.pdf

Carney, D. R., Colvin, C. R., & Hall, J. A. (2007). A thin slice perspective on the accuracy of first impressions. *Journal of Research in Personality*, *41*(5), 1054–1072.

Carpenter, A., & Greene, K. (2016). Social penetration. In C. R. Berger, M. E. Roloff, S. R. Wilson, J. P. Dillard, J. Caughlin, & D. Solomon (Eds.), *The International Encyclopedia of Interpersonal Communication* (pp. 1–5). John Wiley & Sons, Inc. https://doi.org/10.1002/9781118540190.wbeic0160

Carpenter, C. J., & McEwan, B. (2016). The players of micro-dating: Individual and gender differences in goal orientations toward micro-dating apps. *First Monday*, *21*(5), 1–15. Retrieved from http://journals.sagepub.com/doi/10.1177/097542531200300111

Caspi, A., Roberts, B. W., & Shiner, R. L. (2005). Personality development: Stability and change. *Annual Review of Psychology*, *56*(1), 453–484. https://doi.org/10.1146/annurev.psych.55.090902.141913

Cemalcilar, Z., Baruh, L., Kezer, M., Kamiloglu, R. G., & Nigdeli, B. (2018). Role of personality traits in first impressions: An investigation of actual and perceived personality similarity effects on interpersonal attraction across communication modalities. *Journal of Research in Personality*, *76*, 139–149. https://doi.org/10.1016/j.jrp.2018.07.009

Chin, K., Edelstein, R. S., & Vernon, P. A. (2019). Attached to dating apps: Attachment orientations and preferences for dating apps. *Mobile Media and Communication*, *7*(1), 41–59. https://doi.org/10.1177/2050157918770696

Chung, C. K., & Pennebaker, J. W. (2008). Revealing dimensions of thinking in open-ended self-descriptions: An automated meaning extraction method for natural language. *Journal of Research in Personality*, *42*(1), 96–132. https://doi.org/10.1016/j.jrp.2007.04.006

Chung, C., & Pennebaker, J. W. (2007). The Psychological Functions of Function Words. In K. Fielder (Ed.), *Social Communication* (pp. 343–359). New York, New

York: Psychology Press. https://doi.org/10.4324/9780203837702

Clemens, C., Atkin, D., & Krishnan, A. (2015). The influence of biological and personality traits on gratifications obtained through online dating websites. *Computers in Human Behavior*, *49*, 120–129. https://doi.org/10.1016/j.chb.2014.12.058

Clever [Def. 1 & 2]. (n.d.). Retrieved July 2, 2019, from https://www.merriam-webster.com/dictionary/clever

Clifton, A. (2014). Variability in personality expression across contexts: A social network approach. *Journal of Personality*, *82*(2), 103–115. https://doi.org/10.1111/jopy.12038

Cole, J. C., Muenz, T. A., Ouchi, B. Y., Kaufman, N. L., & Kaufman, A. S. (1997). The impact of pictorial stimulus on written expression output of adolescents and adults. *Psychology in the Schools*, *34*(1), 1–9. https://doi.org/10.1002/(SICI)1520-6807(199701)34:1<1::AID-PITS1>3.0.CO;2-V

Cole, M. S., Feild, H. S., Giles, W. F., & Harris, S. G. (2009). Recruiters' inferences of applicant personality based on resume screening: Do paper people have a personality? *Journal of Business and Psychology*, *24*(1), 5–18. https://doi.org/10.1007/s10869-008-9086-9

Cole, M. S., Feild, H. S., & Stafford, J. O. (2005). Validity of Resumé reviewers' inferences concerning applicant personality based on resumé evaluation. *International Journal of Selection and Assessment*, *13*(4), 321–324.

Connelly, B. S., & Ones, D. S. (2010). An other perspective on personality: Meta-analytic integration of observers' accuracy and predictive validity. *Psychological Bulletin*, *136*(6), 1092–1122.

Constantinescu, P.-M., & Constantinescu, I. (2016). The adaptation of the Big-Five IPIP-50 Questionnaire in Romania revisited. *Bulletin of the Transilvania University of Braşov, Series VII: Social Sciences and Law*, *9*(1), 129–138.

Correa, T., Hinsley, A. W., & de Zúñiga, H. G. (2010). Who interacts on the Web?: The intersection of users' personality and social media use. *Computers in Human Behavior*, *26*(2), 247–253. https://doi.org/10.1016/j.chb.2009.09.003

Costa, P. T., & McCrae, R. R. (1980). Influence of extraversion and neuroticism on subjective well-being: Happy and unhappy people. *Journal of Personality and Social Psychology*, *38*(4), 668–678. https://doi.org/10.1037/0022-3514.38.4.668

Craigslist. (2019). Retrieved July 4, 2019, from https://craigslist.org

Credé, M., Harms, P., Niehorster, S., & Gaye-Valentine, A. (2012). An evaluation of the consequences of using short measures of the Big Five personality traits. *Journal of Personality and Social Psychology*, *102*(4), 874–888. https://doi.org/10.1037/a0027403

Crystal, D. (2011). *Internet Linguistics: A Student Guide*. Abingdon, England/New York: Routledge.

Daft, R. L., & Lengel, R. H. (1983). Information Richness: A New Approach to Managerial Behavior and Organization Design. *Organizations As Information Processing Systems: Office of Naval Research Technical Report Series*, 73.

Dainton, M., & Stafford, L. (1993). Routine maintenance behaviors: A comparison of relationship type, partner similarity and sex differences. *Journal of Social and Personal Relationships*, *10*(2), 255–271. https://doi.org/10.1177/026540759301000206

Darbyshire, D., Kirk, C., Wall, H. J., & Kaye, L. K. (2016). Don't judge a (Face)book by its cover: exploring judgement accuracy of others' personality on Facebook. *Computers in Human Behavior*, *58*, 380–387. https://doi.org/10.1016/j.chb.2016.01.021

Derks, D., Bos, A. E. R., & Grumbkow, J. von. (2007). Emoticons and social interaction on the Internet: the importance of social context. *Computers in Human Behavior*, *23*(1), 842–849. https://doi.org/10.1016/j.chb.2004.11.013

Derks, D., Bos, A. E. R., & von Grumbkow, J. (2008). Emoticons in computer-mediated communication: Social motives and social context. *CyberPsychology & Behavior*, *11*(1), 99–101. https://doi.org/10.1089/cpb.2007.9926

Dinh, R., Gildersleve, P., & Yasseri, T. (2018). Computational courtship : Understanding the evolution of online dating through large-scale data analysis. *ArXiv Preprint*, 1–19. Retrieved from https://arxiv.org/abs/1809.10032

Duguay, S. (2016). Dressing up Tinderella: interrogating authenticity claims on the mobile dating app Tinder. *Information Communication and Society*, *20*(3), 351–367. https://doi.org/10.1080/1369118X.2016.1168471

Dunlop, W. L., McCoy, T. P., & Staben, O. (2017). From personal goals disclosed to personality judgments composed: Trait perceptions made on the basis of idiographic goals. *Journal of Research in Personality*, *68*, 82–87.

Durkin, K., Conti-Ramsden, G., & Walker, A. J. (2010). Computer-mediated communication in adolescents with and without a history of specific language impairment (SLI). *Computers in Human Behavior*, *26*(2), 176–185. https://doi.org/10.1016/j.chb.2009.10.007

Eagly, A. H., & Wood, W. (1999). The origins of sex differences in human behavior: Evolved dispositions versus social roles. *American Psychologist*, *54*(6), 408–423. https://doi.org/10.1037/0003-066X.54.6.408

Eastwick, P. W., Finkel, E. J., & Eagly, A. H. (2011). When and why do ideal partner preferences affect the process of initiating and maintaining romantic relationships? *Journal of Personality and Social Psychology*, *101*(5), 1012–1032. https://doi.org/10.1037/a0024062

Eastwick, P. W., Luchies, L. B., Finkel, E. J., & Hunt, L. L. (2014). The predictive validity of ideal partner preferences: A review and meta-analysis. *Psychological Bulletin*, *140*(3), 623–665. https://doi.org/10.1037/a0032432

Eftekhar, A., Fullwood, C., & Morris, N. (2014). Capturing personality from Facebook photos and photo-related activities: How much exposure do you need? *Computers in Human Behavior*, *37*, 162–170. https://doi.org/10.1016/j.chb.2014.04.048

Ellison, N. B., & Hancock, J. T. (2013). Profile as promise: Honest and deceptive signals in online dating. *IEEE Security and Privacy*, *11*(5), 84–88. https://doi.org/10.1109/MSP.2013.120

Ellison, N. B., Hancock, J. T., & Toma, C. L. (2011). Profile as promise: A framework for conceptualizing veracity in online dating self-presentations. *New Media & Society*, *14*(1), 45–62. https://doi.org/10.1177/1461444811410395

Ellison, N., Heino, R., & Gibbs, J. (2006). Managing impressions online: Self-presentation processes in the online dating environment. *Journal of Computer-Mediated Communication*, *11*(2), 415–441. https://doi.org/10.1111/j.1083-6101.2006.00020.x

Emanuel, L., Neil, G. J., Bevan, C., Fraser, D. S., Stevenage, S. V, Whitty, M. T., & Jamison-Powell, S. (2014). Who am I? Representing the self offline and in different online contexts. *Computers in Human Behavior*, *41*, 146–152.

Ernst, C.-P. H., Huschens, M., Herrmann, S., & Hoppe, L. (2018). The influence of emoticons on the perception of job-related emails: An analysis based on the four-ear model. *MKWI 2018 - Multikonferenz Wirtschaftsinformatik*, *2018-March*, 121–132.

Ernst, C.-P., & Huschens, M. (2019). Friendly, Humorous, Incompetent? On the Influence of emoticons on interpersonal perception in the workplace. In *Proceedings of the 52nd Hawaii International Conference on System Sciences* (Vol. 6, pp. 779–788). HICSS. https://doi.org/10.24251/hicss.2019.095

Faris, R. E. L., Hall, C. S., & Lindzey, G. (1957). Theories of Personality. *American Sociological Review*, *22*(4), 471. https://doi.org/10.2307/2089174

Fast, L. A., & Funder, D. C. (2008). Personality as manifest in word use: Correlations with self-report, acquaintance report, and behavior. *Journal of Personality and Social Psychology*, *94*(2), 334–346. https://doi.org/10.1037/0022-3514.94.2.334

Fast, L. A., & Funder, D. C. (2010). Gender differences in the correlates of self-referent word use: Authority, entitlement, and depressive symptoms. *Journal of Personality*, *78*(1), 313–338.

Figueredo, A. J., Sefcek, J. A., & Jones, D. N. (2006). The ideal romantic partner personality. *Personality and Individual Differences*, *41*(3), 431–441.

Finkel, E. J., Eastwick, P. W., Karney, B. R., Reis, H. T., & Sprecher, S. (2012). Online Dating: A critical analysis from the perspective of psychological science. *Psychological Science in the Public Interest*, *13*(1), 3–66.

Fiore, A. T. (2010). *Self-presentation, interpersonal perception, and partner selection in computer-mediated relationship formation* (Doctoral dissertation, UC Berkeley).

Fiore, A. T., & Donath, J. S. (2005). Homophily in online dating: when do you like someone like yourself? In *CHI'05 extended abstracts on Human factors in computing systems* (p. 1374). ACM. Retrieved from http://portal.acm.org/citation.cfm?id=1056808.1056919

Fiore, A. T., Shaw Taylor, L., & Cheshire, C. (2011). Predicting relationship outcomes in online dating: A longitudinal survey. In *Proceedings of the 2011 iConference* (pp. 670–671). Seattle, Washington: ACM. https://doi.org/10.1145/1940761.1940862

Fiore, A. T., Shaw Taylor, L., Mendelsohn, G. A., & Cheshire, C. (2010). Whom we (say we) want: Stated and actual preferences in online dating. In *Poster presented at the Eleventh Annual Meeting of the Society for Personality and Social Psychology,*. Las Vegas, NV. Retrieved from http://people.ischool.berkeley.edu/~atf/papers/spsp2010_stated_actual_poster.pdf

Fiore, A. T., Shaw Taylor, L., Mendelsohn, G. A., & Hearst, M. (2008). Assessing attractiveness in online dating profiles. *Proceeding of the Twenty-Sixth Annual CHI Conference on Human Factors in Computing Systems - CHI '08*, (1992), 797. https://doi.org/10.1145/1357054.1357181

Fiore, A. T., Shaw Taylor, L., Zhong, X., Mendelsohn, G. A., & Cheshire, C. (2010). Who's right and who writes: People, profiles, contacts, and replies in online dating. *Proceedings of the Annual Hawaii International Conference on System Sciences*. https://doi.org/10.1109/HICSS.2010.444

Fraley, R. C., Waller, N. G., & Brennan, K. A. (2005). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, *78*(2), 350–365. https://doi.org/10.1037/0022-3514.78.2.350

Frauendorfer, D., Mast, M. S., & Sutter, C. (2015). To include, or not to include? Accuracy of personality judgments from resumes with and without photographs. *Swiss Journal of Psychology*, *74*(4), 207–215.

Frost, J. H., Chance, Z., Norton, M. I., & Ariely, D. (2008). People are experience goods: Improving online dating with virtual dates. *Journal of Interactive Marketing*, *22*(1), 51–61.

Fullwood, C., & Attrill-Smith, A. (2017). Up-dating: Ratings of perceived dating success are better online than offline. *Cyberpsychology, Behavior, and Social Networking*, *21*(11), 11–16.

Fullwood, C., Melrose, K., Morris, N., & Floyd, S. (2013). Sex, blogs, and baring your soul: Factors influencing UK blogging strategies. *Journal of the American Society for Information Science and Technology*, *64*(2), 345–355. https://doi.org/10.1002/asi

Fullwood, C., Quinn, S., Chen-Wilson, J., Chadwick, D., & Reynolds, K. (2015). Put on a smiley face: Textspeak and personality perceptions. *Cyberpsychology, Behavior, and Social Networking*, *18*(3), 147–151.

Funder, D. C. (2012). Accurate personality judgment. *Current Directions in Psychological Science*, *21*(3), 177–182. https://doi.org/10.1177/0963721411422058

Funder, D. C., & Dobroth, K. M. (1987). Differences between traits: Properties associated with interjudge agreement. *Journal of Personality and Social Psychology*, *52*(2), 409–418. https://doi.org/10.1037/0022-3514.52.2.409

Funder, D. C., Levine, J. M., Mackie, D. M., Morf, C. C., Sansone, C., Vazire, S., & West, S. G. (2014). Improving the dependability of research in personality and social psychology: Recommendations for research and educational practice. *Personality and Social Psychology Review*, *18*(1), 3–12. https://doi.org/10.1177/1088868313507536

Funder, D. C., & Ozer, D. J. (2019). Evaluating effect size in psychological research: Sense and nonsense. *Advances in Methods and Practices in Psychological Science*, *2*(2), 156–168.

Furnham, A. (2009). Sex differences in mate selection preferences. *Personality and Individual Differences*, *47*(4), 262–267. https://doi.org/10.1016/j.paid.2009.03.013

Gatter, K., & Hodkinson, K. (2016). On the differences between Tinder (TM) versus online dating agencies: Questioning a myth. An exploratory study. *Cogent Psychology*, *3*. https://doi.org/http://dx.doi.org/10.1080/23311908.2016.1162414

Gibbs, J. L., Ellison, N. B., & Heino, R. D. (2006). Self-presentation in online personals: The role of anticipated future interaction, self-disclosure, and perceived success in internet dating. *Communication Research*, *33*(2), 152–177. https://doi.org/10.1177/0093650205285368

Gibbs, J. L., Ellison, N. B., & Lai, C.-H. (2011). First comes love, then comes Google: An investigation of uncertainty reduction strategies and self-disclosure in online dating. *Communication Research*, *38*(1), 70–100. https://doi.org/10.1177/0093650210377091

Gignac, G. E., & Szodorai, E. T. (2016). Effect size guidelines for individual differences researchers. *Personality and Individual Differences*, *102*(December), 74–78. https://doi.org/10.1016/j.paid.2016.06.069

Gill, A. J. (2003). *Personality and Language: The projection and perception of personality in computer-mediated communication*. University of Edinburgh.

Gill, A. J., & Oberlander, J. (2001). Perception of e-mail personality at zero-acquaintance: Extraversion takes care of itself; Neuroticism is a worry. *25th Annual Conference of the Cognitive Science Society*, 456–461.

Gill, A. J., & Oberlander, J. (2002). Taking care of the linguistic features of extraversion. In *Proceedings of the Annual Meeting of the Cognitive Science Society*. Retrieved from https://escholarship.org/uc/item/6n5652cx

Gill, M. J., & Swann, W. B. (2004). On What It Means to Know Someone: A Matter of Pragmatics. *Journal of Personality and Social Psychology*, *86*(3), 405–418. https://doi.org/10.1037/0022-3514.86.3.405

Goffman, E. (1959). *The Presentation of Self in Everyday Life* (3rd ed.). Penguin Books. https://doi.org/10.2307/258197

Golbeck, J., Robles, C., Edmondson, M., & Turner, K. (2011). Predicting personality from Twitter. *Proceedings - 2011 IEEE International Conference on Privacy, Security, Risk and Trust and IEEE International Conference on Social Computing, PASSAT/SocialCom 2011*, 149–156. https://doi.org/10.1109/PASSAT/SocialCom.2011.33

Golbeck, J., Robles, C., & Turner, K. (2011). Predicting personality with social media. *Proceedings of the 2011 Annual Conference Extended Abstracts on Human Factors in Computing Systems - CHI EA '11*, 253. https://doi.org/10.1145/1979742.1979614

Goldberg, L. R. (n.d.). International Personality Item Pool. Retrieved February 19, 2017, from https://ipip.ori.org/

Goldberg, L. R. (1999). A broad-bandwith, public-domain, personality inventory measuring the lower-level facets of several Five-Factor models. In I. Mervielde, I. J. Deary, F. de Fruyt, & F. Ostendorf (Eds.), *Personality Psychology in Europe* (Vol. 7, pp. 7–28). Tilburg: Tilburg University Press.

Gosling, S. D., Augustine, A. A., Vazire, S., Holtzman, N., & Gaddis, S. (2011). Manifestations of personality in online social networks: Self-reported Facebook-related behaviors and observable profile information. *Cyberpsychology, Behavior, and Social Networking*, *14*(9), 483–488. https://doi.org/10.1089/cyber.2010.0087

Gosling, S. D., Ko, S. J., Mannarelli, T., & Morris, M. E. (2002). A room with a cue: Personality judgments based on offices and bedrooms. *Journal of Personality and Social Psychology*, *82*(3), 379–398.

Gosling, S. D., Rentfrow, P. J., & Swann, W. B. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality*, *37*(6), 504–528. https://doi.org/10.1016/S0092-6566(03)00046-1

Gow, A. J., Whiteman, M. C., Pattie, A., & Deary, I. J. (2005). Goldberg's "IPIP" Big-Five factor markers: Internal consistency and concurrent validation in Scotland. *Personality and Individual Differences*, *39*(2), 317–329. https://doi.org/10.1016/j.paid.2005.01.011

Graham, L. T., & Gosling, S. D. (2012). Impressions of World of Warcraft players ' personalities based on their usernames: Interobserver consensus but no accuracy. *Journal of Research in Personality*, *46*(5), 599–603. https://doi.org/10.1016/j.jrp.2012.05.002

Guadagno, R. E., Okdie, B. M., & Kruse, S. A. (2012). Dating deception: Gender, online dating, and exaggerated self-presentation. *Computers in Human Behavior*, *28*(2), 642–647. https://doi.org/10.1016/j.chb.2011.11.010

Halberstam, Y., & Knight, B. (2014). *Homophily, group size, and the diffusion of political information in social networks: Evidence from Twitter* (NBER working paper series No. 20681). Cambridge, MA. Retrieved from https://www.nber.org/papers/w20681.pdf

Hall, Jeffrey. A. (2014). First comes social networking, then comes marriage? Characteristics of Americans married 2005-2012 who met through social networking sites. *Cyberpsychology, Behavior, and Social Networking*, *17*(5), 322–326. https://doi.org/10.1089/cyber.2013.0408

Hall, Judith. A., Andrzejewski, S. A., Murphy, N. A., Schmid Mast, M., & Feinstein, B. A. (2008). Accuracy of judging others' traits and states: Comparing mean levels across tests. *Journal of Research in Personality*, *42*(6), 1476–1489.

Hall, Judith. A., Goh, J. X., Mast, M. S., & Hagedorn, C. (2016). Individual differences in accurately judging personality from text. *Journal of Personality*, *84*(4), 433–445. https://doi.org/10.1111/jopy.12170

Hall, Jeffrey. A., Park, N., Song, H., & Cody, M. J. (2010). Strategic misrepresentation in online dating: The effects of gender, self-monitoring, and personality traits. *Journal of Social and Personal Relationships*, *27*(1), 117–135. https://doi.org/10.1177/0265407509349633

Hall, Jeffrey. A., & Pennington, N. (2013). Self-monitoring, honesty, and cue use on Facebook: The relationship with user extraversion and conscientiousness. *Computers in Human Behavior*, *29*(4), 1556–1564. https://doi.org/10.1016/j.chb.2013.01.001

Hall, Jeffrey. A., Pennington, N., & Lueders, A. (2014). Impression management and formation on Facebook: A lens model approach. *New Media & Society*, *16*(6), 958–982. https://doi.org/10.1177/1461444813495166

Hall, Judith. A., Schmid Mast, M., & West, T. V. (Eds.). (2016). *The social psychology of perceiving others accurately*. Cambridge: Cambridge University Press.

Hancock, J. T., & Dunham, P. J. (2001). Impression formation in computer-mediated communication revisited - An analysis of the breadth and intensity of impressions. *Communication Research*, *28*(3), 325–347. https://doi.org/10.1177/009365001028003004

Hancock, J. T., & Toma, C. L. (2009). Putting your best face forward: The accuracy of online dating photographs. *Journal of Communication*, *59*(2), 367–386. https://doi.org/10.1111/j.1460-2466.2009.01420.x

Heino, R. D., Ellison, N. B., & Gibbs, J. L. (2010). Relationshopping: Investigating the

market metaphor in online dating. *Journal of Social and Personal Relationships*, *27*(4), 427–447. https://doi.org/10.1177/0265407510361614

Hemphill, J. F. (2003). Interpreting the magnitudes of correlation coefficients. *American Psychologist*, *58*(1), 78–79. https://doi.org/10.1037/0003-066X.58.1.78

Higgins, E. T. (1987). Self-discrepancy: A theory relating self and affect. *Psychological Review*, *94*(3), 319–340. https://doi.org/10.1037/0033-295X.94.3.319

Hiltz, S. R., & Turoff, M. (1978). *The network nation: Human communication via computer*. New York: Addison-Wesley.

Hirschmueller, S., Egloff, B., Nestler, S., & Back, M. D. (2013). The dual lens model: A comprehensive framework for understanding self-other agreement of personality judgments at zero acquaintance. *Journal of Personality and Social Psychology*, *104*(2), 335–353.

Hirschmüller, S., Egloff, B., Schmukle, S. C., Nestler, S., & Back, M. D. (2015). Accurate judgments of neuroticism at zero acquaintance: A question of relevance. *Journal of Personality*, *83*(2), 221–228. https://doi.org/10.1111/jopy.12097

Hirsh, J. B., & Peterson, J. B. (2009). Personality and language use in self-narratives. *Journal of Research in Personality*, *43*(3), 524–527.

Hitsch, G. J., Hortaçsu, A., & Ariely, D. (2010). What makes you click?–Mate preferences in online dating. *Quantitative Marketing and Economics*, *8*(4), 393–427. https://doi.org/10.1007/s11129-010-9088-6

Hogan, B., Dutton, W. H., & Li, N. (2011). *A global shift in the social relationships of networked individuals: Meeting and dating online comes of age*. Oxford, England. https://doi.org/http://dx.doi.org/10.2139/ssrn.1763884

Hollenbaugh, E. E., & Everett, M. K. (2013). The effects of anonymity on self-disclosure in blogs: An application of the online disinhibition effect. *Journal of Computer-Mediated Communication*, *18*(3), 283–302. https://doi.org/10.1111/jcc4.12008

Holleran, S. E., & Mehl, M. R. (2008). Let me read your mind: Personality judgments based on a person's natural stream of thought. *Journal of Research in Personality*, *42*(3), 747–754.

Holmboe, K. (2016). Surgency. In V. Zeigler-Hill & T. K. Shackelford (Eds.), *Encyclopedia of Personality and Individual Differences*. Springer International Publishing. https://doi.org/10.1007/978-3-319-28099-8

Holtgraves, T. (2011). Text messaging, personality, and the social context. *Journal of Research in Personality*, *45*(1), 92–99. https://doi.org/10.1016/j.jrp.2010.11.015

Huber, G. A., & Malhotra, N. (2017). Political homophily in social relationships: Evidence from online dating behavior. *Journal of Politics*, *79*(1), 269–283.

Hughes, D. J., Rowe, M., Batey, M., & Lee, A. (2012). A tale of two sites: Twitter vs. Facebook and the personality predictors of social media usage. *Computers in Human Behavior*, *28*(2), 561–569. https://doi.org/10.1016/j.chb.2011.11.001

Human, L. J., Biesanz, J. C., Finseth, S. M., Pierce, B., & Le, M. (2014). To thine own self be true: Psychological adjustment promotes judgeability via personality–behavior congruence. *Journal of Personality and Social Psychology*, *106*(2), 286–303.

Human, L. J., Biesanz, J. C., Parisotto, K. L., & Dunn, E. W. (2012). Your best self helps reveal your true self: Positive self-presentation leads to more accurate personality impressions. *Social Psychological and Personality Science*, *3*(1), 23–30. https://doi.org/10.1177/1948550611407689

Human, L. J., Sandstrom, G. M., Biesanz, J. C., & Dunn, E. W. (2012). Accurate first impressions leave a lasting impression: The long-term effects of distinctive self-other agreement on relationship development. *Social Psychological and Personality Science*, *4*(4), 395–402. https://doi.org/10.1177/1948550612463735

Iacobelli, F., Gill, A. J., Nowson, S., & Oberlander, J. (2011). Large scale personality classification of bloggers. *Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, *6975 LNCS*(PART 2), 568–577. https://doi.org/10.1007/978-3-642-24571-8_71

Ivcevic, Z., & Ambady, N. (2012). Personality impressions from identity claims on Facebook. *Psychology of Popular Media Culture*, *1*(1), 38–45. https://doi.org/10.1037/a0027329

Iyengar, S. S., & Lepper, M. R. (2000). When choice is demotivating: Can one desire too much of a good thing? *Journal of Personality and Social Psychology*, *79*(6), 995–1006. https://doi.org/10.1037/0022-3514.79.6.995

Jin, S. V., & Martin, C. (2015). “A match made…online?” The effects of user-generated online dater profile types (free-spirited versus uptight) on other users’ perception of trustworthiness, interpersonal attraction, and personality. *Cyberpsychology, Behavior, and Social Networking*, *18*(6), 320–327. https://doi.org/10.1089/cyber.2014.0564

John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative big five trait taxonomy. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (3rd ed., pp. 114–158). New York, New York: Guilford Publications. https://doi.org/10.1080/00397910008087449

Joinson, A. N. (1998). Disinhibition and the Internet. In J. Gackenbach (Ed.), *Psychology and the Internet* (pp. 43–60). San Diego, CA, US: Academic Press.

Joinson, A. N. (2007). Disinhibition and the Internet. In J. Gackenbach (Ed.), *Psychology and the Internet. Intrapersonal, Interpersonal, and Transpersonal Implications* (2nd ed., pp. 75–92). Academic Press. https://doi.org/10.1016/B978-012369425-6/50023-0

Joinson, A. N., Reips, U., Buchanan, T., & Schofield, C. B. P. (2010). Privacy, trust and self-disclosure online. *Human–Computer Interaction*, *25*(1), 1–24.

Kahn, J. H., Tobin, R. M., Massey, A. E., & Anderson, J. A. (2007). Measuring emotional expression with the Linguistic Inquiry and Word Count. *The American Journal of Psychology*, *120*(2), 263–286.

Kang, T., & Hoffman, L. H. (2011). Why would you decide to use an online dating site? Factors that lead to online dating. *Communication Research Reports*, *28*(3), 205–213. https://doi.org/10.1080/08824096.2011.566109

Karney, B. R., & Bradbury, T. N. (1995). The longitudinal course of marital quality and stability: A review of theory, method, and research. *Psychological Bulletin*, *118*(1), 3–34. https://doi.org/10.1037/0033-2909.118.1.3

Kennedy, M. (2018). Craigslist Shuts Down Personals Section After Congress Passes Bill On Trafficking. Retrieved April 20, 2019, from https://www.npr.org/sections/thetwo-way/2018/03/23/596460672/craigslist-shuts-down-personals-section-after-congress-passes-bill-on-traffickin?t=1556314422589

Konstabel, K. (2007). *' The more like me , the better ': Individual differences in social desirability ratings of personality items. Unpublished manuscript*. Estonia.

