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# **Facebook: Where privacy concerns and social needs collide**

This thesis is presented for the degree of  
**Doctor of Philosophy**

**Sonya Scherini**

School of Arts & Humanities  
Edith Cowan University  
2020

## ABSTRACT

Facebook is an integral part of today's social landscape, but Facebook use involves compromising one's privacy in relation to other users and to the Facebook corporation and its affiliated businesses. This analysis explores respondents' reasons for using Facebook together with their Facebook-related privacy concerns, and how these factors influence self-disclosures and privacy management strategies on the site. Also explored are respondents' perceptions both of what the Facebook corporation 'knows' about them and with whom it shares their data. The research is based on the concepts of user-user and user-corporate privacy concerns versus the social needs of self-portrayal and belonging. Self-portrayal (inspired by Friedlander, 2011) is explored in the contexts of both strategic self-presentation and expression of the true self, and belonging is explored in the contexts of both intimacy and affiliation. These concepts have been drawn from a combination of psychological theories together with existing research on privacy concerns and social needs on social networking sites.

Respondents completed an online questionnaire over a six week period from late August to early October 2014, and a focus group was held in November 2014. The questionnaire was largely quantitative but allowed for qualitative input via text boxes. There were 404 completed and valid responses, and of the demographic factors tested, gender was most strongly associated with Facebook-related privacy concerns and age was most strongly associated with reasons for using Facebook. Respondents indicated a clash between fulfilling their social needs on Facebook and their privacy concerns on the site. However, these concerns did not, for the most part, stop them using Facebook, although in certain instances respondents employed tactics to minimise their privacy concerns. This thesis argues that, when using Facebook, respondents resolved the privacy paradox to the best of their ability.

It is anticipated that the findings of this thesis will contribute to the ongoing dialogue surrounding the benefits and drawbacks of social media use.

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- (i) incorporate without acknowledgement any material previously submitted for a degree or diploma in any institute of higher education;
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- (iii) contain any defamatory material

Sonya Scherini

30.11.2019

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## TABLE OF CONTENTS

LIST OF TERMS.....	xii
1. INTRODUCTION.....	1
1.1 Privacy concerns versus social needs on Facebook.....	1
1.2 Facebook in context.....	9
2. BACKGROUND – PRIVACY CONCERNS.....	18
2.1 Definition of privacy.....	18
2.2 Privacy taxonomies.....	18
2.3 Privacy paradox and privacy calculus.....	19
2.4 Contextual integrity.....	20
2.5 The non-neutrality of web technology.....	20
2.6 Facebook’s history of privacy controversies.....	21
2.6.1 News Feed (2006).....	21
2.6.2 Beacon (2007).....	22
2.6.3 Tag Suggestions (2010).....	22
2.6.4 Timeline (2011).....	22
2.6.5 Graph Search (2013).....	23
2.6.6 Europe versus Facebook (2013).....	23
2.6.7 Emotional contagion study (2014).....	25
2.6.8 Cambridge Analytica (2016).....	26
2.7 Privacy concerns on Facebook.....	26
2.7.1 User-user privacy concerns.....	27
2.7.2 User-corporate privacy concerns.....	30
2.8 Suggested approaches to privacy issues on Facebook.....	33
3. BACKGROUND – SOCIAL NEEDS.....	37
3.1 Humanism, motivation, and needs.....	39
3.2 Concepts related to self-portrayal.....	43
3.2.1 True self.....	43
3.2.2 Ideal, ought, and actual selves.....	44
3.2.3 Self-concept and multiple selves.....	44
3.2.4 Strategic self-presentation.....	45
3.2.5 Narcissism and the need for popularity.....	46
3.3 Concepts related to belonging.....	47
3.3.1 Social support.....	47

3.3.2 Social capital.....	49
3.3.3 Affiliation.....	52
3.3.4 Intimacy.....	53
3.3.5 Self-disclosure.....	55
4. RESEARCH DESIGN.....	59
4.1 Quantitative, qualitative, and mixed methods research.....	59
4.2 The hypotheses.....	60
➤ Hypothesis #1: Demographic factors influence the nature and degree of privacy concerns on Facebook.....	61
➤ Hypothesis #2: Demographic factors influence the nature and degree of social needs on Facebook.....	65
➤ Hypothesis #3: Privacy perceptions influence the nature and degree of privacy concerns on Facebook.....	67
➤ Hypothesis #4: The nature and degree of privacy concerns and social needs on Facebook combine to influence behaviours on Facebook.....	68
4.3 Survey design.....	71
4.3.1 Likert scale items.....	72
4.3.2 The pilot survey’s role in shaping the main survey.....	73
4.4 Focus group design.....	73
4.5 Data collection.....	74
4.5.1 Main survey.....	74
4.5.2 Pilot survey.....	76
4.5.3 Focus group.....	76
4.5.4 Ethical considerations.....	76
4.6 Analysis of survey results – Test assumptions, validity, and reliability.....	77
4.6.1 Validity.....	77
4.6.2 Reliability.....	79
4.6.3 Parametric versus non-parametric tests.....	80
5. RESULTS – DEMOGRAPHIC FACTORS, PRIVACY CONCERNS, AND REASONS FOR USING FACEBOOK.....	81
5.1 Demographic profile of respondents.....	81
5.1.1 Gender and age.....	81
5.1.2 Cultural background.....	82
5.1.3 Education.....	86
5.2 Privacy concerns on Facebook.....	87
5.2.1 Means – Privacy concerns.....	87

5.2.2	Changes in the level of concern.....	88
5.2.3	Reading and understanding Facebook’s privacy policy.....	88
5.2.4	Understanding Facebook’s privacy settings.....	89
5.2.5	Factor analysis and reliability – Privacy concerns.....	90
5.3	Demographic factors and privacy concerns (Hypothesis #1).....	93
5.3.1	Gender and privacy concerns.....	93
5.3.2	Age and privacy concerns.....	95
5.3.3	Australian cultural influence and privacy concerns.....	96
5.3.4	Completed education and privacy concerns.....	100
5.4	Why respondents use Facebook.....	101
5.4.1	Means – Reasons for using Facebook.....	101
5.4.2	Factor analysis and reliability – Reasons for using Facebook.....	102
5.5	Demographic factors and reasons for using Facebook (Hypothesis #2).....	109
5.5.1	Gender and reasons for using Facebook.....	109
5.5.2	Age and reasons for using Facebook.....	110
5.5.3	Australian cultural influence and reasons for using Facebook.....	111
5.5.4	Completed education and reasons for using Facebook.....	114
6.	RESULTS – PRIVACY PERCEPTIONS, PRIVACY CONCERNS, SOCIAL NEEDS, AND FACEBOOK USE.....	117
6.1	Respondents’ privacy perceptions.....	118
6.2	Association between privacy perceptions and privacy concerns (Hypothesis #3).....	120
6.3	How respondents use Facebook.....	123
6.3.1	Time spent on Facebook.....	123
6.3.2	Registration and profile.....	125
6.3.3	Posts and privacy measures.....	127
6.3.4	Third-party access to one’s information.....	129
6.3.5	Number of Facebook friends, groups, and networks.....	129
6.3.6	Means – Activities on Facebook.....	130
6.4	How privacy concerns and social needs impact behaviours on Facebook (Hypothesis #4).....	132
6.4.1	Privacy concerns, reasons for using Facebook, and activities on Facebook.....	132
6.4.2	Privacy concerns, reasons for using Facebook, and Facebook friends, groups, and networks...134	
6.4.3	Privacy concerns, reasons for using Facebook, and Facebook’s ‘Find Friends’ function.....	136
6.4.4	Privacy concerns, reasons for using Facebook, and post-protection.....	136
6.4.5	Privacy concerns, reasons for using Facebook, and profile information.....	138
7.	DISCUSSION.....	141
7.1	Privacy concerns on Facebook.....	141

