

The Big Five and emoji use in instant messaging:

Can emotional indicators in instant messaging reveal personality traits?

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Declaration

This Thesis is entirely my own work, and has not been previously submitted to this or any other third level institution.

Signature: _____

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Abstract

This study analysed emoji use in instant messaging with the aim of discovering the ways in which personality affects how emoji are used. The Big Five was used to analyse the personality of 99 participants. Results were compared to self-reported data on frequency of messages including emoji, number of emoji included, and which emoji participants use most often. The study found that extraversion, agreeableness, and openness have a significant influence on frequency. Additionally, females send emoji more frequently than males. No variance in number of emoji or emoji selection was found. These findings are similar to other findings on emoji use online, thus suggesting that emoji use may be more consistent across social media platforms than previously reported.

Introduction

The ways in which human beings communicate is constantly evolving. As we move further into the 21st century we are increasingly connected to everyone and everything around the world whether through social media pages such as Facebook and Instagram, or through instant messaging (IM) platforms such as WhatsApp and Messenger (Correa, Hinsley, & de Zúñiga, 2010). We are truly in the age of social media, and psychologists are increasingly concerning themselves with the ways in which individuals communicate online. In particular, researchers have started to take notice of the language used by communicators, and the ways in which that might differentiate person to person (Kirwan, 2016; Schwartz, Eichstaedt, & Seligman, 2013). Of particular note, is the topic of emoji, their function, and individual adoptions of the anthropomorphic icons (Miller et al, 2013). Emoji can be referred to both as 'emoji' and 'emojis', however for this research 'emoji' will be used to refer to both the singular and plural. This postgraduate research thesis is intended to add to the existing literature on emoji in order to grow academic understanding of individual adoption of emoji in computer-mediated communication.

Literature Review

Emotional Expression in Online Communication

The complexities of communication have long been analysed in the academic world and the increasing popularity of computer-mediated communication (CMC) has opened up many new avenues of research for linguists and social psychologists alike (Kaye, Wall, & Malone, 2016; Li & Chignell, 2010). The shift from face to face communication to online communication has created multiple platforms for researchers to observe authentic communication (Muscanell & Guadagno, 2012), and many new studies are emerging which aim to understand individual differences in communication online.

CMC affords individuals the ability to communicate via text both asynchronously through emails or social media posts, and synchronously through IM (Xu, Yi, & Xu, 2007). Due to the absence of typical emotional indicators such as facial expression (Qiu, Lin, Ramsay, & Yang, 2012) these text-based methods of communication have often been criticised as being difficult to interpret (Jibril & Abdulah, 2013; Mark & Ganzach, 2014). In an attempt to overcome this, emoticons first emerged into the online world in 1982 when Professor Scott Fahlman posted in an online forum that :-) indicated a joke whereas :(indicated more serious intent (Kosoff, 2015). From there, emoticons continued to develop and spread across the globe eventually becoming what we now know as emoji (Danesi, 2016).

Due to their ability to indicate facial expression and emotional intent to message receivers (Riordan, 2017; Wall, Kaye, & Malone, 2016), emoticons and emoji have long been considered the paralanguage of the internet (Marvin, 1995; Miller et al., 2017). There are those however who argue that due to the conscious thought involved in the choice of an emoticon or emoji that they do not have the same weight as natural emotional expression (Ekman, 1993; Walther & D'Addario, 2001). Chairunnisa and Benedictus (2017), for example, explain that an angry individual may not always pair their message with an angry emoji, thus negating the idea that emoji can accurately depict emotional disposition.

Nonetheless, as noted by Jibril and Abdulah (2013), studies have consistently shown that emoji and emoticons assist communicators in interpreting messages and are a vital part of online communication. Further, research into emotive language has shown that language has consistently aided psychological research (Cohen, Minor, Baillie, & Dahir, 2008).

While this study does not intend to analyse the paralinguistic effect of emoji, it is hoped that by analysing the ways in which individuals express emotion online through emoticon or emoji usage, we will be able to gain a broader understanding of individual patterns of language in online communication, thus adding to the existing literature on emoji use online (Kaye, Malone, & Wall, 2017).

Emoji

While emoticons have been used for nearly forty years, they are only beginning to be researched in psychology (Alismail & Zhang, 2018). Emoticons are symbols made up of punctuation, such as :) to indicate a happy face, whereas emoji are defined as graphical representations of facial expression rendered using Unicode [See Figure 1] (Danesi, 2016; Derks, Bos, & Von Grumbkow, 2007). Both emoticon and emoji carry the same function in CMC, and while this research intends to focus solely on emoji, due to the minimal research available, research on both emoticon and emoji will be referenced throughout the literature.



Figure 1: “Smiling Face with Smiling Eyes” (Smileys & People, n.d.)

According to an article written by Dimson (2015), 50% percent of comments and captions on Instagram contain emoji. Further, Kaye et al. (2017) estimated that 92% of the online community use emoji in their communication. Clearly, emoji have demonstrated rapid growth in the online community. This can especially be seen when the above statistics are compared to a study by Witmer and Katzman (1997) who found that 12% of posts in an online forum of 3000 messages contained emoticons. These statistics demonstrate the prolific and rapidly growing use of emoji online, and highlights their central place in CMC. In fact, emoji are now so popular that there are conferences, merchandise, and films dedicated to the icons (Riordan, 2017; Zhou, Hentschel, & Kumar, 2017). While it is clear that emoji are somewhat of a phenomenon in online culture, in the academic world they are only beginning to receive recognition.

Emoji in research.

While some researchers have suggested that emoji could just be the latest in a long list of internet trends which will eventually die out (Danesi, 2016; Stark & Crawford, 2015), others argue that these relatively new icons could reveal much about the individuals who use them (Alismail & Zhang, 2018; Kaye et al., 2016), and could have many practical implications for Psychology and Linguistics (Li, Chen, Hu, & Luo, 2018). The appearance of the "Face with Tears of Joy" as the Oxford English Dictionary's word of the year in 2015 suggests the latter may be true (See Figure 2) (Riordan, 2017).



Figure 2: "Face with Tears of Joy" (Smileys & People, n.d.)

A greater understanding of emoji could aid developers in the creation of more sophisticated artificial intelligence, which could amend its responses based off the emoji behaviour of the user (Weissman, 2019). Additionally, researchers have noted that personal attributes are predictable by the footprint individuals leave online (Kosinski, Stillwell, & Graepel, 2013). Therefore by understanding the factors behind individual emoji use researchers may be able to predict information about individuals by simply analysing the ways in which they use emoji in their communication. Implications for this research include targeted advertising and even political targeting (Stark & Crawford, 2015; Preotic-Pietro, Hopkins, Liu, & Ungar, 2017). This can be seen in the Cambridge Analytica scandal where the personal information of millions of Facebook users was collected, leading to Cambridge Analytica developing the ability to politically target users based off of their Facebook likes and language use (Isaak & Hanna, 2018; Schneble, Elger, & Shaw, 2018). Therefore it would appear that emoji are more than just an online fad, and perhaps can reveal more about a user than initially meets the eye.

Most of the current research on emoji has focused on how individuals interpret their meaning (Miller et al., 2016), their function as emotional indicators (Kelly & Watts, 2015), why individuals use them (Jibril & Abdulah, 2013; Weissman, 2019), and the perceived personality of the receiver (Derks, Bos, & Von Grumbkow, 2008; Kaye et al., 2017; Xu et al., 2007). The majority of the above research focuses primarily on how individuals use emoji and their practical function as a paralinguistic tool, however there has been very little research into the differences in emoji behaviour from one individual to another. The research that has looked at possible reasons for the differences, however, shows promise.

Chen et al., (2018) studied gender differences in emoji use in social media and found that females use emoji more frequently than males, and further that males and females had separate preferences for specific emoji. These findings further highlight that individuals have unique emoji behaviours (Zhou et al., 2017). Chen et al.'s study however did not look at one specific mean of communication, rather collected information from an emoji keyboard app, which

can be used across multiple platforms (2018). This does not take into consideration issues such as self-presentation (Kirwan, 2016) or the relationship between sender and receiver (Xu et al., 2007). As Schwartz et al., (2013) notes, it is important not to generalise linguistic analysis across platforms as language use is not necessarily consistent from one platform to another. Therefore, while Chen et al.'s research has contributed greatly to emoji research, looking at a specific medium of communication may reveal additional information on emoji use.

In a study carried out by Kaye et al. (2016), it was found that users tend to alter their emoji behaviour depending on the platform they are using. Specifically, individuals tend to use more emoji in their IMs than in emails or on their social networking pages. Previous research has revealed that an individual is more likely to send an emoji if they are familiar with the receiver, suggesting that IM, which tends to be more frequently used by friends and family (Church & de Oliveira, 2013), may be an ideal environment for emoji analysis (Xu et al., 2007). Further, individuals use emoticons more in socio-emotional context than in task-orientated communication (Derks et al., 2008), and therefore this study expects that IM will reveal important emoji data. While other platforms do allow for socio-emotional communication to take place, such as Twitter, (Honeycutt & Herring, 2009), this study will concentrate solely on socio-emotional communication in IM.

The Big Five and Online Behaviour

In order to analyse the individual differences in emoji use in IM, this study will focus on personality, using a working definition of personality provided by Wall et al. (2016). They defined personality as encompassing “an individual’s thoughts and feelings” (pp. 74), suggesting that an understanding of a person’s feelings or emotions could reveal something about their personality. Or, more specifically, how a person displays their emotions, i.e. through emoji, could reveal information on their personality. While Xu et al. (2007) did analyse emoticon usage in instant messaging, no research specific to sender personality and emoji use has previously been conducted.

Previous research into the ways in which personality presents itself online has shown that online behaviour is largely indicative of personality (Kosinski et al., 2013). Where a person falls on The Big Five (TBF) has often been reflected in online behaviour (Wang, Jackson, Wang, & Gaskin, 2015). The Big Five is a useful tool for personality research as the scale encompasses many different types of personality within the five traits of openness, conscientiousness, extraversion, agreeableness, and neuroticism (Butt & Phillips, 2007; Gosling, Rentflow, & Swann, 2003; Nowson & Gill, 2014). Each trait represents a series of descriptors on a bipolar scale, meaning that individuals can be high and low in any of the traits [See Figure 3]. TBF has often been researched when analysing online communication as its bipolar traits allow researchers to account for differing behaviours (Correa et al., 2010; Ross, Orr, Sisic, Arseneault, & Simmering, 2009).