Kreager, D. A., Cavanagh, S. E., Yen, J., & Yu, M. (2014). "Where have all the good men gone?" Gendered interactions in online dating. *Journal of Marriage and Family*, *76*(2), 387–410. https://doi.org/10.1111/jomf.12072

Küfner, A. C. P., Back, M. D., Nestler, S., & Egloff, B. (2010). Tell me a story and I will tell you who you are! Lens model analyses of personality and creative writing. *Journal of Research in Personality*, *44*(4), 427–435. https://doi.org/10.1016/j.jrp.2010.05.003

Lakens, D. (2013). Calculating and reporting effect sizes to facilitate cumulative science: a practical primer for t-tests and ANOVAs. *Frontiers in Psychology*, *4*(November), 1–12. https://doi.org/10.3389/fpsyg.2013.00863

Lange, B. P., von Andrian-Werburg, M. T. P., Adler, D. C., & Zaretsky, E. (2019). The name is the game: Nicknames as predictors of personality and mating strategy in online dating. *Frontiers in Communication*, *4*(3). https://doi.org/10.3389/fcomm.2019.00003

Language [Def. 1b1]. (n.d.). Retrieved April 21, 2019, from https://www.merriam-webster.com/dictionary/language

Lapidot-Lefler, N., & Barak, A. (2012). Effects of anonymity, invisibility, and lack of eye-contact on toxic online disinhibition. *Computers in Human Behavior*, *28*(2), 434–443. https://doi.org/10.1016/j.chb.2011.10.014

Lapidot-Lefler, N., & Barak, A. (2015). The benign online disinhibition effect: Could situational factors induce self-disclosure and prosocial behaviors? *Cyberpsychology*, *9*(2). https://doi.org/10.5817/CP2015-2-3

Lea, M., & Spears, R. (2009). Paralanguage and social perception in computer-mediated communication. *Journal of Organizational Computing*, *2*(3–4), 321–341. https://doi.org/10.1080/10919399209540190

Leary, M. R. (1996). *Self-presentation: Impression management and interpersonal behavior.* Boulder, CO: Westview Press.

Leary, M. R., & Allen, A. B. (2011). Personality and persona: Personality processes in self-presentation. *Journal of Personality*, *79*(6), 889–916.

Leary, M. R., & Kowalski, R. M. (1990). Impression management: A literature review and two-component model. *Psychological Bulletin*, *107*(1), 34–47. https://doi.org/10.1037/0033-2909.107.1.34

Lee, E., Ahn, J., & Kim, Y. J. (2014). Personality traits and self-presentation at Facebook. *Personality and Individual Differences*, *69*, 162–167.

LeFebvre, L. E. (2018). Swiping me off my feet: Explicating relationship initiation on Tinder. *Journal of Social and Personal Relationships*, *35*(9), 1205–1229. https://doi.org/10.1177/0265407517706419

Letzring, T. D. (2008). The good judge of personality: Characteristics, behaviors, and observer accuracy. *Journal of Research in Personality*, *42*(4), 914–932.

Letzring, T. D. (2014). Observer judgmental accuracy of personality: Benefits related to being a good (normative) judge. *Journal of Research in Personality*, *54*, 51–60. https://doi.org/10.1016/j.jrp.2014.05.001

Letzring, T. D., & Funder, D. C. (2018). Interpersonal Accuracy in Trait Judgments. In V. Ziegler-Hill & T. K. Shackelford (Eds.), *The SAGE Handbook of Personality and Individual Differences*. Thousand Oaks, CA: Sage.

Letzring, T. D., & Noftle, E. E. (2010). Predicting relationship quality from self-verification of broad personality traits among romantic couples. *Journal of Research in Personality*, *44*(3), 353–362. https://doi.org/10.1016/j.jrp.2010.03.008

Letzring, T. D., Wells, S. A., & Funder, D. C. (2006). Information quantity and quality affect the realistic accuracy of personality judgment. *Journal of Personality and Social Psychology*, *91*(1), 111–123.

Li, J., & Chignell, M. (2010). Birds of a feather: How personality influences blog writing and reading. *International Journal of Human-Computer Studies*, *68*(9), 589–602. https://doi.org/10.1016/j.ijhcs.2010.04.001

Liu, Y. C., Lin, C., & Huang, Y.-A. (2013). An exploration of communicating with textspeak - a social presence perspective. *The International Technology Management Review*, *3*(1), 54. https://doi.org/10.2991/itmr.2013.3.1.5

Loehlin, J. C., McCrae, R. R., Costa, P. T., & John, O. P. (1998). Heritabilities of common and measure-specific components of the Big Five Personality Factors. *Journal of Research in Personality*, *32*(4), 431–453. https://doi.org/10.1006/jrpe.1998.2225

Lovakov, A., & Agadullina, E. R. (2018). Empirically derived guidelines for interpreting effect size in social psychology. *ArXiv Preprint*, 1–15. https://doi.org/10.17605/OSF.IO/2EPC4

Luo, S. (2017). Assortative mating and couple similarity: Patterns, mechanisms, and consequences. *Social and Personality Psychology Compass*, *11*(8), e12337. https://doi.org/10.1111/spc3.12337

Mairesse, F., Walker, M. A., Mehl, M. R., & Moore, R. K. (2007). Using linguistic cues for the automatic recognition of personality in conversation and text. *Journal of Artificial Intelligence Research*, *30*, 457–500. https://doi.org/10.1613/jair.2349

Marcus, B., MacHilek, F., & Schütz, A. (2006). Personality in cyberspace: Personal Web sites as media for personality expressions and impressions. *Journal of Personality and Social Psychology*, *90*(6), 1014–1031. https://doi.org/10.1037/0022-3514.90.6.1014

Marengo, D., Giannotta, F., & Settanni, M. (2017). Assessing personality using emoji: An exploratory study. *Personality and Individual Differences*, *112*, 74–78. https://doi.org/10.1016/j.paid.2017.02.037

Markey, P. M., & Wells, S. M. (2002). Interpersonal perception in internet chat rooms. *Journal of Research in Personality*, *36*(2), 134–146. https://doi.org/10.1006/jrpe.2002.2340

Markus, H., & Nurius, P. (1986). Possible Selves. *American Psychologist*, *41*(9), 954–969. https://doi.org/10.1037/0003-066X.41.9.954

Marriott, T. C., & Buchanan, T. (2014). The true self online: Personality correlates of preference for self-expression online, and observer ratings of personality online and offline. *Computers in Human Behavior*, *32*, 171–177.

Marwick, A. E., & boyd, D. (2011). I tweet honestly, I tweet passionately: Twitter users, context collapse, and the imagined audience. *New Media & Society*, *13*(1), 114–133. https://doi.org/10.1177/1461444810365313

Masden, C., & Edwards, W. K. (2015). Understanding the role of community in online dating. *The 33rd Annual ACM Conference*, 535–544. https://doi.org/10.1145/2702123.2702417

McCrae, R. R., & Costa, P. (2008). The five factor theory of personality. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality* (3rd ed., pp. 159–181). New York, New York: Guilford Publications. https://doi.org/10.1007/978-1-4615-0763-5

McCrae, R. R., & John, O. P. (1992). An introduction to the five-factor model and its applications. *Journal of Personality*, *60*(2), 175–215. https://doi.org/10.1111/j.1467-6494.1992.tb00970.x

McCrae, R. R., & Sutin, A. R. (2009). Openness to experience. In M. R. Leary & R. H. Hoyle (Eds.), *Handbook of individual differences in social behavior* (pp. 257–273). New York: Guilford.

McCrae, R. R., Terracciano, A., Khoury, B., Nansubuga, F., Kneževič, G., Djuric Jocic, D., … Camart, N. (2005). Universal features of personality traits from the observer's perspective: Data from 50 cultures. *Journal of Personality and Social*

Psychology, *88*(3), 547–561. https://doi.org/10.1037/0022-3514.88.3.547

McGee, E., & Shevlin, M. (2009). Effect of humor on interpersonal attraction and mate selection. *The Journal of Psychology: Interdisciplinary and Applied*, *143*(1), 67–77.

McGloin, R., & Denes, A. (2018). Too hot to trust: Examining the relationship between attractiveness, trustworthiness, and desire to date in online dating. *New Media and Society*, *20*(3), 919–936. https://doi.org/10.1177/1461444816675440

Mehl, M. R., Gosling, S. D., & Pennebaker, J. W. (2006). Personality in its natural habitat: manifestations and implicit folk theories of personality in daily life. *Journal of Personality and Social Psychology*, *90*(5), 862–877. https://doi.org/10.1037/0022-3514.90.5.862

Meier, B. P., Robinson, M. D., Carter, M. S., & Hinsz, V. B. (2010). Are sociable people more beautiful? A zero-acquaintance analysis of agreeableness, extraversion, and attractiveness. *Journal of Research in Personality*, *44*(2), 293–296. https://doi.org/10.1016/j.jrp.2010.02.002

Melchers, M. C., Li, M., Haas, B. W., Reuter, M., Bischoff, L., & Montag, C. (2016). Similar personality patterns are associated with empathy in four different countries. *Frontiers in Psychology*, *7*(March), 1–12. https://doi.org/10.3389/fpsyg.2016.00290

Milanovic, B. (2019). *Capitalism, alone: The future of the system that rules the world*. Harvard University Press.

Mlacic, B., & Goldberg, L. R. (2007). An analysis of a cross-cultural personality inventory: The IPIP Big-Five factor markers in an analysis of a cross-cultural

personality inventory: The IPIP Big-Five factor markers in Croatia. *Journal of Personality Assessment*, *88*(2), 168–177. https://doi.org/10.1080/00223890701267993

Montoya, R. M., & Horton, R. S. (2014). A two-dimensional model for the study of interpersonal attraction. *Personality and Social Psychology Review*, *18*(1), 59–86. https://doi.org/10.1177/1088868313501887

Montoya, R. M., Horton, R. S., & Kirchner, J. (2008). Is actual similarity necessary for attraction? A meta-analysis of actual and perceived similarity. *Journal of Social and Personal Relationships*, *25*(6), 889–922. https://doi.org/10.1177/0265407508096700

Moore, K., & McElroy, J. C. (2012). The influence of personality on Facebook usage, wall postings, and regret. *Computers in Human Behavior*, *28*(1), 267–274. https://doi.org/10.1016/j.chb.2011.09.009

Murphy, N. A., & Hall, Judith. A. (2011). Intelligence and interpersonal sensitivity: A meta-analysis. *Intelligence*, *39*(1), 54–63. https://doi.org/10.1016/j.intell.2010.10.001

Nettle, D. (2005). An evolutionary approach to the extraversion continuum. *Evolution and Human Behavior*, *26*(4), 363–373. https://doi.org/10.1016/j.evolhumbehav.2004.12.004

Newett, L., Churchill, B., & Robards, B. (2018). Forming connections in the digital era: Tinder, a new tool in young Australian intimate life. *Journal of Sociology*, *54*(3), 346–361. https://doi.org/10.1177/1440783317728584

Nguyen, M., Bin, Y. S., & Campbell, A. (2012). Comparing online and offline self-disclosure: A systematic review. *Cyberpsychology, Behavior, and Social Networking*, *15*(2), 103–111. https://doi.org/10.1089/cyber.2011.0277

Norton, M. I., Frost, J. H., & Ariely, D. (2007). Less is more: the lure of ambiguity, or why familiarity breeds contempt. *Journal of Personality and Social Psychology*, *92*(1), 97–105. https://doi.org/10.1037/0022-3514.92.1.97

Nosko, A., Wood, E., & Molema, S. (2010). All about me: Disclosure in online social networking profiles: The case of FACEBOOK. *Computers in Human Behavior*, *26*(3), 406–418. https://doi.org/10.1016/j.chb.2009.11.012

Nowson, S. (2006). *The language of Weblogs: A study of genre and individual differences*. (Doctoral dissertation, University of Edinburgh).

Oberlander, J., & Gill, A. J. (2006). Language with character: A stratified corpus comparison of individual differences in e-mail communication. *Discourse Processes*, *42*(3), 239–270. https://doi.org/10.1207/s15326950dp4203_1

Olderbak, S. G., Malter, F., Wolf, P. S. A., Jones, D. N., & Figueredo, A. J. (2017). Predicting romantic interest at zero acquaintance: Evidence of sex differences in trait perception but not in predictors of interest. *European Journal of Personality*, *31*(1), 42–62. https://doi.org/10.1002/per.2087

Orchard, L. J., & Fullwood, C. (2010). Current Perspectives on Personality and Internet Use. *Social Science Computer Review*, *28*(2), 155–169. https://doi.org/10.1177/0894439309335115

Ozer, D. J., & Benet-Martínez, V. (2006). Personality and the Prediction of Consequential Outcomes. *Annual Review of Psychology*, *57*(1), 401–421. https://doi.org/10.1146/annurev.psych.57.102904.190127

Palomares, N. A. (2009). Women are sort of more tentative than men, aren't they? How men and women use tentative language differently, similarly, and counterstereotypically as a function of gender salience. *Communication Research*, *36*(4), 538–560. https://doi.org/10.1177/0093650209333034

Park, G., Schwartz, H. A., Eichstaedt, J. C., Kern, M. L., Kosinski, M., Stillwell, D. J., … Stillwell, M. (2014). Automatic personality assessment through social media. *Journal of Personality and Social Psychology*. https://doi.org/10.1037/pspp0000020

Pennebaker, J. W., Boyd, R. L., Jordan, K., & Blackburn, K. (2015). *The Development and Psychometric Properties of LIWC2015*. Austin, TX. https://doi.org/10.1068/d010163

Pennebaker, J. W., Chung, C. K., Ireland, M., Gonzales, A., & Booth, R. J. (2007). *The Development and Psychometric Properties of LIWC2007*. Austin & Auckland.

Pennebaker, J. W., Francis, M. E., & Booth, R. J. (2001). Lingusitic Inquiry and Word Count. *Erlbaum Publishers*.

Pennebaker, J. W., & King, L. A. (1999). Linguistic styles: language use as an individual difference. *Journal of Personality and Social Psychology*, *77*(6), 1296–1312. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/10626371

Pennebaker, J. W., & Stone, L. D. (2003). Words of wisdom: Language use over the life span. *Journal of Personality and Social Psychology*, *85*(2), 291–301.

Pennington, N., & Hall, Jeffrey. A. (2014). An analysis of humor orientation on Facebook: A lens model approach. *Humor: International Journal of Humor Research*, *27*(1), 1–21.

Pettersson, R. (1995). Associations from Pictures. In D. G. Beauchamp, R. A. Braden, & R. E. Griffin (Eds.), *Imagery and Visual Literacy: Selected Readings from the Annual Conference of the International Visual Literacy Association* (Vol. 17, pp. 136–144). Tempe, Arizona. https://doi.org/10.1080/1343943x.1997.11674514

Poley, M. E. M., & Luo, S. (2012). Social compensation or rich-get-richer? The role of social competence in college students' use of the Internet to find a partner. *Computers in Human Behavior*, *28*(2), 414–419. https://doi.org/10.1016/j.chb.2011.10.012

Purvis, J. (2017). Why Tinder is so 'evilly satisfying.' *The Conversation*.

Qiu, L., Lin, H., Ramsay, J., & Yang, F. (2012). You are what you tweet: Personality expression and perception on Twitter. *Journal of Research in Personality*, *46*(6), 710–718. https://doi.org/10.1016/j.jrp.2012.08.008

Ramirez, A., (Bryant) Sumner, E. M., Fleuriet, C., & Cole, M. (2015). When online dating partners meet offline: The effect of modality switching on relational communication between online daters. *Journal of Computer-Mediated Communication*, *20*(1), 99–114. https://doi.org/10.1111/jcc4.12101

Ranzini, G., & Lutz, C. (2017). Love at first swipe? Explaining Tinder self-presentation and motives. *Mobile Media & Communication*, *5*(1), 80–101. https://doi.org/10.1177/2050157916664559

Ranzini, G., Lutz, C., & Gouderjaan, M. (2016). Swipe right: An exploration of self-presentation and impression management on Tinder. *Proceedings of the 66th Annual Conference of the International Communication Association*.

Reicher, S. D., Spears, R., & Postmes, T. (1995). A social identity model of deindividuation phenomena. *European Review of Social Psychology*, *6*(1), 161–198. https://doi.org/10.1080/14792779443000049

Reips, U. (2002). Standards for Internet-based experimenting. *Experimental Psychology*, *49*(4), 243–256. https://doi.org/10.1027//1618-3169.49.4.243

Reips, U. D. (2000). The web experiment. In M. H. Birnbaum (Ed.), *Psychological experiments on the Internet* (pp. 89–114). San Diego, CA: Academic Press.

Rosenfeld, M. J., & Thomas, R. J. (2012). Searching for a mate: The rise of the internet as a social intermediary. *American Sociological Review*, *77*(4), 523–547.

Rouse, S. V., & Haas, H. A. (2003). Exploring the accuracies and inaccuracies of personality perception following internet-mediated communication. *Journal of Research in Personality*, *37*(5), 446–467. https://doi.org/10.1016/S0092-6566(03)00025-4

Rowatt, W. C., Cunningham, M. R., & Druen, P. B. (1998). Deception to get a date. *Personality and Social Psychology Bulletin*, *24*(11), 1228–1242. https://doi.org/10.1177/01461672982411009

Rude, S., Gortner, E.-M., & Pennebaker, J. W. (2004). Language use of depressed and depression-vulnerable college students. *Cognition & Emotion*, *18*(8), 1121–1133. https://doi.org/10.1080/02699930441000030

Saroglou, V. (2002). Religion and the five factors of personality: A meta-analytic review. *Personality and Individual Differences*, *32*(1), 15–25.

Schoendienst, V., & Dang-Xuan, L. (2011). The role of linguistic properties in online dating communication – A large-scale study of contact initiation messages. *Pacific Asia Conference on Information Systems (PACIS) 2011 Proceedings*, 169. Retrieved from http://aisel.aisnet.org/pacis2011/169

Schwartz, H. A., Eichstaedt, J. C., Kern, M. L., Dziurzynski, L., Ramones, S. M., Agrawal, M., … Ungar, L. H. (2013). Personality, gender, and age in the language of social media: The open-vocabulary approach. *PLoS ONE*, *8*(9). https://doi.org/10.1371/journal.pone.0073791

Shackelford, T. K., Schmitt, D. P., & Buss, D. M. (2005). Universal dimensions of human mate preferences. *Personality and Individual Differences*, *39*(2), 447–458. https://doi.org/10.1016/j.paid.2005.01.023

Shaw Taylor, L., Fiore, A. T., Mendelsohn, G. A., & Cheshire, C. (2011). "Out of my league": A real-world test of the matching hypothesis. *Personality and Social Psychology Bulletin*, *37*(7), 942–954. https://doi.org/10.1177/0146167211409947

Silva, R. R., Koch, M. L., Rickers, K., Kreuzer, G., & Topolinski, S. (2019). The Tinder™ stamp: Perceived trustworthiness of online daters and its persistence in neutral contexts. *Computers in Human Behavior*, *94*, 45–55. https://doi.org/10.1016/j.chb.2018.12.041

Smith, A. (2016). *15% of American adults have used online dating sites or mobile dating apps*. *Pew Research Center*. Retrieved from http://www.pewinternet.org/2016/02/11/15-percent-of-american-adults-have-used-online-dating-sites-or-mobile-dating-apps/

Smith, A., & Duggan, M. (2013). Online dating & relationships. *Pew Internet & American Life Project*, 1–57.

Soto, C. J., John, O. P., Gosling, S. D., & Potter, J. (2011). Age differences in personality traits from 10 to 65: Big Five domains and facets in a large cross-sectional sample. *Journal of Personality and Social Psychology*, *100*(2), 330–348. https://doi.org/10.1037/a0021717

Spears, R., & Lea, M. (1992). Social influence and the influence of the "social" in computer-mediated communication. *Contexts of Computer-Mediated Communication*, (November), 30–65.

Strassberg, D. S., & English, B. L. (2015). An experimental study of men's and women's personal ads. *Archives of Sexual Behavior*, *44*(8), 2249–2255.

Suler, J. (2004). The online disinhibition effect. *CyberPsychology & Behavior*, *7*(3), 321–326. https://doi.org/10.1089/1094931041291295

Sumter, S. R., Vandenbosch, L., & Ligtenberg, L. (2017). Love me Tinder: Untangling emerging adults' motivations for using the dating application Tinder. *Telematics and Informatics*, *34*(1), 67–78. https://doi.org/10.1016/j.tele.2016.04.009

Taesler, P., & Janneck, M. (2010). Emoticons and impression formation: the impact of emoticon use on the perception of online communication partners. *Gruppendynamik Und Organisationsberatung*, *41*(4), 375–384. https://doi.org/10.1007/s11612-010-0124-5

Tait, S. E., & Jeske, D. (2015). Hello stranger! Trust and self-disclosure effects on online information sharing. *International Journal of Cyber Behavior, Psychology and Learning*, *5*(1), 42–55. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2015-13163-004&site=ehost-live

Tausczik, Y. R., & Pennebaker, J. W. (2010). The psychological meaning of words: LIWC and computerized text analysis methods. *Journal of Language and Social Psychology*, *29*(1), 24–54. https://doi.org/10.1177/0261927X09351676

Tice, D. M., Butler, J. L., Muraven, M. B., & Stillwell, A. M. (1995). When modesty prevails: Differential favorability of self-presentation to friends and strangers. *Journal of Personality and Social Psychology*, *69*(6), 1120–1138. https://doi.org/10.1037/0022-3514.69.6.1120

Tidwell, N. D., Eastwick, P. W., & Finkel, E. J. (2013). Perceived, not actual, similarity predicts initial attraction in a live romantic context: Evidence from the speed-dating paradigm. *Personal Relationships*, *20*(2), 199–215. https://doi.org/10.1111/j.1475-6811.2012.01405.x

Timmermans, E., & De Caluwé, E. (2017a). Development and validation of the Tinder Motives Scale (TMS). *Computers in Human Behavior*, *70*, 341–350. https://doi.org/10.1016/j.chb.2017.01.028

Timmermans, E., & De Caluwé, E. (2017b). To Tinder or not to Tinder, that's the question: An individual differences perspective to Tinder use and motives. *Personality and Individual Differences*, *110*, 74–79.

Todosijević, B., Ljubinković, S., & Arančić, A. (2003). Mate selection criteria: A trait desirability assessment study of sex differences in Serbia. *Evolutionary Psychology*, *1*(1), 116–126. https://doi.org/10.1177/147470490300100108

Toma, C. L. (2010a). Affirming the self through online profiles. *Proceedings of the 28th International Conference on Human Factors in Computing Systems - CHI '10*, (January 2010), 1749. https://doi.org/10.1145/1753326.1753588

Toma, C. L. (2010b). Perceptions of Trustworthiness Online : The Role of Visual and Textual Information. *Psychology*, 13–21.

Toma, C. L., & Hancock, J. T. (2010). Looks and Lies: The Role of Physical Attractiveness in Online Dating Self-Presentation and Deception. *Communication Research*, *37*(3), 335–351. https://doi.org/10.1177/0093650209356437

Toma, C. L., Hancock, J. T., & Ellison, N. B. (2008). Separating fact from fiction: An examination of deceptive self-presentation in online dating profiles. *Personality and Social Psychology Bulletin*, *34*(8), 1023–1036. https://doi.org/10.1177/0146167208318067

Tskhay, K. O., & Rule, N. O. (2014). Perceptions of personality in text-based media and OSN: A meta-analysis. *Journal of Research in Personality*, *49*(1), 25–30. https://doi.org/10.1016/j.jrp.2013.12.004

Turkle, S. (1996). Parallel lives: Working on identity in virtual space. In D. Grodin & T. R. Lindlof (Eds.), *Constructing the Self in a Mediated World* (pp. 156–176). Thousand Oaks, CA: Sage Publications. https://doi.org/10.4135/9781483327488.n10

Tyson, G., Perta, V. C., Haddadi, H., & Seto, M. C. (2016). A first look at user activity on Tinder. In *Proceedings of the 2016 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining* (pp. 461–466). Davis, California: IEEE Press.

Van Der Zanden, T., Schouten, A., Mos, M., & Krahmer, E. (2019). Impression formation on online dating sites: Effects of language errors in profile texts on perceptions of profile owners' attractiveness. *Journal of Social and Personal Relationships*, *37*(3), 758–778.

https://doi.org/https://doi.org/10.1177/0265407519878787

Van Petten, C., & Kutas, M. (1991). Influences of semantic and syntactic context on open- and closed-class words. *Memory & Cognition*, *19*(1), 95–112. https://doi.org/10.3758/BF03198500

Vasalou, A., & Joinson, A. N. (2009). Me, myself and I: The role of interactional context on self-presentation through avatars. *Computers in Human Behavior*, *25*(2), 510–520. https://doi.org/10.1016/j.chb.2008.11.007

Vazire, S. (2010). Who knows what about a person? The self–other knowledge asymmetry (SOKA) model. *Journal of Personality and Social Psychology*, *98*(2), 281–300.

Vazire, S., & Carlson, E. N. (2010). Self-knowledge of personality: Do people know themselves? *Social and Personality Psychology Compass*, *4*(8), 605–620. https://doi.org/10.1111/j.1751-9004.2010.00280.x

Vazire, S., & Gosling, S. D. (2004). e-Perceptions : Personality impressions based on personal websites. *Personality Processes and Individual DIfferences*, *87*(1), 123–132. https://doi.org/10.1037/0022-3514.87.1.123

Wall, H. J., Taylor, P. J., Dixon, J., Conchie, S. M., & Ellis, D. A. (2013). Rich contexts do not always enrich the accuracy of personality judgments. *Journal of Experimental Social Psychology*, *49*(6), 1190–1195.

Walther, J. (2011). Theories of computer-mediated communication and interpersonal relations. In M. L. Knapp & J. A. Daly (Eds.), *The Handbook of Interpersonal Communication* (4th ed., pp. 443–479). USA: SAGE Publications, Inc. Retrieved from http://commres.net/wiki/_media/42241_14.pdf

Walther, J. B. (1992). Interpersonal effects in computer-mediated interaction: A relational perspective. *Communication Research*, *19*(1), 52–90. https://doi.org/10.1177/009365092019001003

Walther, J. B. (1996). Computer-mediated communication: Impersonal, interpersonal, and hyperpersonal interaction. *Communication Research*, *23*(1), 3–43. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=1996-02224-001&site=ehost-live

Walther, J. B. (2007). Selective self-presentation in computer-mediated communication: Hyperpersonal dimensions of technology, language, and cognition. *Computers in Human Behavior*, *23*(5), 2538–2557. https://doi.org/10.1016/j.chb.2006.05.002

Walther, J. B., & Parks, M. R. (2002). Cues filtered out, cues filtered in: Computer-mediated communication and relationships. In M. L. Knapp & J. A. Daly (Eds.), *Handbook of interpersonal communication* (3rd ed., pp. 529–563). Thousand Oaks, CA: Sage.

Ward, J. (2016). *Swiping, matching, chatting: Self-Presentation and self-disclosure on mobile dating apps*. *Human IT* (Vol. 13). https://doi.org/10.1177/1529100612436522

Ward, J. (2017). What are you doing on Tinder? Impression management on a matchmaking mobile app. *Information Communication and Society*, *20*(11), 1644–1659. https://doi.org/10.1080/1369118X.2016.1252412

Warkentin, D., Woodworth, M., Hancock, J. T., & Cormier, N. (2010). Warrants and deception in computer mediated communication. *Proc. CSCW 2010*, 9–12. https://doi.org/10.1145/1718918.1718922

Weidman, A. C., Cheng, J. T., Chisholm, C., & Tracy, J. L. (2015). Is she the one? Personality judgments from online personal advertisements. *Personal Relationships*, *22*(4), 591–603. https://doi.org/10.1111/pere.12097

Whitty, M., & Buchanan, T. (2009). Looking for love in so many places: Characteristics of online daters and speed daters. *Interpersona*, *44*(2), 63–86. Retrieved from http://core.kmi.open.ac.uk/download/pdf/872574.pdf

Whitty, M. T. (2008). Revealing the "real" me, searching for the "actual" you: Presentations of self on an internet dating site. *Computers in Human Behavior*, *24*(4), 1707–1723. https://doi.org/10.1016/j.chb.2007.07.002

Whitty, M. T., & Buchanan, T. (2010). What's in a screen name? Attractiveness of different types of screen names used by online daters. *International Journal of Internet Science*, *5*(1), 5–19. Retrieved from http://www.ijis.net/ijis5_1/ijis5_1_whitty_buchanan.pdf

Wojcik, S., & Hughes, A. (2019). *Sizing Up Twitter Users*. *Pew Research Center*.

Wolfson, S. (2018, August 3). New York Times racism row: how Twitter comes back to haunt you. *The Guardian*. Retrieved from https://www.theguardian.com/technology/2018/aug/03/sarah-jeong-new-york-times-twitter-posts-racism

Wood, W., & Eagly, A. H. (2002). A cross-cultural analysis of the behavior of women and men: implications for the origins of sex differences. *Psychological Bulletin*, *128*(5), 699–727. https://doi.org/10.1037/0033-2909.128.5.699

Wotipka, C. D., & High, A. C. (2016). An idealized self or the real me? Predicting attraction to online dating profiles using selective self-presentation and warranting. *COMMUNICATION MONOGRAPHS*, *83*(3), 281–302.

Yamagishi, T. (2001). Trust as a form of social intelligence. In K. Cook (Ed.), *Trust in society* (Vol. 2, pp. 121–147). Russell Sage Foundation.