7.2 Social needs on Facebook.....	143
7.3 Demographic factors and privacy concerns on Facebook.....	147
7.4 Demographic factors and reasons for using Facebook.....	149
7.5 Privacy perceptions and privacy concerns on Facebook.....	150
7.6 The effect of privacy concerns and social needs on Facebook-related behaviours.....	151
7.6.1 Privacy concerns and behaviours on Facebook.....	151
7.6.2 Social needs and behaviours on Facebook.....	153
7.6.3 Putting it all together.....	154
7.7 Limitations.....	157
7.8 Suggestions for further research.....	158
8. CONCLUSION.....	159
REFERENCES.....	161
APPENDIX A.....	190
A.1 Respondents without an active Facebook account.....	190
A.1.1 Demographic profile.....	190
A.1.2 Reasons for not having an active account.....	190
A.1.3 Privacy concerns.....	191
APPENDIX B.....	193

## INDEX OF TABLES

Table 1. Account status (all valid responses).....	81
Table 2. Gender and age.....	82
Table 3. Respondents' country of birth.....	82
Table 4. Parents' countries of birth.....	83
Table 5. Respondents' and parents' countries of birth in alphabetical order.....	84
Table 6. Length of time lived in Australia.....	84
Table 7. Combined cultural background.....	85
Table 8. Respondents' and parents' countries of birth in relation to Australia.....	85
Table 9. Completed education.....	86
Table 10. Current student status.....	87
Table 11. Privacy concerns – Means.....	88
Table 12. Changes in the level of privacy concern.....	88
Table 13. Reading and understanding Facebook's privacy policy.....	89
Table 14. Confusion over Facebook's privacy settings.....	89
Table 15. Privacy concerns (2 factor extraction) – Total Variance Explained (PAF – Promax).....	90
Table 16. Privacy concerns (2 factor extraction) – Pattern Matrix (PAF – Promax).....	90
Table 17. Privacy concerns (3 factor extraction) – Total Variance Explained (PAF – Promax).....	91
Table 18. Privacy concerns (3 factor extraction) – Pattern Matrix (PAF – Promax).....	92
Table 19. Privacy concerns (2 and 3 factors with factor loadings $\geq .3$ and $\geq .4$ ) – WLSM.....	93
Table 20. Gender and privacy concerns – Mann-Whitney Ranks.....	94
Table 21. Gender and privacy concerns – Mann-Whitney Test Statistics.....	94
Table 22. Age and privacy concerns – Jonckheere-Terpstra Test.....	95
Table 23. Age and privacy concerns – Kendall's Tau-b.....	95
Table 24. Length of time lived in Australia and privacy concerns – Jonckheere-Terpstra Test.....	96
Table 25. Length of time lived in Australia and privacy concerns – Kendall's Tau-b.....	97
Table 26. Respondents' country of birth and privacy concerns – Mann-Whitney Ranks.....	98
Table 27. Respondents' country of birth and privacy concerns – Mann-Whitney Test Statistics.....	98
Table 28. Parents' country of birth and privacy concerns – Jonckheere-Terpstra Test.....	99
Table 29. Parents' country of birth and privacy concerns – Kendall's Tau-b.....	99
Table 30. Australian cultural influence and privacy concerns on Facebook – Summary.....	100
Table 31. Completed education and privacy concerns – Jonckheere-Terpstra Test.....	100
Table 32. Completed education and privacy concerns – Kendall's Tau-b.....	101
Table 33. Reasons for using Facebook – Means.....	102

Table 34. Reasons for using Facebook (5 factor extraction) – Total Variance Explained (PAF – Promax).....	103
Table 35. Reasons for using Facebook (5 factor extraction) – Pattern Matrix (PAF – Promax).....	103
Table 36. Reasons for using Facebook (6 factor extraction) – Pattern Matrix (PAF – Promax).....	104
Table 37. Reasons for using Facebook (6 factor extraction) – Total Variance Explained (PAF – Promax).....	105
Table 38. Reasons for using Facebook (7 factor extraction) – Pattern Matrix (PAF – Promax).....	106
Table 39. Reasons for using Facebook (7 factor extraction) – Total Variance Explained (PAF – Promax).....	108
Table 40. Reasons for using Facebook (5, 6, and 7 factors with factor loadings $\geq .3$ and $\geq .4$ ) – WLSM.....	108
Table 41. Gender and reasons for using Facebook – Mann-Whitney Test Statistics.....	109
Table 42. Age and reasons for using Facebook – Jonckheere-Terpstra Test.....	110
Table 43. Length of time lived in Australia and reasons for using Facebook – Jonckheere-Terpstra Test.....	111
Table 44. Respondents’ country of birth and reasons for using Facebook – Mann-Whitney Test Statistics..	112
Table 45. Parents’ country of birth and reasons for using Facebook – Jonckheere-Terpstra Test.....	113
Table 46. Australian cultural influence and reasons for using Facebook – Summary.....	114
Table 47. Completed education and reasons for using Facebook – Jonckheere-Terpstra Test.....	114
Table 48. Completed education and age – Crosstabs.....	115
Table 49. Privacy perceptions – Background (as of 28.7.2014).....	117
Table 50. Respondents’ privacy perceptions.....	119
Table 51. Privacy perceptions and privacy concerns – Kruskal-Wallis Test.....	121
Table 52. Privacy perceptions and privacy concerns – Kruskal-Wallis Pairwise Comparisons.....	122
Table 53. Frequency of Facebook visits.....	123
Table 54. Time spent on Facebook per visit.....	124
Table 55. Length of Facebook membership.....	124
Table 56. Changes in time spent on Facebook.....	125
Table 57. Information provided on registration.....	125
Table 58. Is your current profile picture a recognisable photo of you? If not, why not?.....	126
Table 59. Visibility of future posts.....	128
Table 60. Proactive privacy measures re posts.....	128
Table 61. Allowing third-party access to one’s information on Facebook.....	129
Table 62. Facebook friends, groups, and networks.....	130
Table 63. Activities on Facebook – Means.....	131
Table 64. Activities on Facebook and reasons for using Facebook – Frequency of correlations $\geq .2$ .....	133
Table A1. Demographic profile (respondents without an active Facebook account).....	190
Table A2. Reasons for deactivation or deletion of one’s account, or never having had an account.....	191
Table A3. Privacy concerns – Means (respondents without an active Facebook account).....	192

Table B1. Gender and reasons for using Facebook – Mann-Whitney Ranks.....	193
Table B2. Age and reasons for using Facebook – Kendall’s Tau-b.....	195
Table B3. Length of time lived in Australia and reasons for using Facebook – Kendall’s Tau-b.....	197
Table B4. Respondents’ COB and reasons for using Facebook – Mann-Whitney Ranks.....	199
Table B5. Parents’ COB and reasons for using Facebook – Kendall’s Tau-b.....	201
Table B6. Completed education and reasons for using Facebook – Kendall’s Tau-b.....	203
Table B7. Completed education and reasons for using Facebook controlling for age – Partial Correlation..	205
Table B8. Privacy perceptions (Q1) and privacy concerns – Kruskal-Wallis Mean Ranks.....	206
Table B9. Privacy perceptions (Q2) and privacy concerns – Kruskal-Wallis Mean Ranks.....	207
Table B10. Information provided on respondents’ profile – Key pieces.....	208
Table B11. Visibility of information on respondents’ profile – Key pieces.....	210
Table B12. Information provided on respondents’ profile – Likes.....	213
Table B13. Visibility of information on respondents’ profile – Likes.....	214
Table B14. Activities on Facebook and privacy concerns – Kendall’s Tau-b.....	215
Table B15 – Part 1. Activities on Facebook and reasons for using Facebook – Kendall’s Tau-b.....	217
Table B15 – Part 2. Activities on Facebook and reasons for using Facebook – Kendall’s Tau-b.....	219
Table B16. Privacy concerns, Facebook friends, groups, networks, ‘Find Friends’, and posts – Kendall’s Tau-b.....	221
Table B17. Reasons for using Facebook, Facebook friends, groups, networks, ‘Find Friends’, and posts – Kendall’s Tau-b.....	222
Table B18. Privacy concerns and profile information provided (key pieces) – Kendall’s Tau-b.....	224
Table B19. Privacy concerns and profile information provided (likes) – Kendall’s Tau-b.....	225
Table B20. Reasons for using Facebook and profile information provided (key pieces) – Kendall’s Tau-b....	226
Table B21. Reasons for using Facebook and profile information provided (likes) – Kendall’s Tau-b.....	228

## INDEX OF FIGURES

Figure 1. Privacy concerns on Facebook.....	26
Figure 2. Social needs on Facebook.....	37
Figure 3. Model of hypotheses.....	61
Figure 4. Completed education and age.....	115

## LIST OF TERMS

In this thesis:

- *Facebook* refers to both the Facebook corporation (Facebook, Inc.) and the Facebook platform,
- *SNS* is an acronym for both *social networking site* and *social networking sites*,
- *app* is an abbreviation of *application*, and
- *ad targeting* is an abbreviation of *advertisement targeting*.