Personality dimensions	High level	Low level
Extroversion	outgoing, physical-stimulation-oriented	withdrawn, physical-stimulation-averse
Agreeableness	affable, friendly, conciliatory	aggressive, dominant, disagreeable
Conscientiousness	dutiful planful, organized	spontaneous, flexible, careless
Neuroticism	emotionally reactive, prone to negative emotions	emotional stability, calm, unperturbable, optimistic
Openness	Inventive, curious, open to new ideas and change	conservative, cautious

Figure 3: The Big Five personality traits (Xu et al., 2007)

Gosling et al., describe TBF as “personality at the broadest level of abstraction” (2003, pp. 506) which can make it a useful tool for researchers wishing to quickly analyse participant personality, however there are those who argue that TBF fails to account for the multi-faceted enigma that is personality, and further that it does not take into consideration situational factors such as age and culture (Boyle, 2008). Further, TBF has been criticised for its reliance on

self-reported data, which can easily lead to inaccurate results, stemming from the human desire to present oneself in a favourable light (Kirwan, 2016).

Despite these criticisms, TBF has been extensively researched and is the most widely regarded personality model in use in current psychological research as its malleable nature allows it to be used in many different frameworks (Landers & Lounsbury, 2006; Mark & Ganzach, 2014). Further, the condensed version, the Ten Item Personality Measure (TIPI), has demonstrated high levels of accuracy compared to the longer versions of the model (Gosling et al., 2003), allowing researchers to quickly and accurately collect the personality traits of their participants.

The Big Five in CMC.

The effect of personality in CMC is an area which has often been examined by psychologists, and has demonstrated a significant influence over the ways in which individuals communicate (Mark & Ganzach, 2014). TBF has been shown to influence blogging behaviour (Guadagno, Okdie, & Eno, 2008), self-presentation on social media (Hall & Pennington, 2013), an individual's likelihood to communicate online, (Butt & Phillips, 2008; Muscanell & Guadagno, 2011), and who they tend to communicate with (Li & Chignell, 2010; Xu et al., 2007).

The literature in the field of the Big Five and language use has revealed that self-reported data can reveal information on personal language patterns (Qiu et al., 2012). According to the research, open individuals use longer words and fewer self-references (Ross et al., 2009), extraverted individuals talk more than those who are introverted (Mairesse & Walker, 2006), conscientious individuals avoid online communication, (Ross et al, 2009) and further, that extraverted and agreeable individuals use more positive language words (Li & Chignell, 2010; Pennebaker & King, 1999). Walther and D'Addario (2001) state that depending on how an individual communicates via text, opinions on their personality are formed suggesting that language is affected by an individual's personality. While this study is nearly twenty years old, their suggestion remains relevant today as the lexical analysis of emotive language has consistently aided in personality

research (Cohen et al., 2008). By analysing how individuals use language online, and more specifically the paralinguistic tool of emoji, it is hoped that we can gain a broader understanding of the influence of personality on communication.

The Big Five and emoji use.

Previous research into personality and emoji has demonstrated that there is much to be discovered by analysing emoji use. An example of this research is a study by Li, et al. (2018) who used a qualitative approach to analyse emoji use in the tweets of nearly 72,000 Twitter users. From their research, it was found that low extraversion, high agreeableness, and low conscientiousness are positively correlated with frequent emoji use, and those who score low in neuroticism use emoji the least. This finding regarding agreeableness correlates with Wall, et al.'s analysis of emoji use on Facebook which found agreeableness positively correlates with emoticon use on Facebook (2016). Further, Li, et al. analysed emoji selection in relation to TBF, finding that those high in conscientiousness and extraversion use more positive emotion emoji such as the 'Winking Face' and 'Grinning Face' (See Figure 4) whereas agreeable individuals use love-centric emoji such as the 'Face Blowing a Kiss' or non-anthropomorphic emoji such as "Two Hearts" or "Red Heart" (See Figure 5) (2018).



Figure 4: "Winking Face" and "Grinning Face" (People & Faces, n.d.)



Figure 5: "Two Hearts" and "Red Heart" (Symbols, n.d.)

The findings from these studies indicate that there is a link between personality and emoji use and selection on Twitter and Facebook, however as

noted previously, these findings should not be generalised across different platforms (Schwartz, et al, 2013) and therefore an analysis of emoji use in IM will allow researchers to more fully understand the reasons behind individual differences in emoji use.

Aims, Research Question, and Hypothesis

This study aims to fill the gap in emoji literature by analysing the emoji behaviours of individuals in their instant messaging to evaluate whether there is a link between their personality traits and their behaviours. Three specific aspects of emoji behaviour will be examined: frequency of which emoji are included in messages, number of emoji in each message, and which emoji users select most often.

This study poses the research question: will a person's personality affect their use of emoji in instant messaging? There are three hypotheses which will be examined:

Hypothesis One: A person's personality will affect how frequently they send emoji in instant messaging

Hypothesis Two: A person's personality will affect how many emoji they send in their instant messaging

Hypothesis Three: A person's personality will affect which emoji they use in their instant messaging.

Methodology

Design

In order to address the research question and the three hypotheses set out in this study, a quantitative approach was taken using an online questionnaire. This method utilised self-reported data, relying on participants to accurately and honestly quantify their emoji behaviour (Kaye, et al., 2016). Previous research in this area has utilized a mixed methods approach (Li, et al., 2018; Wall, et al., 2016), or purely qualitative (Chen, et al., 2018). Qualitative data collection when it relates to private instant messages poses both ethical constraints (Isaak & Hanna, 2018) and time restraints therefore in order to access as many participants as possible in a short amount of time, it was decided that an online questionnaire would be the best method, allowing for easy dispersion of the questionnaire via snowball sampling (Bauermeister, et al., 2012).

The independent variable in this research was the Big Five. To collect individual personality data, participants were asked to complete the Ten Item Personality Measure (TIPI) [See Appendix A], and then answer five questions regarding their own personal emoji use, and two demographic questions [See Appendix B]. When measuring the effects of personality, the dependent variable was frequency, number of emoji sent, and which emoji participants used. When testing gender against emoji use, gender was used as the independent variable.

Participants

There was no incentive for participants to partake in the research, and no inclusion criteria set out apart from age. Participants were required to be 18 or over. 102 participants responded to the questionnaire, with three disqualified for failing to complete the emoji behaviour section (N=99).

The exact age of participants was not gathered in this study; however the majority of participants selected the age bracket of 23-26. In terms of gender demographics, N=76 were female, N=22 were male, and N=1 opted not to specify a gender.

Materials

The online platform Survey Monkey was used to create the questionnaire. The link was circulated on Facebook, Instagram, and WhatsApp.

The Ten Item Personality Measure (TIPI) (Gosling et al., 2003) was used to measure personality. TIPI uses ten questions to quantify where a person falls on each of the Big Five traits, and is a quick alternative to the traditional Big Five measure.

As emoji render differently across platforms (Miller et al., 2016), images from Emojipedia were used to ensure each participant was presented with the same rendering. As this study focuses on emoji used to express emotion, only the yellow, anthropomorphic emoji were analysed with the exception of the red angry face. This resulted in eighty emoji total being included in the study [See Appendix C].

Microsoft Excel was used to collate the data and calculate Big Five scores, and finally the data was coded and input into SPSS.

Procedure

The Survey Monkey link was distributed online asking participants to take part in a postgraduate study. Once clicked, the link brought participants to a brief consent form [See Appendix D]. This detailed to participants what they could expect by partaking in the study, a brief background to the research, and contact details for both the researcher and their supervisor should participants have any questions or concerns. By clicking “proceed”, participants were advised that they were confirming that they were happy to take part in the study and that they were over the age of eighteen.

Participants completed TIPI followed by five questions on their own emoji use and finally two questions on demographics [See Appendices A - B]. As part of the questionnaire, participants were asked to select their five most frequently used emoji. To avoid participants selecting only from the emoji at the top of the list provided, the order the emoji were presented in was randomised each time to encourage participants to scroll through the entire list.

Lastly, participants were presented with a debrief form [See Appendix E], further outlining the intentions of the researcher and detailing that participants could withdraw at any time. If they were happy to proceed on the basis of the information provided, participants were asked to submit their answers.

Two weeks after being posted online, the questionnaire was deactivated and the results were compiled [See Appendix F]. Using SPSS, linear regressions and t-tests were conducted in order to calculate the significance value of each hypothesis [See Appendices G-N]. These tests are often used in the social sciences to test the relationship between variables, and were therefore chosen as the best method for the analyses (Uyanik & Guler, 2013). If the p value fell above .05, the null hypothesis was accepted.

Ethics

Ethics Form A was completed and presented to the DTP Ethics Committee before this research was carried out. Ethical approval was granted for this study [See Appendix O].

There were no ethical implications identified in the design of this study, and no vulnerable populations were directly targeted, although as an online questionnaire was utilized, there was little control for this. Therefore, in order to ensure the online questionnaire met ethical standards, a consent form and debrief was presented to each participant before their answers were submitted. Further, participants were advised that they must be above the age of eighteen to participate.

Participants were informed that their information would be stored anonymously, that they could withdraw their answers at any time, and that they could contact the researcher and supervisor with any queries or concerns. While no sensitive topics were included in the research which warranted ethical concern, contact details for The Samaritans and Turn2Me.org were provided in the debrief.

Results

Demographics

Out of N=99 participants, females accounted for 76 of participants (76.77%), and males 22 (22.22%), with 1 respondent not specifying their gender (1.01%). When analysing the influence of gender in the inferential statistics, this user was removed from the data reducing the sample to N=98.

While the specific age of participants was not measured, the age bracket of 23-26 was identified as the mode, accounting for 33.33% of participants, followed closely by 29 participants who selected 39+ accounting for 29.3% of participants (See Table 1).

Table 1

<i>Participant Demographics</i>		
Measure	<i>n</i>	%
Gender		
Male	22	22.22
Female	76	76.77
Not specified	1	1.01
Age		
18-22	5	5.05
23-26	33	33.33
27-30	21	21.21
31-34	7	7.07
35-38	4	4.04
39+	29	29.3

Note. N = 99.

The mean score received by participants for the Big Five traits fell between 3.5 and 5.5, indicating a medium to high score for each trait (See Table 2).

Table 2

Summary of Big Five personality traits

	Range		Mean	SD
	Minimum	Maximum		
Extraversion	1.0	7.0	4.31	1.61
Agreeableness	2.0	6.5	3.99	.83
Conscientiousness	1.5	7.0	4.40	1.07
Neuroticism	1.5	7.0	4.46	1.19
Openness	1.5	7.0	5.21	1.06

Note. N=99

Inferential Results

Hypothesis one.

A person's personality will affect how frequently they send emoji in instant messaging.

Personality.

A multiple linear regression was used to assess to what degree the Big Five (IVs) predict the frequency of which participants send emoji (DV) (See Table 3).