Yarkoni, T. (2010). Personality in 100,000 Words: A large-scale analysis of personality and word use among bloggers. *Journal of Research in Personality*, *44*(3), 363–373. https://doi.org/10.1016/j.jrp.2010.04.001

Yee, N., Harris, H., Jabon, M., & Bailenson, J. N. (2011). The expression of personality in virtual worlds. *Social Psychological and Personality Science*, *2*(1), 5–12. https://doi.org/10.1177/1948550610379056

Zheng, L., Goldberg, L. R., Zheng, Y., Zhao, Y., Tang, Y., & Liu, L. (2008). Reliability and concurrent validation of the IPIP Big-Five factor markers in China: consistencies in factor structure between internet-obtained heterosexual and homosexual samples. *Personality & Individual Differences*, *45*(7), 649–654. https://doi.org/10.1086/597422.Tumor

Zytko, D., Freeman, G., Grandhi, S. A., Herring, S. C., & Jones, Q. (2015). Enhancing evaluation of potential dates online through paired collaborative activities. *18th ACM Conference on Computer Supported Cooperative Work & Social Computing*, 1849–1859. https://doi.org/10.1145/2675133.2675184

Zytko, D., Grandhi, S. A., & Jones, Q. (2014a). Impression management struggles in online dating. In *Proceedings of GROUP 2014* (pp. 53–62). ACM. https://doi.org/10.1145/2660398.2660410

Zytko, D., Grandhi, S. A., & Jones, Q. (2014b). Impression management through communication in online dating. In *Proceedings of CSCW 2014* (pp. 277–280).

Zytko, D., Grandhi, S. A., & Jones, Q. (2018). The (un)enjoyable user experience of online dating systems. In M. Blythe & A. Monk (Eds.), *Funology 2*. Springer, Cham. https://doi.org/https://doi.org/10.1007/978-3-319-68213-6

Zytko, D., Jones, Q., & Grandhi, S. A. (2014). Impression management and formation in online dating systems. In *Proceedings of Twenty Second European Conference on Information Systems* (pp. 1–10). Tel Aviv.

Appendices: Chapter 4

Appendix 1: Study one survey

Introduction

Differences in dating profiles between different dating platforms

Participant information sheet

What is this research about?

The purpose of this research is to learn more about how we present ourselves in different online dating platforms. This study will look at the language people use in their online dating profiles, and the information that they choose to reveal about themselves. It will compare profiles across different platforms to look for patterns. The study will also investigate the relationship between the language we use to describe ourselves and our personality traits.

This research is being conducted by Nicola Fox Hamilton, M.Sc., doctoral candidate of Psychology, under the supervision of Dr. Chris Fullwood, a Reader in the Psychology department at the University of Wolverhampton (email: C.Fullwood@wlv.ac.uk); Dr. Grainne Kirwan, Lecturer in the Institute of Art, Design and Technology, Dun Laoghaire, Ireland; and Dr. Neil Morris, Senior Lecturer in the Psychology department at the University of Wolverhampton. The study has gained approval from the behavioural sciences ethics committee of the University of Wolverhampton. If you have any questions, Ms. Fox Hamilton can be reached at N.FoxHamilton@wlv.ac.uk.

Do you qualify as a participant?

You must be 18 years or older to participate. If you are not 18 years or older, you should not participate.

You should be currently using at least one online dating website or mobile application to take part in this study. We are particularly interested in daters using Match, Plenty of Fish, eHarmony and Tinder, however users of other dating sites are also very welcome to take part in this study.

You must also be an English speaker, and your dating profile should be in English.

What is involved in the survey?

You will be asked to complete a survey comprised of a few short demographic and online dating

behaviour questions, a personality questionnaire, and you will be asked to copy and paste your “About Me” online dating profile text into the survey from the dating sites or applications you currently use.

It is important that you answer as many questions as possible, but please note that you are free to skip any questionnaire item you wish, and you are also free to withdraw from the study at any time without fear of prejudice or penalty. You will be provided with a unique participant number at the start of the survey which you should keep a record of. This allows you to contact the researchers at any point before data analysis takes place to have your data withdrawn from the study. If you wish to withdraw, please use your unique participant number in the subject line of the email so that we can identify your data.

Your participation in the study is completely voluntary. If you decide not to enter your “About Me” dating profile text into the study, you will be directed to the end of the study, as the other information to be collected serves no purpose without this, and we do not wish to engage your time without good reason.

This study takes about 20 minutes to complete.

How will your data be used?

All the data gathered in the study will be anonymous, confidential and for research purposes only.

You should remove any identifying information (such as your name, children’s names etc.) from your dating profile texts before pasting them into the survey. Where you may have forgotten to do this, the researcher will make sure to remove any such information permanently in the first analysis of the data.

Your profiles, answers to questions, demographic data and scores on the personality items will be kept confidential and all the data will be anonymous. The findings of the research may be published in the form of journal articles and conference proceedings, but your individual data will not be identifiable in any way in the published accounts. The raw data will be destroyed after no more than five years.

Please continue to the consent form

Differences in dating profiles between different dating platforms

Participant consent form

As a participant in this study you consent to the following.
Please check the box at the end of the page if you understand and agree to each statement.

If you have any questions, Ms. Fox Hamilton can be reached at N.FoxHamilton@wlv.ac.uk.

You should download a copy of this form for your records here.

- I have read the information sheet on the previous page and understand the nature of the study.
- I understand that I have the right to leave any questions blank if I do not feel comfortable completing them.
- I understand I have the right to withdraw from the study at any time.
- I understand that my data will be treated confidentially and anonymously.
- I understand that I should remove any identifying information from my dating profile texts.
- I am over the age of 18.

Unique participant number

Your unique participant number is: 1466

Please keep a note of this number. If at any point before 30/05/2017 you would prefer to have your data removed from this study please contact the researcher (Nicola Fox Hamilton; n.foxhamilton@wlv.ac.uk) with your request. You are free to withdraw from the study at any time before data analysis occurs without fear of prejudice or penalty.

If you have a University of Wolverhampton Psychology Participant Pool Unique ID Code please enter it here.

Consent to take part in the study

By clicking the below button, you certify that you are 18 years or older and that you agree to participate in this study.

- ◯ **I agree**
- ◯ I do not agree

Block 5

Differences in dating profiles between different dating platforms

Online dating

Are you currently using at least one online dating site or mobile application (or have you used a dating site or app in the last 3 months, and still have access to your dating profile text?)

- ◯ Yes
- ◯ No

Online dating: 1

Differences in dating profiles between different dating platforms

Online dating

We are aware that many daters use more than one dating site or mobile dating application. Please choose the number of online dating sites or dating apps that you currently use.

- ◯ 1
- ◯ 2

- ◯ 3
- ◯ 4
- ◯ More than 4

Online dating profile texts

For your *only or most frequently used* online dating website or mobile app please complete the following:

The name of the dating site or app.

Please copy and paste your "About Me" dating profile text from this dating site/app into the text box below.

Please make sure to remove any identifying information about yourself or others from your profile before pasting it here.

If you're unsure of how to copy and paste your profile text into this form, please see the instructions in the text box at the end of this page.

Instructions:

If you are completing this survey on a smartphone or tablet you can copy and paste from your dating app or website into this survey. Follow these steps.

1. Go to your online dating app or website. Go to your profile and select edit your profile text.

2. Press and hold your finger over the word where you want to start copying text from.
3. Drag the set of bounding handles to highlight all the text you want to copy.
4. Tap Copy on the toolbar that appears.
5. Go back to this survey and tap and hold on the field where you want to paste the text until a toolbar appears.
6. Tap Paste on the toolbar.

If you are completing this survey on a Mac or PC and use an online dating app that has no website associated with it (such as Tinder), then you will need to copy and paste from your dating app into an email on your smart phone and email it to yourself in order to copy it into this survey.

1. Go to your online dating app or website. Go to your profile and select edit your profile text.
2. Press and hold your finger over the word where you want to start copying text from.
3. Drag the set of bounding handles to highlight all the text you want to copy.
4. Tap Copy on the toolbar that appears.
5. Go to your your email application.
6. Hold on the field where you want to paste the text until a toolbar appears.
7. Tap Paste on the toolbar.
8. Email the profile to yourself.
9. On your Mac or PC, copy the profile text from your email to this survey.

Differences in dating profiles between different dating platforms

Online dating profile texts

For the online dating website or mobile app you use *second most frequently* please complete the following:

The name of the dating site or app.

Please copy and paste your "About Me" dating profile text from this dating site/app into the text box below.

Please make sure to remove any identifying information about yourself or others from your profile before pasting it here.

If you're unsure of how to copy and paste your profile text into this form, please see the instructions in the text box at the end of this page.

Instructions:

If you are completing this survey on a smartphone or tablet you can copy and paste from your dating app or website into this survey. Follow these steps.

1. Go to your online dating app or website. Go to your profile and select edit your profile text.
2. Press and hold your finger over the word where you want to start copying text from.
3. Drag the set of bounding handles to highlight all the text you want to copy.
4. Tap Copy on the toolbar that appears.
5. Go back to this survey and tap and hold on the field where you want to paste the text until a toolbar appears.
6. Tap Paste on the toolbar.

If you are completing this survey on a Mac or PC and use an online dating app that has no website associated with it (such as Tinder), then you will need to copy and paste from your dating app into an email on your smart phone and email it to yourself in order to copy it into this survey.

1. Go to your online dating app or website. Go to your profile and select edit your profile text.
2. Press and hold your finger over the word where you want to start copying text from.
3. Drag the set of bounding handles to highlight all the text you want to copy.
4. Tap Copy on the toolbar that appears.
5. Go to your your email application.
6. Hold on the field where you want to paste the text until a toolbar appears.
7. Tap Paste on the toolbar.

8. Email the profile to yourself.
9. On your Mac or PC, copy the profile text from your email to this survey.

Differences in dating profiles between different dating platforms

Online dating profile texts

For the online dating website or mobile app you use *third most frequently* please complete the following:

The name of the dating site or app.

Please copy and paste your "About Me" dating profile text from this dating site/app into the text box below.

Please make sure to remove any identifying information about yourself or others from your profile before pasting it here.

If you're unsure of how to copy and paste your profile text into this form, please see the instructions in the text box at the end of this page.

Instructions:

If you are completing this survey on a smartphone or tablet you can copy and paste from your dating app or website into this survey. Follow these steps.

1. Go to your online dating app or website. Go to your profile and select edit your profile text.
2. Press and hold your finger over the word where you want to start copying text from.
3. Drag the set of bounding handles to highlight all the text you want to copy.
4. Tap Copy on the toolbar that appears.
5. Go back to this survey and tap and hold on the field where you want to paste the text until a toolbar appears.
6. Tap Paste on the toolbar.

If you are completing this survey on a Mac or PC and use an online dating app that has no website associated with it (such as Tinder), then you will need to copy and paste from your dating app into an email on your smart phone and email it to yourself in order to copy it into this survey.

1. Go to your online dating app or website. Go to your profile and select edit your profile text.
2. Press and hold your finger over the word where you want to start copying text from.
3. Drag the set of bounding handles to highlight all the text you want to copy.
4. Tap Copy on the toolbar that appears.
5. Go to your your email application.
6. Hold on the field where you want to paste the text until a toolbar appears.
7. Tap Paste on the toolbar.
8. Email the profile to yourself.
9. On your Mac or PC, copy the profile text from your email to this survey.

Differences in dating profiles between different dating platforms

Online dating profile texts

For the online dating website or mobile app you use *fourth most frequently* please complete the following:

The name of the dating site or app.

Please copy and paste your “About Me” dating profile text from this dating site/app into the text box below.

Please make sure to remove any identifying information about yourself or others from your profile before pasting it here.

If you're unsure of how to copy and paste your profile text into this form, please see the instructions in the text box at the end of this page.

Instructions:

If you are completing this survey on a smartphone or tablet you can copy and paste from your dating app or website into this survey. Follow these steps.

1. Go to your online dating app or website. Go to your profile and select edit your profile text.
2. Press and hold your finger over the word where you want to start copying text from.
3. Drag the set of bounding handles to highlight all the text you want to copy.
4. Tap Copy on the toolbar that appears.
5. Go back to this survey and tap and hold on the field where you want to paste the text until a toolbar appears.
6. Tap Paste on the toolbar.

If you are completing this survey on a Mac or PC and use an online dating app that has no website associated with it (such as Tinder), then you will need to copy and paste from your dating app into an email on your smart phone and email it to yourself in order to copy it into this survey.

1. Go to your online dating app or website. Go to your profile and select edit your profile text.
2. Press and hold your finger over the word where you want to start copying text from.
3. Drag the set of bounding handles to highlight all the text you want to copy.
4. Tap Copy on the toolbar that appears.

5. Go to your your email application.
6. Hold on the field where you want to paste the text until a toolbar appears.
7. Tap Paste on the toolbar.
8. Email the profile to yourself.
9. On your Mac or PC, copy the profile text from your email to this survey.

Online dating 2

Differences in dating profiles between different dating platforms

Online dating behaviours

To what extent do you vary the information you write in the profiles of the dating apps/sites you use?

Not at all 1	2	3	4	A lot 5
○	○	○	○	○

If you do vary your information, why do you do this? Please select all that apply.

- ☐ Because of the site design (eg: less space for text etc).
- ☐ To try out different profiles and see what works.
- ☐ In response to messages/other profiles on that particular site.
- ☐ To target the types of daters who use different sites
- ☐ _____ Other

How much do you feel your online dating profile reflects who you really are?

Please answer for the first or only profile you posted in this survey.

Not like me at all 1	2	3	4	Very much like me 5
			○	

○ ○ ○ ○

Please answer for the second profile you posted in this survey.

Not like me at all				Very much like me
1	2	3	4	5
○	○	○	○	○

Please answer for the third profile you posted in this survey.

Not like me at all				Very much like me
1	2	3	4	5
○	○	○	○	○

Please answer for the fourth profile you posted in this survey.

Not like me at all				Very much like me
1	2	3	4	5
○	○	○	○	○

Differences in dating profiles between different dating platforms

Online dating behaviours

How long have you been dating online or through apps in years and months?

On the scale below, please indicate how positive or negative you feel about online dating as a tool to help people meet a partner?

Very positive				Very negative
1	2	3	4	5
○	○	○	○	○

Please indicate on the scale below how much effort you generally put into the creation of your online dating profile(s)

Very little effort				A lot of effort
1	2	3	4	5
○	○	○	○	○

Please indicate the type of relationship that you are currently seeking (you may choose as many options as are relevant).

- ☐ Long term relationship
- ☐ Marriage
- ☐ Casual dating
- ☐ Just for fun/casual encounter
- ☐ Friendship
- ☐ _____ Other

IPIP

Differences in dating profiles between different dating platforms

Personality

How Accurately Can You Describe Yourself?

On the following pages, there are phrases describing people's behaviours. Please use the rating scale below to describe how accurately each statement describes you. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly your same age. So that you can describe yourself in an honest manner, your responses will be kept in absolute confidence. Please read each statement carefully, and then click the appropriate number on the scale.

Indicate for each statement whether it is:

1. Very Inaccurate
2. Moderately Inaccurate

3. Neither Accurate Nor Inaccurate

4. Moderately Accurate, or

5. Very Accurate **as a description of you.**

Click to write the question text

	Very inaccurate	Moderately Inaccurate	Neither Accurate nor Inaccurate	Moderately Accurate	Very Accurate
1) Am the life of the party.	◯	◯	◯	◯	◯
2) Feel little concern for others.	◯	◯	◯	◯	◯
3) Am always prepared.	◯	◯	◯	◯	◯
4) Get stressed out easily.	◯	◯	◯	◯	◯
5) Have a rich vocabulary.	◯	◯	◯	◯	◯
6) Don't talk a lot.	◯	◯	◯	◯	◯
7) Am interested in people.	◯	◯	◯	◯	◯
8) Leave my belongings around.	◯	◯	◯	◯	◯
9) Am relaxed most of the time.	◯	◯	◯	◯	◯

	Very inaccurate	Moderately Inaccurate	Neither Accurate nor Inaccurate	Moderately Accurate	Very Accurate
10) Have difficulty understanding abstract ideas.	◯	◯	◯	◯	◯
11) Feel comfortable around people.	◯	◯	◯	◯	◯
12) Insult people.	◯	◯	◯	◯	◯
13) Pay attention to details.	◯	◯	◯	◯	◯
14) Worry about things.	◯	◯	◯	◯	◯
15) Have a vivid imagination.	◯	◯	◯	◯	◯
16) Keep in the background.	◯	◯	◯	◯	◯

	Very inaccurate	Moderately Inaccurate	Neither Accurate nor Inaccurate	Moderately Accurate	Very Accurate
17) Sympathize with others' feelings.	◯	◯	◯	◯	◯
18) Make a mess of things.	◯	◯	◯	◯	◯

	Very inaccurate	Moderately Inaccurate	Neither Accurate nor Inaccurate	Moderately Accurate	Very Accurate
19) Seldom feel blue.	◯	◯	◯	◯	◯
20) Am not interested in abstract ideas.	◯	◯	◯	◯	◯
21) Start conversations.	◯	◯	◯	◯	◯
22) Am not interested in other people's problems.	◯	◯	◯	◯	◯
23) Get chores done right away.	◯	◯	◯	◯	◯
24) Am easily disturbed.	◯	◯	◯	◯	◯
25) Have excellent ideas.	◯	◯	◯	◯	◯
26) Have little to say.	◯	◯	◯	◯	◯
27) Have a soft heart.	◯	◯	◯	◯	◯

	Very inaccurate	Moderately Inaccurate	Neither Accurate nor Inaccurate	Moderately Accurate	Very Accurate
28) Often forget to put things back in their proper place.	◯	◯	◯	◯	◯
29) Get upset easily.	◯	◯	◯	◯	◯
30) Do not have a good imagination.	◯	◯	◯	◯	◯
31) Talk to a lot of different people at parties.	◯	◯	◯	◯	◯
32) Am not really interested in others.	◯	◯	◯	◯	◯
33) Like order.	◯	◯	◯	◯	◯
34) Change my mood a lot.	◯	◯	◯	◯	◯
35) Am quick to understand things.	◯	◯	◯	◯	◯

	Very inaccurate	Moderately Inaccurate	Neither Accurate nor Inaccurate	Moderately Accurate	Very Accurate
36) Don't like to draw attention to myself.	○	○	○	○	○

	Very inaccurate	Moderately Inaccurate	Neither Accurate nor Inaccurate	Moderately Accurate	Very Accurate
37) Take time out for others.	○	○	○	○	○
38) Shirk my duties.	○	○	○	○	○
39) Have frequent mood swings.	○	○	○	○	○
40) Use difficult words.	○	○	○	○	○
41) Don't mind being the centre of attention.	○	○	○	○	○
42) Feel others' emotions.	○	○	○	○	○
43) Follow a schedule.	○	○	○	○	○
44) Get irritated easily.	○	○	○	○	○
45) Spend time reflecting on things.	○	○	○	○	○

	Very inaccurate	Moderately Inaccurate	Neither Accurate nor Inaccurate	Moderately Accurate	Very Accurate
46) Am quiet around strangers.	○	○	○	○	○
47) Make people feel at ease.	○	○	○	○	○
48) Am exacting in my work.	○	○	○	○	○
49) Often feel blue.	○	○	○	○	○
50) Am full of ideas.	○	○	○	○	○

Demographics

Differences in dating profiles between different dating platforms

Demographic questions

What age are you?

Is English your first language?

- ◯ Yes
- ◯ No

How do you identify your gender?

- ◯ Male
- ◯ Female
- ◯ Gender Diverse (gender non-conforming and/or transgender)
- ◯ I prefer to self-describe

What is your sexual orientation?

- ◯ Heterosexual
- ◯ Gay
- ◯ Lesbian
- ◯ Bisexual
- ◯ Pansexual
- ◯ Asexual

Powered by Qualtrics

Appendix 2: Goldberg's Big-Five Factor Markers

Factor I (Surgency or Extraversion)

	10-item scale (Alpha = .87)
+ keyed	Am the life of the party.
	Feel comfortable around people.
	Start conversations.
	Talk to a lot of different people at parties.
	Don't mind being the center of attention.
– keyed	Don't talk a lot.
	Keep in the background.
	Have little to say.
	Don't like to draw attention to myself.
	Am quiet around strangers.

Factor II (Agreeableness)

	10-item scale (Alpha = .82)
+ keyed	Am interested in people.
	Sympathize with others' feelings.
	Have a soft heart.
	Take time out for others.
	Feel others' emotions.
	Make people feel at ease.
– keyed	Am not really interested in others.
	Insult people.
	Am not interested in other people's problems.
	Feel little concern for others.

Factor III (Conscientiousness)

	10-item scale (Alpha = .79)
+ keyed	Am always prepared.
	Pay attention to details.
	Get chores done right away.

	Like order.
	Follow a schedule.
	Am exacting in my work.
– keyed	Leave my belongings around.
	Make a mess of things.
	Often forget to put things back in their proper place.
	Shirk my duties.

Factor IV (Emotional Stability)

	10-item scale (Alpha = .86)
+ keyed	Am relaxed most of the time.
	Seldom feel blue.
– keyed	Get stressed out easily.
	Worry about things.
	Am easily disturbed.
	Get upset easily.
	Change my mood a lot.
	Have frequent mood swings.
	Get irritated easily.
	Often feel blue.

Factor V (Intellect or Imagination)

	10-item scale (Alpha = .84)
+ keyed	Have a rich vocabulary.
	Have a vivid imagination.
	Have excellent ideas.
	Am quick to understand things.
	Use difficult words.
	Spend time reflecting on things.
	Am full of ideas.
– keyed	Have difficulty understanding abstract ideas.
	Am not interested in abstract ideas.
	Do not have a good imagination.

Appendix 3: Study one content analysis codebook

CODEBOOK - PROFILES		
Item	**Code/Count**	**Instructions**
A: Positive expression of emotion about others.	0 = Absent 1 = Present	When the author expresses positive, warm views about another individual or individuals. For example, “My parents are amazing people,” “My sister and I had a wonderful time on holidays,” or “We were a loving family.”
B: Negative expression of emotion about others.	0 = Absent 1 = Present	When the author expresses negative views about another individual or individuals. For example, “My Parents were cold people,” “I hated going on holidays with my sister because we had a terrible time,” or “My sister and I were so upset by our parent’s break-up.”
C: Positive expression of emotion about self.	0 = Absent 1 = Present	When the author expresses positive, warm views about themselves. For example, “I felt so good about myself when I got my degree,” “I thought I looked great this morning,” or “We’ll never be the same again, but I’m okay with it.” This does not include expressions such as “I love cooking” or I have a great time running”.
D: Negative expression of emotion about self.	0 = Absent 1 = Present	When the author expresses negative views about themselves. For example, “I felt so bad when I failed my degree,” “I thought I looked awful this morning,” or “Sadly, we’ll never be the same again.”

E: Expressions of goals, fantasies, positive hopes and dreams.	0 = Absent 1 = Present	Comments on what authors would like to achieve, both realistic (hopes and dreams) and unrealistic (fantasies and dreams). For example, career-aspirations such as “I’ve wanted to be a doctor since I was a little girl”; sexual fantasies such as “I’ve always wanted to have a passionate night with (insert famous pop star)”; ambitions such as “I want to be a millionaire”; positive hopes and dreams such as “I’m happy now and I hope I stay this way.”
F: Expressions of fears, worries, and concerns.	0 = Absent 1 = Present	For example “I’m terrified of the thought that I might get cancer,” “My biggest nightmare is that I’ll be alone,” “We’re worried that our parents have split for the final time,” “I’m worried about the future with the changes in climate,” and “I’m worried that on my wedding night my partner will think I’m too fat.”
G: Spelling/grammar mistakes	0 = absent 1 = minor 2 = major	Absent – no spelling or grammar errors Minor – use of lowercase only, or spacing mistakes, one small spelling error Major – multiple errors, obvious
H: Neutral/descriptive emoticons	0 = Absent 1 = Present	Including emoticons describing hobbies (surf/telescope), identity (flag), descriptive – shooting star
I: Positive emoticons	0 = Absent 1 = Present	Positive emoticons include happy faces, laughing, tongue sticking out, winking. :-) :-D :-P ;-)
J: Negative emoticons	0 = Absent 1 = Present	Negative emoticons include unhappy faces, angry faces, crying. :-(>:-(:'-(
K: Personality trait – Emotional stability high	0 = Absent 1 = Present	The high Emotional stability trait theme includes explicit references to qualities associated with that trait. Such as: Am relaxed most of the time. Seldom feel blue.

L: Personality trait – Emotional stability low	0 = Absent 1 = Present	The low Emotional stability trait theme includes explicit references to qualities associated with that trait. Such as: Get stressed out easily. Worry about things. Am easily disturbed. Get upset easily. Change my mood a lot. Have frequent mood swings. Get irritated easily. Often feel blue.
M: Personality trait – Extraversion high	0 = Absent 1 = Present	The high Extraversion theme includes explicit references to qualities associated with that trait. Such as: Am the life of the party. Feel comfortable around people. Start conversations. Talk to a lot of different people at parties. Don't mind being the center of attention.
N: Personality trait – Extraversion low	0 = Absent 1 = Present	The low Extraversion theme includes explicit references to qualities associated with that trait. Such as: Don't talk a lot. Keep in the background. Have little to say. Don't like to draw attention to myself. Am quiet around strangers.
O: Personality trait – Agreeableness high	0 = Absent 1 = Present	The high Agreeableness theme includes explicit references to qualities associated with that trait. Such as: Am interested in people. Sympathize with others' feelings. Have a soft heart. Take time out for others. Feel others' emotions. Make people feel at ease.
P: Personality trait – Agreeableness low	0 = Absent 1 = Present	The low Agreeableness theme includes explicit references to qualities associated with that trait. Such as: Am not really interested in others. Insult people. Am not interested in other people's problems. Feel little concern for others.
Q: Personality trait – Intellect/imagination high	0 = Absent 1 = Present	The high Intellect/imagination theme includes explicit references to qualities associated with that trait. Such as: Have a rich vocabulary. Have a vivid imagination. Have excellent ideas. Am quick to understand things. Use difficult words. Spend time reflecting on things. Am full of ideas. Vote liberal. Like art.

R: Personality trait – Intellect/imagination low	0 = Absent 1 = Present	The low Intellect/imagination theme includes explicit references to qualities associated with that trait. Such as: Have difficulty understanding abstract ideas. Am not interested in abstract ideas. Do not have a good imagination. Vote conservative. Do not like art
S: Personality trait – Conscientiousness high	0 = Absent 1 = Present	The high Conscientiousness theme includes explicit references to qualities associated with that trait. Such as: Am always prepared. Pay attention to details. Get chores done right away. Like order. Follow a schedule. Am exacting in my work.
T: Personality trait – Conscientiousness low	0 = Absent 1 = Present	The low Conscientiousness theme includes explicit references to qualities associated with that trait. Such as: Leave my belongings around. Make a mess of things. Often forget to put things back in their proper place. Shirk my duties.
U: Demands in a potential mate	0 = Absent 1 = Present	Includes references to anything that the author would like in a potential mate. Such as: attractive, outgoing, likes doing X activities.
V: Hobbies/Extracurricular activities/Interests	0 = Absent 1 = Present	Includes references to hobbies, interests, activities pursued outside of work or family. Must be specific activity – not trying new things, adventures etc.
W. Mention job/work/profession/studying	0 = Absent 1 = Present	Eg: I work as a…; my job takes me away a lot; I'm studying…; I work hard; I used to be a…
X: Physical characteristics	0 = Absent 1 = Present	Mentioned in profile. Height, weight, body shape, hair/eye colour
Y. Humour	0 = Absent 1 = Present	Attempts at jokes, puns, humorous sarcasm, pithy metaphors, humorous self-depreciation

Appendix 4: Study one ethical approval

UNIVERSITY OF WOLVERHAMPTON

10th April 2017

Nicola Fox Hamilton (Dr Chris Fullwood)
University of Wolverhampton
FEHW

Dear Nicola Fox Hamilton (Dr Chris Fullwood)

Re: A content analysis of online dating profile texts and examination of language related to personality traits submitted to the Chair Faculty of Education, Health and Wellbeing Ethics Sub-panel (Health Professions, Psychology, Social Care & Social Work)

Upon review by the Chair of the Ethics Sub-panel on 6th April your Resubmitted Research Proposal was passed and given full approval (**Code 1 - Pass**). You are free to continue with your study. We would like to wish you every success with the project.

Yours sincerely

[redacted]
Chair – School Ethics Committee

[redacted]
Chair – Ethics Panel

Appendix 5A: Study one results – assumption testing for regressions

Relationship between expressed trait-related statements and self-reported traits

It was predicted that due to each trait having a more desirable pole, participants would actively self-present their desirable traits, and avoid mentioning their negative traits, with the exception of extraversion which both high and low poles were expected to be presented.

H2. Hypothesis two expected that high poles of each trait as well as the low pole of extraversion would be related to the self-reported author traits. Five regression analyses were conducted with each of the self-reported traits as the dependent variable and the high and low trait statement content analysis variables from the first platform choice for each participant as the predictors.