## 1. INTRODUCTION

*Sonya: "Are you a member of Facebook?"*

*John: "Isn't everyone a member of Facebook?"*

Facebook was launched in 2004 by Mark Zuckerberg and was originally accessible only to Harvard students. In 2006 it was made available to the general public (Lynn, 2009), and today it is the most popular social networking site (SNS) worldwide, with 2.375 billion monthly active users (MAU) as of mid-July 2019 (Clement, 2019). Fifteen million of these MAU are based in Australia, comprising "around 60% of the country's population" (Cowling, 2019, para. 2), and "50% of the country [logs] onto Facebook at least once a day" (Cowling, 2019, para. 2). These figures illustrate the extent to which Facebook touches people's lives, both globally and in Australia.

Facebook's popularity lies largely in its ability to meet users' social needs (Zhang, 2017; Utz, 2015; Niland, Lyons, Goodwin, & Hutton, 2015; Indian & Grieve, 2014; Vitak & Ellison, 2012). However, there are privacy concerns related to Facebook use (Waldman, 2016; Wisniewski, Xu, Lipford, & Bello-Ogunu, 2015; Vitak, Blasiola, Patil, & Litt, 2015; Milazzo, 2014; Trottier, 2012). The aim of this study is to investigate the relationship between users' privacy concerns and social needs on Facebook, as manifested in reported behaviours on the site. To this end, I have employed a number of pre-existing psychological concepts to develop a model of social needs on Facebook, and I have also differentiated between Facebook-related *user-user privacy concerns* and *user-corporate privacy concerns*. User-user concerns relate to other users, whereas user-corporate concerns relate to the Facebook corporation (which I refer to as 'Facebook' in this thesis) and businesses associated with Facebook. User-user concerns revolve principally around other users seeing content 'not meant for their eyes' or misusing this content (Wisniewski et al., 2015), whereas user-corporate concerns revolve around the surrendering of users' personal information to Facebook in exchange for Facebook's "free" services (Fuchs, 2012; Khan, 2018). This information may be provided by users themselves, or their Facebook friends (Wisniewski et al., 2015), or it may be obtained via tracking, both within and outside of Facebook (Narayanan & Reisman, 2017).

### 1.1 Privacy concerns versus social needs on Facebook

Facebook is perhaps the world's most comprehensive database: Facebook users freely divulge their personal details, including their real name, age, gender, employment and study background, political and religious beliefs, and relationship status (Fuchs, 2012; Grimmelmann, 2009). In addition, the 'Facebook pixel' and Facebook's 'Like' button identify users and track their actions on websites outside of Facebook

(Cukier, 2016; Simonite, 2015; Acar, Van Alsenoy, Piessens, Diaz, & Preneel, 2015), and Facebook combines its Facebook-derived data with data from its other companies (e.g., Instagram) (Facebook Help Centre, 2019a; Instagram Help Centre, 2019; WhatsApp FAQ, 2019; Facebook, 2018). Thus, comprehensive profiles of Facebook users are assembled, allowing Facebook-based advertisers to direct their material to very specific audiences (Treadaway & Smith, 2010).

However, the Facebook corporation and its affiliated businesses are not the only threats to their privacy that users must contend with: users' privacy is also encroached upon by other Facebook users. One of the chief attractions of Facebook is that it allows users to watch other users undetected (Trottier, 2012; Child & Starcher, 2016). Child and Starcher (2016, p. 484) described three types of "surveillance" on Facebook: creeping ("scrutinizing a person's Facebook profile, photos, posts, and friends"), stalking ("repeatedly accessing and viewing [individual pages] in a short period of time"), and lurking ("watching...others...interact online from a distance"). Although Facebook users expect to be watched (Trottier, 2012), surveillance is still a privacy concern, especially given the fact that Facebook's undifferentiated friending system creates "context collapse" (Marwick & boyd, 2011; Vitak et al., 2015) whereby "multiple audiences are 'collapsed' into a single group, with the usual context cues for audience segregation removed or unavailable" (Marder, Joinson, Shankar, & Houghton, 2016, p. 583). Typically, a varied cohort composed of "parents, siblings, grandparents, friends, romantic interests, and coworkers" (Child & Starcher, 2016, p. 488) have access to young adults' Facebook pages, and strict management of one's privacy settings can alleviate but not eliminate privacy concerns resulting from context collapse (Trottier, 2012; Burkell, Fortier, Wong, & Simpson, 2014). To preserve their privacy on Facebook, users therefore commonly engage in the practices of editing their Facebook content carefully (Vitak et al., 2015; Georgalou, 2016), de-tagging photos which portray them in an unflattering or embarrassing light (Lang & Barton, 2015), and posting content "they believe their broadest group of acquaintances will find non-offensive" (Marwik & boyd, 2011, p. 122). Some users also engage in "vague-booking", which is the practice of making certain "post[s] or comment[s] on Facebook...intentionally vague" (Child & Starcher, 2016, p. 485) so that only a select portion of their audience can decode them. Another key privacy protection strategy employed by users is to try to ensure that no inflammatory material (i.e., posts, photos, or videos) concerning them is uploaded to Facebook (Trottier, 2012; Marder et al., 2016). Users do this by modifying their behaviour offline:

For me to be caught on photo doing something stupid, I had to be doing something stupid in the first place. And if I avoid that, which I have been hit or miss about in the past, then it's a non-issue. They can't post photos of me that didn't happen. (Trottier, 2012, p. 328 [an unidentified interviewee])

The influence of Facebook is indeed pervasive when users monitor themselves on its behalf not only online, but also offline. Marder et al. (2016) stated that:

Just as prisoners in Foucault's (1977) conception of Bentham's Panopticon moderated their behaviour due to the possibility that they were being watched, the possibility of compromising content being seen by online audiences moderates decisions offline...[I]t is fascinating to speculate the somewhat science-fictional notion that the omnipresence of personal recording devices, facial recognition and SNS may lead us with little resistance towards an Orwellian society based on peer-to-peer surveillance. (Marder et al, 2016, p. 589)

A crucial issue, from a privacy viewpoint, and one that exacerbates the problem of unwelcome visibility, is that users share control of their information on Facebook with other users (Marwick & boyd, 2014). Two basic examples of this are as follows: first, any Facebook user can post a photo of you on Facebook, but if you want that photo to be removed, Facebook instructs you to "ask the person who posted it to take it down" (Facebook Help Centre, 2019b), and second, even if a you "set [your] Facebook friends list to private...[it] is really only as safe as the privacy settings used by your friends" (Wagner, 2014, para. 4-5).

Facebook draws its power from its ubiquity: Harari and Gosling (2016) observed that "Facebook has become a virtually inescapable aspect of modern social life" (p. 261). Despite this, some users resist becoming Facebook members but eventually cave in to peer pressure, or in some cases, users open a Facebook account for the express purpose of controlling information about themselves that other users have posted in their absence (Trottier, 2012). Once they are Facebook members, however, users are captivated by the convenience of the site (Trottier, 2012; Krasnova et al., 2010). Facebook provides an easy way to keep in touch with people and to organise or find out about events, and, in fact, to not have a Facebook account is commonly considered tantamount to self-inflicted social exclusion (Trottier, 2012; Quan-Haase & Young, 2010). However, despite its convenience, many users have privacy concerns about Facebook, such as unwelcome visibility (Harari & Gosling, 2016), cyberbullying (Lowry, Zhang, Wang, & Siponen, 2016), and fraud (Al-Shamaileh, 2018), or are irritated by the site (users have described Facebook as "pointless", "a waste of time", and "distracting" [Harari & Gosling, 2016, p. 267]), and end up closing or deactivating their account. However, they usually end up reactivating it because of Facebook's convenience, or indeed, its perceived necessity (Trottier, 2012; Harari & Gosling, 2016).