A significant correlation was found ($p < .05$, $F(5,93) = 4.291$) thus rejecting the null. Extraversion ($p < .05$), agreeableness ($p < .05$), and openness ($p < .05$) were found to be significant predictors of frequent emoji use, whereas neuroticism and conscientiousness did not demonstrate significance. The coefficients for these three traits were $-.239$ for extraversion, $-.387$ for agreeableness, and $.345$ for openness.

Further exploration of the data revealed an adjusted R Square of $.144$ showing that 14% of the variance in the DV is explained by the IVs.

Table 3

Summary of Multiple Regression Analysis for the Big Five and Frequency

Predictor		<i>B</i>	<i>SE_B</i>	β	<i>P</i>
Frequency	Constant	1.980	1.065		.066
	Extraversion	-.239	.080	-.311	.004*
	Agreeableness	-.387	.142	-.261	.008*
	Conscientiousness	.061	.110	.053	.580
	Neuroticism	.157	.098	.152	.114
	Openness	.345	.123	.295	.006*
	<i>Adj. R²</i>		.144		
<i>F</i>			4.291		

Note. N=99; * = $p < .05$; *B* = unstandardized regression coefficient; *SE_B* = Standard error of the coefficient; β = standardized coefficient.

Gender.

A multiple linear regression was performed with gender (IV) and frequency (DV) (See Table 4). The influence of gender on frequency was significant ($p < .05$, $F(1,96) = 12.955$) with a beta coefficient of $-.102$. Further, the results revealed an adjusted r square of 11% (.110).

An independent-samples t-test was conducted to compare male and female, and revealed a two-tailed sig. value of .001, indicating a significant difference between males and females. The results show differences in the scores ($t(96) = 3.599$) for males ($M=2.95$, $SD=1.21$) and females ($M=1.93$, $SD=1.16$), highlighting that females send emoji more frequently than males (See Table 5).

Table 4

Summary of Multiple Regression Analysis for Gender Frequency

Predictor		<i>B</i>	<i>SE_B</i>	β	<i>P</i>
Frequency	Constant	2.955	.250		.000
	Gender	-.1020	.283	-.345	.001*
	<i>Adj. R²</i>		.110		
<i>F</i>			12.955		

Note. N=98; * = $p < .05$; *B* = unstandardized regression coefficient; *SE_B* = Standard error of the coefficient; β = standardized coefficient.

Table 5

Results of independent-samples t-test and Descriptive Statistics for Gender and Frequency

	Gender						95% CI for Mean Difference	T	df
	Male			Female					
	M	SD	N	M	SD	N			
Frequency	2.955	1.214	22	1.934	1.159	76	.458, 1.583	3.599*	96

Note. N=98; CI = confidence interval; * = $p < .05$. Results summarized from SPSS outputs.

Hypothesis two.

A person's personality will affect how many emoji they send in their instant messaging

Personality.

Using a multiple regression, participant personality (IV) was tested against the number of emoji used (DV) (See Table 6). A p value of .118 ($F(5,93) = 1.81$) was returned, thus retaining the null hypothesis.

Although overall personality is indicated not to have an influence on the number of emoji individuals send, extraversion returned a p value of .043 with a coefficient of .154.

Table 6

Summary of Multiple Regression Analysis for the Big Five and Number of Emoji

Predictor		B	SE _B	β	P
Number of Emoji	Constant	1.952	.998		.054
	Extraversion	.154	.075	.226	.043*
	Agreeableness	.150	.133	.114	.262
	Conscientiousness	-.042	.103	-.041	.688
	Neuroticism	-.167	.092	-.183	.073
	Openness	-.042	.116	-.042	.708
	Adj. R ²		.040		
	F		1.810		

Note. N=99; * = $p < .05$; B = unstandardized regression coefficient; SE_B = Standard error of the coefficient; β = standardized coefficient.

Gender.

A multiple linear regression was used to evaluate the influence of gender (IV), returning a p value of .095 ($F(1,96) = 2.851$). The null hypothesis was retained for this regression (See Table 7).

Table 7

Summary of Multiple Regression Analysis for Gender and Number of Emoji

Predictor		<i>B</i>	<i>SE_B</i>	β	<i>P</i>
Number of Emoji	Constant	1.727	.231		.000
	Gender	.444	.263	.170	.095
	<i>Adj. R²</i>		.019		
	<i>F</i>		2.851		

Note. N=98; * = $p < .05$; *B* = unstandardized regression coefficient; *SE_B* = Standard error of the coefficient; β = standardized coefficient.

Hypothesis three.

A person's personality will affect which emoji they use in their instant messaging.

Personality.

A multiple regression was performed to test personality (IV) against emoji selection (DV). An initial two regressions were carried out for the first two groups of emoji chosen by participants, each returning a *p* value of .365 ($F(5,93) = 1.101$) and .375 ($F(5,93) = 1.082$) respectively. Due to the high *p* values for these two tests, no further testing was carried out on the remaining emoji. The null hypothesis was therefore accepted for hypothesis three, highlighting no correlation between emoji selection and personality type (See Table 8).

Additional analysis of the results found that the five most frequently used emoji across all participants were the 'Face with Tears of Joy' with 63% of participants choosing this emoji followed by the 'Face Blowing a Kiss' (37%), 'Smiling Face with Heart Eyes' (25%), 'Smiling Face with Smiling Eyes' (20%), and the 'Loudly Crying Face' (18%) (See Figure 6) (Smileys & People, n.d.).

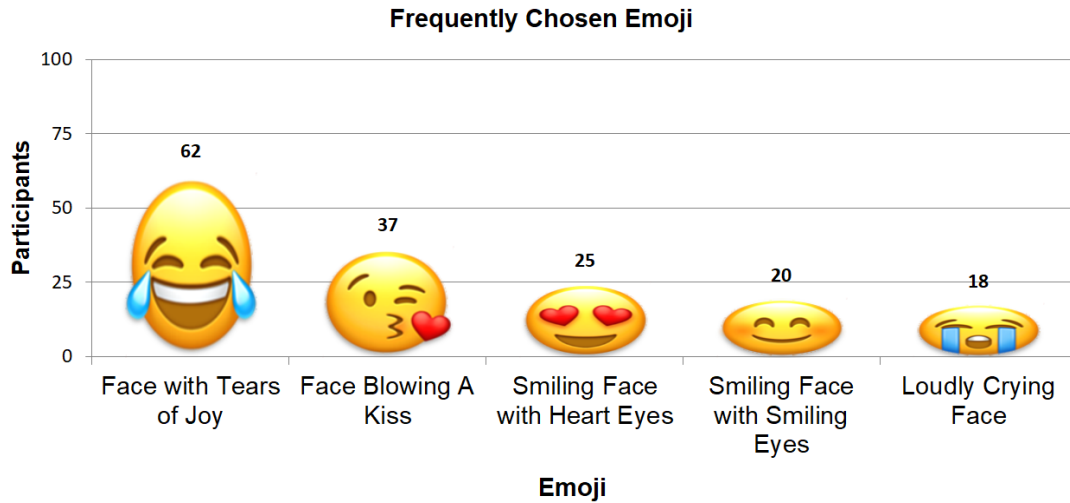


Figure 6: Frequently Chosen Emoji

Table 8

Summary of Multiple Regression Analysis for the Big Five and Type of Emoji

Predictor	B	SE _B	β	P
Type of Emoji 1				
Constant	14.039	26.061		.591
Extraversion	2.373	1.957	.136	.228
Agreeableness	5.279	3.476	.156	.132
Conscientiousness	-.829	2.687	-.032	.758
Neuroticism	1.654	2.409	.071	.494
Openness	.916	3.021	.014	.762
Adj. R ²		.005		
F		1.101		
Type of Emoji 2				
Constant	69.439	19.910		.001
Extraversion	-.346	1.495	-.026	.817
Agreeableness	3.224	2.655	.125	.228
Conscientiousness	-.079	2.052	-.004	.970
Neuroticism	-.2560	1.840	-.143	.168
Openness	-2.076	2.308	-.102	.371
Adj. R ²		.004		
F		1.082		

Note. N=99; * = $p < .05$; B = unstandardized regression coefficient; SE_B = Standard error of the coefficient; β = standardized coefficient.

Gender.

A multiple regression was performed to test the type of emoji participants selected (DV) against gender (IV). The p value returned from this regression was .407 ($F(1,97) = .695$), thus accepting the null hypothesis (See Table 9).

Table 9

Summary of Multiple Regression Analysis for Gender and Type of Emoji

Predictor		<i>B</i>	<i>SE_B</i>	β	<i>P</i>
Type of Emoji 1	Constant	47.905	7.637		.000
	Gender	4.721	5.664	.084	.407
	<i>Adj. R²</i>		-.003		
	<i>F</i>		.695		

Note. N=98; * = $p < .05$; *B* = unstandardized regression coefficient; *SE_B* = Standard error of the coefficient; β = standardized coefficient.

Discussion

This study analysed whether there is a correlation between personality and emoji use in instant messaging (IM). The results indicate that personality affects how frequently individuals send emoji, and further that females send emoji more frequently than males. Hypothesis two and three were rejected as it was found that personality does not affect the number of emoji individuals use, nor does it affect which emoji are selected.

Personality

Hypothesis one.

The most significant result of this study demonstrates that the frequency of which individuals send emoji in their IM is positively correlated with the three traits of extraversion, agreeableness, and openness, whereas conscientiousness and neuroticism were not found to have a significant influence. This suggests that when in conversation online, by watching how frequently emoji are included, a person will be able to deduce if the emoji sender is extraverted, agreeable, or open to experience. The coefficients for these traits reveal that high extraversion and agreeableness indicate a higher frequency of messages containing emoji, whereas high openness leads to a lower frequency of emoji use [See Appendix G].

Extraversion.

Previous research has noted that extraverted individuals tend to be more social and use a higher number of emotive words than other traits (Mark & Ganzach, 2014). The results of this study suggest that this may also apply to emoji use in IM as extraverts include emoji more frequently than introverts. In contrast to this finding, Li et al.'s study (2018) found that introversion correlates with frequent emoji use on Twitter. Many factors could contribute to this difference including self-presentation or context, however more research is needed to fully evaluate how emoji use and extraversion differ across platforms.

Agreeableness.

The finding that agreeable individuals use emoji more frequently in their IM correlates with previous findings by Wall et al., who found that agreeableness correlates with the use of emoji on Facebook (2016), and additionally with Li et al.'s study (2018) which found that high agreeableness indicates more frequent use of emoji on Twitter. Agreeable individuals tend to be more caring and use more emotive language in their communication (Li & Chignell, 2010), which may explain their frequent adoption of emoji in communication.