Scatterplots of the relationships between the dependent and independent variables for extraversion indicated linear relationships. An analysis of standard residuals was carried out, which showed that the data contained outliers (Std. Residual Min = -4.49, Std. Residual Max = .76). Tests for assumption of collinearity indicated that multicollinearity was not a concern (high and low extraversion variables, Tolerance = .99, VIF = 1.00), no correlations between predictor variables were over .80. The scatter plot testing homoscedasticity indicated that the errors were normally distributed, the normal P-P plot of standardised residuals showed points that were not completely on the line but were very close. The Durbin-Watson test was 1.95 indicating independence of errors. Using the enter method a significant model emerged: F (2, 153) = 4.060, p = .019. The model explains 3.8% of the variance (Adjusted R^2 = .038). Statements of low extraversion emerged as a significantly unique negative predictor of extraversion (β = -.215, t(153) = -2.724, p = .007), but statements of high extraversion did not.

Scatterplots of the relationships between the dependent and independent variables for agreeableness indicated linear relationships. An analysis of standard residuals was carried out, which showed that the data contained outliers (Std. Residual Min = -3.31, Std. Residual Max = 2.63). Tests for assumption of collinearity indicated that multicollinearity was not a concern (high and low agreeableness variables, Tolerance = 1.00, VIF = 1.00), no correlations between predictor variables were over .80. The scatter plot testing homoscedasticity indicated that the errors were not quite normally distributed indicating a violation of the assumption, the normal P-P plot of standardised residuals showed points that were not completely on the line. The Durbin-Watson test was 1.66 indicating that there was independence of errors. The violation of assumptions reduced the generalisability

of this model outside of this sample. Using the enter method a significant model emerged for the prediction of agreeableness by the two content analysis variables related to high and low agreeableness: F (2, 153) = 4.621, p = .011. The model explains 4.5% of the variance (Adjusted R^2 = .045). Statements of high agreeableness emerged as a significantly unique positive predictor of agreeableness (β = .196, t(153) = 2.496, p = .014), but statements of low agreeableness did not.

Scatterplots of the relationships between the dependent and independent variables for emotional stability indicated linear relationships. An analysis of standard residuals was carried out, which showed that the data contained outliers (Std. Residual Min = -3.95, Std. Residual Max = 2.46). Tests for assumption of collinearity indicated that multicollinearity was not a concern (high and low emotional stability variables, Tolerance = .99, VIF = 1.00), no correlations between predictor variables were over .80. The scatter plot testing homoscedasticity indicated that the errors were normally distributed, the normal P-P plot of standardised residuals showed points that were mostly on the line. The Durbin-Watson test was 1.79 indicating that there was independence of errors. Emotional stability was predicted in a significant model: F (2, 153) = 3.374, p = .037, where statements related to low emotional stability emerged as a significantly unique negative predictor (β = -.183, t(153) = -2.312, p = .022), but those related to high emotional stability did not. The model explains 3% of the variance (Adjusted R^2 = .030).

Scatterplots of the relationships between the dependent and independent variables for intellect indicated linear relationships. An analysis of standard residuals was carried out, which showed that the data contained outliers (Std. Residual Min = -0.51, Std. Residual Max = 4.50). Tests for assumption of collinearity indicated that multicollinearity was not a concern (high and low intellect variables, Tolerance = .99, VIF = 1.00), no correlations between predictor variables were over .80. The scatter plot testing homoscedasticity indicated that the errors were normally distributed, the normal P-P plot of standardised residuals showed points that were mostly on the line. The Durbin-Watson test was 1.99 indicating that there was independence of errors. Intellect was predicted in a significant model: F (2, 153) = 3.266, p = .041, where statements related to high intellect emerged as a significantly unique positive predictor of intellect (β = .189, t(153) = 2.382, p = .018), but not those statements related to low intellect. The model explains 2.8% of the variance (Adjusted R^2 = .028).

Relationship of LIWC variables to traits

H3. Hypothesis three predicted that LIWC variables that had correlated with individual traits in at least three previous studies would predict those traits in this

sample. Four of the five traits had non-significant models, extraversion, emotional stability, conscientiousness, and intellect, while the model for agreeableness was significant.

Scatterplots of the relationships between the dependent and independent variables for agreeableness indicated linear relationships. An analysis of standard residuals was carried out, which showed that the data may have contained outliers as the value of the minimum was just under 2 (Std. Residual Min = -2.30, Std. Residual Max = 2.01). Tests for assumption of collinearity indicated that multicollinearity was not a concern (Tolerance ranged from .308 for anger to .87 for causation words; VIF ranged from 1.16 for causation to 3.25 for anger), no correlations between predictor variables were over .80. The scatter plot testing homoscedasticity indicated that the errors were normally distributed, the normal P-P plot of standardised residuals showed points that were not on the line indicating a violation of the assumption and reducing generalisability for the results. The Durbin-Watson test was 1.58 indicating that there was independence of errors. Using the enter method a significant model emerged for agreeableness: F (11, 43) = 2.010, p = .05. The model explains 17% of the variance (Adjusted R^2 = .171).

Appendix 5B: Study one results – correlations between the Big Five traits and LIWC variables generated from profiles

Correlations between LIWC dictionary categories and Goldberg's Big-Five Factor Markers

LIWC Dictionary categories	E	A	C	ES	I
WC	-.182*	.046	.023	.041	.077
WPS	-.134	-.098	-.008	.086	.090
Sixltr	.089	.041	-.262*	.064	.153
funct	-.226	.079	.170	-.013	.037
pronoun	-.514***	.108	.042	-.193	.024
ppron	-.388**	.050	-.007	-.090	.027
i	-.351**	.212	.055	.042	.079
we	.109	.044	.125	.015	-.084
you	-.014	-.229	-.222	-.300*	-.147
shehe	-.094	-.091	.094	.227	-.004
they	-.167	-.256	.007	-.089	.159
Impersonal pronouns	**-.295***	.097	.065	-.170	.004
article	-.156	-.207	.020	-.200	-.142
verb	-.126	.010	.107	-.111	-.215
auxverb	-.128	-.012	-.049	-.163	-.152
past	.213	-.409**	-.268*	.217	-.052
present	-.114	.141	.219	-.182	-.218
future	-.192	.150	.041	.101	.292*
adverb	-.060	-.057	-.099	-.026	.075
preps	.063	.125	.051	.188	.038
conj	-.190	-.097	.165	-.233	-.023
negate	.216	-.079	-.167	.065	-.116
quant	-.106	-.036	.222	-.123	.012
number	.209	.255	.048	.160	.161
swear	-.093	.066	.168	-.081	.054
social	-.062	.125	.045	-.044	-.138
family	.109	.143	.078	.264*	-.169
friend	-.014	.079	.073	.027	.130
humans	.132	.067	.011	-.050	-.166
affect	.233	**.344****	.124	.107	-.047
posemo	**.279***	**.354****	.117	.145	-.177
negemo	-.137	-.047	.022	-.093	.319*
anx	.178	.076	-.137	.081	.071
anger	-.199	-.130	.288*	-.052	.208
sad	-.032	-.016	-.061	-.050	.103
cogmech	-.001	.089	.065	.019	.022
insight	-.207	.104	-.074	.073	.070
cause	.102	-.158	-.183	-.045	.090
discrep	-.151	-.035	-.051	-.189	-.041
tentat	-.048	.105	-.065	-.229	-.191
certain	-.024	.035	.074	.141	-.009
inhib	-.177	-.092	.214	.077	-.016
incl	.162	.121	.224	.203	.113
excl	.159	-.004	-.110	-.186	-.067
percept	-.010	-.007	-.043	.088	-.229
see	.169	.027	-.005	.087	-.193
hear	-.263*	.055	.052	.071	-.137
feel	.030	-.212	-.225	-.024	-.154

bio	.093	.101	.174	.253	-.051
body	.002	**-.363****	-.039	.059	.044
health	.061	-.019	.003	.136	-.176
sexual	-.008	**.453*****	.266*	.097	.060
ingest	.104	-.194	-.035	.157	-.087
relativ	.026	-.028	.059	-.003	-.004
motion	.005	.045	.104	.130	-.181
space	-.019	.007	.096	-.006	.250
time	.081	-.051	-.044	-.060	-.135
workLIWC	-.196	.029	.089	-.104	.085
achieve	.090	-.124	.031	.033	.050
leisure	.057	.205	.135	.109	-.003
home	-.155	-.178	.149	.118	-.245
money	.193	.018	-.332*	-.053	-.063
relig	-.073	.128	-.214	.008	.036
death	.181	.087	.148	.243	.107

*$p < .05$. **$p < .01$. ***$p < .001$

N = 55 for LIWC variables and extraversion, agreeableness and emotional stability correlations.

N = 56 for LIWC variables and conscientiousness and intellect correlations.

Extraversion (E), agreeableness (A), conscientiousness (C), emotional stability (ES), intellect (I).

Correlations in bold replicate those found in at least one previous study.

Appendix 6: Study one sample profiles for high and low level of traits

Extraversion profiles

High extraversion

Easy going chap, ...with a good sense humor :) I try not talk my self too seriously but do have drive and passion for what I do. As young boy i was inspired by the cartoon Pinky and the Brain and every since I have been trying to take over the world!!!

Scuba diver, softball player, scientist. Love cycling and hiking, though I'm terribly slow. My list of books to read is too long, but I'm always taking suggestions. I love the outdoors, rollercoasters, and sunshine. Dogs, not cats. From the US. Someday I want to live on a boat. Mandatory: a love of the ocean Bonus points: interest in sports (extra bonus for American football), podcasts, horror films, or country music.

I have a small home in the Raleigh area and had another home plus office in Central Florida that I recently sold and am now a full time resident of NC. I have had a lifetime of interesting experiences which I'd be glad to share with you...and you can feel comfortable opening up to me about your own experiences. I can be alone or with others, am not clingy or needy..but am a warm affectionate person. I am considered by everyone as being truly genuine. I give 100% to the person I am with and try to live fully in each moment, avoiding most types of pettiness or arguments. I have traveled quite a bit for business, but usually only for a few days at a time. I fit in well in most (probably all..) groups, but enjoy quieter situations more often than noisy places. That allows me to completely enjoy the company of my companions. I have 4 grandchildren, two of whom live nearby, and two who live with their mommy and daddy in the cold north east in New Hampshire. I walk my rescued beloved schnauzer a few times a day, sometimes taking quite long jaunts with him. I am an optimistic person and like the company of others who have a good outlook on life. Conversation Starters (i.e. what you'd like to do on a first date...) What I do and where I would go on a first date is not very important, as long as it's quiet enough to hear what you are saying. I don't want us to be rushed since I want to listen to you about your interests, hopes, and past experiences. I will be sincere and open with you, answering honestly and completely any question you pose. We will, most of all, have fun together...not worrying about impressing one another but rather laughing and joking as we wish.

I am not a "long walks on the beach", "down to earth, easy going" kind of guy! Life is anything but middle of the road... I treasure curiosity, honesty and serendipity My life is filled with great teas, amazing friends and enlightening conversations. I'm a self confessed geek which means I'm sapiosexual in nature, passionate and also a social butterfly. Being ****, I tend to be inquisitive, playful and let little hold me back. Although quite independent, life is for sharing, and i'd love to share the high & low times with someone special. Open minded, honest, passionate and imaginative are traits I have and would seek in a special woman, along with a wicked sense of humor. I'm a liberated gentleman and a strong feminist; looking for a modern woman, not scared to retreat behind traditions and legacy. Life's just too short for conservative nonsense. My temperament is left leaning, liberal, open and I have little time for the mainstream garbage of pop music/fashion/celeb driven nonsense. This unfortunately makes me rubbish at pub quizzes I have a love for big metropolitan cities like London, New York, Paris, Amsterdam, Chicago, Berlin,Toronto, Minneapolis and of course Tokyo.

Originally from Ireland and have lived in several countries. Funny, witty, smart and sarcastic. Enjoy working out, travel reading and craft beer. Father of two kids who I love to death. I do Crossfit and Ruck to keep fit. Looking for good company, a partner in crime and no drama.

Low Extraversion

I've retired from a Grand Rapids based company that tolerated me for over 41 years. My work history as a laborer impresses no one. I perform in three (humble) volunteer instrumental music organizations. It keeps me off the streets?unless that happens to be the venue. I admit that I seem less fun than other men on POF. Instead of merriment to the point of exhaustion, I hope you will measure my worth by feeling relaxed, safe, smugly satisfied, comforted and reconciled with what is unforgettable in your past and dreamt for your future. I have no motorcycle to ride. I neither race in NASCAR nor to even that coveted close parking space. Fun for me will be holding your hand while we talk. I have the charisma of a graduate student futilely trying to make academia a lifestyle?without the empty beer can pyramid in the window nor a realistic potential to achieve prestige, power, influence or fabulous wealth with the time remaining in my life. I seek a woman who appreciates the intrinsic value of education and believes it is never wasted. A wall of diplomas isn't important. Show me the map of your life: I will believe that I have loved you for all time. My preferred activity is a long walk, which?on urban streets?might rank as the 54th fun activity on POF. (I also walk Kent Trails and botanical gardens.) No longer on the night shift, I attend college recitals or concerts and movies. Instead of

the heady diversions depicted in hyper-caffeinated beverage commercials, I offer mature devotion, equanimity, gentleness and thoughtfulness. My obligations to the music organizations keep me performing year round (and then I practice, too). My television is gone. I acquiesce to watch what someone else picks?it probably is your TV, after all. I rely on the radio: I listen to WBLU-FM (classical music) and WUOM-FM (NPR news). Beyond enjoying the classical repertoire, I try to understand it, sometimes listening to difficult to appreciate music. Everything in my world stops while Nina Totenberg [NPR] reports. I do listen to opera, but I'd rather go to a movie. I am a widower, and my second marriage lasted thirteen years. There is a (still living) first wife from a marriage that lasted fourteen years. Attachment to a different race or ethnicity is customary for me. I failed as a hippie in my youth, looking very much the flower-child, but I eschewed drugs-including marijuana-during those times. My politics, however, remain far left of the Democrats. I support civil rights, civil liberties and civil behavior. I have never been arrested. I am a vegetarian, however I make no demand that you (or anyone) be vegetarian also. We can still have a meal at a steak house, since I'm absolutely fine with simple foods. The important thing is to not make a fuss and just relax. My personality is somewhat reserved. Comfortable with a small social circle, my affection for you will be undiluted. I have no agoraphobia, but I'll be at the outside of the crowd rather than deep within. No one would describe me as outgoing, but I am unafraid to perform a solo, chat on a date, or publicly embrace. I watch the credits at the end of movies. Listening to the sound of an empty hall, I'm the last to leave an auditorium. I don't look for confrontations and I check my conversation for aggressiveness. I take care to not interrupt. I don't read as many books as I did when younger, but the Grand Rapids Main Library remains a favorite place. I play my happiness cards close to my heart. Solitary sunsets evoke placid melancholy. I visit the beach during storm tides, gale winds, and seagull invasions. I read so many POF profiles that love sunsets and beaches. I'll admit that?without you?I've been doing it wrong. I have no fireplace for cozy snuggling, but at a coffee house, in a secluded library stack, on a sidewalk, within the crowd, I would hold you close. Many women on POF express a fondness for travel. I like to travel as much as the family cat. A mission-oriented traveler, I'll go for symposiums, concerts, relocation, exhibits or friends. I would be happier bringing you some coffee and hearing you tell me about something that interested you. I travel in my head. Neither rich nor deadbeat, I live within my means. I try to keep a wry sense humor because I'm inept at telling jokes. I disfavor mother-in-law, racist, ethnic or sexist jokes. When someone imposes such on me, I manage a dry thank you for sharing. S. J. Perelman, Lewis Grizzard, Art Buchwald and Woody Allen write funny stuff that I've enjoyed. (The movie What's Up, Doc? is my favorite romance movie.) I won't pull practical jokes: I've never owned a whoopie cushion. I like to laugh, but not at someone's expense. I'm overweight. To reduce, I've lowered my caloric intake. I suppose that's laudable?but my meals are boring. If you enjoy cooking for others, my small portions might be misunderstood to be an opinion. If food to you signifies love, my ascetic fare will convince you I'm a misanthrope. I have a limited wardrobe wherein I dress either for work or in a black

suit and tie for a concert. I don't wear t-shirts with either a message or an image. I try to avoid drawing attention to myself. I don't wear aftershave, but not because of skin sensitivity. Touching the back of my hand will tell me that I might be talking too loudly and I'll be grateful for the alert. I don't expect you to do anything I don't do. I don't have tattoos. I don't have any of my kids living at home. I've never fired a gun. I read, I go to movies, I walk (far but not fast), I like to hear about how you got to where you are now. I hope you might have familiarity with some of my listed interests just in order to understand me, but I neither expect nor demand mutual participation. Blatant Defects: I have disappointed everyone who ever loved me. My images do not show the bald spot in the back, and I have a retirement weight gain. I go too long between haircuts. Two women on POF block me. Ask for the lurid details. I want to work difficulties out, but I tend to be defensive when I am tired. I am acclimated to Michigan's temperate clime. I'm slow to make house repairs. eHarmony rejected me. I consider the consequences of rash actions and I will back away from aggressive people spoiling for a fight. I resist being nursed when sick. (Just throw a comic book at me and enjoy yourself.) I can't dance or sing. I often have complex answers to simple questions (and just as often, I don't even know the answer). I would rather be a peacemaker, but I don't think I'm a gifted dispenser of wisdom.

I'm a huge nerd at heart! I could talk for hours about fantasy books, TV and games. I'm quite an introverted and quiet person, but I enjoy meeting new people and having new experiences. Lover of warm blankets and hot chocolate, walks in the rain, dating profile cliches and terrible puns (the worse they are, the better). Hit me with your best puns, I can handle the punishment. I'm definitely a homebody, I prefer my adventures to be the fictional kind. Guess I'm looking for my Player 2. Everyone needs a carry. By the way, I never want to have children so don't message me if you'd like some in the future or are currently a single parent, it'll just save us both time. If you love cats and dislike kids as much as I do, you've come to the right place.

I love books, the sun, being outdoor, the seaside in Dublin, learning new things and new words. I often wander around Dublin lost in thoughts or laugh on my own because I'm listening to audiobooks. It's really easy to make me smile as well as cry. I like getting deep in conversations about politics, religions, books, or any topic that interests me. I'm also terribly forgetful so my house is plastered in post it notes. I also hate many things, but none worth to mention it here. I'm rather complicated at times I must admit, but also trasparent as spring water to anyone who takes the time to look beyond.

Hey! I'm Taylor Surname. I currently live and work in the Boston area as a composer and gigging guitarist, having graduated from Berklee College of Music in 2015. I love music and art of all kinds! Full disclosure: I am transgender, pre-SRS. If that is an issue for you, I won't be offended if you pass on me.

Cheeky and geeky. I love films and a good Netflix series. However I also enjoy seeking new experiences. I like to be outside in the sunshine and enjoy scenic walks. I work as an academic, (I have a PhD in Psychology) but that doesn't mean that I don't like having fun! I love a good dance (usually to cheesy 90s pop) and can sing all the Disney classics. ;) I can be a girly girl but am competitive and love a challenge. I'm an animal lover; I go gooey over cute bunny or puppy pics. I have two bunnies myself who keep me entertained.

Agreeableness profiles

High agreeableness

I am a 36-year-old, honest and straightforward. I am looking for safe fun and a laugh. If you write one line, I probably won't answer. I need more than "what's up hun, doing anything sexy?" to agree to meet for coffee. I meet for coffee first only! If you don't put much efforts in conversations you won't get many answers back! I am not fussy I am just picky and will always go for quality over quantity! I love sex and you have to be up to it. If you are that interested, make yourself interesting... Not interested to be a side piece for men married or in relationships. I always meet for a coffee first. If we click then fun times shall be happening!!

This is "The one thing I am most passionate about..." People - my family and friends, yes, definitely. Even beyond them, I'm passionate about people, about giving back, helping out, teaching, learning about different ways of life. I love a good story, traveling, cooking, exploring, photography, learning anything I can - it's possible my favorite question is why.

Cheeky and geeky. I love films and a good Netflix series. However I also enjoy seeking new experiences. I like to be outside in the sunshine and enjoy scenic walks.

I work as an academic, (I have a PhD in Psychology) but that doesn't mean that I don't like having fun! I love a good dance (usually to cheesy 90s pop) and can sing all the Disney classics. ;) I can be a girly girl but am competitive and love a challenge. I'm an animal lover; I go gooey over cute bunny or puppy pics. I have two bunnies myself who keep me entertained.

Looking for someone who likes to go clubbing every once in a while but also to do chilled stuff! I love socializing, music, festivals, travelling. I'm a single parent (not lone parent) to a 12 year old boy. I'm VERY independent, I look after myself. I'm not looking for someone to look after me, looking for someone to have fun with!

Life is too short to be taken seriously. Laughter is my language. I will joke about anything and everything. I care more about experiences and people than I do about possessions. I am - Unapologetically quirky. - A horror movie and horror game fan. - A sucker for a good smile or a gentlemanly gesture. - Passionate about my career. - Unicorn - ENFJ (test taken 1/28/18)

Low agreeableness

I'm told I should tell you about myself. So, if you were to look closely these things are probably written through me like a stick of rock: reading (books, not the town), the vodka Collins, attempting to cook Italian things, computers, Fry's Turkish Delight, debates, cities, my daughter, trying to write a book, graphic novels, running my own business, sunshine, decent shoes, poetry, tea, chai tea, cravats, last minute planning, my phone, friends, and hats. In no particular order. I asked some friends how they'd describe me, and the words that came up a lot were funny, driven, loyal, and charming. On the other hand, if you write "ur" instead of "you are", we're not going to get on.

Sup! I am Bart, your average geek with a bigger than average mouth. Need witty remarks, a plentiful of sarcasm and cynicism and someone who doesn't hold back saying what they think no matter who's in front of them? I'm that guy. In the little spare time I've got between work and studies, I like to chill on the couch with some series or hitting the gym for martial arts

My parents took me to a specialist when I was a kid because they were worried I had a neurological disorder. I am honest to God officially diagnosed as "just a klutz" And if that alone hasn't charmed you... I'm also adept at losing pick em leagues by 1 point, always coming in second place at the various contests my office hosts and never ever having my name drawn in raffles. A real catch if you've ever seen one. Despite my lack of coordination and luck however, I generally manage to be a pretty happy and fun person to be around. Super cliche travel section: I'm one of those people who gets home from a vacation and wants to plan another that same night (I just got back from Vegas and was already trying to plan how to go back on the plane ride home!). But that doesn't mean every trip has to be passport stamp worthy. For instance I'd love to get more into checking out wineries and breweries, so if you're looking for a beer tasting buddy...

I'm name, Im 24 living in Sligo. I'm training to be a chef in my 4th year at college. I like to live life on the edge, But I also like to have a laugh and the craic. But I am also able to be laid back as well. I have a massive interest in baking and cooking for other people, my favourite food to cook is Chinese. I also really enjoy baking, I like to bake different types of breads and cakes. I've been told also that I bake a savage apple and rhubarb crumble, but the recipe is a secret! I have also a keen interest in cars, I enjoy everything about cars from working on them to going for drives, getting lost in the moment and exploring new places! My other interests include music, such as trance, house, dub-step, rap and R&B. I enjoy watching comedy films too, like Knocked up, superbad, Anchorman and we're the millers. So I'm looking for a woman with a good sense of humour, that can make me laugh! I also like a woman that has nice eyes and a nice smile. To share the good times with. Not interested in one nighters!

I'm an insatiably curious person, always open to strange adventures and trying new things. I once hopped into the trunk of a sedan to solve a ride logistics issue, but mostly I wanted to see what it would be like (in a word: bumpy) [1]. I probably have too many interests for my own good, and in pursuit of them it means the poor first-line phone alarms get rudely silenced so the sixth one wakes me up in time for work. I'm originally from Singapore, though I feel like I've always belonged here and am simply a Merlin living his life backwards. I still won't use 'hella' unironically, so it's a moonwalk with tons left to see. [1]: This also backfired because I am now the designated trunk rider.

Conscientiousness profiles

High Conscientiousness

Cheeky and geeky. I love films and a good Netflix series. However I also enjoy seeking new experiences. I like to be outside in the sunshine and enjoy scenic walks. I work as an academic, (I have a PhD in Psychology) but that doesn't mean that I don't like having fun! I love a good dance (usually to cheesy 90s pop) and can sing all the Disney classics. ;) I can be a girly girl but am competitive and love a challenge. I'm an animal lover; I go gooey over cute bunny or puppy pics. I have two bunnies myself who keep me entertained.

I am a 36-year-old, honest and straightforward. I am looking for safe fun and a laugh. If you write one line, I probably won't answer. I need more than "what's up hun, doing anything sexy?" to agree to meet for coffee. I meet for coffee first only! If you don't put much efforts in conversations you won't get many answers back! I am not fussy I am just picky and will always go for quality over quantity! I love sex and you have to be up to it. If you are that interested, make yourself interesting... Not interested to be a side piece for men married or in relationships. I always meet for a coffee first. If we click then fun times shall be happening!!

I know a little about a lotta of stuff so good for a conversation. Recovering arts junkie trying to change the world one racist, sexist asshole at a time. I value kindness and honesty, and my heroes are people that have their shit together. 1/2 marathon training. Fuelled by plants (mostly). Oh, and wine. I'm friendly, short, tattooed and bring out the one-liners when I'm nervous. The End.

Originally from Ireland and have lived in several countries. Funny, witty, smart and sarcastic. Enjoy working out, travel reading and craft beer. Father of two kids who I love to death. I do Crossfit and Ruck to keep fit. Looking for good company, a partner in crime and no drama.

A LITTLE ABOUT ME... I love being outdoors especially on, in or near water. Anything from boating, kayaking, camping or simple walks and bike rides in the

neighborhood put a smile on my face; I prefer to be active over sitting on the couch,Not saying cuddling on the couch with a good movie can't be fun on occasion. I love all kinds of music and love to go dancing ... 80's music is my favorite. I am laid back, honest, caring and have a great sense of humor. I know how to be responsible, grounded and act like a lady... but also have a daring and spontaneous side. Life would be boring without it! THE SERIOUS STUFF... I have been widowed 7 years. I have done my grieving and know life is too short live in the past. I have two adult children. My youngest lives at home while going to college. . The oldest just got married. I have a very sweet Tibetan Terrier that shares my king size bed... I am not complaining but there is room for improvement. I am employed as nurse. WHAT I AM LOOKING FOR... There is nothing sexier than a man that makes me laugh. He should be active, mentally and physically healthy. He needs to kiss passionately, forgive quickly, laugh easily, love tenderly, and embrace all that life has to offer. The right guy ... will see my smile every day, be surprised when I kiss him unexpectedly, and won't hear me nag or complain because I don't sweat the small stuff. Intelligence is a must! I want to find a man that shares his interests, wants to experience mine, and discover new ones together. I AM NOT INTO ENDLESS EMAILS... let's meet for a coffee or happy hour drink. No Pressure! Let's just relax...spend some time getting to know each other... and see if we click. I am ultimately seeking a relationship but not looking to rush into it. If everything feels right it happens naturally. I believe the key to a successful romantic relationship is having honesty and trust with a best friend you share intense chemistry with.... not easy to find but I haven't given up yet!

Low Conscientiousness

Hi I'm 22 years old. I'm a single mother to a beautiful daughter. I love being outdoors and taking on new adventures. My pasttimes include horse riding, listening to music, walks on the beach. I'm looking to meet someone responsible and trustworthy. I don't have any preference as to what I'm looking for in a guy because I base everything on personality. If you think you may be my prince charming leave me a message.

According to OKC's personality matrix, I am more Polite, Nerdy, Trusting, Artsy, Compassionate, Romantic, Political and Love-Driven than the average user. I can agree with that. It also says I'm more confident and mathematical, and I have no idea where that comes from. My motto is "Leave people and places better than you found them." I think kindness is the greatest human trait, and try to remember

that in all my interactions. I value intelligence, wit, and humor above superficial aspects. I believe chivalry is NOT dead, nor do I believe chivalry means "women are weaker than men". I also value long term relationships, and sometimes move a little too slowly for some people. I prefer to be friends before I become romantic with a person, and jumping directly into a relationship is not something I do well.

I'm mercurial, confused, very open, enjoy football, gin, malt whisky, live music, intelligent discussion and feeling comfortable enough not to force to chat. I have 2 kids, I practice daily meditation, think about things before making decisions but can be impulsive. I'm also vegan so if you're interested in hunting we won't get on. I mostly prefer male company to female as I don't understand women but I also don't understand Daily Mail or Sun readers regardless of their gender. I spend my free time at football or gigs and want someone to spend a Saturday night with having fun, watching TV, gigs, listening to music, cinema, eating out, cuddling on the sofa and generally being mates as well as lovers. If you like WWE that's even better Please don't send me dick pics. if I want to see your dick I'll ask. The chance of me meeting you just for sex is nil and I don't need a fwb

I'm told I should tell you about myself. So, if you were to look closely these things are probably written through me like a stick of rock: reading (books, not the town), the vodka Collins, attempting to cook Italian things, computers, Fry's Turkish Delight, debates, cities, my daughter, trying to write a book, graphic novels, running my own business, sunshine, decent shoes, poetry, tea, chai tea, cravats, last minute planning, my phone, friends, and hats. In no particular order. I asked some friends how they'd describe me, and the words that came up a lot were funny, driven, loyal, and charming. On the other hand, if you write "ur" instead of "you are", we're not going to get on.