Users are drawn to Facebook in spite of any privacy concerns they may have, largely because it is part and parcel of the way they interact with others (Niland et al., 2015). Motives for using Facebook and the social benefits of Facebook use have been explored from a number of perspectives. For instance, some

researchers have explored Facebook use from the perspective of two psychological needs: *the need to belong*, defined as “the fundamental motive to connect with and be accepted by others” (Seidman, 2014, p. 368) and *the need for self-presentation*, defined as “[the need] to convey impressions that will help...obtain valued goals” (Leary et al., 1994, p. 664). *The need to belong* was first postulated by Abraham Maslow (1943), it being one of the needs in his hierarchy of needs, and the concept of *self-presentation* has arguably been best represented by Erving Goffman in his acclaimed book *The presentation of self in everyday life* (1959). In relation to Facebook, Nadkarni and Hoffman (2012), after reviewing the existing research, concluded that “Facebook use is motivated by...[both] the need to belong and...the need for self-presentation” (p. 243). In addition, Utz, Tanis, and Vermeulen (2012) found that while the need to belong is indeed a motivator for SNS (including Facebook) use, *the need for popularity*, defined as “[the need] to be perceived as popular” (p. 38), and, as such, a subset of the need for self-presentation (p. 38), “is the strongest and most consistent predictor of SNS behaviors” (p. 37). Also, Seidman (2014) found that people who “post...personally revealing and emotional content” (p. 371) on Facebook sometimes do so because they have a *need for acceptance*, which she equated with the need to belong (p. 368). Thus, the findings of Nadkarni and Hoffman (2012), Utz et al. (2012), and Seidman (2014) appear to be consistent in that the needs for belonging and self-presentation, in various guises, are key motivators for Facebook use.

Other researchers have viewed Facebook use through the lens of Ryan and Deci’s (2000) *self-determination theory*. Self-determination theory proposes the existence of “three innate psychological needs” (Ryan & Deci, 2000, p. 68): “*the need for autonomy* (a feeling of volition and the absence of external pressures), *the need for competence* (the capacity to act effectively and the feeling of pursuing something meaningful), and *the need for relatedness* (a feeling of closeness and connectedness with others)” (Masur, Reinecke, Ziegele, & Quiring, 2014, pp. 377-378: *authors’ brackets & my italics*). Facebook use has been found to satisfy all three of these needs (Reinecke, Vorderer, & Knop, 2014; Lin, 2016), and, in fact, the unfulfilled needs for autonomy, competence, and/or relatedness in the offline world have been claimed to be risk factors for Facebook addiction. The addiction is said to occur because users compulsively attempt to gratify these unmet needs on Facebook, or to escape their lives via Facebook use (Masur et al., 2014). While it is fairly self-evident that Facebook use can satisfy the need for relatedness, it is perhaps harder to see how it can satisfy the needs for autonomy and competence (Reinecke et al., 2014, p. 423). Reinecke et al. (2014), however, claimed that Facebook satisfies users’ need for competence because it gives users “[a] feeling of being in charge of the communication process” (p. 423): “In contrast to face-to-face interactions....[users can] take the time to reconsider, edit, and optimize the contents of communication” (p. 423). Additionally, Reinecke et al. (2014) stated that Facebook satisfies users’ need for autonomy because it “provides access to entertaining content anywhere and anytime” (p. 423).

Facebook use has also been viewed from a social capital perspective (e.g., Ellison, Steinfield, & Lampe, 2007; Vitak & Ellison, 2012; Burke, Kraut, & Marlow, 2011). Social capital has been described as “the benefits derived from interaction with one’s social network” (Vitak & Ellison, 2012, p. 244). Researchers generally divide social capital into two types: *bonding* and *bridging*. Bonding social capital is associated with *strong ties* (i.e., ties *binding* small, close-knit groups), whereas bridging social capital is associated with *weak ties* (i.e., ties *spanning* small, close-knit groups) (Granovetter, 1973, p. 1360). Strong tie relationships (those with close family and friends) typically provide emotional and material support, whereas weak tie relationships (those with acquaintances, distant relatives, colleagues, and, in a Facebook context, friends of friends) are more likely to provide informational support such as alternative viewpoints, job leads, and technical advice (Rostila, 2011; Vitak & Ellison, 2012; Luarn, Kuo, Chiu, & Chang, 2015). On Facebook, users can provide emotional support via comments, messages, and posts to a friend’s wall, as well as “one click feedback” (Burke & Kraut, 2016, p. 265) in the form of likes (Vitak & Ellison, 2012; Luarn et al., 2015). However, the real strength of Facebook from a social capital perspective, according to De Meo, Ferrara, Fiumara, and Provetti (2014), lies in the fact that it provides an easy way for users to keep in touch with – and therefore access help from – weak ties. As noted above, weak ties are beneficial not so much for the provision of emotional support as informational support. Vitak and Ellison (2012) found that Facebook users “noted the benefits of broadcasting requests to their entire network in order to solve an information-based problem and described the diversity of their Facebook network as a strength” (p. 252). Thus, according to the social capital perspective, Facebook is a tool that allows users to maintain and increase bonding and bridging social capital, thereby providing them with ready access to emotional and informational support.

The studies described above illustrate how people use Facebook for relationship maintenance, self-presentation, entertainment, and the accessing of social capital. However, although there are considerable benefits to Facebook use, those benefits are intertwined with drawbacks. For instance, while Facebook is a convenient medium for keeping in touch with both strong and weak ties, users have reported feeling “tethered” (Fox & Moreland, 2015, p. 171) to Facebook for this very reason: i.e., they felt obligated to respond to others’ posts and comments in a timely manner, and viewed the maintenance of relationships on Facebook as a never-ending chore (Fox & Moreland, 2015; Niland et al., 2015):

I think Facebook is one more thing that you have to...be accountable for...“Hey, I posted on your Facebook wall. Why didn’t you see it?...Like, why didn’t you read my message?”...[I] already have all these other things that I need to be doing and keeping track of and Facebook is just one more thing you have to be responsive to...it’s kinda like work, like you have to do it. (Fox & Moreland, 2015, p. 171 [an unidentified interviewee])

One of the attractions of Facebook is undoubtedly ‘facestalking’ (Young, 2011) whereby users view others’ profiles undetected. Facestalking can satisfy “social curiosity” (Brandtzaeg, Luders, & Skjetne, 2010, p. 1021), and joint facestalking, whereby a group of users view others’ profiles together, can be a source of entertainment for and bonding between users (Niland et al., 2015). However, another reason for (or consequence of) facestalking is social comparison, whereby users compare their lives to those of other users (Krasnova, Widjaja, Buxmann, Wenninger, & Benbasat, 2013). Social comparison on Facebook can be detrimental to users in that it is associated with envy (Wallace, James, & Warkentin, 2017; Krasnova et al., 2013) and consequent depression (Appel, 2015; Tandoc, Ferrucci, & Duffy, 2015), and can trigger a “feeling of inadequacy” (Niland et al, 2015, p. 132) or “a negative feeling” (Lee, 2014, p. 253) if users perceive their Facebook friends’ lives to be ‘better’ than their own. However, comparison to ‘worse-off others’ may make Facebook users feel sympathy, which, despite being an unpleasant emotion, could actually be beneficial because a) it may remind users of their comparative good fortune and therefore stimulate gratitude, and b) it may increase users’ feeling of social connectedness (Park & Baek, 2018, p. 90).

Facebook’s ‘Like’ button, while allowing users to provide low-level social support, also facilitates unfavourable social comparison. The ‘Like’ button has been referred to as “a yardstick for one’s popularity” (Davey, 2016, para. 4), and Carly Steyer, writing for *HuffPost* (2014), observed that “when there’s a numeric measurement of how well-liked an image is, it’s hard not to compare your own stats to those of your friends” (para. 4).

In summary, the crux of the problem is that there is a conflict between users’ privacy concerns on Facebook and the social needs that drive them to use the site. However, I contend that the choices to use Facebook, to not read the privacy policy, and to minimise use of the privacy settings are not made ‘on a level playing field’: there are five ways in which Facebook tips the balance in its favour.