While Schwartz et al. (2013) may have noted that linguistic behaviour is not consistent across platforms, it would appear that the emoji behaviour of agreeable individuals may challenge this assumption. As suggested in the literature review, some social media platforms do allow for socio-emotional communication, such as Twitter, (Honeycutt & Herring, 2009), which may explain this overlap, however more in-depth research into this correlation is needed to fully assess the external validity of this suggestion

Openness.

Research into the trait of openness in CMC has revealed that individuals who are low in openness tend to conform to societal norms (Guadagno, Okdie, & Eno, 2008), and therefore a higher frequency of emoji in their IM may be due to the emoji behaviour of who they are communicating with. Xu et al. (2007) note that an individual is more likely to include an emoticon if they feel it will be well received, and therefore open individuals may monitor the emoji being sent by the receiver before responding in kind. Additionally, open individuals tend to use fewer self-references (Li & Chignell, 2010) meaning that perhaps open individuals do not refer to their own emotional state in messages, which could explain why emotional indicators such as emoji appear less frequently in their instant messages. This finding is also consistent with Li et al.'s examination of emoji use on Twitter (2018), further highlighting that emoji behaviour may be more consistent in CMC than noted previously.

Hypothesis two.

Hypotheses Two analysed whether there is a connection between the number of emoji individuals include in their IM and personality. While the null hypothesis was retained for this test, extraversion was shown to have a significant variance in the number of emoji sent. The results indicate that extraverts are more likely to send multiple emoji than just one. Extraversion has previously been linked to emotive language (Ross et al., 2009) which may explain the higher number of emoji in their IM. No previous studies were found during the literature review which looked specifically at how many emoji individuals tend to use, thus these preliminary findings have added to the literature and can be used as a basis for future research.

Hypothesis three.

Hypothesis three analysed how personality affects the choice of emoji, however the null hypothesis was retained for the tests carried out. It was revealed, however, that five particular emoji were selected repeatedly by participants. These emoji were the “Face with Tears of Joy”, “Face Blowing a Kiss”, “Smiling Face with Heart Eyes” “Smiling Face with Smiling Eyes” and the “Loudly Crying Face” [See Figure 6].

In Chen et al.’s research (2018) these emoji were also discovered to be among the most frequently used, therefore another approach may be needed to discover if personality affects emoji choice as the popularity of these five emoji may be a confounding variable in the research. Walther and D’Addario (2001) suggested that emoticons have lost their impact due to overuse, and therefore perhaps individual preference or colloquial norms may pay a large part in emoji choice. The overwhelming popularity of the ‘Face with Tears of Joy’, for example, suggests that this emoji may not be able to reveal much about the sender.

Gender**Hypothesis one.**

The results of this study show a correlation between gender and frequency, thus confirming the hypothesis and additionally adding to the

literature. This finding suggests that gender could be inferred by examining the frequency of which individuals include emoji in their IM. In order to ascertain which gender included emoji more frequently, a t-test was carried out which revealed that females tend to use emoji more frequently than males. Females have often been noted as being more socially active in CMC than males (Muscanell & Guadagno, 2012), which could indicate that they are more likely to use IM for social activities and therefore may have more cause to include emoji than males.

This finding which is consistent with a recent study by Chen et al. (2018) which again, suggests that emoji use may be more consistent across social media platforms than previously reported as Chen et al's research looked at multiple social media platforms and not specifically at IM.

Hypothesis two.

In the analysis of the number of emoji used by individuals in their IM, no significant difference between males and females were found. It is interesting to note that while females send emoji more frequently than males, the number of emoji being included in the messages remains the same across genders. This could be due to personal preference or context, for example one laughing emoji in response to a joke verses multiple laughing emoji may indicate different levels of laughter. As previously noted, further research into the number of emoji individuals send is warranted in order to build on these findings.

Hypothesis three.

Gender was not found to have a significant influence over the emoji individuals select in IM, despite previous studies finding that males and females have specific preferences across other platforms (Chen et al., 2018). While it could be suggested that gender does not have an influence in IM, again it is likely that personal preference for emoji affected the responses and therefore further research is necessitated to fully analyse whether there is a gendered influence in emoji selection.

Limitations

This study did highlight important findings on the effects of personality in IM, however there were a number of limitations. Snowball sampling has often been criticised for adding bias into research as participants tend to be in the same demographic as the researcher, thus reducing the generalisability of the findings (Qiu et al., 2012). The majority of participants were the same gender and age bracket as the researcher. This led to a gender imbalance in the sample with 22 males compared to 76 females. Future research would need to obtain a more diverse and gender balanced sample in order to fully ascertain the external validity of the findings.

The number of variables available to participants when selecting their five most frequently used emoji led to a large data set with numerous outliers. While the data did show participant preference for certain emoji, no concrete conclusions could be made on the effect of personality on emoji selection in IM. Additionally, the coding and processing of 5 emoji for 99 participants, totalling in 495 emoji being analysed, was a time consuming process and led to a large data set.

A further limitation to this research was the way number of emoji used was analysed. Four options were made available to participants which limited the analysis as actual number of emoji was not analysed. This was done due to the constraints of the word count and time available to complete this research.

Finally, this study relied on self-reported data, which may not necessarily provide an accurate portrayal of the participant, due to the tendency for individuals to selectively present themselves in the best light (Kirwan, 2016). It cannot be said for certain that the data collected accurately describes how participants use emoji in their IM communication, rather acts as a basis for future research to take place.

Future Research

Suggestions for future research include the addition of qualitative analysis. Qualitative analysis of emoji use in the instant messages between individuals

could introduce context-specific information. This would aid researchers in further developing the findings from this study.

While the number of emoji individuals send in their IM did not show a significant correlation with personality or gender in this study, future research could examine the factors which influence the number being sent such as context and personal preference. A qualitative analysis of instant messages may be able to establish a more accurate representation of emoji use. This would allow for a more accurate assessment of the number of emoji individuals are including in their messages.

Researchers could further investigate pre-existing preferences for certain emoji in order to accurately measure why specific emoji are chosen. Grouping emoji into categories may assist in this respect, thus reducing the number of outliers in the data. A pilot study to identify the emoji which repeatedly surface as the most popular emoji would allow researchers to remove these emoji from the study, and thus allow participants to select emoji which may be more specific to their personality.

Conclusion

This study is the first to analyse the influence of the sender's personality on emoji use specific to instant messaging. From an investigation of the existing literature surrounding emoji, a gap in the literature was identified which this study bridged through an exploration of self-reported emoji behaviour.

The analysis of data collected from 99 participants using an online questionnaire identified that gender, extraversion, openness, and agreeableness have a significant influence over the frequency of which particular emoji are included in instant messages. Consistent with previous research, this study highlights that language use online can be specific to an individual, and further that personality can be assessed from observing the ways in which language is used.

Whereas previous researchers have suggested that language use is not consistent across social media platforms, the finding that agreeableness and openness is consistent with previous research into emoji frequency on Twitter

and Facebook challenges this assumption. These additions to the literature highlight that instant messaging is an area rich with potential for psychological research, and form a basis for future research to take place in order to build the new findings.

While emoji may have been created to add nuance to conversation, it would seem that their use can also reveal deeper and more personal information about the sender than originally intended. Practical applications for the findings from this study include independent personality and gender assessment leading to targeted marketing which is useful for both advertisers and political campaigners. Therefore, it would appear that emoji are no passing online fad, and in fact are central to the ways in which identity and personality can be revealed online.

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Appendices

Appendix A)

Ten-item measure of the Big Five 1

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.

Disagree strongly	Disagree moderately	Disagree a little	Neither agree nor disagree	Agree a little	Agree moderately	Agree strongly
1	2	3	4	5	6	7

I see myself as:

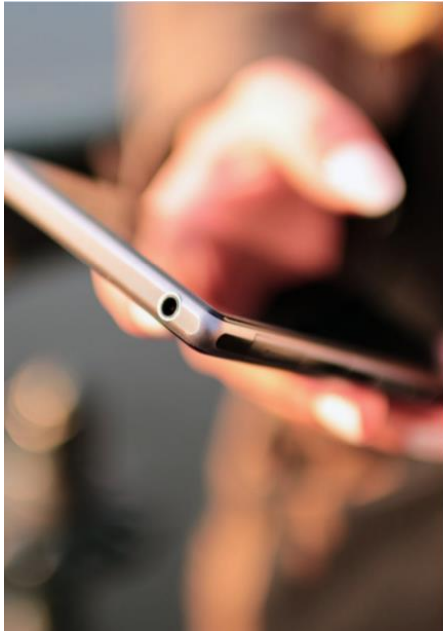
1. ____ Extraverted, enthusiastic.
2. ____ Critical, quarrelsome.
3. ____ Dependable, self-disciplined.
4. ____ Anxious, easily upset.
5. ____ Open to new experiences, complex.
6. ____ Reserved, quiet.
7. ____ Sympathetic, warm.
8. ____ Disorganized, careless.
9. ____ Calm, emotionally stable.
10. ____ 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.

Appendix B)

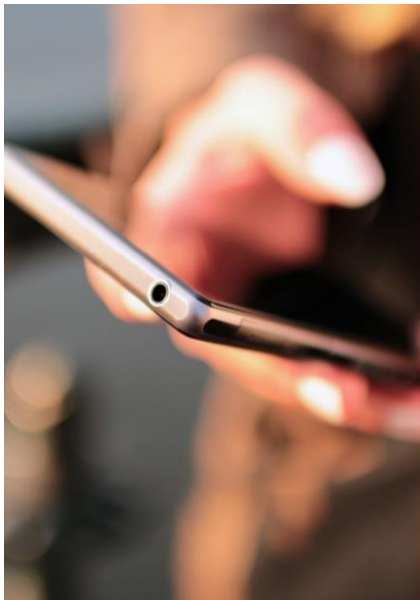


* 11. Please select which instant messaging service you use most often:

- WhatsApp
- Facebook Messenger
- Viber
- iMessage/Standard Text Messaging
- I do not use instant messaging
- Other (please specify)

* 12. How often would you include emoji in your instant messages?

- Very Often (More than 80% of messages sent)
- Often (Between 60 - 80% of messages sent)
- Neither often or not often (Between 40 - 60% of messages sent)
- Not often (Between 20 - 40% of messages sent)
- Almost Never (Less than 20% of messages sent)
- I don't use emoji



* 13. Who, out of the following groups of people, would you be most likely to send emoji to?