I'm a 37 year old single guy looking to meet someone around the same age. I live just outside Dublin. I cook lots of differing types of food, traditional, thai, italian, chines. I read various different genres, detective stuff, modern thrillers. I do a lot voluntary work with lgbt groups, political causes and other voluntary stuff. I can be serious but do also like the humorous side of life. Just you know being able to laugh a lot through life. I like doing things at the weekends such as long brisk walks, attending farmers markets, festivals and different events or maybe go for a nice walk in the hills or on the beach. I would to meet a guy who is open minded. I don?t have a particular type as long as you are nice, honest and genuine, accepting

others and kind. Perhaps someone to laugh with, stay in or go out together, be spontaneous with and having fun being with. Humour is a big plus.

Emotional stability profiles

High emotional stability

I have a small home in the Raleigh area and had another home plus office in Central Florida that I recently sold and am now a full time resident of NC. I have had a lifetime of interesting experiences which I'd be glad to share with you...and you can feel comfortable opening up to me about your own experiences. I can be alone or with others, am not clingy or needy..but am a warm affectionate person. I am considered by everyone as being truly genuine. I give 100% to the person I am with and try to live fully in each moment, avoiding most types of pettiness or arguments. I have traveled quite a bit for business, but usually only for a few days at a time. I fit in well in most (probably all..) groups, but enjoy quieter situations more often than noisy places. That allows me to completely enjoy the company of my companions. I have 4 grandchildren, two of whom live nearby, and two who live with their mommy and daddy in the cold north east in New Hampshire. I walk my rescued beloved schnauzer a few times a day, sometimes taking quite long jaunts with him. I am an optimistic person and like the company of others who have a good outlook on life. Conversation Starters (i.e. what you'd like to do on a first date...) What I do and where I would go on a first date is not very important, as long as it's quiet enough to hear what you are saying. I don't want us to be rushed since I want to listen to you about your interests, hopes, and past experiences. I will be sincere and open with you, answering honestly and completely any question you pose. We will, most of all, have fun together...not worrying about impressing one another but rather laughing and joking as we wish.

A LITTLE ABOUT ME... I love being outdoors especially on, in or near water. Anything from boating, kayaking, camping or simple walks and bike rides in the neighborhood put a smile on my face; I prefer to be active over sitting on the couch,Not saying cuddling on the couch with a good movie can't be fun on occasion. I love all kinds of music and love to go dancing ... 80's music is my favorite. I am laid back, honest, caring and have a great sense of humor. I know how to be responsible, grounded and act like a lady... but also have a daring and spontaneous side. Life would be boring without it! THE SERIOUS STUFF... I have been widowed 7 years. I have done my grieving and know life is too short live in the past. I have two adult children. My youngest lives at home while going to college. . The oldest just got married. I have a very sweet Tibetan Terrier that shares my king size bed... I am

not complaining but there is room for improvement. I am employed as nurse. WHAT I AM LOOKING FOR... There is nothing sexier than a man that makes me laugh. He should be active, mentally and physically healthy. He needs to kiss passionately, forgive quickly, laugh easily, love tenderly, and embrace all that life has to offer. The right guy ... will see my smile every day, be surprised when I kiss him unexpectedly, and won't hear me nag or complain because I don't sweat the small stuff. Intelligence is a must! I want to find a man that shares his interests, wants to experience mine, and discover new ones together. I AM NOT INTO ENDLESS EMAILS... let's meet for a coffee or happy hour drink. No Pressure! Let's just relax...spend some time getting to know each other... and see if we click. I am ultimately seeking a relationship but not looking to rush into it. If everything feels right it happens naturally. I believe the key to a successful romantic relationship is having honesty and trust with a best friend you share intense chemistry with.... not easy to find but I haven't given up yet!

Love to cook and read and debate about the world and his wife. Love nature, walking on the beach and stuff like that. Have a strange sense of humor. I listen to all Music. I can be a bit stubborn but I listen to other peoples opinions and take those in consideration. I am very liberal minded I believe. Life is about to be happy and I enjoy every minute of it.

Originally from Ireland and have lived in several countries. Funny, witty, smart and sarcastic. Enjoy working out, travel reading and craft beer. Father of two kids who I love to death. I do Crossfit and Ruck to keep fit. Looking for good company, a partner in crime and no drama.

I'm an insatiably curious person, always open to strange adventures and trying new things. I once hopped into the trunk of a sedan to solve a ride logistics issue, but mostly I wanted to see what it would be like (in a word: bumpy) [1]. I probably have too many interests for my own good, and in pursuit of them it means the poor first-line phone alarms get rudely silenced so the sixth one wakes me up in time for work. I'm originally from Singapore, though I feel like I've always belonged here and am simply a Merlin living his life backwards. I still won't use 'hella' unironically, so it's a moonwalk with tons left to see. [1]: This also backfired because I am now the designated trunk rider.

Low emotional stability

I enjoy traveling, have a Bachelor's degree in Psychology, and Master's degree in Occupational Therapy. Doing travel therapy. "When you're a kid, they tell you it's all: Grow up. Get a job. Get married. Get a house. Have a kid. And that's it. But the truth is, the world is so much stranger than that. It's so much darker. And so much madder...And so much better."

I'm a huge nerd at heart! I could talk for hours about fantasy books, TV and games. I'm quite an introverted and quiet person, but I enjoy meeting new people and having new experiences. Lover of warm blankets and hot chocolate, walks in the rain, dating profile cliches and terrible puns (the worse they are, the better). Hit me with your best puns, I can handle the punishment. I'm definitely a homebody, I prefer my adventures to be the fictional kind. Guess I'm looking for my Player 2. Everyone needs a carry. By the way, I never want to have children so don't message me if you'd like some in the future or are currently a single parent, it'll just save us both time. If you love cats and dislike kids as much as I do, you've come to the right place.

Disheveled. Bad at flirting, worse at breaking the ice. People have called me an old soul, but really I'm just tired. Cantankerous but often charming philosophy phd candidate and professor. Like Hawkeye Pierce in front of a classroom. I am working on a dissertation concerning mental illness stigma, mood disorders, and moral responsibility. ***I'm in an open marriage [dating separately].***** I'm up for whatever: looking for new friends and partners, fun dates, and adventures. I think primarily what I want is longer term, semi-regular partnerships based in friendship with interesting women who have something they are passionate about in their lives. Hardshell, soft-hearted. Doing my best not to be yet another cliched moody academic. "Handsomely-abrasive"

I'm mercurial, confused, very open, enjoy football, gin, malt whisky, live music, intelligent discussion and feeling comfortable enough not to force to chat. I have 2 kids (not counted because children/kids not in the category), I practice daily meditation, think about things before making decisions but can be impulsive. I'm also vegan so if you're interested in hunting we won't get on. I mostly prefer male company to female as I don't understand women but I also don't understand Daily

Mail or Sun readers regardless of their gender. I spend my free time at football or gigs and want someone to spend a Saturday night with having fun, watching TV, gigs, listening to music, cinema, eating out, cuddling on the sofa and generally being mates as well as lovers. If you like WWE that's even better Please don't send me dick pics. if I want to see your dick I'll ask. The chance of me meeting you just for sex is nil and I don't need a fwb

Weird. White. Promised to the night. Hey! How are ya? :) I'm name, getting stuck creating a profile since I guess I'm a bit too open-minded and, well, weird (in a good way! Or, you know, you be the judge of that), and it's all very fit-the-peg-in-the-hole. [That's what she said!] To quote a wise restaurant owner, "Peoples, is peoples". And are the details not a bit ridiculous? I'm Irish. Nobody ever believes that I am though and I don't speak the language so, shame on the nation for havin' me. I'm 5'4", but like, do you have a height restriction? I've been tall enough to go on the awesome rollercoasters for ages now. Female human. That's not an option though. 'Used up' is, and how could I not pick that when it's available to? Too funny... Okay so I'm vegetarian/mostly vegan, don't judge. I don't shame people who have a Ron Swanson love of bacon. Heck, get a side of bacon for your Double Bacon with extra bacon; it's on me. I don't smoke, but again, everyone's free to their own vices/ I'm Irish, stereotype me (I seriously love potatoes, - PO-TAY-TOES, boil 'em, mash 'em, stick 'em in a stew...)/ Not commenting on illegal activities online, are you kidding? Oh wait though that's already filled out automagically. 'Never'. Awh man, now the cool kids won't like me. Atheist. Dudeist. Pastafarian. Be excellent to each other.See what I said about ridiculous?

Intellect profiles

High Intellect

I'm a huge nerd at heart! I could talk for hours about fantasy books, TV and games. I'm quite an introverted and quiet person, but I enjoy meeting new people and having new experiences. Lover of warm blankets and hot chocolate, walks in the rain, dating profile cliches and terrible puns (the worse they are, the better). Hit me with your best puns, I can handle the punishment. I'm definitely a homebody, I prefer my adventures to be the fictional kind. Guess I'm looking for my Player 2. Everyone needs a carry. By the way, I never want to have children so don't message me if you'd like some in the future or are currently a single parent, it'll just save us both time. If you love cats and dislike kids as much as I do, you've come to the right place.

Hey! I'm Taylor Surname. I currently live and work in the Boston area as a composer and gigging guitarist, having graduated from Berklee College of Music in 2015. I love music and art of all kinds! Full disclosure: I am transgender, pre-SRS. If that is an issue for you, I won't be offended if you pass on me.

I love books, the sun, being outdoor, the seaside in Dublin, learning new things and new words. I often wander around Dublin lost in thoughts or laugh on my own because I'm listening to audiobooks. It's really easy to make me smile as well as cry. I like getting deep in conversations about politics, religions, books, or any topic that interests me. I'm also terribly forgetful so my house is plastered in post it notes. I also hate many things, but none worth to mention it here. I'm rather complicated at times I must admit, but also trasparent as spring water to anyone who takes the time to look beyond.

Disheveled. Bad at flirting, worse at breaking the ice. People have called me an old soul, but really I'm just tired. Cantankerous but often charming philosophy phd candidate and professor. Like Hawkeye Pierce in front of a classroom. I am working on a dissertation concerning mental illness stigma, mood disorders, and moral responsibility. ***I'm in an open marriage [dating separately].***** I'm up for whatever: looking for new friends and partners, fun dates, and adventures. I think primarily what I want is longer term, semi-regular partnerships based in friendship with interesting women who have something they are passionate about in their lives. Hardshell, soft-hearted. Doing my best not to be yet another cliched moody academic. "Handsomely-abrasive"

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Low Intellect:

I'm a 37 year old single guy looking to meet someone around the same age. I live just outside Dublin. I cook lots of differing types of food, traditional, thai, italian, chines. I read various different genres, detective stuff, modern thrillers. I do a lot voluntary work with lgbt groups, political causes and other voluntary stuff. I can be serious but do also like the humorous side of life. Just you know being able to laugh a lot through life. I like doing things at the weekends such as long brisk walks, attending farmers markets, festivals and different events or maybe go for a nice walk in the hills or on the beach. I would to meet a guy who is open minded. I don?t have a particular type as long as you are nice, honest and genuine, accepting others and kind. Perhaps someone to laugh with, stay in or go out together, be spontaneous with and having fun being with. Humour is a big plus.

I'm a creature of contradictions- An athletic bookworm, a night owl who's an early riser, and an active guy who loves to be lazy on Sunday mornings. I'm always interested in learning new things whether it's history, politics, or the guitar. (I started teaching myself piano last year and am loving the challenge so far.) I can also cook a mean baked tilapia or spaghetti dinner. Let me know if you're interested or just give me some tips on my red sauce.

I'm name, Im 24 living in Sligo. I'm training to be a chef in my 4th year at college. I like to live life on the edge, But I also like to have a laugh and the craic. But I am also able to be laid back as well. I have a massive interest in baking and cooking for other people, my favourite food to cook is Chinese. I also really enjoy baking, I like to bake different types of breads and cakes. I've been told also that I bake a savage apple and rhubarb crumble, but the recipe is a secret! I have also a keen interest in cars, I enjoy everything about cars from working on them to going for drives, getting lost in the moment and exploring new places! My other interests include music, such as trance, house, dub-step, rap and R&B. I enjoy watching comedy films too, like Knocked up, superbad, Anchorman and we're the millers. So I'm looking for a woman with a good sense of humour, that can make me laugh! I also like a woman that has nice eyes and a nice smile. To share the good times with. Not interested in one nighters!

Some people say I'm daft and some say I'm stubborn, which are probably true!!! I like going to a decent gig but also like staying at home and watching tv and films for the night, who doesn't right?! I work full time and I go to college part-time a few evenings a week! If you want to know anything else, just ask!

Hi I'm 22 years old. I'm a single mother to a beautiful daughter. I love being outdoors and taking on new adventures. My pasttimes include horse riding, listening to music, walks on the beach. I'm looking to meet someone responsible and trustworthy. I don't have any preference as to what I'm looking for in a guy because I base everything on personality. If you think you may be my prince charming leave me a message.

Appendices Chapter 5

Appendix 7: Study two survey

2 - Online dating: Personality and the language we use

Participant information sheet

Participant information sheet

What is this research about?

The purpose of this research is to learn more about the effect on attraction of how we express ourselves through language, our personality and our culture in romantic relationships. We hope to gain insight into how attraction is determined when looking at online dating profile texts. You can participate whether you are in a relationship or not.

This research is being conducted by Nicola Fox Hamilton, M.Sc., Doctoral Candidate of Psychology, under the supervision of Dr Chris Fullwood, a Senior Lecturer in the Psychology department at the University of Wolverhampton (email: [redacted]). The study has gained approval from the Behavioural Sciences Ethics committee of the University of Wolverhampton.

If you have any questions, Ms. Fox Hamilton can be reached at [redacted]

Do you qualify as a participant?

You must be 18 years or older to participate. If you are not 18 years or older, you should not participate.

You should have been born and be resident in a native English speaking country (America, Canada, United Kingdom, Ireland, Australia and New Zealand). If you were born in a non-native English speaking country you should not participate in this study.

What is involved in the survey?

You will be asked to complete a survey comprised of demographic questions, a written profile text, a piece of observational text and personality items.

It is important that you answer as many questions as possible, but please note that you are free to skip any questionnaire item you wish, and you are also free to withdraw from the study at any time without fear of prejudice

or penalty. Your participation in the study is completely voluntary.

This study takes about 20–30 minutes to complete.

How will your data be used?

All of the data gathered in the study will be anonymous, confidential and for research purposes only.

The profile texts and observational texts that you write here may be used in the second phase of this study. In that phase of the study some of the texts from this survey will be presented to participants to rate on a number of scales. Any texts used in other studies will be presented anonymously.

Your demographic data and your scores on the personality items will be kept confidential and all of the data will be anonymous. The findings of the research may be published in the form of journal articles and conference proceedings, but your individual data will not be identifiable in any way in the published accounts. The raw data will be destroyed after no more than five years.

(For further details of the ethical approval of this study please contact Dr. Darren D. Chadwick, Chair BSEC, School of Applied Sciences, University of Wolverhampton, MC Block, Wulfruna Street, Wolverhampton, UK. WV1 1LY)

Please continue to the consent form.

Study One Consent Form

Study One Consent Form

As a participant in this study you consent to the following.

Please check the boxes and click the I Consent button at the bottom of the page.

If you have any questions, Ms. Fox Hamilton can be reached at [redacted]

1. I have read the information sheet on the previous page and understand the nature of the study. *

- Yes

2. I understand that I have the right to leave any questions blank if I do not feel comfortable completing them. *

- Yes

3. I understand I have the right to withdraw from the study at any time. *

- Yes

4. I understand that my data will be treated confidentially and anonymously. *

- Yes

5. I understand that my written texts may be shown to participants in a different study. *

- Yes

6. I am over the age of 18. *

- Yes

7. Do you have a University of Wolverhampton Psychology Participant Pool Unique ID Code?

- Yes
- No

8. If yes: enter your Participant Pool Unique ID Code here.

You should print a copy of this form for your records.

Consent to take part in the study

By clicking the below button, you certify that you are 18 years or older and that you agree to participate in this study. *

- I agree

Eligibility questions

9. How would you describe your national identity? *

- American
- Australian
- British
- Canadian
- English
- Irish
- New Zealander
- Northern Irish
- Scottish
- Welsh
- Other

Demographic questions

Demographic questions

The following questions will ask you about some basic demographic information to make sure you're eligible for the study. Please answer carefully. This section will take approximately 3 minutes.

10. What is your main language? *

- English – only or predominantly speak English.
- English – bi-lingual with English as one of the two languages.
- Other

11. What is your age?

12. What is your gender?

- Female
- Male
- Other

Demographic questions part two

Demographic questions part two

13. What is your current relationship status?

- Dating
- Divorced
- Married
- Same sex civil partnership
- Separated
- Single
- Widowed
- Other

14. What is your sexual orientation?

- Heterosexual
- Homosexual
- Bi-sexual
- Other

15. On the scale below, please indicate how negative or positive you feel about online dating as a tool to help people meet a partner?

- Strongly negative
- Negative
- Neutral
- Positive
- Strongly positive

16. Have you ever tried online dating?

- Yes
- No

17. What level of education is the highest that you have completed?

- Pre-school / kindergarden.
- Primary / elementary school – to age 12 approx.
- Secondary school / Middle & High school – to age 17/18 approx.
- Intermediate between school & university – Apprenticeship, vocational or technical qualification.
- Associate/applied degree or national diploma – 2 years minimum.
- Bachelor degree (3-4 years) – ordinary or honours degree.
- Post-graduate diploma/certificate.
- Masters Degree.
- Professional qualifications.
- PhD.

About me profile text creation

About Me profile text

Please write a short description of who you are, as though you were writing a profile for an online dating site. Consider that this would be the first impression that site members would have of you.

Talk about yourself and what makes you unique, your interests and tastes. How would people closest to you describe you?

Please write between 60 and 300 words.

Rate your honesty

18. Please indicate on the scale below how honest you were in writing your profile text?

- Completely dishonest
- Dishonest
- Neutral
- Honest
- Completely honest

Story creation

Story text

Please write a short story about the image that you see below. Avoid describing exactly what you see, instead describe what is going on in the picture, what are the characters thinking or feeling, what happened before or what will happen after this moment.

Please write between 60 and 300 words.

About Your Behaviours

About Your Behaviours

Here are a number of personality traits that may or may not apply to you. Please indicate on the scale next to each statement the extent to which you agree or disagree with that statement.

You should rate the extent to which the pair of traits applies, even if one characteristic applies more strongly than the other.

Extraverted, enthusiastic.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Critical, quarrelsome.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Dependable, self-disciplined.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Anxious, easily upset.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Open to new experiences, complex.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Reserved, quiet.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Sympathetic, warm.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Disorganized, careless.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Calm, emotionally stable.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Conventional, uncreative.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Thank you!

Thank you!

Thank you for participating in this study.

The purpose of this study is to explore how our personality and culture can be encoded in our language, and the effect that our language has on attraction - particularly in online dating profile texts. The next phase of the study will look at what kinds of people are attracted to each other.

If you would like to learn more about our research, please feel free to contact us at any time. The principal researcher for this project is Nicola Fox Hamilton, M.Sc. (N.FoxHamtilon@wlv.ac.uk). Please note that we cannot directly answer questions about your particular situation. Thank you very much for your assistance.

If you would like to be informed of the results of this phase of the study please enter your email address in the form at this link. Your email will be sent separately from your data to ensure your data remains anonymous.

https://edu.surveygizmo.com/s3/1166641/emails

Thank You!

Thank you!

Appendix 8: Ten Item Personality Inventory (TIPI)

Here are a number of personality traits that may or may not apply to you. Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement. You should rate the extent to which the pair of traits applies to you, even if one characteristic applies more strongly than the other.

1 = Disagree strongly
2 = Disagree moderately
3 = Disagree a little
4 = Neither agree nor disagree
5 = Agree a little
6 = Agree moderately
7 = Agree strongly

I see myself as:

1. _____ Extraverted, enthusiastic.
2. _____ Critical, quarrelsome.
3. _____ Dependable, self-disciplined.
4. _____ Anxious, easily upset.
5. _____ Open to new experiences, complex.
6. _____ Reserved, quiet.
7. _____ Sympathetic, warm.
8. _____ Disorganized, careless.
9. _____ Calm, emotionally stable.
10. _____ Conventional, uncreative.

TIPI scale scoring ("R" denotes reverse-scored items): Extraversion: 1, 6R; Agreeableness: 2R, 7; Conscientiousness; 3, 8R; Emotional Stability: 4R, 9; Openness to Experiences: 5, 10R.

Gosling, S. D., Rentfrow, P. J., & Swann, W. B. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality*, *37*(6), 504–528. https://doi.org/10.1016/S0092-6566(03)00046-1

Appendix 9: Study two and three ethical approval

From: [redacted]
Date: 13 February 2013 05:45:05 p.m. GMT
To: "Fox Hamilton, Nicola" [redacted]
Cc: [redacted]
Subject: RE: BSEC Outcome

Hi Nicola

I'm happy with the changes you have made. You are free to continue with your study and the best of luck with it.

Best wishes

[redacted]

[redacted]
School of Applied Sciences, University of Wolverhampton,
MC Block, Wulfruna Street, Wolverhampton, UK. WV1 1LY
Tel: [redacted] Email: [redacted]

From: Fox Hamilton, Nicola [redacted]
Sent: Friday, February 01, 2013 2:59 PM
To: [redacted]
Cc: [redacted]
Subject: RE: BSEC Outcome

Hello [redacted]

Please find attached the amended ethics submission for my studies. I have expanded and clarified the sections that you recommended and added information where requested. In the submission I have written in blue at the top of each section very briefly what changes I made.

In addition, below I have explained how the concerns of the committee have been addressed.

1. I have expanded and clarified the rationale, design, and sampling of both studies. I have explained the key research more fully and added some points that should allow a lay member to understand the background more clearly. I have made clearer the data protection section.

2. I have removed the ethnicity section from the demographic information. As the participants are already required to be from and resident in an English speaking country, ethnicity is not relevant. I ask instead if their parents first language is English, and what their parents national identity is. This will allow me to control for first or second generation immigrants.

I have also clarified the education section by adding details on equivalent levels of education in each of the countries or groups that have similar levels.

3-5 These changes have been made. Information sheet title added and more detail added. Phrase included on consent form. Criteria for inclusion made clearer. Mono-lingual/bi-lingual added as options for English language.

6. DVs and IVs made clearer. Also - I will check the differences between age bands - thank you for pointing that out - it will be interesting to look at.

I hope that these changes have made the submission clearer and easier to navigate. Please don't hesitate to get in touch with me if you need anything further.

Best wishes,

Nicola

From: [redacted]
Sent: 27 January 2013 20:41
To: Fox Hamilton, Nicola
Cc: [redacted]
Subject: BSEC Outcome

Hello

Please find the outcome for you BSEC submission below.

As a chairs action you need to return you revised RES20 to me. Please ensure that the changes are clearly marked in the RES20 form and that for each of the points below you explain how you have addressed these concerns raised by the committee.

Best wishes

[redacted]

[redacted]
[redacted]
School of Applied Sciences, University of Wolverhampton,
MC Block, Wulfruna Street, Wolverhampton, UK. WV1 1LY
Tel: [redacted] Email: [redacted]

1. RES20A, *"Homophilous Language in On-Line Dating: Linguistic Encoding of Personality and Culture On-Line"*

Investigator: Nicola Fox-Hamilton

Supervisors: Dr C Fullwood & Dr N Morris

1. The information in the submission is difficult to follow, and the submission is sparse throughout but crucial information is missing regarding the background and rationale, design, data protection and confidentiality. "Sampling" was also difficult to follow. These sections require clarification and extension so they are understandable. It is important to think of the ethics committee as a lay panel (as typically they will include a lay member) and to write your proposal and complete the form accordingly.
   2. As the study aims to recruit participants from different countries, the information used to communicate with them needs to be sensitively modified to reflect cultural differences. The two main issues relating to this point are (1) the way in which levels of education are defined; and (2) the differentiation of ethnic groups. It might help to provide supplementary texts to help participants find the equivalent education levels across different countries. In terms of ethnic groups, "Oriental" (i.e. Chinese, Japanese, Korean) as an ethnic group in America is normally referred to as "Asian". There could be confusion for participants from America. In addition, it might be preferable to rephrase "differences in the way language is used/expressed/communicated" rather than use "differences in language".

   3. Appendix 1, Information Sheet – lacking in detail, include a title.

   4. Appendix 2, Consent Form – should include phrases such as "I understand that my written texts may be shown to participants in a different study".

   5. Appendix 3, Survey – (1) the criteria for participant inclusion needs to be more explicitly specified. It is not clear whether the question "What other country have you lived in for longer than one year" means in one single stretch, or accumulatively; and (2) the investigator may wish to consider including "monolingual" or "predominately English speakers" as one of the selection criteria.

   6. General points – (1) Design, Study Two – the use of DVs and IVs in the regression analysis is not clear; and (2) it may be advisable to set age ranges for

the recruitments, in case differences stem from “generation gaps” instead of cultural influence. Alternatively, the investigator could check the differences between “age bands”.

Decision: Chair’s Action

Appendix 10: Study two content analysis codebook for profile texts

CODEBOOK - PROFILES		
Item	**Code/Count**	**Instructions**
A: Positive expression of emotion about others.	0 = Absent 1 = Present	When the author expresses positive, warm views about another individual or individuals. For example, “My parents are amazing people,” “My sister and I had a wonderful time on holidays,” or “We were a loving family.”
B: Negative expression of emotion about others.	0 = Absent 1 = Present	When the author expresses negative views about another individual or individuals. For example, “My Parents were cold people,” “I hated going on holidays with my sister because we had a terrible time,” or “My sister and I were so upset by our parent’s break-up.”
C: Positive expression of emotion about self.	0 = Absent 1 = Present	When the author expresses positive, warm views about themselves. For example, “I felt so good about myself when I got my degree,” “I thought I looked great this morning,” or “We’ll never be the same again, but I’m okay with it.” This does not include expressions such as “I love cooking” or I have a great time running”.
D: Negative expression of emotion about self.	0 = Absent 1 = Present	When the author expresses negative views about themselves. For example, “I felt so bad when I failed my degree,” “I thought I looked awful this morning,” or “Sadly, we’ll never be the same again.”

E: Expressions of goals, fantasies, positive hopes and dreams.	0 = Absent 1 = Present	Comments on what authors would like to achieve, both realistic (hopes and dreams) and unrealistic (fantasies and dreams). For example, career-aspirations such as “I’ve wanted to be a doctor since I was a little girl”; sexual fantasies such as “I’ve always wanted to have a passionate night with (insert famous pop star)”; ambitions such as “I want to be a millionaire”; positive hopes and dreams such as “I’m happy now and I hope I stay this way.”
F: Expressions of fears, worries, and concerns.	0 = Absent 1 = Present	For example “I’m terrified of the thought that I might get cancer,” “My biggest nightmare is that I’ll be alone,” “We’re worried that our parents have split for the final time,” “I’m worried about the future with the changes in climate,” and “I’m worried that on my wedding night my partner will think I’m too fat.”
G: Spelling/grammar mistakes	0 = absent 1 = present	Absent – no spelling or grammar errors Errors – use of lowercase only, or spacing mistakes, small or large spelling/grammar errors
I: Positive emoticons	0 = Absent 1 = Present	Positive emoticons include happy faces, laughing, tongue sticking out, winking. :-) :-D :-P ;-)
K: Personality trait – Emotional stability high	0 = Absent 1 = Present	The high Emotional stability trait theme includes explicit references to qualities associated with that trait. Such as: Am relaxed most of the time. Seldom feel blue.
L: Personality trait – Emotional stability low	0 = Absent 1 = Present	The low Emotional stability trait theme includes explicit references to qualities associated with that trait. Such as: Get stressed out easily. Worry about things. Am easily disturbed. Get upset easily. Change my mood a lot. Have frequent mood swings. Get irritated easily. Often feel blue.