First, while users may have an uneasy feeling of being monitored by Facebook (Stern, 2018; Castillo, 2017), it is hard for those not familiar with the ‘big data’ phenomenon (i.e., most Facebook users) to understand exactly what is going on in terms of Facebook’s data gathering and collation practices (Hull, 2015). Yes, Facebook does allude to these practices in its privacy policy, but its privacy policy can best be described as written in general terms (Meyer, 2018), and those trying to understand Facebook’s privacy practices are further confounded by the fact that Facebook’s data-gathering methods and privacy policy are constantly changing: Facebook has been described as “a moving target” (Debatin, Lovejoy, Horn, & Hughes, 2009, p. 103). In any case, many users do not take the time to read websites’ privacy policies (Solove, 2013; Lawler, Molluzo, & Doshi, 2012; McGrath, 2011) including Facebook’s (Grimmelmann, 2009). This is partly because of the way the policies are written (Wauters, Donoso, & Lievens, 2014), partly because of their length (Obar

& Oeldorf-Hirsch, 2018), and partly because users are eager to get on with what they came to the website to do (Obar & Oeldorf-Hirsch, 2018). Some website users take the mere existence of a privacy policy as a good sign (Waldman, 2016; Solove, 2013; Smith, 2014). However, users who DO take the trouble to read Facebook's privacy policy will be confronted with a purportedly user-friendly policy that, in actuality, presents Facebook's practices in an unclear manner (faux-friendly, vague, oblique, and misleading) (Meyer, 2018; Hans 2012; Hull, 2015), and these users may therefore underestimate the extent to which Facebook is monitoring them. Also, users who wish to shield themselves from Facebook's data-gathering practices may not know how to do so in terms of, for instance, installing tracker blocking (aka 'ad blocking') – and other privacy-enhancing – browser extensions (Narayanan & Reisman, 2017, p. 6; Taylor, 2019).<sup>1 2</sup>

Second, Facebook takes advantage not only of the "information asymmetry" (Hull, 2015; Khan, 2018) described above, but also of cognitive limitations and biases to ensure that users make non-rational privacy-related decisions on the site. It has been found that although Facebook users (along with users of all SNS) profess to have privacy concerns, they do not always act in accordance with these concerns (e.g., Hughes-Roberts, 2013; Reynolds, Venkatanathan, Goncalves, & Kostakos, 2011; Hallam & Zanella, 2014; Taddicken, 2014). This "dichotomy between privacy attitude and privacy behaviour" (Kokolakis, 2017, p. 123) is known as the privacy paradox. The privacy paradox was first noted and researched in an e-commerce context (Kokolakis, 2017), with Acquisti and Grossklags (2005) proposing that "[consumers'] decision process with respect to privacy is affected and hampered by multiple factors [including]...incomplete information, bounded rationality, and systematic psychological deviations from rationality" (p. 26). The authors defined "bounded rationality" as "our [limited] ability to acquire, memorize, and process all relevant information, [making us reliant] on simplified mental models, approximate strategies, and heuristics" (p. 27), and listed "hyperbolic discounting" and "optimism bias" (aka 'optimistic bias') as examples of "systematic psychological deviations from rationality" (p.27). Hyperbolic discounting theory "suggests...that people have a systematic bias to overrate the present over the future" (Acquisti & Grossklags, 2005, p. 31), thus "discount[ing]...future costs or benefits" (Xu, 2012, p. 1088), and the term 'optimistic bias' refers to people's tendency "to assign a higher probability for an event with a positive outcome but assign a lower probability

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1 While some internet users object to online advertisements because they can be intrusive and annoying (An, 2016), others object not to the advertisements themselves but to the practice of tracking for the purpose of targeted advertising, as this comment on a blog post entitled "Are ad blocking browser extensions killing the internet?" (Smith, 2011) indicates:

A lot of us don't care if ads are showing on a web page! What we care about is these so called trackers who [think] they have a right to know [our] every move [online]! This has nothing to do with showing ads! This has to do with invasion of [one's] privacy! [And] we will do what we have to [to] stop the invasion! So if people [want] the ad blockers gone, get rid of the trackers! (R, 2017)

Internet users may also object to online ads because they can be a security threat, or because they can make web pages take longer to load (An, 2016; Taylor, 2019).

2 Firefox, for instance, has an extension called "Facebook Container", designed to "[prevent] Facebook from associating information about your activity on websites outside of Facebook to your Facebook identity" (Firefox, 2018, para. 6).

for an event with an unfavorable outcome” (Xu, 2012, p. 1083). Some researchers have applied these concepts to an SNS context (e.g., Xu, 2012; Hallam & Zanella, 2016; Metzger & Suh, 2017; Kim & Hancock, 2015; Debatin et al., 2009; Wauters et al., 2014), with Xu (2012) arguing that “due to the effect of optimistic bias, [SNS] users...tend to magnify the degree of control involved in the release of their personal information, while they often underestimate the degree of information access by others” (p. 1101). Optimistic bias is particularly relevant in an SNS context because the “networked” nature of privacy therein (Metzger & Suh, 2017, p. 205) ensures that users do not have complete control over the dissemination of their information, and must therefore place a certain amount of trust in their fellow users to keep their information safe (Metzger & Suh, 2017; Xu, 2012). Metzger and Suh (2017) also suggested that hyperbolic discounting may play a part in Facebook users’ “risky privacy behavior” (p. 227), as “the benefits of sharing information in [SNS] (convenience, social perks, peer pressure, etc.) are more psychologically proximal, whereas the risks of disclosure are more distal” (p. 227: *authors’ brackets*). Regarding information asymmetry/incomplete information and bounded rationality, Wauters et al. (2014) argued that because “searching for information costs time and energy” (p. 10), and “our [ability] to...process information [is] limited” (pp. 9-10), SNS users are not able to make informed privacy-related decisions.

Third, some writers claim that Facebook’s interface is not neutral: the interface entices users to ‘share’ (<https://www.facebook.com>) and discourages use of the privacy settings (Waldman, 2016; Jones, 2010; Light & McGrath, 2010). Not only are the privacy settings hidden, but they are cumbersome and not intuitive to use (Stern & Kumar, 2014; Watson et al., 2015; Hull, 2015; Madejski, Johnson, & Bellovin, 2011; Liu, Gummadi, Krishnamurthy, & Mislove, 2011). As is the case with users who do not read the privacy policy, users may want to get on with sharing or browsing on Facebook instead of taking the time to configure their privacy settings (Light & McGrath, 2010). In contrast, Facebook’s interface invites sharing and makes it easy to do so (Light & McGrath, 2010). Kehr, Kowatsch, Wentzel, and Fleisch (2015) found that online interfaces designed “to elicit positive affect” (p. 626) (i.e., to trigger pleasant emotions) both increased user trust in the provider and caused users to “override” (p. 627) privacy concerns in favour of self-disclosure. Furthermore, the authors maintained, this process may be unconscious on the user’s part. Although the authors’ research did not involve SNS, they speculated that SNS users could fall victim to the “affect-eliciting newsfeeds on [SNS]” (p. 627). Waldman (2016) similarly asserted that Facebook “leverages” users’ trust in the platform and other users to “nudge us to share” on News Feed, and “because Facebook uses trust-based design, users may be confused about the privacy effects of their behaviour” (p. 193).

Fourth, according to Sean Parker (2017), the first president of Facebook (Allen, 2017), Facebook was deliberately designed to be addictive.

The thought process that went into building these applications, Facebook being the first of them...was all about: 'How do we consume as much of your time and conscious attention as possible?'...And that means that we need to sort of give you a little dopamine hit every once in a while, because someone liked or commented on a photo or a post or whatever. And that's going to get you to contribute more content, and that's going to get you...more likes and comments....It's a social-validation feedback loop...exactly the kind of thing that a hacker like myself would come up with, because you're exploiting a vulnerability in human psychology...The inventors, creators – it's me, it's Mark [Zuckerberg], it's Kevin Systrom on Instagram, it's all of these people – understood this consciously....And we did it anyway. (Parker, as cited in Allen, 2017, para. 2)

There is no doubt that Facebook addiction is real (Caci, Cardaci, Scrima, & Tabacchi, 2017; Marino, Finos, Vieno, Lenzi, & Spada, 2018; Koc & Gulyagci, 2013; Chen & Kim, 2013), and research has shown that loneliness (Shettar, Karkal, Kakunje, Mendonsa, & Chandran, 2017), low self-esteem (Baturay & Toker, 2017; Blachnio, Przepiorka, & Pantic, 2016), low self-control (Blachnio & Przepiorka, 2016), anxiety (Koc & Gulyagci, 2013), and depression (Hong, Huang, Lin, & Chiu, 2014) are associated with Facebook addiction.