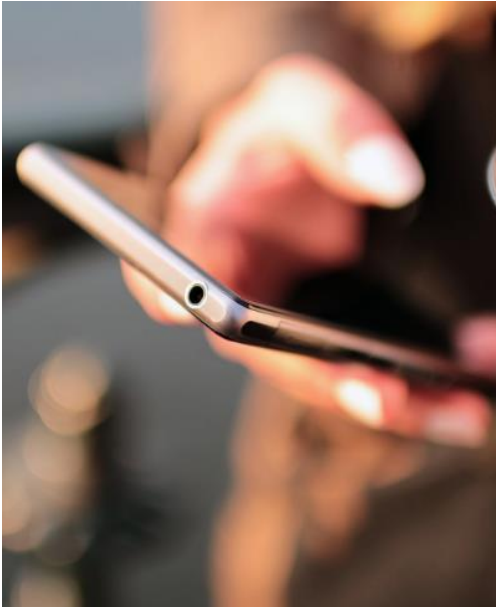
- Friends
- Family
- Romantic partners
- Colleagues
- Strangers
- Non-peer Social media followers
- I don't use emoji

* 14. When sending an emoji are you more likely to:

- Send one emoji by itself (unaccompanied by text)
- Send one emoji by itself (accompanied by text)
- Send multiple emojis together (unaccompanied by text)
- Send multiple emojis together (accompanied by text)
- I don't use emoji

* 15. Scroll through the below emoji and select your **five** most frequently used.

Appendix B continued)



*16. Which age bracket do you belong to?

- 18-22
- 23-26
- 27-30
- 31-34
- 35-38
- 39+

*17. Which gender do you identify as?

- Female
- Male
- Other
- Would Rather Not Specify

Appendix C)

PICTURE	DESCRIPTION
	Drooling Face
	Kissing Face
	Pleading Face
	Slightly Smiling Face
	Smiling Face
	Sleepy Face
	Worried Face
	Beaming Face with Smiling Eyes
	Smirking Face
	Astonished Face
	Jaw-Dropped Face
	Red Angry Face
	Embarrassed Face

Appendix C continued)

	Furious Face
	Loudly Crying Face
	Rolling Eyes Emoji
	Anguished Face
	Grinning Face with Smiling Eyes
	Party Face
	Whining Face
	Smiling Face with Halo
	Face With Tongue
	Zipper Face
	Face Without Mouth
	Grinning Face
	Surprised Face

Appendix C continued)

	Cowboy Face
	One Tear Face
	Neutral Face
	Dizzy Face
	Sad Relieved Face
	Un-amused Face
	Winking Face
	Grinning Face with Sweat
	Zany Face
	Cold Sweat Face
	Swearing Face
	Smiling Face with Hands

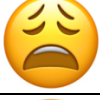
Appendix C continued)

	Thinking Face
	Star-Struck Eyes
	Grinning Face with Smiling Eyes
	Kissing Face with Smiling Eyes
	Head Exploded Face
	Nervous Face
	Screaming Face
	Smiling Face with Hearts
	Pensive Face
	Hushed Face
	Kissing Face with Closed Eyes
	Grinning Face with Squinting Eyes
	Sleeping Face
	Confounded Face

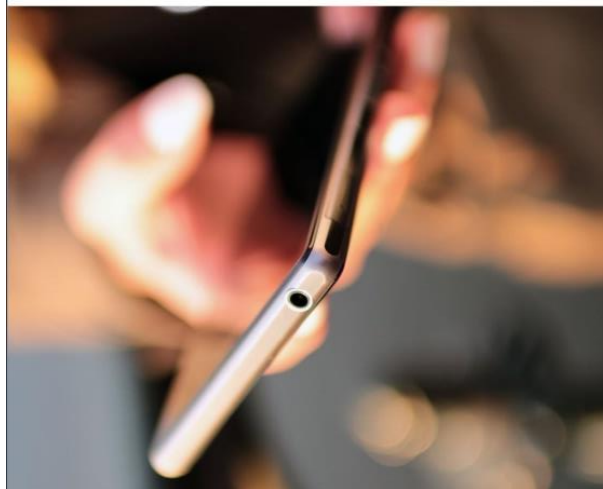
Appendix C continued)

	Face With Stuck Out Tongue and Squinting Eyes
	Persevering Face
	Shushing Face
	Expressionless Face
	Smiling Face with Smiling Eyes
	Nerd Face
	Slightly Frowning Face
	Rolling on Floor Laughing
	Money Mouth
	Smiling Face with Heart Eyes
	Disappointed Face
	Frowning Face
	Face with Hand Over Mouth
	Woozy Face

Appendix C continued)

	Face with Raised Eyebrow
	Upside-Down Face
	Fearful Face
	Angry Face
	Confused Face
	Face Blowing A Kiss
	Yum Face
	Weary Face
	Relieved Face
	Cool Face
	Crying Laughing
	Monocle Face
	Winking Face With Tongue
	Sad Face with Cold Sweat

Appendix D)



Personality and Emoji: The Effects of The Big Five on Emoji Use

Thank you for clicking our link! Please read the following before agreeing to participate.

You are being asked to take part in a research study entitled "Personality and Emoji: The Effects of The Big Five on Emoji Use". This study is part of thesis research for a Masters for Cyberpsychology from Dun Laoghaire Institute of Art and Design.

The reason for this study is to gain insight into the ways in which personality affects how individuals communicate with their peers online. By agreeing to take part, you are agreeing that you are eighteen years old or above, and that you are willing to complete an online questionnaire.

This survey/questionnaire will look at personality and emoji use in instant messaging. The questionnaire is composed of 18 questions and will take between 10 and 15 minutes to complete.

You will be asked to answer a short personality measure (5 minutes) and a few questions on your emoji use (5-10 minutes). Once completed, you will be given a debrief to ensure you are satisfied with the intended use of your data.

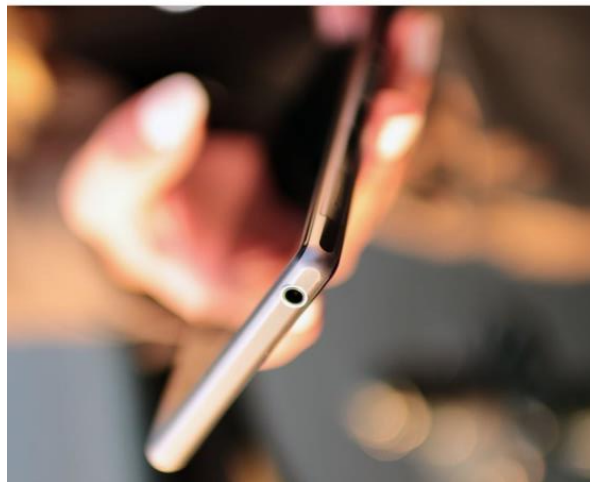
All answers will remain confidential to the best of our ability. Data will be stored securely on a password protected computer with access only given to the researcher and their assigned supervisor. Any hard copy of the information will be locked securely away.

Your participation in this study is completely voluntary and you can withdraw at any time.

If you have any queries or wish to withdraw from this study please contact myself using N00173042@student.ladt.ie or my thesis advisor using robert.griffin@ladt.ie.

By clicking "Next" below you are agreeing to participate in the research as outlined above and confirming that you are at least 18 years old. If you do not wish to participate please exit the page now.

Appendix E)



Debrief and Submission

Thank you for taking part in this research study. Please hit "Done" at the bottom of this page to submit your answers.

The study in which you just participated is designed to investigate individual use of emoji in order to see if personality has any effect on how they are used in instant messages with friends and peers.

Your responses from page two will be used to calculate your personality based off the Big Five Personality Measure. You can read more about this measure here: <https://posting.psych.utexas.edu/scales-weve-developed/ten-item-personality-measure.html>.

This data will then be compared to your answers regarding your personal emoji use.

Your data is anonymous and you will not be identified individually in the thesis for which this study was designed.

If you wish to withdraw your answers, please exit the survey now by clicking out of this page.

If you have questions about this study or you wish to have your data removed after submission please contact me at the following e-mail address: N00173042@student.lactac.edu. Alternatively, you may contact my supervisor, Robert Griffin at robertgriffin@lactac.edu.

We thank you sincerely for contributing and assure you that your data is confidential and anonymous, and if published the data will not be in any way identifiable as yours.

Should you feel personally affected by the contents of this survey and wish to seek counselling or speak to somebody in confidence please contact Samaritans on 0116 123 or Turn2Me.org on 1850 474 474.

Thank you.

Appendix F)