M: Personality trait – Extraversion high	0 = Absent 1 = Present	The high Extraversion theme includes explicit references to qualities associated with that trait. Such as: Am the life of the party. Feel comfortable around people. Start conversations. Talk to a lot of different people at parties. Don't mind being the center of attention.
N: Personality trait – Extraversion low	0 = Absent 1 = Present	The low Extraversion theme includes explicit references to qualities associated with that trait. Such as: Don't talk a lot. Keep in the background. Have little to say. Don't like to draw attention to myself. Am quiet around strangers.
O: Personality trait – Agreeableness high	0 = Absent 1 = Present	The high Agreeableness theme includes explicit references to qualities associated with that trait. Such as: Am interested in people. Sympathize with others' feelings. Have a soft heart. Take time out for others. Feel others' emotions. Make people feel at ease.
P: Personality trait – Agreeableness low	0 = Absent 1 = Present	The low Agreeableness theme includes explicit references to qualities associated with that trait. Such as: Am not really interested in others. Insult people. Am not interested in other people's problems. Feel little concern for others.
Q: Personality trait – Intellect/imagination high	0 = Absent 1 = Present	The high Intellect/imagination theme includes explicit references to qualities associated with that trait. Such as: Have a rich vocabulary. Have a vivid imagination. Have excellent ideas. Am quick to understand things. Use difficult words. Spend time reflecting on things. Am full of ideas. Vote liberal. Like art.
R: Personality trait – Intellect/imagination low	0 = Absent 1 = Present	The low Intellect/imagination theme includes explicit references to qualities associated with that trait. Such as: Have difficulty understanding abstract ideas. Am not interested in abstract ideas. Do not have a good imagination. Vote conservative. Do not like art

S: Personality trait – Conscientiousness high	0 = Absent 1 = Present	The high Conscientiousness theme includes explicit references to qualities associated with that trait. Such as: Am always prepared. Pay attention to details. Get chores done right away. Like order. Follow a schedule. Am exacting in my work.
T: Personality trait – Conscientiousness low	0 = Absent 1 = Present	The low Conscientiousness theme includes explicit references to qualities associated with that trait. Such as: Leave my belongings around. Make a mess of things. Often forget to put things back in their proper place. Shirk my duties.
U: Demands in a potential mate	0 = Absent 1 = Present	Includes references to anything that the author would like in a potential mate. Such as: attractive, outgoing, likes doing X activities.
V: Hobbies/Extracurricular activities	0 = Absent 1 = Present	Includes references to hobbies, interests, activities pursued outside of work or family. Must be specific activity – not trying new things, adventures etc.
W. Mention job/work/profession/studying	0 = Absent 1 = Present	Eg: I work as a…; my job takes me away a lot; I'm studying…; I work hard; I used to be a…
X. Humour	0 = Absent 1 = Present	Jokes, puns, humorous sarcasm, pithy metaphors, humorous self-depreciation

Appendix 11: Study two content analysis codebook for story texts

CODEBOOK - STORIES		
Item	**Code/Count**	**Instructions**
A: Narrative	1 = description only 2 = some narrative 3 = well developed narrative	Assess whether a story was told rather than merely describing the photograph. Does the story have a beginning, middle, end? Is there a narrative of connected events?
B: Conclusion	0 = absent 1 = present	Does the story have an identifiable conclusion?
C: interaction	0 = absent 1 = present	Is there interaction between the characters? Do they talk or communicate with each other through words, touch, looks etc.
D: Events before after	0 = absent 1 = present	Is there was any reference to events before or after the scene in the photograph
E: Creativity	1 = none 2 = a little 3 = very creative	How creative is the story? Does it merely describe the events, or are ideas and thoughts expressed in an imaginative way.
F: Emotional tone	1 = positive 2 = neutral 3 = negative	Is the overall emotional tone of the story positive, neutral or negative? For example, a story about a couple breaking up might be negative, a story about a successful proposal might be positive, a description of the couple walking might be neutral.
G: Positive emoticons	0 = absent 1 = present	Positive emoticons include happy faces, laughing, tongue sticking out, winking. :-) :-D :-P ;-)

H: Goals - Expressions of fantasies, positive hopes and dreams – of a character in the story	0 = absent 1 = present	Comments on what characters in the story would like to achieve, both realistic (hopes and dreams) and unrealistic (fantasies and dreams). Can be first person or third person (I want, she wants) For example, career-aspirations such as "I wanted to be a doctor since she was a little girl"; sexual fantasies such as "He's always wanted to have a passionate night with (insert famous pop star)"; ambitions such as "She wants to be a millionaire"; positive hopes and dreams such as "We're happy now and I hope we stay this way."
I: Expressions of fears, worries, and concerns – of a character in the story	0 = absent 1 = present	Comments on fears, worries or concerns of characters in the story. Can be first person or third person (I fear, she is concerned) For example "I'm terrified of the thought that I might get cancer," "Her biggest nightmare is that I'll be alone," "We're worried that our parents have split for the final time," "I'm worried about the future with the changes in climate," and "I'm worried that on my wedding night my partner will think I'm too fat."
J. Humour	0 = absent 1 = present	Jokes, puns, humorous sarcasm, pithy metaphors, humorous self-depreciation

Appendix 12: Study two results – assumption testing for regressions

Language and the Big-Five traits

H1. Hypothesis one expected that the LIWC variables that most reliably correlated with traits, found in at least three previous studies, would predict participants traits in this sample.

As in study one, thrice replicated LIWC variables were regressed against each of the Big-Five traits to test hypothesis one. This was conducted for the profile text and the story text LIWC variables individually. A significant model emerged for extraversion in the profile texts.

Tests for assumption of collinearity indicated that multicollinearity was a concern, positive emotion and affect were highly correlated (r = 9.31). As positive emotion is the LIWC variable that has most often correlated with extraversion in the past, the regression was rerun without affect as a predictor and assumption tests were conducted again. Scatterplots of the relationships between the dependent and independent variables for agreeableness indicated linear relationships. An analysis of standard residuals was carried out, which showed that the data may have contained outliers as the values were just under and over 2 (Std. Residual Min = -2.50, Std. Residual Max = 2.39). Tests for assumption of collinearity indicated that multicollinearity was no longer a concern (Tolerance ranged from .462 for social to .892 for causation words; VIF ranged from 1.25 for articles to 2.16 for social), no correlations between predictor variables were over .80. The scatter plot testing homoscedasticity indicated that the errors were normally distributed, the normal P-P plot of standardised residuals showed points that were mostly on the line. The Durbin-Watson test was 1.94 indicating that there was independence of errors. For the profile texts a significant model emerged for extraversion using the enter method: F (13, 121) = 2.372, p = .007. The model explains 11.7% of the variance (Adjusted R^2 = .117).

Relationship between expressed trait-related statements and self-reported traits

H2.Hypothesis two predicted that trait-related statements, as measured by content analysis, would predict those traits. Specifically, that the high level of each trait will predict the self-reported trait, and that statements related to the low level of the trait will not, with the exception of extraversion where statements of introversion will also predict the trait. Significant models were found for all five traits and hypothesis two was partially supported. However, there were problems

with violations of assumptions in a number of the regressions indicating that the results are less generalisable outside of this sample.

Self-disclosure

H5. Hypothesis five predicted that those higher in extraversion would self-disclose more in profiles than those lower in extraversion.

The six self-disclosure content analysis variables were the predictors in a regression for extraversion. The regression met the required sample size for an f^2 effect size of at least 0.33, power of .95 and an alpha value of $p < .01$, and the model for was significant.

Scatterplots of the relationships between the dependent and independent variables for extraversion indicated linear relationships. An analysis of standard residuals was carried out, which showed that the data contained outliers (Std. Residual Min = -2.27, Std. Residual Max = 2.40). Tests for assumption of collinearity indicated that multicollinearity was not a concern (Tolerance ranged from .823 for fears and worries to .966 for positive thoughts and feelings about others; VIF ranged from 1.036 for positive thoughts and feelings about others to 1.216 for fears and worries), no correlations between predictor variables were over .80. The scatter plot testing homoscedasticity indicated that the errors were normally distributed, the normal P-P plot of standardised residuals showed points that were not completely on the line but were very close. The Durbin-Watson test was 1.91 indicating independence of errors. Using the enter method a significant model emerged for extraversion: F (6, 126) = 2.679, $p = .018$. The model explained 7.1% of the variance (Adjusted $R^2 = .071$). Statements of positive thoughts and emotions about others emerged as the unique positive significant predictor of extraversion (β = .269, $t(130) = 3.152$, $p = .002$).

Appendix 12B: Study two correlations between the Big Five traits and LIWC variables generated from profiles and stories

Pearson's correlations between the Big Five traits and LIWC variables generated from profiles and stories

LIWC	E		A		C		ES		O	
	Profile	Story	Profile	Story	Profile	Story	Profile	Story	Profile	Story
Word count	-.202*	-.362***	.069	.115	.013	-.003	.043	.020	.156	.173*
Long words	-.094	-.115	-.068	.105	.011	-.084	.036	.079	.103	-.043
Numerals	.078	.102	-.051	-.155	-.080	-.163	-.116	-.113	.013	.014
funct	-.044	-.042	.124	-.103	.043	.138	.015	-.095	-.075	-.095
pronoun	.006	-.134	.046	-.068	.076	.055	-.115	-.158	-.050	-.028
ppron	.034	-.007	.001	-.015	.012	-.004	-.084	-.169*	**-.170***	.042
i	-.016	-.118	.013	.050	.005	.055	-.104	-.026	-.143	-.094
we	.153	-.127	.136	-.040	.134	.076	.160	.039	.087	.133
you	.044	-.160	-.096	-.015	-.063	.033	-.084	.155	.009	.101
shehe	.090	.007	-.077	-.045	-.015	-.081	-.005	-.214**	-.010	-.034
they	-.044	.162	-.008	.033	-.010	.058	.060	.083	-.213**	.131
ipron	-.036	**-.241*** **	.072	-.104	.104	.111	-.071	-.024	.138	-.122
article	-.038	.137	.111	.061	-.148	-.028	-.026	.195*	.013	-.018
verb	.118	-.060	.045	-.052	.001	.001	-.022	-.090	-.062	-.099
auxverb	.047	-.010	.019	-.055	-.008	.024	-.001	-.019	-.008	-.079
past	.260***	-.095	.038	.034	-.003	-.096	.006	-.104	.079	.086
present	.094	.114	.049	-.057	.020	.134	-.004	.012	-.075	-.095
future	-.078	-.145	.030	-.012	-.030	-.030	-.031	-.099	-.024	-.044
adverb	.089	.054	-.039	-.148	.012	-.049	.092	.047	.057	.030
preps	-.103	-.075	.107	-.040	-.026	.082	.046	.018	.070	-.189*
conj	-.152	.278***	.047	.010	.136	.049	.051	.037	-.196*	.052
negate	-.064	-.127	.069	-.113	-.008	.053	.045	-.155	.126	.014
quant	-.019	-.084	.078	.054	-.001	.145	.006	-.074	.025	.094
number	.100	-.102	.068	.090	-.062	-.098	-.158	-.043	-.058	-.013
swear	.118	.078	.060	-.135	-.005	-.067	.042	.015	-.019	.113
social	**.176***	.028	-.006	-.080	.030	-.002	-.015	**-.192***	-.111	-.058
family	.151	.124	-.007	.028	.152	.020	.040	-.002	-.009	.041
friend	.015	-.029	.148	.014	.033	-.010	.045	-.144	**-.184***	.072
humans	.018	.039	-.015	**-.192***	-.019	.010	-.029	-.045	-.134	-.159
affect	**.184***	.071	-.027	.063	.057	.010	.132	-.099	.001	.151
posemo	**.214****	.027	.004	.111	.077	.057	.156	-.019	-.024	.039
negemo	-.060	.082	-.069	-.031	-.063	-.072	-.068	-.125	.066	.194*
anx	-.040	.003	-.151	-.046	-.060	**-.183***	-.127	-.140	.032	-.019
anger	.055	-.053	-.029	.048	.000	.108	.022	-.081	.149	**.175***
sad	-.079	.208*	-.007	-.015	-.069	-.046	.018	.025	-.086	.213*
cogmech	**-.171***	-.082	.020	-.053	.053	.040	.109	-.087	.045	-.110
insight	-.139	-.161	.098	-.051	.007	**-.173***	-.085	-.107	.017	-.175*
cause	.143	.002	.040	-.077	.118	-.127	.010	-.149	**.245*****	-.004
discrep	-.051	-.049	.087	.003	-.059	.082	.021	-.059	-.020	-.008
tentat	**-.256*****	-.087	.050	-.053	-.110	.017	-.055	-.022	-.016	-.264***
certain	.086	.107	-.094	.094	.076	.169	.043	.079	.103	**.197***
inhib	-.133	.090	-.228**	.042	-.064	.096	.143	.082	.082	.234**
incl	-.060	.046	-.005	.013	.125	.119	**.187***	.004	-.148	.087
excl	-.078	.042	.066	-.106	-.143	.021	-.041	-.104	.138	-.144
percept	-.003	-.012	.040	.051	-.135	.021	-.045	.105	-.058	-.059
see	.012	.104	.014	.074	-.184*	.163	-.040	.204*	-.080	-.041
hear	-.062	-.154	.027	.029	-.068	-.015	-.030	-.061	-.039	-.099
feel	.109	-.021	.075	-.046	.147	**-.174***	.026	-.069	.072	-.007
bio	.155	.033	-.094	.061	-.066	-.086	.016	.027	.038	.117

body	.038	-.053	-.061	-.020	-.128	-.108	-.077	-.055	.015	.025
health	.076	.038	.034	.017	.038	-.048	-.015	.149	.053	-.004
sexLIWC	.154	-.015	-.070	.074	.023	.091	.043	-.082	.033	.177*
ingest	.024	.134	-.095	.035	-.119	-.041	.039	.057	-.025	.076
relativ	-.088	.015	-.088	-.030	-.116	.058	-.076	.098	-.009	.159
motion	-.041	-.066	-.184*	-.047	-.069	.061	-.058	-.045	**-.214****	.043
space	-.137	-.129	-.072	.007	-.201*	.018	.059	.207*	.104	.051
time	-.056	.169*	.030	-.042	-.010	.052	-.137	.015	-.107	.131
workLIWC	.054	.078	-.018	.074	.053	-.151	-.008	.091	.088	.051
achieve	-.020	.038	.036	.116	.101	-.138	.096	.027	.175*	.030
leisure	.032	.077	-.074	**.198***	-.012	-.092	.051	.010	.071	-.022
home	.017	.140	.092	.002	.105	.018	**.209***	.120	.069	.151
money	.055	.145	.020	.030	.139	-.092	-.129	.078	-.085	.131
relig	-.053	-.032	.068	-.011	-.071	-.108	.061	-.018	.032	.065
death	-.143	.073	-.119	-.073	-.062	-.144	.012	-.016	.093	.103
assent	.031	-.108	-.139	**.176***	-.092	.059	-.155	-.004	.090	.095
nonfl	.067	.057	-.022	.068	-.061	-.013	-.026	.006	.145	.084
filler	-.121	.070	-.034	-.088	.044	-.008	.028	.038	-.100	-.159

*p < .05. **p < .01. ***p < .005

Profiles: extraversion, agreeableness (n = 135), conscientiousness (n = 134) , emotional stability (n = 132), openness (n = 133).

Stories: extraversion, agreeableness (n = 133), conscientiousness (n = 133) , emotional stability, openness (n = 131).

Extraversion (E), agreeableness (A), conscientiousness (C), emotional stability (ES), openness (O).

Correlations in bold replicate those found in at least one previous study.

Appendix 13: Study two sample profiles and stories for high and low level of each trait

Dating profiles and *stories (italic)*

Extraversion

High extraversion

I drag a plastic horse around campus tied to two shoelaces and call him my boyfriend. One time I was described as the "most eccentric person I've ever met." I like doing school and theatre and friends. Friendship is awesome. If I were a stock broker, I'd invest in friendship. I am also very fond of pterodactyls. I love my mom. I've been single for all of my life and I have some habits and sometimes I leave laundry around.

I think he's more into her than she is him. The photo makes it look like she has daddy issues. I'm not sure if they're dating or not because he looks a great deal older than her. Currently at my age that's kinda weird but a lot of people date older people no judgement, we all do it. It looks like a break up.

I am confident, outgoing and extroverted. I can be a know it all. I can be too trusting. I am mostly honest but I can occasionally keep facts about myself and things I've done from people. I am easy to get along with and open to people. I consider myself very trustworthy. I am not good at being alone for long periods of time.

Blank

I am a laid back, calm natured individual. Although i do like a laugh and can be very bubbly. I like to think of myself as motivated and ambitious with a drive to succeed in life and be happy. I get on well with others and enjoy group activities but also spending time reading and listening to music, other people say i am energetic

They are walking along the beach hand in hand with the sun glaring on their backs laughing and joking about their lives. They are calm and peaceful and tranquil. They have been walking for quite a while, although the day has passed quickly. The sun is beginning to descend and they prepare to both watch the sunset across the horizon

I'm young, down to earth and excited to try new things. I love the beach and everything about it. Sand. Sea. Surf. I love reading books and watching movies. I can talk about anything for hours. I'm adventurous and love traveling the world and exploring new places. I love to laugh. I love sports from baseball, basketball, football, and soccer. I'm fun. Plain and Simple.

As this couple walks down the beach they converse about their future. They've been dating for a while but they do not know whether they have a future together or not. They have so much in common. They both have careers but want different things in life. She wants a career and a full life ahead of her. He wants a family.

Generally quite a happy one and able to chat to anyone. Fiercely loyal to those I love. And I'm told I'm a good kisser. Self-employed doing a job I love. Mother of one. Just started doing Bikram yoga and am really digging it cos it's SO HARD! 6 things I could never do without: The Internet. Seeing my little boy smile with joy when he sees me first thing in the morning (not that I"m looking that hot!). My ability to survive whatever life throws at me. Good friends to share experiences with.

Couple out for a walk by the sea, needed to meet up because they had an argument last night and they need to resolve it. She feels wronged and hurt. He's listening, doesn't really see all of her point of view, but knows enough about women that you need to give the impression that you're there. He always feels a little inadequte because she is so gorgeous and so successful and he's often afraid he's going to lose her... but lately there have been so many arguments that he's beginning to wonder if that would be such a bad thing.

Low extraversion

I'm a friendly, easy-going and laid-back guy. I'll have to admit to being quite quiet at times, but I open up when I'm with friends, family and friendly strangers. I enjoy reading and music, rock-climbing and hill-walking. I like to get out for a run a couple of times every week. I'm a home-bird generally -- I prefer a quiet night in with pleasant company than to be out in a noisy pub or club. I know some might see that as boring but that's who I am, and I've grown to be comfortable with that now :-) I'm friendly, reliable and a good listener and good company.

"I'm just not happy with us anymore", said Jill. "We're not going anywhere as a couple -- we've been in the same rut for months now" Paul looked on, a little exasperated, a little crestfallen. A mix of anger and despair; this outburst had come out of the blue. "C'mon ... you can't tell me you're surprised by this", said Jill. "Can you honestly say that you've been happy over the last few months?" Paul had to admit to himself that she was right. He hadn't been happy. But he never thought it was anything to do with Jill. It was the promotion he had received about a year ago; he still doesn't feel "settled in" yet. "Jill", he said. "It's not you. And, without wanting to sound like a cliche, it's me. It's the job. It's bringing me down" "I don't know where to go from here"

A keyring with my name on it, on the other side had a message describing the type of person with that name: "Loves solving problems, and creating problems to solve." Sometimes that feels like the best summary! I hate "to-do" lists, but I like having a schedule of when I want to get things done (especially if the schedule gives me lots of room for manoeuvre!). My favourite part of my body is my hands. They make music, they make fun (and sometimes sexy) things happen, they are also proportionately quite slender, while also being big and able to stretch to do lots of things like holding big objects or playing double bass. I also really like my brain because of all the thinking it does. If there's a pun or wordplay to be had, I'll probably go there, sometimes even when a wiser man wouldn't... I'm strongly introverted, so I don't do crowds or parties very much, but I do like company and finding ways to be around people. I learnt some ballroom and Latin dancing (starring on "Strictly..." is rather a long way off, though!) and I like to play fun card and board games that involve some socialising, and usually lots of laughter! I spend a lot of time on my music. When I'm not doing that, I am typically typing away writing stories, or getting some fresh air and exercise, because I happen to live practically on the doorstep of some great countryside, where the views can be awesome. I like board games as well.

The sea breeze ruffled her hair as she faced her colleague at the end of the pier, the dawn sun finally climbing above the clouds. "Prove it!" she said, with a twinkle in her eye, and undid the top buttons on her blouse. He hung his jacket over the rail and removed his glasses in a debonair sweep before leaning in and pressing his lips to hers. She leaned against the rail, thankful for the slight insulation his jacket gave, and opened her chest and her mouth to welcome him. Once the experiment was over, they walked back along the promenade. "I'll admit it, you're a pretty good kisser," she told him, "But you needn't think I'm going to join you in your hotel room. I'm heading home and it's a long drive." "Look out for the dog dirt!" he warned, just too late to stop her heel sticking right into the smelly mess on the pavement. "Merde!" she exclaimed. "I'll buy you a new pair, once the shops open," he said, "Of course, we'll have to find somewhere to wait until then..."

"Creep!" she said, but her genuine smile told a different story, as did the kiss that followed the remark. Then she calmly pulled a tissue from her pocket and diligently wiped her shoe clean. "On second thoughts, it is a VERY long journey. Maybe next year, sweetie."

I'm a wage-slave at a local business—an old man doing a youngster's job. Although I've been there for 39 years, entirely on the third shift, I am a person of neither influence nor importance in a company determined to cull high seniority workers from its workforce. My weekend is on Tuesday and Wednesday, during which time I perform in two (very humble) instrumental organizations. I have experience in performing instrumental music, but I can't sing. I am a widower, and my second marriage lasted thirteen years. There is a (still living) first wife from a marriage that lasted fourteen years. I failed as a hippie in my youth, looking very much the flower-child, but I eschewed drugs—including marijuana—during those times. My politics, however, remain far left of the Democrats. I support civil rights, civil liberties and civil behavior. I am also a vegetarian, however I make no demand that you (or anyone) be vegetarian also. My personality is somewhat reserved and self-isolating. I don't look for confrontations, but there's no predicting when I will defend my position to the point of absurdity. I can take 'no' for an answer. I don't like to admit to being gullible, but I guess I usually am, until contradictory evidence surfaces. I play my happiness cards close to my heart. As much as I like sunset walks on the beach, I honestly don't make time for such without you and my third shift job puts me to bed at 5:30, before most sunsets. I have no fireplace for cozy snuggling, which I'm certain I'd want to do with you. I endeavor to avoid drawing attention to myself. I don't wear aftershave, but not because of skin sensitivity. In public, I'll try to keep our conversation between us alone.

Tom and Esmerelda just left a reception for an opening art exhibit. Esmerelda speaks on the artist's contribution to art overall and on the works exhibited at the reception in particular. She admires the artist and appreciated the opportunity to attend and meet the artist. She feels satisfied that she did something that she wanted to do and planned for. The reception didn't have any unpleasant surprises and she learned from the experience. Tom listens carefully. He would like to contribute something more to Esmerelda's very sympathetic and capable explanation of the artist's show, but her grasp on the subject rather leaves him with little original thought to add. The reception was ok, but he would have rather avoided the press of so many in the gallery and gone after the exhibit had been open for a month or so. Stepping out with Esmerelda, high above the city, he removed his suitcoat to cool himself in the fresh air. The reception continues behind them, but they both agree to leave. Tom will move his suitcoat from his shoulder to his left forearm so that he can hold hands with her as she looks out to the horizon. He contributes to the dialogue by squeezing her hand. She's pleased that the small

intimacies of the early dating relationship of continued onto the the relaxed familiarity of having been a couple for a long time. He brings up her hand to kiss it and moves in front of her. He suggests that her decolletage needs adjusting. "Hardly proper, I should say," he declares, but—standing close—playfully works at unbuttoning the next one down. Esmerelda responds Tom's lack of decorum by allowing one more button open and pulls his hand to her back so that they can share a gentle kiss and leave.

I am consumed with desire to further myself, to grow and evolve as a person.. I believe that I create my reality and I strive to cultivate the life I want through conscious choice. I am the student of a fringe spiritual and philosophical teaching; my primary interest is personal growth work. I am passionate, I can be moody, I need to really be alive. A mediocre life is not enough for me. I am an eccentric, a loner, but I crave connection to people who are on my wavelength. I really want to travel and live abroad. My plans after college are to work in an international school, I want to see the world. I consider myself to be both an internal and an external seeker. I love literature, art, and music--I like pretty things. I believe everything in existence is conscious, down to the atomic level. I can be a hopeless romantic, at times. I love being an imaginative person and a visionary. I think that I am a wandering star housed in an all together too fragile body, I feel like I am burning (to get poetic). I also really love cats and I am trying to develop my intuition. Others describe me as unique, fun, interesting, cheerful, compassionate, deep, self-aware, imaginative, introspective, introverted, spiritual, wise, loving, and a total bookworm.

Woman's Thoughts (In Southern Accent): When we got married, now twenty-one years ago, I was like all young women, I was naive. I thought that love was enough, in a way it was, but enough for what? We are still married, yes, and will be until our youngest, who just turned fourteen is out of school. Yet, this that we have, this that we are so blessed to have is not enough, just not enough to feed the hunger in my soul. It's a selfish hunger, I think that is what happens when you grow up, for a woman at least, you learn to look at yourself a little more, look out for yourself a little more. He never had that issue, even when I was pregnant with Ivan, our oldest, he was taking care of his needs, selfishly. I didn't know it then, of course, but it would not have mattered anyway, for I was pregnant and that's all I though I ever wanted. He was out having an affair with his coworker, and I knew her, I looked in her face and I never knew that. Shameful, but on who I don't know. If there is any such thing as shame in this world at all.

I am a male 18 year old who is likes to remain indoors. I socalise a lot as i enjoy going out and getting a thrill from life. I try to live every day as though it may be my last as you never know whats is around the corner. If you want to know any more please let me know :)

Two people are walking along a beach under a blue sky. The bloke seems to gbe interestesd in the woman but the feelings to not seem to be returened. I believe that if he were to ask her out he would get 'friend-zoned'. I believe that there is no chance of a relationship for these people. She seems to be quite high self profiled

Agreeableness

High agreeableness

I'm a very bubbly character and enjoy listening to the problems of others. I'm extremely socialable when meeting new people and jumped straight into conversation without feeling nervous or intimidated. Im a very loving individual and take the time to express my feelings to my partner and close friends. I always think of others and ensure I reserve plenty of time to spend with loved ones.

Carol could not stop thinking how the affair would hurt her husband and family, so she told John that they had to end the affair. However, John didn't want to let their romantic whirlwind end and became extremely emotional. Regardless to Johns previous lack of expression of love he began to realise the servere level of love he had developed towards Carol.

To try and capture myself in writing I would start by saying that I am someone that appreciates the simple things in life mainly people, humor, good food and of course a good cuppa. I find Psychology very interesting, I love drawing and just talking to people and trying to put the world to rights with friends. I am a compassionate person, enjoy being the hostess and always do what I can to help those close to me. I refrain from judging people and try and explore the wider picture rather than taking things at face value. I love a variety of music for me music takes me away from the now and is quite therapeutic. I feel I should of been born in the 60's era among pretty fashion and simple lyrics. To me lifes to short to be consumed by worrying so I like to focus on the positives in life. For this reason my friends describe me as a pleasure to be a breath of fresh air and they love me to bits.

Sarah has just told her work colleague Ian that she has strong feelings about a woman at work and is extremely relieved to have told someone and finally got it off

her chest. Her male work colleague is extremely confused and disappointed because he thought she liked him and had no idea she was gay, poor Ian is trying very well to hide it.

Hi I am a five feet tall, 32 year old female that has been working at a retail store since November 2006. I really like to spend time with my children. I like to go shopping and talk on the telephone. I am going to college to pursue a degree in nurisng. The people the closest to me would describe me as a very independent individual that loves to take care of GOD and home first.

The couple are feeling a little tired from working all day long.She seemed to have a rough day at work and they are taking a walk to discuss what happened and what are some ways to handle the situation. They are enjoying the weather. He just happened to see something on her jacket and he is looking at it trying to see what it is without interrupt them taking a walk.

I'm young, down to earth and excited to try new things. I love the beach and everything about it. Sand. Sea. Surf. I love reading books and watching movies. I can talk about anything for hours. I'm adventurous and love traveling the world and exploring new places. I love to laugh. I love sports from baseball, basketball, football, and soccer. I'm fun. Plain and Simple.

As this couple walks down the beach they converse about their future. They've been dating for a while but they do not know whether they have a future together or not. They have so much in common. They both have careers but want different things in life. She wants a career and a full life ahead of her. He wants a family.

I am a very caring and thoughtful individual, always tend to put people first and care too much about what people think. I like to be very social and make people feel at ease, im very outgoing. I am a person who likes to be at home and enjoy spending time with friends and family. I live with my boyfriend and I think he would describe me as a friendly and happy person generally.

I think that this could be a couple, however from their body language it tells me they are not very happy right now. The man seems to be listening and frowning at what the woman is saying. I don't think they are particularly arguing as the woman seems to have a smirk on her face, i assume the woman is in control of the situation while the man backs down and listens with concentration to what she has to say. Maybe

they have just had a huge argument and are now taking a walk along the beech to try and cool off and resolve any differences they have.

Low agreeableness

People say that I'm quite witty and funny, but also very stubborn. I have a very imaginative mind and very artistic. I like to play video games and Am somewhat tomboyish with very girlish tendencies. I'm very shy when I meet new people and find myself very uncomfortable in social situations I seem not to have control in, but once the ice is broken I loosen up and let my true colors out.

The woman in the picture could be speaking about anything. Relationship wise or speaking social wise. The man on the other hand seems to not really be paying attention to who could maybe be his partner and instead is focusing on his partners "assets". They both seem to be having a nice time and there seems to be no negative inclination in their faces.

I am a bit shy. I love to get together with my close friends and relax. I am very fascinated with law enforcement. I am not into religion at all. I don't like watching television and I fall asleep during all movies. I like going to the beach and I love being out doors. I am very outgoing and reliable once you get to know me.