Fifth, and this point is related to the above point, Facebook has become an intrinsic part of users' daily lives. Its use for many is ritualised, habitual, and a part of daily routines (Debatin et al., 2009; Giannakos, Chorianopoulos, Giotopoulos, & Vlamos, 2013; Gwebu, Wang, & Guo, 2014; Mouakket, 2015). As Luedtke (2003) stated: "SNS deeply penetrate their users' everyday life and, as pervasive technology, tend to become invisible once they are widely adopted, ubiquitous, and taken for granted" (as cited in Debatin et al., 2009, p. 83). Debatin et al. (2009) agreed in relation to Facebook, noting that "interviewees tended to underestimate Facebook's actual importance to them. This can be seen as an expression of the level of Facebook's integration into students' lives: A truly pervasive technology with a high level of gratification, Facebook has become an almost invisible part of students' everyday life" (p. 101). Because Facebook is so deeply entrenched in users' lives, the option of giving it up is not realistic for many who have Facebook-related privacy concerns (Blank, Bolsover, & Dubois, 2014).

## 1.2 Facebook in context

Facebook users' privacy concerns are part of a bigger problem: the privacy concerns of users of all social media including SNS, and of the internet as a whole. While Facebook is the most popular social media platform worldwide, it is but one of many. Social media, in turn, are but one manifestation of Web 2.0 and the whole big data phenomenon.

In 2008, boyd and Ellison defined SNS (which they called “social network sites”) as “web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system” (p. 211). According to the authors, SixDegrees, launched in 1997, was the first website to combine these three features, and was therefore the first SNS. It was followed by, among other SNS, Friendster (launched in 2002), MySpace (launched in 2003), and Facebook (launched in 2004).

Because of the large number of teenagers using emergent SNS in the US, a major SNS-related privacy concern in that country at the time was the risk of sexual predation (Lynn, 2009, pp. 14-15). However, Ybarra and Mitchell (2008) found that SNS did not put teenagers at high risk of sexual predation: instead, teens were at far greater risk of sexual predation in the contexts of chat rooms and IM (instant messaging).<sup>3</sup> In 2006, Barnes, as well as Acquisti and Gross, highlighted a (then) new angle on SNS-related privacy issues: the privacy paradox. Barnes (2006) observed that teenagers and university students revealed large amounts of personal information on SNS, and were then surprised when “parents, future employers, and university officials” (*Public versus private boundaries*, para. 6) read their entries. Similarly, Acquisti and Gross (2006) “documented significant dichotomies between specific privacy concerns and actual information revelation behavior” (p. 21) on Facebook. Barnes (2006) and Acquisti and Gross (2006) also expressed concern over user-corporate privacy issues on early SNS, with Barnes (2006) asserting that “marketers who target teen consumers can use stated, personal information gathered from social networking sites for purposes other than what users intend” (*Privacy issues*, para. 5), and Acquisti and Gross (2006) similarly noting that “misunderstanding or ignorance of...Facebook’s treatment of personal data are...very common” (p. 21). Thus, these early studies had begun to identify an SNS-related privacy paradox, as well as user-user and user-corporate privacy concerns on SNS.

Social media have been defined as “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content” (Kaplan & Haenlein, 2010, p. 61). SNS are considered to be only one form of social media, the others being “blogs (e.g., Blogger and WordPress), microblogs (e.g., Twitter and Tumblr), social news (e.g., Digg and Reddit), social bookmarking (e.g., Delicious and StumbleUpon), media sharing (e.g., Instagram and YouTube), wikis (e.g., Wikipedia and Wikihow), question-and-answer sites (e.g., Yahoo! Answers and Ask.com) and review sites (e.g., Yelp, TripAdvisor)” (Gandomi & Haider, 2015, p. 142). SNS, along with other

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3 Chat rooms and IM were popular modes of online communication at the time. IM originated in the 1960s and is still hugely popular today, whereas chat rooms (“digital forum[s] where multiple people connect...for the purpose of discussing a shared interest” [De Hoyos, 2018, para. 4]) originated in the 1970s and reached the height of their popularity in the 1990s: according to De Hoyos (2018), “in 1997, at the height of the chat room craze, AOL hosted 19 million [chat rooms]” (para. 5).

forms of social media, encapsulate both the user benefits and privacy risks of Web 2.0.

Web 2.0 is conceptualised as the “Web-as-participation-platform”, as opposed to Web 1.0, the “Web-as-information-source” (Song, 2010, p. 251). The advent of Web 2.0 has given us new ways to communicate with one another (Song, 2010), but it has also raised new online privacy issues (Caviglione & Coccoli, 2010). Prior to Web 2.0, privacy issues related largely to user-corporate interaction, but now they relate equally to user-corporate and user-user interaction. Now, users have to worry about the loss of their privacy to other users, while the threat of loss of privacy to corporations grows ever larger due to new data gathering tools, the collation of databases, and the application of algorithms to data to glean new facts from the information available about us. Corporate data gathering, collation, analysis, and consequent action comprise the *big data phenomenon* (Herschell & Miori, 2017; Schwartz, 2011; Sivarajah, Kamal, Irani, & Weerakkody, 2016; Gandomi & Haider, 2015; Krasavac, Sodic-Aleksic, & Petkovic, 2016).

Central to the big data phenomenon are data, gathered through users’ networked activity. *Big data* have been defined as “high-volume, high-velocity and/or high-variety information assets” (Gartner, 2019). The terms *volume*, *velocity*, and *variety* are often used to describe big data, and refer, respectively, to “the magnitude of the data”, “the rate at which data are generated, and the speed at which it should be analyzed and acted upon”, and “the structural heterogeneity of a dataset” (Gandomi & Haider, 2015, p. 138). Big data, “when appropriately managed, processed and analyzed, have the potential to generate new knowledge [providing] innovative and actionable insights for businesses” (Sivarajah et al., 2016, p. 264). However, despite its corporate advantages, the big data phenomenon is a growing concern from a privacy viewpoint (Herschell & Miori, 2017; Matzner, 2014). As networked devices become more pervasive, the volume of user data is growing exponentially (Krasavac et al., 2016). All networked devices contribute to the accumulation of user data: these include screen-based devices such as computers, tablets, and smartphones, as well as “smart devices” including fitness trackers and automated home appliances, collectively known as “The Internet of Things” (IoT) (Thierer, 2015). The more ‘connected’ we are via the devices we incorporate into our lives, and the more we live our lives online via Web 2.0 enabled social media, the more vulnerable we are to corporate and fellow-user breaches of privacy (Thierer, 2015; Caviglione & Coccoli, 2010).

Third-party website tracking for the purpose of ad targeting, sometimes referred to as *online behavioural advertising* (OBA) (e.g., European Advertising Standards Alliance, 2016),<sup>4</sup> is rife across the internet

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4 According to the European Advertising Standards Alliance (2016): “OBA describes a technique to serve online advertisements that are targeted to the user’s potential interests. In order to be able to target ads, ad tech companies try to predict a user’s interests and preferences based on the user’s past websites viewing record or mobile app use....This information about viewing behaviour is collected over time and across multiple web domains or mobile apps” (p. 11).

(Narayanan & Reisman, 2017; Varnali, 2019): Google has traditionally been the market leader in this type of online surveillance, but Facebook is effectively challenging its monopoly (Englehardt & Narayanan, 2016, section 5.1; Weinberg, 2018).<sup>5</sup> In addition to being the major third-party web trackers worldwide, Google and Facebook also gain user information from their own platforms, including Gmail (in Google's case) and the Facebook SNS. Facebook arguably has the advantage over Google in this respect, because its status as the most popular SNS worldwide, together with its requirement that users provide their real names when registering for the site, has allowed it to compile an extensive database of personally identifiable information about its users. Commentator Tama Leaver (2014) described Facebook's "real names" policy as "vital to the financial success of Facebook" and as "a business strategy masquerading as a moral decision about authentic identity" (Leaver, 2014).

In return for supplying their personal information, users can use Facebook free of charge.