Respondent	Q1 Extroverted, enthusiastic	Q2 Dependable, self-	Q3 Critical, quarrelsome	Q4 Anxious, easily	Q5 Open to new experiences,	Q6 Reserved, quiet,	Q7 Sympathetic, warm,	Q8 Disorganized, careless,	Q9 Calm, emotionally	Q10 Conventional, uncreative,	Q11 Most Used	Q12			Q13			Q14					Q15					Q16 Age	Q17 Gender
												Frequency	Friends	Family	R/Partners	Colleagues	Number	1st	2nd	3rd	4th	5th							
1	3	5	6	3	6	4	6	6	3	1	WhatsApp	Often (Between 60 - 80% of messages sent)	Friends	Family	Romantic partners	Send multiple emojis together (accompanied by text)	78	73	58	17	69	23-26	Female						
2	5	3	7	5	5	1	2	5	2	2	WhatsApp	Very Often (More than 80% of messages sent)	Friends	Friends		Send multiple emojis together (accompanied by text)	9	78	63	54	16	23-26	Female						
3	6	2	5	5	3	6	6	1	6	2	WhatsApp	Very Often (More than 80% of messages sent)			Romantic partners	Send multiple emojis together (accompanied by text)	78	74	10	33	21	27-30	Female						
4	5	4	5	5	5	2	6	2	5	1	WhatsApp	Very Often (More than 80% of messages sent)	Friends			Send multiple emojis together (accompanied by text)	19	78	73	77	40	27-30	Male						
5	7	6	5	2	6	1	4	4	5	2	WhatsApp	Not often (Between 20 - 40% of messages sent)	Friends	Family	Romantic partners	Send one emoji by itself (accompanied by text)	77	39	40	17	10	27-30	Male						
6	7	5	1	5	6	1	7	5	6	2	WhatsApp	Often (Between 60 - 80% of messages sent)	Friends			Send one emoji by itself (accompanied by text)	78	73	48	13	35-38	Male							
7	5	7	4	4	5	4	5	1	5	1	WhatsApp	Often (Between 60 - 80% of messages sent)		Family		Send multiple emojis together (accompanied by text)	78	73	39	52	35-38	Female							
8	3	3	5	3	5	5	7	4	4	3	WhatsApp	Neither often or not often (Between 40 - 60% of messages sent)	Friends	Family	Romantic partners	Send one emoji by itself (accompanied by text)	78	49	20	16	68	27-30	Male						
9	4	6	2	3	7	3	5	3	5	1	WhatsApp	Neither often or not often (Between 40 - 60% of messages sent)	Friends	Family	Romantic partners	Send one emoji by itself (accompanied by text)	78	73	77	4	59	27-30	Male						
10	6	6	5	5	6	3	6	2	4	2	WhatsApp	Often (Between 60 - 80% of messages sent)	Friends		Romantic partners	Send multiple emojis together (accompanied by text)	78	58	35	34	72	27-30	Female						
11	2	7	2	5	6	7	6	1	6	2	WhatsApp	Almost Never (Less than 20% of messages sent)	Friends	Family	Romantic partners	Send one emoji by itself (accompanied by text)	6	78	63	17	79	27-30	Female						
12	6	5	4	2	6	1	6	5	4	5	Facebook Messenger	Very Often (More than 80% of messages sent)	Friends	Family	Colleagues	Send multiple emojis together (accompanied by text)	47	78	61	34	38	31-34	Female						
13	2	7	2	7	7	2	3	1	7	5	WhatsApp	Almost Never (Less than 20% of messages sent)	Friends			Send one emoji by itself (accompanied by text)	19	73	63	77	54	39+	Female						
14	2	5	5	2	6	6	6	5	5	6	WhatsApp	Almost Never (Less than 20% of messages sent)	Friends		Romantic partners	Send one emoji by itself (accompanied by text)	19	29	52		31-34	Male							
15	5	5	2	5	6	3	6	2	5	4	WhatsApp	Often (Between 60 - 80% of messages sent)	Friends	Family	Romantic partners	Send multiple emojis together (accompanied by text)	61	73	36	80	14	39+	Female						
16	4	7	5	1	3	6	7	1	6	1	WhatsApp	Very Often (More than 80% of messages sent)	Friends	Family	Romantic partners	Send multiple emojis together (accompanied by text)	61	39	40	15	16	27-30	Female						
17	5	6	3	2	6	5	7	5	7	2	WhatsApp	Not often (Between 20 - 40% of messages sent)	Friends			Send one emoji by itself (accompanied by text)	73	63	4	16	46	23-26	Female						
18	2	6	2	1	5	7	6	3	6	2	WhatsApp	Neither often or not often (Between 40 - 60% of messages sent)	Friends	Family	Romantic partners	Send one emoji by itself (accompanied by text)	78	20	16	45	13	31-34	Male						
19	5	7	2	5	5	5	6	1	4	2	WhatsApp	Not often (Between 20 - 40% of messages sent)	Friends	Family		Send one emoji by itself (unaccompanied by text)	61	73	39	29	20	27-30	Female						
20	4	5	5	5	5	4	6	3	5	3	WhatsApp	Not often (Between 20 - 40% of messages sent)	Friends	Family	Romantic partners	Send multiple emojis together (unaccompanied by text)	9	80	30	10	16	27-30	Male						
21	2	6	2	5	5	6	6	3	3	5	WhatsApp	Often (Between 60 - 80% of messages sent)		Family		Send one emoji by itself (accompanied by text)	26	78	19	73	77	39+	Male						
22	6	6	2	1	7	4	5	2	6	1	WhatsApp	Often (Between 60 - 80% of messages sent)	Friends		Romantic partners	Send multiple emojis together (unaccompanied by text)	61	73	77	40	46	27-30	Male						
23	5	7	3	4	7	5	6	4	6	4	iMessage/Standard Text Messaging	Often (Between 60 - 80% of messages sent)	Friends	Family	Romantic partners	Send one emoji by itself (accompanied by text)	78	61	19	51	80	35-38	Female						
24	7	5	7	7	6	3	7	7	7	6																			

Appendix F continued)

Respondent	Q1 Extraverted, enthusiastic	Q2 Dependable, serious	Q3 Critical, quarrelsome	Q4 Anxious, selfish	Q5 Open to new experiences	Q6 Reserved, quiet	Q7 Sympathetic, warm	Q8 Disorganized, careless	Q9 Calm, emotionally	Q10 Conventional, uncreative	Q11 Most Used Service	Q12 Frequency	Q13 Who Do You Send Them To		Q14 Number	Q15					Q16 Age	Q17 Gender
													Friends	Family		1st	2nd	3rd	4th	5th		
23	6	7	3	3	3	2	7	1	6	2	WhatsApp	Very Often (More than 80% of messages sent)	Friends	Family	Send multiple emojis together (accompanied by text)	78	39	77	4	39	39+	Female
26	7	7	3	2	6	1	6	2	4	2	WhatsApp	Very Often (More than 80% of messages sent)	Friends		Send one emoji by itself (accompanied by text)	6	19	36	20	68	27-30	Female
27	3	6	3	2	6	3	3	3	3	3	WhatsApp	Often (Between 60-80% of messages sent)	Friends		Send one emoji by itself (accompanied by text)	78	63	35	39	16	18-22	Female
28	3	3	3	2	6	3	3	3	6	6	WhatsApp	Very Often (More than 80% of messages sent)	Friends	Romantic partners	Send multiple emojis together (accompanied by text)	28	78	73	34	80	23-26	Female
29	6	6	3	2	6	3	6	2	3	3	WhatsApp	Often (Between 60-80% of messages sent)	Friends	Romantic partners	Send one emoji by itself (accompanied by text)	9	73	38	77	23	39+	Female
30	3	6	2	2	3	2	6	1	3	4	WhatsApp	Often (Between 60-80% of messages sent)	Friends		Send multiple emojis together (unaccompanied by text)	78	63	80	77	10	23-26	Female
31	3	6	3	3	3	4	6	2	4	3	WhatsApp	Very Often (More than 80% of messages sent)		Family	Send multiple emojis together (accompanied by text)	11	77	7	16	69	39+	Male
32	3	3	3	6	6	6	7	4	4	1	Message/Text Messaging	Very Often (More than 80% of messages sent)	Friends	Family	Send multiple emojis together (accompanied by text)	78	73	63	20	46	31-34	Male
33	3	6	3	7	7	3	6	3	3	6	WhatsApp	Often (Between 60-80% of messages sent)	Friends		Send one emoji by itself (accompanied by text)	78	58	35	17	16	23-26	Female
34	3	3	6	6	2	6	6	3	2	3	WhatsApp	Often (Between 60-80% of messages sent)	Friends		Send multiple emojis together (accompanied by text)	78	63	76	1	64	18-22	Female
35	3	6	1	7	3	7	6	4	3	2	WhatsApp	Very Often (More than 80% of messages sent)	Friends	Romantic partners	Send one emoji by itself (accompanied by text)	47	78	18	38	11	27-30	Female
36	2	6	3	6	4	6	6	2	4	2	WhatsApp	Very Often (More than 80% of messages sent)	Friends	Family	Send one emoji by itself (accompanied by text)	78	58	74	21	16	23-26	Female
37	6	6	2	4	3	2	6	2	4	3	WhatsApp	Neither often or not often (Between 40-60% of messages sent)	Friends	Family	Send multiple emojis together (accompanied by text)	78	73	44	46	32	39+	Female
38	3	3	3	3	6	6	3	3	2	2	Facebook messenger	Not often (Between 20-40% of messages sent)	Friends	Family	Send one emoji by itself (accompanied by text)	28	9	27	13		23-26	Male
39	3	3	2	3	6	3	6	3	3	2	WhatsApp	Neither often or not often (Between 40-60% of messages sent)	Friends	Family	Send multiple emojis together (accompanied by text)	6	19	73	34	10	27-30	Female
40	3	7	3	3	4	6	7	1	6	4	WhatsApp	Often (Between 60-80% of messages sent)	Friends	Family	Send one emoji by itself (accompanied by text)	78	73	38	39	17	39+	Female
41	1	6	1	3	6	7	3	4	7	3	WhatsApp	Not often (Between 20-40% of messages sent)	Romantic partners	Romantic partners	Send one emoji by itself (accompanied by text)	63	80	40	45	39	39+	Male
42	3	6	3	6	6	3	6	6	4	1	WhatsApp	Often (Between 60-80% of messages sent)	Friends		Send multiple emojis together (accompanied by text)	6	78	63	29	21	27-30	Female
43	6	6	3	2	6	2	6	3	3	2	WhatsApp	Often (Between 60-80% of messages sent)	Friends	Family	Send multiple emojis together (accompanied by text)	78	61	73	36	77	39+	Female
44	3	7	3	6	3	2	6	2	3	2	Message/Text Messaging	Not often (Between 20-40% of messages sent)	Friends	Family	Send multiple emojis together (accompanied by text)	78	73	58	36	69	39+	Female
45	3	6	2	1	6	4	4	1	6	4	WhatsApp	Neither often or not often (Between 40-60% of messages sent)	Friends	Family	Send one emoji by itself (accompanied by text)	28	19	78	37	46	39+	Male
46	7	6	3	3	3	3	4	2	4	1	WhatsApp	Almost Never (Less than 20% of messages sent)			Send one emoji by itself (accompanied by text)	78	19				23-26	Female
47	3	6	3	3	3	3	7	2	3	2	Facebook Messenger	Very Often (More than 80% of messages sent)	Friends	Family	Send multiple emojis together (accompanied by text)	78	73	38	63	10	23-26	Female
48	3	3	3	3	6	4	7	6	3	3	WhatsApp	Very Often (More than 80% of messages sent)	Friends		Send multiple emojis together (unaccompanied by text)	78	73	38	63	34	23-26	Female

Appendix F continued)