I feel like this picture is showing how much women have come up in the world and they are now along side most all men in America. They are just as smart and professional as any man can be as you can tell by her clothing in this picture. And it looks like the guy is into having a woman next to him

well im a student, i study psychology at the moment. im interested in any kind of art, i love drawing and painting in my spare time. I keep my self busy, just i do enjoy sitting in front of the TV sometimes and watching a good film. I Like all kinds of films, Actions, Horror, Thriller all those kinds of films x I love super heroes :) i have a really good imagination, i can keep my self entertained. i like to make people happy which makes me happy. i love rock music too. ive been to loads of festivals and concerts, been brought up with music being really important. I can keep a good conversation going, mainly because i never shut up. Im really opinionated and not afraid to make that clear to people. Generally i love life, i want to travel all over the world, and make the most if life :)

i think they have just got bored of their 9 to 5 jobs and got in the car and just drove to the nearest seaside! She is saying how much she misses seeing the sea and wanted to move back here and start a family away from their boring lives in the city. He is looking at her boobs and is just about to take off her clothes and run hand in hand into the freezing cold sea :)

Well, writing this then. I'm currently studying at university, focusing on classics and Australian literature (yes, I'm an arts student, hello! Run away now if you're going to). I do a bunch of things with theatre - primarily directing, and once I've finished my degree I plan on either going into theatre professionally, writing creatively and/or going into academia. Oh, I should probably do demographic stuff, yes? I'm 19 years old - no, wait, 20 now - and a girl. Or young woman. Or just woman. Whatever.

"Throw it," she said. "What will that do?" She explained that it wasn't what it did, or what it achieved, but simply the symbolism of it. "Symbolism?" he asked? They were executives, not writers or musicians or poverty-stricken liberal arts students. What did symbolism matter - what mattered was that his phone was in his jacket, and if he threw it over the cliff Mr. Samuels wouldn't be able to call him about the meeting tomorrow. "Sorry, Jen." He walked away, leaving her standing alone on the clifftop. She wouldn't... would she? No, that would be ridiculous. They were executives, not poets or adolescents with fucked up neurochemistry. He could leave her on the top of a cliff without worrying about a tragic newspaper article the following morning. Couldn't he? Well, he heard no splash. That was a good sign at least. And it wasn't like his phone was in her jacket. This way he wouldn't be fired. That's happy, right?

I am open minded and sarcastic. I can be challenging and hard to understand. In order for someone to understand who I am they have to know me, where I am from, how I was raised, and my family. I love sports, (cheerleading is not a sport) cooking, and being with family. What makes me unique is that I know how to rebuild engines of older vehicles that most women couldnt even identify.

The women and man are having a nice relaxing walk on the beach. They are a couple. The woman is talking about her day at work, mean while the man is only looking to take her home. However, the woman is so distracted by what she is actually talking about, that they will both go home and keep talking about work, rather than leaving work at the office and having personal time to themselves. They

will eat and go to bed without touching eachother, and continue this way until they seperate.

Conscientiousness

High conscientiousness

hey ! my Name is _____ i am 20 years old. i am going to college for PT. i love to party and have a good time ;). my favirote hobby is football. im really easy to get along with and easy going. people love me cuz im so outgoing :P If u want to get togeather some time text me at ***-***-**** of eamail me **********@****.com

the woman is completely blown away by the amazing view she is seeing while the man appears to be blows away by the women he is seeing.they appear to have just got off work or from something they had to be dressed up for and wanted to come here to un-wined not think about everything that is going on and just take in everything they are seeing

I'm young, down to earth and excited to try new things. I love the beach and everything about it. Sand. Sea. Surf. I love reading books and watching movies. I can talk about anything for hours. I'm adventurous and love traveling the world and exploring new places. I love to laugh. I love sports from baseball, basketball, football, and soccer. I'm fun. Plain and Simple.

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Hi, I am 46 years old, I have 3 adult children and 2 grandchildren... I am a fun, loving, compassionate person who believes that honesty is the best policy. I have a great sense of humor and I think that laughter is the best medicine. I love to laugh and have fun. I am spunky, playful, crazy, cocky at times, and have the type of personality that people like to gravitate too. I like the beach, movies,camping, dancing and walking at sunset.

Blank

What makes me unique is that I tend to care for others before myself. I have a big heart, I am considerate, and honest.My family has always come first, and will always come first. There isn't anything I wouldn't do for my family. I have noticed that my past relationships have had issues with me being so close to my family, and this has definitely gotten in the way of finding that "special someone".

To me, it looks as if the women in the picture is talking to the man in a way of being a hopeless romantic. Talking, and looking into the ocean. The guy in the picture looks as if he is thinking about what she is talking about. It looks as if he is looking at her hand gestures if she even has any.

Bubbly always smiling pleasure to be around, love baking up cakes for all kinds of occasions, such as Sunday :-) I'm more of a lets stay in and cuddle than lets go out and dance kind of girl. I enjoy going to see the lastest movies especially all things Marvell. I'm just your warm and homely type that will love to stay in watch a good movie have a nice meal talk and cuddle late into the night, so if your looking for a more quiter more intimate type of relationship them I'm the lady for you ;-)

I'm sorry she said as she looked over the ocean I'm pregnant and it's not yours. Looking down in disbelief he just could not digest what she said. They had just enjoyed a lovely night out dinner and a little dancing then sat on the water front untill the sun came up and that's when she thought, to hell with it it's now or never to tell him about my baby and my new lover.

Low conscientiousness

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My Music; My Blackberry; My Laptop; My Family; My Friends; God; Gossip Girl; Vampire Diaries; 90210; How I Met Your Mother; An Idiot Abroad; Geordie Shore; Red Lipstick; High heels; Dresses; Comedies; Horrors; Actions; Rom-coms; Books; Summer; Chicken; Strawberries; Red Wine; Laughing at silly things; Being weird - That's me in a nut shell. Nothing else left to say really.

The woman has just solved a murder case and the guy is congratulating her. She is feeling exuberant and feels that her hard work has finally payed off. She feels as if she is right where she needs to be in life. The man however happy he is for her, can't help but hold an inferiority complex with the girl.

I'm mixed race (white and black caribbean) and 22 years old. I am currently reading a Psychology degree at the University of Wolverhampton. I have two part time jobs to also keep me busy! I'm into a wide variety of things and love been outdoors as much as I do curled up on the sofa. I love animals (I used to work at Dudley Zoo). I have a pet turtle. Love football. Can be a bit of a nerd at times; really into Harry Potter etc. Often spend any spare time I have painting canvases or making birthday cards...

John had bought Ann to her favourite place, the beach. He was going to finally do it; propose. He was excited and all prepared. He loved Ann and wanted nothing more than for her to become his wife. However, when they got there, Ann seemed sad. There was something on her mind. She pushed his hand away when he tried to touch her shoulder. She'd been fine on the journey here, he thought.

I'm a pretty fun person. I enjoy the simple things in life. I love making people smile, and animals are my passion. I an a veteran of OIF and OEF. I am divorced. I am in school pursuing a medical degree. I love Japanese food and working out. I only day plan to travel the world. People would describe me as fun-loving, loud, funny, a greak cook, a great smile, and crafty.

Blank

Hello my name is Ashley. I am a 19 year old college student, and will be 20 in October. People closest to me would describe me as very outgoing and a bit crazy. Those that do not know me would describe me as very quiet and shy. I have been playing softball since I was 5 years old, but sadly I imagine I will be done after another year. I am the biggest procrastinator you will ever meet. I am also not the smartest, but maybe if I tried harder then I could be smarter.

The girl looks like she has been expressing how she feels. The man seems to be a little upset, maybe just confused, about what she is saying. They are walking the beach on a nice day, but they are dressed for success instead of the beach. That tells me that they were possibly coming from a nice lunch or headed to one. Maybe she told him she was canceling.

Emotional stability

High emotional stability

What makes me unique is that I tend to care for others before myself. I have a big heart, I am considerate, and honest.My family has always come first, and will always come first. There isn't anything I wouldn't do for my family. I have noticed that my past relationships have had issues with me being so close to my family, and this has definitely gotten in the way of finding that "special someone".

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Hi, im an adernaling seeker, who enjoys the thrill of excitment. I love to traveller and have been to many fabulous countries. But in day to day life, I work hard and have fun, I enjoy reading true and fictional crime books. When I get the chance I snuggle up on the sofa and watch a good comedy. A passion of mine is cooking and baking, all sorts.

Its a fresh spring day and some work collegues have gone on a job they have completed the job and are just watching the ship of aid, for the army, move from

them and its getting further and further away. The women is facinated, with a slight bemused look thinking 'I hope the goods are received inn tme' but the man is deep in thought possible alittle bored maybe he his thinking 'I hope we get to stop off on the way home for a bite to eat'.

Enthusiastic professional, responsible person and computer literate. Proven leadership abilities in working as a team, handling multiple tasks, great adaptability to any enterprise's environment. Looking to obtain a challenging position offering growth in international organizations in Food and Beverage area with the philosophy of customers support and complete satisfaction. Able to work efficiently and carefully ,hard worker and organized, responsible and honest friendly and cheerful, disposition, hospitality and excellent service spirit.

Love ... it's so exciting when it's NEW isn't it? With people being so virtually connected these days and frankly matters of trust being an occassional(or sadly more than occassional issues on and offline, what are some ideas you can suggest to keep a relationship romantically engaged in any environment? I feel like that's how they feel they they are a very happy couple.

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got off work or from something they had to be dressed up for and wanted to come here to un-wined not think about everything that is going on and just take in everything they are seeing

Low emotional stability

I am a kind and caring individual who always strives to please others. I will don anything I can to help others, although I will not do anything that would harm other people in the process. I am ambitious and hard-working, and always strive to achieve the very best results in all that I do. I love reading, writing poetry, and learning. I enjoy socialising with others, but am also happy to be in my own company. I tend to be around people who are quite extraverted, as I myself am shy, and help me to feel confident.

The man has just told the woman that he needs to speak to her, but he can't say anything if she looks at him. She is now telling him he can continue, as she has turned away. He proceeds to tell her that although they have enjoyed a close friendship for many years, he now feels that it is important to tell her how he really feels. He doesn't want this to change anything, he just wants to be honest. He is in love with her, and has been for many years. Now that they are both finally single, he hopes that they can begin a relationship. He understands if she doesn't feel the same, and would at the very least like their friendship to continue.

Well, writing this then. I'm currently studying at university, focusing on classics and Australian literature (yes, I'm an arts student, hello! Run away now if you're going to). I do a bunch of things with theatre - primarily directing, and once I've finished my degree I plan on either going into theatre professionally, writing creatively and /or going into academia. Oh, I should probably do demographic stuff, yes? I'm 19 years old - no, wait, 20 now - and a girl. Or young woman. Or just woman. Whatever.

"Throw it," she said. "What will that do?" She explained that it wasn't what it did, or what it achieved, but simply the symbolism of it. "Symbolism?" he asked? They were executives, not writers or musicians or poverty-stricken liberal arts students. What did symbolism matter - what mattered was that his phone was in his jacket, and if he threw it over the cliff Mr. Samuels wouldn't be able to call him about the meeting tomorrow. "Sorry, Jen." He walked away, leaving her standing alone on the clifftop. She wouldn't... would she? No, that would be ridiculous. They were executives, not poets or adolescents with fucked up neurochemistry. He could leave

her on the top of a cliff without worrying about a tragic newspaper article the following morning. Couldn't he? Well, he heard no splash. That was a good sign at least. And it wasn't like his phone was in her jacket. This way he wouldn't be fired. That's happy, right?

I am a person who finds enjoyment and achievement in my daily life, I live one day at a time, but I set goals for myself - both daily and weekly goals. I love to be totally immersed in nature, and love animals. I am happiest when I do volunteer work, spend time on the beach/in nature, play bingo, do sudoku type puzzles, get absorbed doing my photography, listen to music, walk, and when I spend time with family &/or friends.

This couple has just had an argument, and both are going through the recent argument in their minds, wondering where to go from here, and how to handle the whole situation. The argument involved some heavy issues of contention, with neither party giving in, they are at a stalemate, but they love each other very much, and so there is much to solve here.

I'm mixed race (white and black caribbean) and 22 years old. I am currently reading a Psychology degree at the University of Wolverhampton. I have two part time jobs to also keep me busy! I'm into a wide variety of things and love been outdoors as much as I do curled up on the sofa. I love animals (I used to work at Dudley Zoo). I have a pet turtle. Love football. Can be a bit of a nerd at times; really into Harry Potter etc. Often spend any spare time I have painting canvases or making birthday cards...

John had bought Ann to her favourite place, the beach. He was going to finally do it; propose. He was excited and all prepared. He loved Ann and wanted nothing more than for her to become his wife. However, when they got there, Ann seemed sad. There was something on her mind. She pushed his hand away when he tried to touch her shoulder. She'd been fine on the journey here, he thought.

I can be described as a bit of a cross between an introvert and an extrovert, I'm honest, hardworking, driven towards success (whether in business, sports or relationship), give one hundred percent in anything i do. I like to dance, have fun, I know when to let loose and i also know when to get serious. I'm family oriented, love my parents, children, and last but never least my wife.

It looks to me as if this man like the woman, i'm not exactly sure if the woman is into him on the other hand. As well as, they could be dating and just making a quick stop to admire some beautiful scenery which they seem relatively close to. The woman seems to be telling/ explaining something to man. However, he seems to be thinking about what she is saying or admiring her as he walks up from behind her.

Openness

High openness

Generally quite a happy one and able to chat to anyone. Fiercely loyal to those I love. And I'm told I'm a good kisser. Self-employed doing a job I love. Mother of one. Just started doing Bikram yoga and am really digging it cos it's SO HARD! 6 things I could never do without: The Internet. Seeing my little boy smile with joy when he sees me first thing in the morning (not that I"m looking that hot!). My ability to survive whatever life throws at me. Good friends to share experiences with.

Couple out for a walk by the sea, needed to meet up because they had an argument last night and they need to resolve it. She feels wronged and hurt. He's listening, doesn't really see all of her point of view, but knows enough about women that you need to give the impression that you're there. He always feels a little inadequte because she is so gorgeous and so successful and he's often afraid he's going to lose her... but lately there have been so many arguments that he's beginning to wonder if that would be such a bad thing.

I'm young, down to earth and excited to try new things. I love the beach and everything about it. Sand. Sea. Surf. I love reading books and watching movies. I can talk about anything for hours. I'm adventurous and love traveling the world and exploring new places. I love to laugh. I love sports from baseball, basketball, football, and soccer. I'm fun. Plain and Simple.

As this couple walks down the beach they converse about their future. They've been dating for a while but they do not know whether they have a future together or not. They have so much in common. They both have careers but want different things in life. She wants a career and a full life ahead of her. He wants a family.

What makes me unique is that I tend to care for others before myself. I have a big heart, I am considerate, and honest.My family has always come first, and will

always come first. There isn't anything I wouldn't do for my family. I have noticed that my past relationships have had issues with me being so close to my family, and this has definitely gotten in the way of finding that "special someone".

To me, it looks as if the women in the picture is talking to the man in a way of being a hopeless romantic. Talking, and looking into the ocean. The guy in the picture looks as if he is thinking about what she is talking about. It looks as if he is looking at her hand gestures if she even has any.

Boredom is my greatest enemy, that's why I always have a million projects going on. I love to make myself laugh - and if you laugh with me: That's just amazing! People used to think I was "too happy" all the time. But I can tell you, it's just not worth my time to be anything other. Life's too short. I am very communicative (sometimes even talk too much) and I am comfortable in who I am, so you should be the same. I work in Tech for an Advertising company and I love to work. I also love food. And my friends. I play the piano and guitar and do some songwriting. I actually wrote an award-winning screenplay, which was incredible. But I have still so many things I want to explore.

Dexter is a poet and Elaine is a businesswoman. She is gone a lot but she also provides for him and his crafts. He loves her, though it is hard to get to the emotional side of her. She can be very cold, which kills him. She's just told him that after this mini vacation they're on, she'll have to go to China for three months. The entire time she's been back she hasn't really spoken to him about anything other than work. He is hurt. He doesn't know what to say, but is definitely contemplating a divorce. She is too wrapped up in her own world to realize that he isn't happy at all.

I am 20 years old and close friends would describe me as outgoing, fun, happy, organised and ambitious. I enjoy going out, meeting new people and would love to travel the world, I'm open to new ideas and new things. I love talking to people and enjoy good food and good conversation. I am very close to my family and stay very grounded, wear my heart on my sleeve most of the time!

The man called Frank has taken a woman Sandra on a date, they have been getting on very well and he decided to hire a boat for them to see the beautiful views around them as they both live near the coast. They both have very good jobs, especially him and after the moment this photograph was taken they kissed.

Low openness

I am a very polite and caring person. I really enjoy music and going to gigs and festivals. I am a socialable person and enjoy going out with friends for drinks, meals and shopping. However, I also enjoy time alone. I love dogs and have 2 of my own. I love travelling and wish to visit more places in the future.

The woman seems disinterested in the man himself and is talking about something that possibly doesn't involve him. She seems strong willed as she is looking of in the distance. Maybe she is talking about work as they are both dressed in suits. The man seems fairly interested in what the woman is saying. maybe he is trying to think of a solution to her problem.

My name is Christina, I love playing sports and going to sports events. I'm currently going to school to become a radiologist. I have triplets nieces and one nephew that I spend a lot of time with, so it's important I meet someone who loves kids. I'm very active , I love hiking and going to the river and mountains. Once I've finished school I would love to travel.

The women in the photo seems like she's happy she's telling him a story about someone she recently met and she is falling in love with but she's asking him for advice in how she should go about telling the other man but what she doesn't know is he's listening but secretly he's in love with her and has not told her yet and is contemplating telling her.

I am a young, bubbly, outgoing woman who doesn't like to be sat still for too long! I love to be out doing things. I have a staffy, called monty.. and I love taking him for walks, especially when the weathers good, and he loves long walks too! I'm studying for a degree in psychology and am currently in my second year. I love thrill rides, so Alton Towers is somewhere I visit at least once every summer. I have a very close circle of friends, who i have known since primary school and anyone would love them! My favourite food is definitely chinese food, cant beat it!

They both took a stroll along the shoreline. It was good to get out of the office after a stressful monday morning rush. It was getting warmer now, and John took his jacket off. They walked and talked for their whole lunch hour. It felt to them as if they had only been out of the office for 5 minutes. No amount of time away together felt like enough.

I am visually impaired and am known to most people as a kind and trustworthy person. I would describe myself as a generally quiet and shy person but once i know a person; I would say I am like any other person my age. I enjoy having drinks and spending time with the lads. I love my football and I am currently studying psychology at the university of Wolverhampton. I am looking for a partner for life and not a one night stand.

I would describe the setting in this picture as a typically stereotypical romantic setting, one that is a common destination for couples. It apperas as if from the facial expressions on show the man has strong, loving feelings for the women which are not recipricated. It could even be the 'calm before the storm'. By this I mean that the women could have chose this destination to lighten the mood brfore she 'breaks things off' with him. Possibly to lighten the blow.

I am a male 18 year old who is likes to remain indoors. I socalise a lot as i enjoy going out and getting a thrill from life. I try to live every day as though it may be my last as you never know whats is around the corner. If you want to know any more please let me know :)

Two people are walking along a beach under a blue sky. The bloke seems to gbe interestesd in the woman but the feelings to not seem to be returened. I believe that if he were to ask her out he would get 'friend-zoned'. I believe that there is no chance of a relationship for these people. She seems to be quite high self profiled

Appendices Chapter 6

Appendix 14: Study three survey

2 Online dating: Language and attraction

Participant information sheet

Participant information sheet

What is this research about?

The purpose of this research is to learn more about the effect of language and personality on attraction in romantic relationships. We hope to gain insight into how people determine attraction in online dating. You can participate whether you are in a relationship or not.

This research is being conducted by Nicola Fox Hamilton, M.Sc., doctoral candidate of psychology, under the supervision of Dr Chris Fullwood, a senior lecturer in the Psychology department at the University of Wolverhampton (email: [redacted].

The study has gained approval from the behavioural sciences ethics committee of the University of Wolverhampton, approval number WLV/BSEC2013/Feb/01/. For further details of the ethical approval of this study please contact Dr. Darren D. Chadwick, Chair BSEC, School of Applied Sciences (email: D.Chadwick@wlv.ac.uk).

If you have any questions, Ms. Fox Hamilton can be reached at [redacted]

Do you qualify as a participant?

You must be 18 years or older to participate. If you are not 18 years or older, you should not participate.

You should have been born in a native English speaking country. If you were born in a non-native English speaking country you should not participate.

What is involved in the survey?

You will be asked to complete a survey comprised of demographic questions and a short personality scale. You will be asked to rate the attractiveness and personality of the authors of two texts.

It is important that you answer as many questions as possible, but please note that you are free to skip any questionnaire item you wish, with the exception of three demographic questions which allow us to direct you to appropriate texts to rate. You are also free to withdraw from the study at any time without fear of prejudice or penalty. Your participation in the study is completely voluntary.

This study takes about 20 minutes to complete.

How will your data be used?

All the data gathered in the study will be anonymous, confidential and for research purposes only.

Your data will not be published and will be kept confidential. The findings of the research may be published in the form of journal articles and conference proceedings, but your individual data will not be identifiable in any way in the published accounts. The raw data will be destroyed after no more than five years.

Please continue to the consent form.

Study One Consent Form

Study One Consent Form

As a participant in this study you consent to the following.

Please check the boxes and click the I Consent button at the bottom of the page.

If you have any questions, Ms. Fox Hamilton can be reached at [redacted]

1. I have read the information sheet on the previous page and understand the nature of the study. *

- Yes

2. I understand that I have the right to leave any questions blank if I do not feel comfortable completing them. *

- Yes

3. I understand I have the right to withdraw from the study at any time. *

- Yes

4. I understand that my data will be treated confidentially and anonymously. *

- Yes

5. I am over the age of 18. *

- Yes

6. Do you have a University of Wolverhampton Psychology Participant Pool Unique ID Code?

- Yes
- No

7. If yes: enter your Participant Pool Unique ID Code here.

You should print a copy of this form for your records.

Consent to take part in the study

By clicking the below button, you certify that you are 18 years or older and that you agree to participate in this study. *

- I agree

Demographic questions

Demographic questions

The following questions will ask you about some basic demographic information. Please answer carefully. This section will take approximately 3 minutes.

8. What is your age? *

- 18–23
- 24–29
- 30–35
- 36–41
- 42+

9. What is your gender? *

- Female
- Male

10. How would you describe your national identity?

- American
- Australian
- British
- Canadian
- English
- Irish
- New Zealander
- Northern Irish
- Scottish
- Welsh
- Other

11. What is your main language?

- English – only or predominantly speak English.
- English – bi-lingual with English as one of the two languages.
- Other

Demographic questions part two

Demographic questions part two

12. What is your current relationship status?

- Dating
- Divorced
- Married
- Same sex civil partnership
- Separated
- Single
- Widowed
- Other

13. What is your sexual orientation? *

- Heterosexual
- Homosexual
- Bi-sexual

14. On the scale below, please indicate how negative or positive you feel about online dating as a tool to help people meet a partner?

- Strongly negative
- Negative
- Neutral
- Positive
- Strongly positive

15. Have you ever tried online dating?

- Yes
- No

16. What level of education is the highest that you have completed?

- Pre-school / kindergarden.
- Primary / elementary school – to age 12 approx.
- Secondary school / Middle & High school – to age 17/18 approx.
- Intermediate between school & university – Apprenticeship, vocational or technical qualification.
- Associate/applied degree or national diploma – 2 years minimum.
- Bachelor degree (3-4 years) – ordinary or honours degree.
- Post-graduate diploma/certificate.
- Masters Degree.
- Professional qualifications.
- PhD.

About Your Behaviours

About Your Behaviours

Here are a number of personality traits that may or may not apply to you. Please indicate on the scale next to each statement the extent to which you agree or disagree with that statement.

You should rate the extent to which the pair of traits applies, even if one characteristic applies more strongly than the other.

Extraverted, enthusiastic.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Critical, quarrelsome.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Dependable, self-disciplined.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Anxious, easily upset.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Open to new experiences, complex.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Reserved, quiet.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Sympathetic, warm.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Disorganized, careless.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Calm, emotionally stable.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Conventional, uncreative.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Profile texts | #FH4

Online dating profile text

Please read the following online dating profile text and answer the questions that follow.

The first question is important to answer as it allows the researchers to identify the profile that you've been shown.

#04

- Generally quite a happy one and able to chat to anyone. Fiercely loyal to those I love. And I'm told I'm a good kisser. Self-employed doing a job I love. Mother of one. Just started doing Bikram yoga and am really digging it because it's SO HARD! 6 things I could never do without: The Internet. Seeing my little boy smile with joy when he sees me first thing in the morning (not that I'm looking that hot!). My ability to survive whatever life throws at me. Good friends to share experiences with.

Please indicate on the scale below how attractive the author of the profile text is to you.

Strongly unattractive	Moderately unattractive	Slightly unattractive	Neutral	Slightly attractive	Moderately attractive	Strongly attractive
○	○	○	○	○	○	○

17. Please describe the author's personality in your own words. What do you think they would be like if you were to meet them in person?

Personality of author

Here are a number of personality traits that may or may not apply to the author of the profile above. Please indicate on the scale next to each statement the extent to which you agree or disagree with that statement. You should rate the extent to which the pair of traits applies, even if one characteristic applies more strongly than the other.

Extraverted, enthusiastic.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Critical, quarrelsome.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Dependable, self-disciplined.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Anxious, easily upset.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Open to new experiences, complex.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Reserved, quiet.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Sympathetic, warm.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Disorganized, careless.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Calm, emotionally stable.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Conventional, uncreative.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Story texts | #SFH

Story

Please read the following story that was written in response to the image below and answer the questions that follow.

The first question is important to answer as it allows the researchers to identify the story that you've been shown.

.

#47

- John had bought Ann to her favourite place, the beach. He was going to finally do it; propose. He was excited and all prepared. He loved Ann and wanted nothing more than for her to become his wife. However, when they got there, Ann seemed sad. There was something on her mind. She pushed his hand away when he tried to touch her shoulder. She'd been fine on the journey here, he thought.

Please indicate on the scale below how attractive the author of the story is to you.

Strongly unattractive	Moderately unattractive	Slightly unattractive	Neutral	Slightly attractive	Moderately attractive	Strongly attractive
○	○	○	○	○	○	○

18. Please describe the author's personality in your own words. What do you think they would be like if you were to meet them in person?

Personality of author

Here are a number of personality traits that may or may not apply to the author of the profile above. Please indicate on the scale next to each statement the extent to which you agree or disagree with that statement. You should rate the extent to which the pair of traits applies, even if one characteristic applies more strongly than the other.

Extraverted, enthusiastic.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Critical, quarrelsome.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Dependable, self-disciplined.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Anxious, easily upset.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Open to new experiences, complex.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Reserved, quiet.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Sympathetic, warm.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Disorganized, careless.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Calm, emotionally stable.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Conventional, uncreative.

Strongly disagree	Moderately disagree	Disagree a little	Neither agree nor disagree	Agree a little	Moderately agree	Strongly agree
○	○	○	○	○	○	○

Thank you!

Thank you!

Thank you for participating in this study.

The purpose of this study is to explore how our personality and culture can be encoded in our language, and the affect that our language has on attraction - particularly in online dating contexts.

This study will be evaluating whether you preferred authors of texts with similar personality to yourself, or from the same culture as yourself. We will also be looking at how accurately you were able to tell a person's personality from the text they wrote.

If you would like to be informed of the results of this phase of the study please email the principal researcher Nicola Fox Hamilton at this email address: [redacted] This will ensure the confidentiality of your questionnaire.

If you would like to learn more about our research, please feel free to contact us at any time. The principal researcher for this project is Nicola Fox Hamilton, M.Sc. [redacted] Please note that we cannot directly answer questions about your particular situation.

Thank you very much for your assistance.

Thank You!

Thank you!

Appendix 15: Study three results – assumption testing for regressions

Personality traits and attraction

A power estimate of required sample size was conducted using G*Power. The sample size available in this study met the required sample size for an f^2 effect size of at least 0.15, power of .90 and an alpha value of $p < .05$. Reaching a power level of .95 is one of the suggested ways in which to improve dependability of research in the psychological sciences (Funder et al., 2014), however the sample size for a number of the regressions fell just short of that level. The required sample size for each regression in this section was 116 participants which was met for all tests.

H7. Hypothesis seven predicted that perceived, but not actual, high emotional stability, agreeableness, conscientiousness and openness would be related to higher attractiveness ratings.

To test the effect of actual traits regression analysis was conducted with the attractiveness scale as the dependent variable, and the five target self-report traits as the predictor variables, for both the profile and story texts individually. Neither regression model was significant indicating that actual traits had no effect on attractiveness ratings as predicted.

To examine perceived traits, regression analysis was conducted with the attractiveness scale as the dependent variable, and the five peer-reported perceived traits as the predictor variables for both the profile and story texts, and both models were significant.

For the profiles texts scatterplots of the relationships between the dependent and independent variables for the profile texts indicated linear relationships. An analysis of standard residuals was carried out, which showed that the data contained no outliers (Std. Residual Min = -3.46, Std. Residual Max = 2.36). Tests for assumption of collinearity indicated that multicollinearity was not a concern (extraversion, Tolerance = .70, VIF = 1.44; agreeableness, Tolerance = .68, VIF = 1.47; conscientiousness, Tolerance = .70, VIF = 1.43; emotional stability, Tolerance = .64, VIF = 1.57; openness, Tolerance = .57, VIF = 1.75); no correlations between predictor variables were over .80. The scatter plot testing homoscedasticity indicated that the data contained approximately normally distributed errors, the normal P-P plot of standardised residuals showed points that close to the line indicating normal distribution. The Durbin-Watson test was 1.734 indicating that the residuals were uncorrelated. A significant model was found using the enter method: $F(5, 112) = 7.442$, $p < .0001$. The model explained 21.6% of the variance (Adjusted $R^2 = .216$). Perceived openness emerged as a significant positive predictor

of attractiveness scores (β = .247, $t(115) = 2.523$), $p = .013$). Perceived emotional stability was trending towards significance as a positive predictor of attraction (β = .134, $t(115) = 1.943$), $p = .055$).