The thing we sometimes forget...is that Facebook is a free tool we can use to connect with over 1 billion people. I have a tough time wrapping my head around that. We all do. And it is free!...[T]he functionality of this free tool – mostly – is beyond stunning. A free platform with over 1 billion users, where you can store videos and photos and updates that would cost hundreds of bucks for me to store, via the cloud, and it is free. (Biddulph, 2017)

However, Facebook users – and, in fact, users of all commercial social media – would be prudent to heed this admirably expressed warning from Andrew Lewis (aka *blue\_beetle*) in 2010: "If you are not paying for it, you're not the customer; you're the product being sold" (as cited in Taylor, 2018, para. 3). Commentator Joel Stein (2011) concurred: "You know how everything has seemed free for the past few years? It wasn't. It's just that no one told you that instead of using money, you were paying with your personal information" (Stein, 2011, para. 7).

It should be noted that neither Facebook nor Google sells personally identifiable information to third parties (Rogers, 2018; Popken, 2018) (as opposed, in Facebook's case, to *sharing* it with them and *buying* it from them):<sup>6</sup> they hoard user information in order to retain their market edge in targeted advertising (Rogers, 2018) (for this reason, both these companies have been referred to as "walled gardens" [de Poulpique, 2017]), and thus need to be differentiated from games, apps, and websites whose primary or secondary source of income is from the sale of personally identifiable user data.

5 Google and Facebook also dominate the global online advertising market, together "account[ing] for more than 60% of global online ad revenues" in 2017 (Statistica, 2017, para. 2).

6 Facebook "shares" users' personally identifiable information with its "family of companies", and from mid 2013 to mid 2018, Facebook also purchased personally identifiable information from third party brokers (Reitman, 2013; Facebook Help Centre, 2019c).

The Facebook corporation's major weapon in the battle for supremacy in the online advertising industry is the Facebook SNS itself, but among its other weapons, described in *Chapter 2*, are social plugins and Single Sign-On (once known as 'Facebook Connect'), both of which allow Facebook to track users outside of the site. Uruena, Munoz, and Larrabeiti (2014) noted, in relation to Facebook Connect, that "the...huge popularity of Facebook...is both its main selling point, but also its main drawback from the privacy point of view. In other words, a private enterprise such as Facebook is able to know, not only personal information of ours and our friends, but also all the Facebook Connect-enables web sites we visit each day, in real time" (p. 17). Social plugins and Single Sign-On (SSO) are not unique to Facebook, however: commentator Baratunde Thurston (2015), who uses Twitter's SSO to create an account with and log into his chosen apps, likened Twitter to "the school janitor with a fat ring of jangling keys to various doors in my online life" (Thurston, 2015, para. 5).

Twitter knows that in February 2011, I signed up for My Pet Monster, and one month later joined UberCab, and one year later gave Instagram access to my Twitter feed. They put a tracker inside me and are learning far more about my habits than what I do on Twitter. (Thurston, 2015, para. 6)

Also key to Facebook's goal of online domination is the Facebook 'family of companies'. In 2012 Facebook purchased Instagram, a photo-sharing platform (Luckerson, 2013), in 2013 it made a failed bid for Snapchat, a popular photo-messaging app (Kelly, 2017), and in 2014 it bought the messaging app WhatsApp for a record 19 billion dollars US (Covert, 2014). Also, in 2014, despite negative user backlash, Facebook forced users who wished to keep using its own messaging platform, Messenger, which had previously been integrated into Facebook's interface, to download it as a separate application (Chowdhry, 2014). Why did Facebook purchase, or attempt to purchase, platforms with similar functionality to its Messenger app or to Facebook itself, and separate Messenger from the core Facebook interface? Some commentators believe that Facebook is trying to gain control of the social media and social messaging market by purchasing as many of these platforms as it can, and that by making Messenger a standalone platform, it may attract non-Facebook users and even "[persuade them] to hit that button to upgrade to a full Facebook account" (Gibbs, 2016, para. 12). And the ploy is working: four out of the six most popular social media and social messaging platforms worldwide are owned by the Facebook corporation. In July 2019, Facebook itself was the most popular platform worldwide with 2.375 billion MUA (Monthly Active Users), WhatsApp was the third most popular with 1.6 billion MUA, Messenger was next with 1.3 billion MUA, and Instagram was sixth with one billion MUA (Clement, 2019). In a twist to this strategy, Facebook is in the process of integrating WhatsApp, Instagram, and Messenger "under the hood" (Winder, 2019, para. 1), with a planned completion date of late 2019 – early 2020 (Isaac, 2019). The planned integration will keep the apps as separate entities

but will enable users to communicate between them. The Facebook corporation has been collating and cross-referencing data from users of these platforms for years (Instagram Help Centre, 2019; WhatsApp FAQ, 2019; Facebook, 2018), but user-corporate privacy concerns are likely to intensify after the integration (Isaac, 2019; Winder, 2019, Cyphers, 2019).

In the preceding paragraphs, I have contextualised Facebook's data-gathering practices by clarifying that Facebook is not the only company to compromise user privacy by tracking users online. So too, Facebook is not the only SNS – or, more broadly, social media platform – found to exert both positive and negative effects on users. A UK study (Royal Society for Public Health [RSPH], 2017) found that out of five social media platforms (Facebook, Twitter, YouTube, Instagram, and Snapchat), only one (YouTube) actually had a “net positive” effect on users' psychological wellbeing, whereas the other four had a “net negative” effect, Instagram and Snapchat having the worst effect (p. 18). The study found that the negative effects of social media included increased anxiety and depression, sleep deprivation, poor body image, cyberbullying, and FoMO (Fear of Missing Out), and the researchers even went so far as to recommend “the introduction of a pop-up heavy usage warning on social media” (p. 24). However, the study also found positive effects of social media use, including “emotional support and community building” (p. 14), “self-expression and self-identity” (p. 14), and “making, maintaining and building upon relationships” (p. 16).

Other studies have confirmed the findings of the RSPH study (2017) regarding the benefits of social media use. For instance, it has been found that “supportive interaction” on SNS (including but not limited to Facebook) increased users' “sense of community” and “life-satisfaction” (Oh, Ozkaya, & LaRose, 2014, p. 69), and that social media facilitated the building of bridging and bonding social capital (Phua, Jin, & Kim, 2017). However, a number of studies have also found an association between social media use and anxiety (Vannucci, Flannery, & Ohannessian, 2017), depression (Lin et al., 2016), sleep disturbance (Levenson, Shensa, Sidani, Colditz, & Primack, 2016), body image concerns (Cohen, Newton-John, & Slater, 2017), cyberbullying (Lowry et al., 2016), emotional exhaustion (Lim & Choi, 2017), and FoMO (Przybylski, Murayama, DeHaan, & Gladwell, 2013). Additionally, it has been found that the way social media platforms are used may be related to some symptoms of ill-being: Shensa et al. (2017) suggested that it may not be the time spent on social media per se that increases the risk of user depression, but the frequency of access, and Primack et al. (2017) found that the more social media platforms an individual used, the more likely he or she was to suffer from anxiety and/or depression.

I mentioned above that Facebook is addictive. However, Facebook addiction is part of a bigger picture. Receiving much media and academic attention at this point in time are several interrelated phenomena: social media addiction (DeJong, 2014), FoMO (Fear of Missing Out) (Przybylski et al., 2013; Elhai, Levine,

Dvorak, & Hall, 2016), smartphone addiction (Gokcearslan, Mumcu, Haslaman, & Cevik, 2016), and smartphone induced distraction (Duke & Montag, 2017). Social media addiction and smartphone addiction are considered subsets of “internet addiction” (Longstreet & Brooks 2017; Lin et al., 2015), a term coined by Ivan Goldberg in 1995 (Fisher, 2010).

Social media addiction, sometimes referred to as “problematic social media use” (e.g., Shensa et al., 2017), has been defined as “being overly concerned about social media, driven by an uncontrollable motivation to log on to or use social media, and devoting so much time and effort to social media that it impairs other important life areas” (Andreassen, Pallesen, & Griffiths, 2017, p. 287), and is associated with depression (Shensa et al., 2017), low life-satisfaction (Sahin, 2017), and FoMO (Blackwell, Leaman, Tramosch, Osborne, & Liss, 2017).