Response in	Q1 Extroverted, enthusiastic	Q2 Dependable, self-reliant	Q3 Critical, quarrelsome	Q4 Anxious, self-doubting	Q5 Open to new experiences	Q6 Reserved, quiet	Q7 Sympathetic, warm	Q8 Disorganized, careless	Q9 Calm, emotionally stable	Q10 Conventional, uncreative	Q11 Most Used Service	Q12 Frequency	Q13 Who Do You Send Them To			Q14 Number	Q15					Q16 Age	Q17 Gender
													Friends	Family	Partner/Colleagues		1st	2nd	3rd	4th	5th		
48	2	7	1	2	3	3	6	1	7	3	WhatsApp	Very Often (More than 80% of messages sent)	Friends	Family		78	61	80	44	14	39+	Female	
49	4	7	2	3	6	3	6	1	3	3	WhatsApp	Very Often (More than 80% of messages sent)	Friends	Family		19	9	80	17	73	39+	Female	
51	6	3	6	2	6	2	4	3	3	3	WhatsApp	Often (Between 60 - 80% of messages sent)	Friends	Family	Romantic partners	10	33	16	37	13	23-26	Female	
52	3	7	3	3	6	4	7	4	2	2	WhatsApp	Often (Between 60 - 80% of messages sent)	Friends			78	40	10	21	69	23-26	Female	
53	3	6	2	7	2	7	7	3	7	3	WhatsApp	Often (Between 60 - 80% of messages sent)	Friends			73	58	63	17	14	27-30	Male	
54	6	3	2	7	7	3	7	4	4	1	WhatsApp	Very Often (More than 80% of messages sent)	Friends			78	73	63	16	46	23-26	Female	
55	3	7	3	2	6	1	7	6	6	1		Neither often or not often (Between 40 - 60% of messages sent)											
56	7	7	3	4	6	1	4	2	4	2	WhatsApp	Neither often or not often (Between 40 - 60% of messages sent)	Friends		Romantic partners	78	73	10	16	79	23-26	Male	
57	1	3	2	6	3	3	3	2	4	4	WhatsApp	Very Often (More than 80% of messages sent)	Friends	Family		9	61				31-34	Female	
58	3	7	3	2	6	4	4	2	6	4	WhatsApp	Neither often or not often (Between 40 - 60% of messages sent)				6	78	73	77	10	23-26	Female	
59	3	7	1	3	6	2	6	2	6	6	WhatsApp	Very Often (More than 80% of messages sent)	Friends		Romantic partners	6	9	78	63	39	23-26	Female	
60	4	7	3	3	3	3	3	1	6	2	WhatsApp	Not often (Between 20 - 40% of messages sent)	Friends			78	73	34	60	43	39+	Male	
61	3	6	4	2	7	3	4	4	3	4	Facebook Messenger	Neither often or not often (Between 40 - 60% of messages sent)	Friends			78	17	10	23	46	23-26	Would rather not specify	
62	6	6	4	3	3	2	6	2	3	3	WhatsApp	Very Often (More than 80% of messages sent)	Friends			78	58	40	16	46	27-30	Female	
63	6	6	3	3	7	6	6	6	3	3	WhatsApp	Often (Between 60 - 80% of messages sent)	Friends			78	51	80	32	45	23-26	Female	
64	6	3	4	3	3	3	3	4	3	3	WhatsApp	Very Often (More than 80% of messages sent)	Friends	Family		6	78	80	33	32	23-26	Female	
65	4	6	4	3	3	3	3	2	3	2	WhatsApp	Not often (Between 20 - 40% of messages sent)	Friends	Family		40	29	33	13	69	27-30	Male	
66	4	7	2	4	3	6	7	1	3	4	WhatsApp	Often (Between 60 - 80% of messages sent)	Friends			78	51	34	72	32	39+	Female	
67	6	3	3	3	6	1	7	2	6	1	WhatsApp	Neither often or not often (Between 40 - 60% of messages sent)	Friends			58	51	34	4	39	39+	Male	
68	6	7	1	1	7	2	3	2	7	2	WhatsApp	Very Often (More than 80% of messages sent)				78	61	73	34	74	39+	Female	
69	6	6	4	3	6	4	7	2	6	3	WhatsApp	Often (Between 60 - 80% of messages sent)	Friends			73	58	63	77	46	18-22	Male	
70	7	6	6	6	3	1	6	2	3	2	WhatsApp	Very Often (More than 80% of messages sent)	Friends			78	40	52	14	35	23-26	Female	
71	6	7	7	6	3	3	7	3	6	3	WhatsApp	Neither often or not often (Between 40 - 60% of messages sent)	Friends			26	78	61	74	46	39+	Female	
72	2	7	3	2	6	3	3	1	3	3	WhatsApp	Almost never (Less than 20% of messages sent)	Friends			26	34	77	4	39	39+	Female	

Appendix F continued)

Response Int nt	Q1 Extraverted, enthusiastic	Q2 Dependent, sensitive	Q3 Critical, quarrelsome	Q4 Anxious, easily	Q5 Open to new experiences,	Q6 Reserved, quiet,	Q7 Sympathetic, warm,	Q8 Disorganized & careless	Q9 Calm, emotionally	Q10 Conventional, uncreative	Q11 Most Used Service	Q12 Frequency	Q13 Who Do You Send Them To			Q14 Number	Q15 1st	2nd	3rd	4th	5th	Q16 Age	Q17 Gender
													Friends	Family	Partners/Colleagues								
73	3	6	2	2	6	4	6	1	3	3	WhatsApp	Often (Between 60-80% of messages sent)	Friends	Family	Send multiple emojis together (accompanied by text)	19	78	40	52	22	39+	Female	
74	3	6	4	6	4	3	3	1	4	3	WhatsApp	Very Often (More than 80% of messages sent)	Friends	Family	Romantic partners	Send one emoji by itself (accompanied by text)	19	61	73	34	39	39+	Female
75	6	7	3	4	3	3	6	1	4	4	WhatsApp	Often (Between 60-80% of messages sent)	Friends		Send multiple emojis together (accompanied by text)	78	73	63	80	52	23-26	Female	
76	2	4	3	2	6	7	3	3	7	4	Facebook Messenger	Almost Never (Less than 20% of messages sent)	Family		Send one emoji by itself (accompanied by text)	61	19	73	30	79	18-22	Male	
77	4	3	3	3	4	3	4	2	4	3	WhatsApp	Very Often (More than 80% of messages sent)	Friends	Romantic partners	Send multiple emojis together (accompanied by text)	9	63	34	17	20	35-38	Female	
78	3	7	1	4	4	4	7	1	4	4	Message/Standard Text Messaging	Very Often (More than 80% of messages sent)	Family		Send one emoji by itself (accompanied by text)	78	73	28	38	46	39+	Female	
79	6	6	2	2	7	2	7	7	4	1	WhatsApp	Not often (Between 20-40% of messages sent)	Friends		Send one emoji by itself (accompanied by text)	40	16	48	45	22	39+	Female	
80	6	6	2	2	7	2	7	7	4	1	WhatsApp	Very Often (More than 80% of messages sent)	Friends		Send multiple emojis together (accompanied by text)	61	36	80	74	40	39+	Female	
81	6	6	3	3	6	2	7	2	6	2	WhatsApp	Very Often (More than 80% of messages sent)	Friends	Romantic partners	Send multiple emojis together (accompanied by text)	73	31	66	10	69	23-26	Female	
82	3	6	7	3	3	6	7	3	3	3	WhatsApp	Neither often or not often (Between 40-60% of messages sent)	Friends	Romantic partners	Send one emoji by itself (accompanied by text)	78	38	63	74	17	31-34	Female	
83	7	3	7	1	7	1	7	1	6	1	WhatsApp	Neither often or not often (Between 40-60% of messages sent)	Friends	Romantic partners	Send one emoji by itself (accompanied by text)	78	38	10	64	16	18-22	Female	
84	6	7	2	4	6	3	6	1	6	3	WhatsApp	Often (Between 60-80% of messages sent)	Friends		Send one emoji by itself (accompanied by text)	78	19	73	46	14	39+	Female	
85	4	3	4	4	6	6	7	3	6	4	WhatsApp	Often (Between 60-80% of messages sent)	Friends	Romantic partners	Send one emoji by itself (accompanied by text)	74	81	79			23-26	Female	
86	7	3	2	2	3	2	6	1	6	2	WhatsApp	Very Often (More than 80% of messages sent)	Friends		Send one emoji by itself (accompanied by text)	35	80	45	46	22	27-30	Female	
87	2	6	6	4	6	3	7	2	6	1	Facebook Messenger	Very Often (More than 80% of messages sent)	Friends	Romantic partners	Send multiple emojis together (accompanied by text)	9	78	54	33	64	23-26	Female	
88	7	7	3	3	7	1	7	1	3	2	WhatsApp	Very Often (More than 80% of messages sent)		Romantic partners	Send multiple emojis together (accompanied by text)	78	19	73	58	63	23-26	Female	
89	3	6	2	3	7	3	6	3	7	2	Facebook Messenger	Not often (Between 20-40% of messages sent)	Friends		Send multiple emojis together (unaccompanied by text)	6	28	4	45	69	23-26	Female	
90	3	7	2	3	7	6	7	3	3	3	WhatsApp	Often (Between 60-80% of messages sent)	Friends	Family	Send one emoji by itself (accompanied by text)	78	16	46	13	22	39+	Female	
91	1	6	2	1	2	7	3	3	2	6	WhatsApp	Often (Between 60-80% of messages sent)	Friends	Romantic partners	Send multiple emojis together (accompanied by text)	78	73	16	46	13	31-34	Female	
92	1	7	3	6	1	7	7	1	6	6	Facebook Messenger	Very Often (More than 80% of messages sent)	Friends	Family	Send one emoji by itself (accompanied by text)	9	73	4	20	32	39+	Female	
93	7	3	1	2	7	1	6	3	3	1	Facebook Messenger	Very Often (More than 80% of messages sent)	Friends	Romantic partners	Send multiple emojis together (accompanied by text)	78	73	63	77	17	23-26	Female	
94	6	3	3	3	6	2	7	2	2	1													
95	2	6	3	3	3	6	6	3	6	2	WhatsApp	Very Often (More than 80% of messages sent)	Friends		Send multiple emojis together (accompanied by text)	78	73	63	17	14	23-26	Female	
96	3	3	3	6	6	3	7	1	3	2	WhatsApp	Very Often (More than 80% of messages sent)	Friends		Send multiple emojis together (accompanied by text)	61	63	35	34	17	23-26	Female	

Appendix F continued)

	Q1 Extroverted, enthusiastic	Q2 Dependent, set-	Q3 Creative, quarrelsome	Q4 Anxious, easy	Q5 Open to new experiences	Q6 Reserved, quiet, warm,	Q7 Sincere, warm,	Q8 Diverse, careless	Q9 Emotionally sensitive	Q10 Conscientious, orderly	Q11 Medium service	Q12 Frequency	Q13 Who Do You Send Them To	Q14 Number	Q15					Q16 Age	Q17 Gender	
													Friends	Family	Colleagues	1st	2nd	3rd	4th	5th		
97	3	7	4	6	3	4	4	2	1	3	Facebook Messenger	Very Often (More than 80% of messages sent)	Friends	Send multiple emojis together (accompanied by text)	26	78	63	33	77	23-26	Female	
98	2	7	3	4	3	7	3	1	6	3	Facebook Messenger	Often (Between 60 - 80% of messages sent)	Friends	Send one emoji by itself (accompanied by text)	26	78	80	40	23	23-26	Female	
99	4	3	3	3	3	4	6	3	3	6	WhatsApp	Often (Between 60 - 80% of messages sent)	Friends	Send multiple emojis together (accompanied by text)	47	63	17	1	31	27-30	Female	
100	4	7	2	3	3	3	7	3	7	4	WhatsApp	Very Often (More than 80% of messages sent)	Friends	Send one emoji by itself (accompanied by text)	47	78	30	39	38	27-30	Female	
101	3	2	3	7	4	6	7	4	2	2	WhatsApp	Very Often (More than 80% of messages sent)	Friends	Send multiple emojis together (unaccompanied by text)	47	78	17	32	1	23-26	Female	
102	3	1	1	2	6	4	4	1	3	3	WhatsApp	Not often (Between 20 - 40% of messages sent)	Family	Send one emoji by itself (accompanied by text)	61	31	4	17	13	39+	Female	