In examining the story texts, scatterplots of the relationships between the dependent and independent variables indicated linear relationships. An analysis of standard residuals was carried out, which showed that the data contained no outliers (Std. Residual Min = -1.97, Std. Residual Max = 3.03). Tests for assumption of collinearity indicated that multicollinearity was not a concern (extraversion, Tolerance = .66, VIF = 1.52; agreeableness, Tolerance = .66, VIF = 1.51; conscientiousness, Tolerance = .75, VIF = 1.34; emotional stability, Tolerance = .62, VIF = 1.61; openness, Tolerance = .61, VIF = 1.65), no correlations between predictor variables were over .80. The scatter plot testing homoscedasticity indicated that the data contained approximately normally distributed errors, as did the normal P-P plot of standardised residuals, which showed points that were on the line. The Durbin-Watson test was 2.26 indicating that the residuals were uncorrelated. A significant model emerged using the enter method: $F(5, 122) = 13.546$, $p < .0005$. The model explains 33.1% of the variance (Adjusted $R^2 = .331$). Perceived openness emerged as a significant positive predictor of attractiveness scores (β = .422, $t(115) = 4.519$), $p < .0005$), as did perceived conscientiousness (β = .251, $t(1153) = 2.988$), $p = .003$). Perceived agreeableness was also a positive significant predictor of attractiveness scores (β = .188, $t(115) = 2.099$), $p = .038$).

Similarity of traits and attraction

H8. Hypothesis eight expected that actual similarity of traits between rater and author would not be related to attraction, but that perceived similarity of traits between rater and author would be related to higher attractiveness ratings.

For the regression analysis a power estimate of required sample size was the same as the tests above, the required sample size was 116 and was met for all tests.

The effect of actual similarity between the target's personality and the rater's personality on attractiveness scores was investigated. Regression analysis with attractiveness scores as the dependent variable and actual trait difference scores as the predictor variables found no significant model for either the profile texts or story texts.

Regression analysis with attractiveness scores as the dependent variable and perceived trait difference scores as the predictor variables found significant models for the profile and story texts.

Scatterplots of the relationships between the dependent and independent variables for the profile texts indicated linear relationships. An analysis of standard residuals was carried out, which showed that the data contained no outliers (Std. Residual Min = -2.70, Std. Residual Max = 2.02). Tests for assumption of collinearity indicated that multicollinearity was not a concern (extraversion, Tolerance = .90, VIF = 1.12; agreeableness, Tolerance = .86, VIF = 1.167; conscientiousness, Tolerance = .81, VIF = 1.23; emotional stability, Tolerance = .81, VIF = 1.23; openness, Tolerance = .87, VIF = 1.15); no correlations between predictor variables were over .80. The scatter plot testing homoscedasticity indicated that the data contained approximately normally distributed errors, the normal P-P plot of standardised residuals showed points not on the line, but close indicating normal distribution. The Durbin-Watson test was 1.991 indicating that the residuals were uncorrelated. A significant model was found using the enter method: F (5, 110) = 2.300, p = .05. The model explained 5.3% of the variance (Adjusted R^2 = .053). Perceived similarity of openness emerged as a significant positive predictor of attractiveness scores (β = -.229, t(113) = -2.358), p = .020).

Scatterplots of the relationships between the dependent and independent variables for the story texts indicated linear relationships. An analysis of standard residuals was carried out, which showed that the data contained no outliers (Std. Residual Min = -2.058, Std. Residual Max = 2.612). Tests for assumption of collinearity indicated that multicollinearity was not a concern (extraversion, Tolerance = .88, VIF = 1.14; agreeableness, Tolerance = .83, VIF = 1.21; conscientiousness, Tolerance = .90, VIF = 1.12; emotional stability, Tolerance = .88, VIF = 1.13; openness, Tolerance = .81, VIF = 1.24); no correlations between predictor variables were over .80. The scatter plot testing homoscedasticity indicated that the data contained approximately normally distributed errors, the normal P-P plot of standardised residuals showed points that were not completely on the line, but were close to it indicating normal distribution. The Durbin-Watson test was 2.15 indicating that the residuals were uncorrelated. A significant model was found using the enter method: F (5, 119) = 5.095, p < .0005. The model explains 14.2% of the variance (Adjusted R^2 = .142). Perceived similarity of openness emerged as a significant positive predictor of attractiveness scores (β = -.309, t(122) = -3.335), p = .001). Therefore, hypothesis eight was supported in story texts, but not in profiles.

Rater characteristics and attractiveness scores

Analysis was conducted to test whether characteristics of raters, traits, age and gender, and whether or not they had tried online dating previously, influenced the attractiveness scores they gave the authors of the texts. This was conducted separately for the profile and story texts. Regression analysis was used to determine

whether rater traits affected attractiveness scores awarded to texts, and two two-way ANOVAs were used to test whether gender and age had an impact. A power analysis using G*Power indicated that this study met the required sample size for regression with an f^2 effect size of at least 0.15, power of .90 and an alpha value of $p < .01$. The required sample size for this regression was 116 participants.

Scatterplots of the relationships between the dependent and independent variables for rater traits and profile attractiveness indicated linear relationships. An analysis of standard residuals was carried out, which showed that the data contained no outliers (Std. Residual Min = -2.45, Std. Residual Max = 2.54). Tests for assumption of collinearity indicated that multicollinearity was not a concern (extraversion, Tolerance = .81, VIF = 1.24; agreeableness, Tolerance = .82, VIF = 1.22; conscientiousness, Tolerance = .78, VIF = 1.29; emotional stability, Tolerance = .85, VIF = 1.18; openness, Tolerance = .83, VIF = 1.21), no correlations between predictor variables were over .80. The scatter plot testing homoscedasticity indicated that the data contained approximately normally distributed errors, the normal P-P plot of standardised residuals showed points that were not completely on the line, but close to it. The Durbin-Watson test was 1.90 indicating that the residuals were uncorrelated. A regression was carried out for the profile texts using the enter method with the attractiveness score as the dependent variable, and the rater traits as the predictor variables and a significant model emerged: $F(5, 112) = 2.673$, $p = .025$. The model explains 6.7% of the variance (Adjusted $R^2 = .067$). Agreeableness was a positive predictor of giving higher attractiveness ratings in profiles ($\beta = .271$, $t(115) = 2.748$), $p = .007$).

Scatterplots of the relationships between the dependent and independent variables for rater traits and story attractiveness indicated linear relationships. An analysis of standard residuals was carried out, which showed that the data did not contain outliers (Std. Residual Min = -1.90, Std. Residual Max = 1.96). Tests for assumption of collinearity indicated that multicollinearity was not a concern (extraversion, Tolerance = .83, VIF = 1.21; agreeableness, Tolerance = .93, VIF = 1.08; conscientiousness, Tolerance = .88, VIF = 1.13; emotional stability, Tolerance = .91, VIF = 1.10; openness, Tolerance = .88, VIF = 1.13), no correlations between predictor variables were over .80. The scatter plot testing homoscedasticity indicated that the data contained approximately normally distributed errors. The normal P-P plot of standardised residuals showed points that were not completely on the line, but were close. The Durbin-Watson test was .415 indicating that the residuals were correlated, and this violation of the assumption decreases the generalisability of the results. A significant model emerged for the story texts using the enter method: $F(5, 107) = 2.897$, $p = .017$. The model explains 7.8% of the variance (Adjusted $R^2 = .078$). Higher rater conscientiousness emerged as a unique positive predictor of giving higher attractiveness ratings in stories ($\beta = .207$, $t(110) = 2.148$), $p = .034$), and higher rater openness emerged as a unique negative predictor of giving higher attractiveness ratings in stories ($\beta = .204$, $t(110) = -2.109$), $p = .037$).

Appendix 16A: Study three all cue-validity and cue-utilisation correlations for profile texts

Profile texts: Cue-validity and cue-utilization correlations for LIWC dictionary categories and content analysis variables and the Big-Five traits

Cue validity correlations						**Cue utilisation correlations**				
E	A	C	ES	O	Cues	E	A	C	ES	O
					LIWC Categories					
-.271*	.096	.200	.172	.044	Word count	-.186	-.024	.006	-.078	-.103
.061	.007	.142	-.002	.125	Words per sentence	-.237	.116	-.169	-.268*	-.150
-.012	-.107	.053	.152	.001	Long words	-.177	.087	.134	.050	-.024
-.095	**.293***	-.062	-.107	.067	Numerals	.049	-.054	.051	.130	.024
-.098	.055	-.008	-.114	-.137	Total function words	.020	-.070	-.097	-.214	-.069
-.122	-.020	.050	-.185	-.111	Total pronouns	.072	-.023	-.016	.038	.043
.023	.072	.099	-.038	-.089	Personal pronouns	.120	.064	.080	.172	.087
-.020	.094	.024	-.057	-.062	1st person singular	.135	.087	.115	.202	.125
.128	-.045	.230	.080	.016	1st person plural	-.058	-.045	-.089	-.152	.038
.015	.139	.144	-.023	-.021	2nd person	.086	-.090	-.228	-.023	.009
.063	-.110	.031	-.029	.066	3rd person singular	-.327**	-.049	-.041	-.180	-.090
.069	-.166	.041	.108	-.165	3rd person plural	.139	.052	.176	.120	-.146
-.249*	-.141	-.057	**-.271***	-.059	Impersonal pronouns	-.052	-.137	-.149	-.188	-.055
-.170	.194	-.114	-.042	.223	Articles	-.105	.080	.021	.114	-.005
.122	-.030	-.037	-.186	-.144	Common verbs	.047	-.165	-.122	-.131	-.005
.028	.027	.044	-.060	-.059	Auxiliary verbs	-.008	-.185	-.148	-.159	-.068

.308*	.101	.098	-.135	.050	Past tense	.092	.006	.067	.030	.050
.092	-.009	.026	-.079	-.084	Present tense	.139	-.108	-.097	-.037	.076
-.171	.004	-.136	-.116	-.184	Future tense	-.208	-.062	-.192	-.203	-.302*
.091	-.020	.108	.138	-.088	Adverbs	.144	-.038	.040	-.161	.042
-.162	-.005	-.155	-.039	-.017	Prepositions	-.157	-.012	.023	-.235	-.162
.129	.062	.148	.107	-.155	Conjunctions	.148	.120	-.129	-.025	.031
-.058	.118	.008	-.106	.048	Negations	-.153	-.200	-.290*	-.153	-.262*
.010	**.279***	-.089	-.087	-.124	Quantifiers	-.019	.143	-.068	-.050	.215
.020	.012	.073	-.406***	-.214	Numbers	-.186	-.157	-.164	-.049	-.106
					Swear					
.208	-.230	-.015	-.161	-.225	Social processes	-.053	-.074	-.019	-.035	-.135
.215	-.154	**.245***	-.129	-.047	Family	.002	-.059	-.048	-.100	-.003
.091	.154	.060	.011	-.112	Friend	.030	.049	.065	-.069	.024
.009	-.089	-.083	.065	-.151	Humans	-.151	.052	.234	.168	-.058
.364***	-.239	-.250*	-.018	.173	Affective processes	**.337****	.187	.068	.178	.187
.360***	-.211	-.269*	-.044	.139	Positive emotion	**.376*****	.179	.063	.178	.178
-.015	.002	.130	.068	.058	Negative emotion	-.168	-.037	-.008	.002	-.048
-.024	-.076	.100	-.101	-.083	Anxiety	-.153	-.006	.019	.053	.037
.052	.008	.185	.058	.242	Anger	-.036	-.185	-.049	-.107	-.067
-.036	-.009	-.173	.135	-.133	Sadness	-.193	-.120	-.001	-.031	-.067
-.076	-.041	-.035	.035	-.096	Cognitive processes	.111	.028	-.218	-.210	.043
-.203	-.055	-.078	-.217	-.024	Insight	-.075	.008	-.094	-.036	.084
.085	-.179	.306*	.173	.110	Causation	.208	-.027	-.037	.016	.175
-.167	.080	-.063	-.086	-.198	Discrepancy	.015	-.110	-.016	-.091	-.089
-.220	.145	-.158	-.174	-.265*	Tentative	.093	-.023	-.198	-.072	-.022

.125	-.087	.116	.147	.160	Certainty	-.094	.219	.032	-.010	.185
.045	-.129	.167	**.284***	.020	Inhibition	-.183	.059	.164	.131	.003
.115	-.119	-.078	.084	-.038	Inclusive	.209	-.002	-.093	-.217	-.020
-.020	.246*	-.089	.014	.092	Exclusive	-.104	-.019	-.227	-.153	-.242
-.138	.145	-.062	.036	-.211	Perceptual processes	-.026	.140	-.023	.037	.071
-.084	**.269***	-.076	-.034	-.249*	See	-.134	.068	-.089	-.009	.064
-.116	.034	-.011	.109	-.053	Hear	.102	.103	.020	.022	-.093
.018	-.148	.238	.155	-.077	Feel	.046	.191	.220	.149	.266*
.163	-.224	-.229	-.190	.018	Biological processes	.115	-.055	-.090	-.034	.040
-.034	-.034	.106	-.036	-.009	Body	.028	-.055	-.072	-.048	.071
.046	-.029	-.124	-.186	-.065	Health	.057	-.085	.052	.089	.185
.234	**-.291***	-.144	-.155	-.028	Sexual	.123	-.008	-.074	-.073	.007
.015	-.067	-.207	-.017	.133	Ingestion	.025	-.010	-.124	-.050	-.116
-.137	.104	-.038	.015	.040	Relativity	-.167	.006	-.083	-.039	-.174
.003	-.151	-.039	-.012	-.115	Motion	-.180	.013	-.141	-.156	-.140
-.174	.036	-.182	.176	.110	Space	.007	.043	.060	.046	.096
-.103	**.246***	.050	-.149	-.043	Time	-.130	-.036	-.037	.037	-.195
.131	-.040	.111	.212	.220	Work	.043	.253*	**.386*****	.317**	.201
-.002	-.122	.030	.181	.156	Achievement	.135	.160	.255*	.206	.226
.094	-.006	-.039	.021	.122	Leisure	.071	-.130	-.121	.028	-.094
-.035	-.083	.202	.235	.068	Home	.127	-.010	-.147	-.068	.065
.249*	-.151	.120	-.133	.022	Money	-.124	-.157	-.049	-.128	-.114
-.183	.066	-.113	.050	-.013	Religion	-.024	.181	.043	.004	**-.281***
-.178	.073	.059	.024	.026	Death	-.047	.039	.153	.002	.006
.300*	.011	.153	-.233	-.037	Assent	.117	-.209	-.100	-.111	.014

.056	-.201	-.024	.045	.064	Nonfluencies	.146	-.100	.056	.060	.008
-.170	.068	-.009	.061	-.037	Fillers	.003	-.018	.054	.170	-.007
.089	-.117	.041	-.025	.081	Period	.107	-.118	-.113	-.047	-.006
.000	-.139	-.148	-.157	.367***	Comma	-.172	-.089	-.023	.044	-.095
.060	-.005	.265*	-.004	.061	Colon	.216	.089	-.014	.106	.140
.080	-.102	.174	.015	.114	Semi colon	.121	.100	.052	.122	.092
-.105	-.048	-.157	-.091	.027	Question mark	-.012	-.049	-.076	-.036	.001
.023	.178	-.040	.170	.039	Exclamation	.282*	-.028	.095	-.021	.134
-.303*	.128	-.008	.235	.021	Dash	-.052	-.058	-.116	-.128	-.132
.216	.020	.046	-.197	-.034	Quote	.091	-.164	-.101	-.085	.038
-.107	.380***	.127	.026	-.133	Apostrophe	-.090	.035	-.221	-.161	.083
.141	-.150	.287*	-.109	.096	Parenthesis	.012	-.080	-.093	.001	-.020
-.149	.019	-.107	.104	-.086	Other punctuation	-.040	.147	.042	.062	-.131
.008	-.004	.095	-.064	.257*	All punctuation	-.002	-.108	-.191	-.067	-.006

E	A	C	ES	O	Content analysis self-presentation	E	A	C	ES	O
.166	.137	-.260*	.012	.127	Spelling and grammar errors	.161	-.071	-.128	-.070	-.028
.012	.047	.244*	.120	-.076	Positive emoticons	.116	-.008	-.156	-.077	.078
.176	-.057	.147	-.086	.121	Work and education	-.014	-.108	.079	.107	-.107
-.046	-.018	.009	.032	.015	Hobbies and interests	.085	-.148	-.170	-.045	-.083
.014	-.055	.004	-.375***	-.099	Ideal partner preferences	-.280*	-.344**	-.344**	-.435***	-.379*
.169	-.021	.296*	.039	.060	Humour	-.072	.003	.056	-.022	.070
					Content analysis self-disclosure					
-.112	.002	.020	-.234	-.062	Goals, hopes, fantasies	-.221	-.119	.051	.033	-.220

-.138	.189	.071	.079	-.052	Fears, worries, concerns	-.116	-.108	.008	-.008	-.013
-.087	.057	.110	.297*	.019	Positive thoughts and feelings about self	.106	.365***	.174	.231	.082
.262*	-.144	.116	-.128	-.026	Positive thoughts and feelings about others	.082	-.088	.061	.051	.027
-.080	-.164	.017	-.154	.036	Negative thoughts and feelings about self	-.228	-.351***	-.043	-.211	-.055
-.150	.169	.100	-.026	-.083	Negative thoughts and feelings about others	-.098	-.181	-.087	-.074	-.235
					Content analysis trait statements					
-.194	.104	.071	.287*	-.076	High emotional stability	.043	.259*	.133	.144	.128
.087	-.094	.050	-.129	-.076	Low emotional stability	-.164	-.209	-.156	-.174	-.055
.319**	-.110	.102	.057	.167	High extraversion	.325**	-.015	.071	.218	.177
-.392***	.098	.067	-.047	-.161	Low extraversion	-.499***	-.089	.099	-.121	-.204
-.119	.145	.037	.181	-.091	High agreeableness	-.050	.197	.093	.069	-.100
-.063	-.151	.093	-.088	.045	Low agreeableness	.067	-.242	-.106	-.119	-.055
-.126	.018	-.101	.057	.114	High openness	-.050	-.077	.081	-.033	-.028
-.035	.106	.221	.138	-.003	Low openness	-.010	.100	-.019	-.023	-.134
-.012	.082	.198	.187	-.032	High conscientiousness	-.120	.176	.344**	.091	.003
.202	-.084	-.040	.040	.047	Low conscientiousness	.046	.029	.005	.013	-.096

Pearson's correlations. *$p < .05$. **$p < .01$. ***$p < .005$

Extraversion (E), agreeableness (A), conscientiousness (C), emotional stability (ES), openness (O).

Cue utilisation correlations are between the mean of two raters perceived trait scores on the TIPI and the LIWC variables.

Valid cues: E, A, C, ES (n = 61), O (n = 59). Utilised cues: , A, C (n = 60), , ES (n = 61), O (n = 58).

Correlations in bold replicate those found in at least one previous study. Those shaded indicate a match between valid and utilised cues.

Swearing was removed because there was none available to correlate with in this sample

Appendix 16B: Study three all cue-validity and cue-utilisation correlations for story texts

Story texts: Cue-validity and cue-utilization correlations for LIWC dictionary categories and content analysis variables and the Big-Five traits

Cue validity correlations						Cue utilisation correlations				
E	A	C	ES	O	Cues	E	A	C	ES	O
					LIWC Categories					
-.368***	.148	.068	-.038	.032	Word count	.113	.223	.128	.320*	.331**
.077	.049	-.005	.106	-.055	Words per sentence	-.160	-.088	.047	-.061	-.113
.003	.136	-.208	.167	-.123	Long words	-.087	-.001	.161	.220	-.058
.021	-.184	.059	-.098	-.087	Total function words	-.166	-.163	.095	-.109	-.101
-.101	-.266	.139	-.193	.062	Total pronouns	-.032	-.008	-.007	-.224	-.092
.015	-.165	.046	-.339**	.239	Personal pronouns	-.036	-.020	-.013	-.293*	-.068
-.281*	-.028	.150	.102	-.011	1st person singular	.050	.009	-.270*	-.217	.095
-.168	-.057	.156	.087	.242	1st person plural	-.008	-.054	-.094	-.144	-.066
-.243	-.006	.123	.250	.183	2nd person	.190	.095	-.049	-.067	.060
.026	-.159	-.010	-.441***	.046	3rd person singular	-.074	.083	.110	-.030	-.035
.349	.089	-.138	.084	.107	3rd person plural	-.026	-.218	.026	-.167	-.109
-.193	-.224	.172	.139	-.229	Impersonal pronouns	-.003	.015	.006	.027	-.062
.004	.099	-.160	.051	-.140	Articles	.060	.010	.198	.278*	.009
-.082	-.060	-.012	-.182	-.054	Common verbs	.061	.123	-.112	-.061	.064
.134	-.047	-.006	-.054	-.089	Auxiliary verbs	-.023	-.074	-.089	.012	-.132
-.208	.126	.010	-.015	.037	Past tense	.219	-.050	-.219	-.043	.233
.079	-.282*	.132	-.108	.081	Present tense	-.266*	.124	.058	-.149	-.168
-.111	.304*	-.115	-.064	-.081	Future tense	-.023	.039	-.100	.077	.065

.037	-.231	-.114	.144	-.037	Adverbs	-.138	-.080	.074	-.155	.005
-.111	.219	.131	.086	-.195	Prepositions	-.048	-.070	.017	.277*	.101
.303*	-.107	-.092	-.016	.055	Conjunctions	-.060	.177	-.147	-.218	.232
-.025	-.139	.163	-.141	.114	Negations	.122	-.099	-.167	-.078	.027
-.025	-.100	.100	.005	.199	Quantifiers	-.118	.010	-.026	-.188	.020
.038	.192	-.172	-.018	.050	Numbers	.044	-.155	.154	.095	-.003
.049	.002	.090	.142	.120	Swear	.211	-.057	-.217	-.055	.128
.136	-.293*	.038	-.516***	.150	Social processes	-.026	.015	.249	.007	-.211
.188	-.123	.027	-.031	.119	Family	-.130	.008	-.096	.068	-.092
.066	.061	.077	-.280*	-.038	Friend	-.004	.030	.154	.046	.041
-.053	-.146	.161	-.131	-.195	Humans	.062	.015	.177	.247	-.062
.200	-.029	.120	-.012	.206	Affective processes	.000	.059	-.113	-.112	-.022
.193	.065	.089	.050	.081	Positive emotion	-.047	.187	.052	.055	.149
.092	-.159	.081	-.073	.278*	Negative emotion	.129	-.190	-.326*	-.280*	-.238
.094	-.226	-.227	-.151	-.103	Anxiety	-.015	-.182	-.196	-.085	-.261*
.011	-.117	.199	.097	.307*	Anger	.171	-.037	-.160	-.098	-.134
.030	-.070	.220	.066	.325*	Sadness	.091	-.018	.041	-.145	-.016
-.115	-.139	-.118	-.094	-.012	Cognitive processes	-.221	.185	-.255*	-.172	.004
-.177	-.125	-.257*	-.230	-.106	Insight	-.086	.125	-.149	.054	.037
.014	-.278*	-.149	-.097	.139	Causation	-.322*	.175	.015	-.154	-.243
-.211	-.052	-.069	-.286*	-.183	Discrepancy	-.083	.042	.181	-.037	-.121
-.143	-.055	-.211	-.066	-.282*	Tentative	.136	.080	-.069	.026	.010
.033	.024	.321*	.147	.325*	Certainty	-.205	-.179	-.057	-.290*	-.045
.133	-.056	.098	-.013	.293*	Inhibition	-.096	.075	-.129	-.036	-.104
.110	.102	.130	.112	.276*	Inclusive	-.071	.140	-.318*	-.143	.161

-.062	-.171	-.117	-.128	-.263*	Exclusive	-.008	.053	-.006	-.058	.010
-.167	-.087	.041	-.015	-.326*	Perceptual processes	.136	.258	.125	.190	.267*
-.139	.051	-.019	.004	-.287*	See	.322*	.180	.120	.184	.298*
.026	-.283*	.026	-.160	-.071	Hear	.026	.117	.076	.149	-.003
-.106	.001	.080	.110	-.170	Feel	-.264*	.070	-.011	-.041	.024
-.016	.061	.040	.112	.197	Biological processes	.121	-.014	-.420***	-.247	.284*
-.108	.049	.077	.046	-.071	Body	.090	-.188	-.285*	.076	.238
-.078	-.129	-.024	.166	-.103	Health	-.194	.043	-.180	-.298*	.055
.063	-.011	.223	.002	.379***	Sexual	.250	-.061	-.288*	-.355**	.135
.162	.144	-.106	-.001	.243	Ingestion	.064	.127	-.150	-.048	.047
.086	.253	.153	.173	.325*	Relativity	-.019	-.026	-.175	-.061	.153
.062	.205	.267*	.217	.090	Motion	-.014	-.149	-.150	.147	.056
-.170	.308*	.037	.216	.168	Space	.093	-.046	-.191	-.119	.286*
.232	.016	.110	-.041	.267*	Time	-.028	.107	-.066	-.043	-.014
.262*	.239	-.183	.122	.147	Work	.011	-.223	.267*	.051	-.110
.007	.202	-.281*	-.075	.139	Achievement	-.181	-.032	.238	-.084	-.102
.120	.183	-.246	.015	-.053	Leisure	.109	-.124	-.139	-.120	-.103
.079	-.005	-.332**	-.085	-.010	Home	-.098	.191	-.070	-.056	.058
.126	.101	.085	.203	.164	Money	-.151	-.221	.170	.023	-.081
.060	-.017	.087	.137	.234	Religion	.072	.172	-.069	-.085	.124
.116	.009	.153	.172	.204	Death	-.006	-.268*	.152	-.091	-.144
-.374***	.308*	.029	.081	.008	Assent	.231	.188	-.118	.151	.356**
.099	.102	-.068	-.156	.265*	Nonfluencies	-.093	-.070	-.007	-.111	-.057
.037	-.079	-.030	-.033	-.156	Fillers	.237	.131	.005	.117	.073
-.118	-.141	.040	-.124	.076	Period	.104	-.100	-.173	-.118	.096

-.141	.210	.047	.094	.301*	Comma	-.099	.148	.136	-.030	.017
.	.	.	.	.	Colon	.	.	.	.	.
-.162	.266*	.150	.161	.022	Semi colon	.029	.060	-.020	.065	.151
-.201	.153	-.083	.299*	.100	Question mark	-.024	.295*	-.128	-.159	.270*
-.275*	.277*	-.018	.100	.146	Exclamation	.077	.178	-.127	-.034	.213
-.056	.158	.007	-.073	.113	Dash	-.056	.000	.021	-.003	-.014
-.452***	.191	.022	.152	.123	Quote	.069	.254	-.074	.072	.308*
-.133	-.066	.166	.107	-.032	Apostrophe	-.006	.113	-.023	.032	-.003
-.020	-.015	.014	.227	-.214	Parenthesis	-.042	-.020	-.180	.004	.143
.047	.214	.153	-.109	.141	Other punctuation	-.198	-.014	-.103	-.040	.006
-.337**	.126	.088	.102	.205	All punctuation	.019	.160	-.093	-.059	.199

E	A	C	ES	O	Content analysis story quality	E	A	C	ES	O
.011	.130	.111	.066	.504***	Narrative	.023	.037	-.019	-.162	.223
.010	.306*	-.017	-.019	.264*	Conclusion	-.081	-.032	.013	.007	.080
.122	.014	.109	.011	.327*	Character interaction	-.048	-.022	.070	.090	.124
.196	.078	.001	.046	.375***	Events before/after scene	-.019	-.051	.096	.000	.006
-.053	.125	.222	.059	.465***	Creativity	-.081	-.048	.054	-.156	.076
.045	.156	.124	.046	.487***	Total story quality	-.047	-.024	.044	-.084	.133
					Content analysis self-disclosure					
-.040	-.149	.088	-.130	.212	Story goals, hopes, fantasies	-.340**	.096	.172	-.130	-.230
-.054	-.078	.057	-.103	.172	Story fears, worries, concerns	-.290*	.076	-.086	-.174	-.072
-.199	-.080	-.040	.032	.057	Story humour	.240	.095	.102	.132	.054

Pearson's correlations. *$p < .05$. **$p < .01$. ***$p < .005$

Extraversion (E), agreeableness (A), conscientiousness (C), emotional stability (ES), openness (O).
Cue utilisation correlations are between the mean of two raters perceived trait scores on the TIPI and the LIWC variables.
Valid cues LIWC: E, A, C, O (n = 49), ES (n = 48). Utilised cues: E, ES, O (n = 48), A (n = 47), C (n = 49).
Valid cues content analysis: E, A, C, O (n = 40), ES (n = 39). Utilised cues: E, C, O (n = 47), A (n = 46), C (n = 48).

Correlations in bold replicate those found in at least one previous study. Those shaded indicate a match between valid and utilised cues.
LIWC Numerals, content analysis positive emoticon, humour were removed because there was none available to correlate with in this sample. Emotional tone of the story was not included as it was categorical data.