Appendix G)

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.433 ^a	.187	.144	1.145

a. Predictors: (Constant), Openness, Neuroticism, Conscientiousness, Agreeableness, Extraversion

b. Dependent Variable: Frequency

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.135	5	5.627	4.291	.001 ^b
	Residual	121.946	93	1.311		
	Total	150.081	98			

a. Dependent Variable: Frequency

b. Predictors: (Constant), Openness, Neuroticism, Conscientiousness, Agreeableness, Extraversion

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	1.980	1.065		1.860	.066	-.134	4.095					
	Extraversion	-.239	.080	-.311	-2.993	.004	-.398	-.081	-.168	-.296	-.280	.811	1.233
	Agreeableness	-.387	.142	-.261	-2.727	.008	-.669	-.105	-.246	-.272	-.255	.956	1.046
	Conscientiousness	.061	.110	.053	.555	.580	-.157	.279	.016	.057	.052	.969	1.032
	Neuroticism	.157	.098	.152	1.595	.114	-.038	.352	.184	.163	.149	.960	1.042
	Openness	.345	.123	.295	2.798	.006	.100	.590	.143	.279	.262	.786	1.273

a. Dependent Variable: Frequency

Appendix H)

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.345 ^a	.119	.110	1.17094	.119	12.955	1	96	.001

a. Predictors: (Constant), Gender

b. Dependent Variable: Frequency

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.762	1	17.762	12.955	.001 ^b
	Residual	131.626	96	1.371		
	Total	149.388	97			

a. Dependent Variable: Frequency

b. Predictors: (Constant), Gender

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	2.955	.250		11.835	.000	2.459	3.450					
	Gender	-1.020	.283	-.345	-3.599	.001	-1.583	-.458	-.345	-.345	-.345	1.000	1.000

a. Dependent Variable: Frequency

Appendix I)

T-Test

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Frequency	male	22	2.9545	1.21409	.25885
	female	76	1.9342	1.15857	.13290

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
	Frequency	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Frequency	Equal variances assumed	.339	.562	3.599	96	.001	1.02033	.28348	.45762	1.58305
	Equal variances not assumed			3.507	32.891	.001	1.02033	.29097	.42828	1.61239

Appendix J)

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.298 ^a	.089	.040	1.07365	.089	1.810	5	93	.118

a. Predictors: (Constant), Conscientiousness, Extraversion, Agreeableness, Neuroticism, Openness

b. Dependent Variable: Number

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.432	5	2.086	1.810	.118 ^b
	Residual	107.204	93	1.153		
	Total	117.636	98			

a. Dependent Variable: Number

b. Predictors: (Constant), Conscientiousness, Extraversion, Agreeableness, Neuroticism, Openness

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF	
1	(Constant)	1.952	.998		1.955	.054	-.030	3.935						
	Extraversion	.154	.075	.226	2.052	.043	-.005	.303	.186	.208	.203	.811	1.233	
	Agreeableness	.150	.133	.114	1.129	.262	-.114	.415	.135	.116	.112	.956	1.046	
	Openness	-.043	.116	-.042	-.375	.708	-.273	.186	.050	-.039	-.037	.786	1.273	
	Neuroticism	-.167	.092	-.183	-1.812	.073	-.350	.016	-.176	-.185	-.179	.960	1.042	
	Conscientiousness	-.042	.103	-.041	-.403	.688	-.246	.163	-.025	-.042	-.040	.969	1.032	

a. Dependent Variable: Number

Appendix K)

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.170 ^a	.029	.019	1.08561	.029	2.851	1	96	.095

a. Predictors: (Constant), Gender
 b. Dependent Variable: Number

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.360	1	3.360	2.851	.095 ^b
	Residual	113.140	96	1.179		
	Total	116.500	97			

a. Dependent Variable: Number
 b. Predictors: (Constant), Gender

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	1.727	.231		7.463	.000	1.268	2.187					
	Gender	.444	.263	.170	1.688	.095	-.078	.965	.170	.170	.170	1.000	1.000

a. Dependent Variable: Number

Appendix L)

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.236 ^a	.056	.005	28.026

a. Predictors: (Constant), Openness, Neuroticism, Conscientiousness, Agreeableness, Extraversion

b. Dependent Variable: Emoji_Used_One

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4325.553	5	865.111	1.101	.365 ^b
	Residual	73049.174	93	785.475		
	Total	77374.727	98			

a. Dependent Variable: Emoji_Used_One

b. Predictors: (Constant), Openness, Neuroticism, Conscientiousness, Agreeableness, Extraversion

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	14.039	26.061		.539	.591	-37.713	65.791					
	Extraversion	2.373	1.957	.136	1.213	.228	-1.513	6.259	.156	.125	.122	.811	1.233
	Agreeableness	5.279	3.476	.156	1.519	.132	-1.623	12.181	.154	.156	.153	.956	1.046
	Conscientiousness	-.829	2.687	-.032	-.309	.758	-6.164	4.506	-.046	-.032	-.031	.969	1.032
	Neuroticism	1.654	2.409	.071	.687	.494	-3.129	6.438	.071	.071	.069	.960	1.042
	Openness	.916	3.021	.034	.303	.762	-5.083	6.915	.123	.031	.031	.786	1.273

a. Dependent Variable: Emoji_Used_One

Appendix M)

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.235 ^a	.055	.004	21.411

a. Predictors: (Constant), Openness, Neuroticism, Conscientiousness, Agreeableness, Extraversion

b. Dependent Variable: Emoji_Used_Two

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2481.146	5	496.229	1.082	.375 ^b
	Residual	42635.036	93	458.441		
	Total	45116.182	98			

a. Dependent Variable: Emoji_Used_Two

b. Predictors: (Constant), Openness, Neuroticism, Conscientiousness, Agreeableness, Extraversion

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics		
		B	Std. Error				Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF	
1	(Constant)	69.439	19.910		3.488	.001	29.902	108.975						
	Extraversion	-.346	1.495	-.026	-.232	.817	-3.315	2.623	-.084	-.024	-.023	.811	1.233	
	Agreeableness	3.224	2.655	.125	1.214	.228	-2.049	8.497	.131	.125	.122	.956	1.046	
	Conscientiousness	-.079	2.052	-.004	-.038	.970	-4.154	3.997	.005	-.004	-.004	.969	1.032	
	Neuroticism	-2.560	1.840	-.143	-1.391	.168	-6.214	1.095	-.174	-.143	-.140	.960	1.042	
	Openness	-2.076	2.308	-.102	-.900	.371	-6.659	2.507	-.113	-.093	-.091	.786	1.273	

a. Dependent Variable: Emoji_Used_Two

Appendix N)

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.084 ^a	.007	-.003	28.143	.007	.695	1	97	.407

a. Predictors: (Constant), Gender

b. Dependent Variable: Emoji_Used_One

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	550.205	1	550.205	.695	.407 ^b
	Residual	76824.522	97	792.005		
	Total	77374.727	98			

a. Dependent Variable: Emoji_Used_One

b. Predictors: (Constant), Gender

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics		
		B	Std. Error				Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF	
1	(Constant)	47.905	7.637		6.272	.000	32.747	63.063						
	Gender	4.721	5.664	.084	.833	.407	-6.521	15.963	.084	.084	.084	1.000	1.000	

a. Dependent Variable: Emoji_Used_One

Appendix O)

DEPARTMENT OF TECHNOLOGY AND PSYCHOLOGY
ETHICAL APPROVAL FORM A

Title of project The Big Five and emoji: The effects of personality on emoji usage in socio-emotional, synchronous computer-mediated communication_____

Name of researcher Cáit Swan_____

Email contact N00173042@student.iadt.ie

Name of supervisor Hannah Barton_____

		Yes	No	N/A
1	Will you describe the main research procedures to participants in advance, so that they are informed about what to expect?	X		
2	Will you tell participants that their participation is voluntary?	X		
3	Will you obtain written consent for participation (through a signed or 'ticked' consent form)?	X		
4	If the research is observational, will you ask participants for their consent to being observed?			X
5	Will you tell participants that they may withdraw from the research at any time and for any reason?	X		
6	With questionnaires, will you give participants the option of omitting questions they do not want to answer?	X		
7	Will you tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs?	X		
8	Will you debrief participants at the end of their participation (i.e., give them a brief explanation of the study)?	X		
9	If your study involves people between 16 and 18 years, will you ensure that <u>passive</u> consent is obtained from parents/guardians, with active consent obtained from both the child and their school/organisation?			X
10	If your study involves people under 16 years, will you ensure that <u>active</u> consent is obtained from parents/guardians <u>and</u> that a parent/guardian or their nominee (such as a teacher) will be present throughout the data collection period?			X
11*	Does your study involve an external agency (e.g. for recruitment)?			X
12	Is there any realistic risk of any participants experiencing either physical or psychological distress or discomfort?		X	
13	Does your project involve work with animals?		X	
14	Do you plan to give individual feedback to participants regarding their scores on any task or scale?		X	
15	Does your study examine any sensitive topics (such as, but not limited to, religion, sexuality, alcohol, crime, drugs, mental health, physical health)?		X	
16	Is your study designed to change the mental state of participants in any negative way (such as inducing aggression, frustration, etc.)?		X	
17	Will your project involve deliberately misleading participants in any way?		X	
18	Do participants fall into any of the following special groups?	People with learning or communication difficulties	X	
		Patients (either inpatient or outpatient)	X	
		People in custody	X	

Appendix O continued)

If you have ticked **No** to any of questions 1 to 11, or **Yes** to any of questions 12 to 18 you should refer to the PSI Code of Professional Ethics and BPS Guidelines and consult with your supervisor without delay. You will need to fill in Ethical Approval Form B and submit it to the Department of Technology and Psychology Ethics Committee (DTPEC) in place of this form.

There is an obligation on the researcher to bring to the attention of the DTPEC any issues with ethical implications not clearly covered by the above checklist.

I consider that this project has **no** significant ethical implications to be brought before the DTPEC. I have read and understood the specific guidelines for completion of Ethics Application Forms. I am familiar with the PSI Code of Professional Ethics and BPS Guidelines (and have discussed them with my supervisor).

Signed K Swan Print Name Cáit Swan Date 01/05/2018
Applicant

I have discussed this project with my student, and I agree that it has no significant ethical implications to be brought before the DTPEC.

Signed _____ Print Name _____ Date _____
Supervisor

* If you are dealing with an external agency, you must submit a letter from that agency with the form A. The letter must provide contact details, and must show that they have agreed for you to carry out your research in their organization.