FoMO (Fear of Missing Out) was first researched in an academic context by Przybylski et al. in 2013. FoMO has been defined as “a pervasive apprehension that others might be having rewarding experiences from which one is absent” (Przybylski et al., 2013, p. 1841) and “is characterized by the desire to stay continually connected with what others are doing” (Przybylski et al., 2013, p. 1841). FoMO is not experienced solely through social media use (Milyavskaya, Saffran, & Koestner, 2018; Przybylski et al., 2013), although social media use can exacerbate users’ FoMO because it allows them to be more informed about social activities that their friends are engaged in (Milyavskaya et al., 2018). Dossey (2014) stated that: “Social media that provide the constant opportunity to be ‘liked’, to have friends and followers, and which provide the continual possibility for a comparison of one’s status, such as Facebook, LinkedIn, and Twitter, are especially likely to promote FoMO” (p. 69). FoMO “is negatively associated with both general mood and overall life satisfaction” (Przybylski et al., 2013, p. 1847), and has also been associated with “fatigue, stress and decreased sleep” (Milyavskaya et al., 2018, p. 725), as well as smartphone addiction (Elhai et al., 2016).

Smartphone addiction, sometimes referred to as “problematic smartphone use” (e.g., Demirhan, Randler, & Horzum, 2016; Elhai et al., 2016), has been defined as “the excessive use of smartphones in a way that is difficult to control...[thereby affecting] other areas of life in a negative way” (Gokcearslan et al., 2016, p. 640). Loneliness (Darcin, Kose, Noyan, Nurmedov, Yilmaz, & Dilbaz, 2015) and social anxiety<sup>7</sup> (Darcin et al., 2015; Lee, Chang, & Cheng, 2014) have been found to be associated with smartphone addiction, but so have social self-efficacy<sup>8</sup> (Chiu, 2014) and extraversion<sup>9</sup> (Demirhan et al., 2016). These seemingly disparate

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7 *Social anxiety disorder* has been defined as “an intense fear of social situations in which the person may be scrutinized by others” (Leichsenring & Leweke, 2017, p. 2255).

8 *Social self-efficacy* is measured by the ability to “[maintain]...social relationships, [cooperate], and manage...interpersonal conflicts” (Chiu, 2014, p. 52) and “is significantly correlated to low social anxiety...[and] loneliness” (Chiu, 2014, p. 50).

9 *Extraversion* is one of the *Big 5* personality traits (Demirhan et al., 2016, p. 822). Extraverts are conceptualised as being “sociable, forceful, energetic, adventurous, enthusiastic...and...warm” (Demirhan et al., 2016, p. 827).

correlates of smartphone addiction can perhaps be explained by the fact that smartphones can be used for both social and non-social purposes (Elhai, Levine, Dvora, & Hall, 2017). The social features of the smartphone (e.g., social media and messaging applications) are of benefit to those who enjoy socialising (Chui, 2014), and also to those who become anxious with face-to-face contact, as they may experience less anxiety communicating via smartphone (Elhai et al., 2017; Darcin et al., 2015; Lee et al., 2014). Also, anxious individuals may find that non-social smartphone use (e.g., gaming and web browsing) distracts them from their anxiety (Elhai et al., 2017). Interestingly, researchers have found that smartphone addiction is, for some users, not related solely to the smartphone's applications and internet connectivity, but also to "the need for touch" (Elhai et al., 2016; Lee et al., 2014): "One addictive aspect of smartphone use is the pleasure derived from tactile sensations in holding the phone, and the autotelic touch...required in completing tasks with one's fingers" (Elhai et al., 2016, p. 510). Notably, Duke and Montag (2017) found that "a common personality type...underlies both Internet and smartphone addiction, with the greatest predictor of addiction being low levels of self-directedness" (p. 91). Similarly, Gokcearslan et al. (2016) tied "a low level of self-regulation skills" (p. 646) to smartphone addiction, and Cho, Kim, and Park (2017) found "self-control" to be "an important factor in the prevention of smartphone addiction" (p. 624).<sup>10</sup>

Hand in hand with smartphone addiction goes smartphone-induced distraction. Duke and Montag (2017) observed that "smartphones can distract us to a point where we are unable to achieve a state of flow at work...Flow describes a state in which we are fully absorbed by an activity, forgetting about space and time, whilst being very productive" (p. 90). Smartphone notifications continually break users' concentration, and "smartphones may facilitate the development of a 'checking habit', i.e. brief repeated inspections of the phone for new content" (Duke & Montag, 2017, p. 91). Inappropriate smartphone use has been linked to, amongst other things, inattentive and possibly dangerous driving (Sambonmatsu, Strayer, Biondi, Behrends, & Moore, 2016; Cazzulino, Burke, Muller, Arbogast, & Upperman, 2014) as well as impaired academic achievement in university students (Lepp, Barkley, & Karpinski, 2014; Hawi & Samaha, 2016) and secondary school students (Beland & Murphy, 2016).

In fact, France has banned smartphones in primary and lower secondary schools (Wolfe, 2018), the Canadian province of Ontario has banned smartphones in public school classrooms "during instructional time" (Jones, 2019), and the Victorian government will ban smartphones in state schools "from first to last bell" from 2020 (ABC News, 2019). In all three cases, the distraction of students from their work was cited as one reason for the ban. Also, a number of Silicon Valley employees reportedly send their children to the local Waldorf school where smartphones and tablets are banned from classrooms in order to "remove the

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<sup>10</sup> Smartphone addiction can even cause physical harm: links between smartphone addiction and the development of neck disability (AlAbdulwahab, Kachanathu, & AlMotairi, 2017) and psoriatic arthritis of the hand joints (Megna et al., 2017) have been found.

distraction of electronic media and encourage stronger engagement between teacher and pupil during lessons” (Jenkin, 2015, para. 11). Referring to this fact, commentator Paul Lewis (2017), writing for *The Guardian*, observed that:

It is revealing that many...younger technologists are weaning themselves off their own products, [and] sending their children to elite Silicon Valley schools where iPhones, iPads and even laptops are banned. They appear to be abiding by a Biggie Smalls lyric from their own youth about the perils of dealing crack cocaine: never get high on your own supply. (Lewis, 2017, para. 13)

“Multiplication, division, addiction, and distraction”, anyone?

This research is based in an Australian context, and examines the following hypotheses: The demographic factors of age, gender, education, and cultural background help shape both the Facebook-related privacy concerns and social needs of Facebook users. These concerns and needs, in turn, shape users’ privacy- and social needs-related behaviours on Facebook. Users’ privacy concerns are also partly dependent on their perceptions both of what the Facebook corporation ‘knows’ about them and with whom it shares their data.

In *Chapter 2* I address the definition of privacy, privacy taxonomies, the privacy paradox and privacy calculus, and privacy concerns in relation to Facebook. In *Chapter 3* I explore the social needs aspect of Facebook use, drawing on psychological theory together with existing research on social needs on SNS. In *Chapter 4* I outline the research design and give the background to the hypotheses. In *Chapters 5 and 6* I analyse the study data, and in *Chapter 7* I discuss the results.

## 2. BACKGROUND – PRIVACY CONCERNS

In this chapter I consider definitions and taxonomies of privacy, highlight key privacy issues in relation to SNS (the privacy paradox and privacy calculus, contextual integrity, and the non-neutrality of web technology), relate Facebook's history of privacy controversies, overview the twelve user-user and user-corporate privacy concerns listed in the survey, and lastly, I outline suggested approaches to privacy concerns on SNS.

### 2.1 Definition of privacy

Many authors have difficulty defining the term *privacy*. Cooper, Faseruk, and Johnson (2010) claimed that “there is no clear consensus of what constitutes privacy” (p. 2), and Solove (2006) stated that the concept of privacy “is in disarray [and n]obody can articulate what it means” (p. 478). A number of definitions of privacy, however, have one thing in common: they are based on the concept of *control* (Houghton & Joinson, 2010; Introna, 1997). A classic and oft-quoted control-centred definition of privacy is Westin's (1967): “the claim of individuals, groups, or institutions to determine for themselves when, how, and to what extent information about them is communicated to others” (as cited in Introna, 1997, pp. 262-263). Similarly, Fried (1974) defined privacy as “control over knowledge about oneself” (as cited in Introna, 1997, p. 262), and Burgoon et al. (1989) defined privacy as “the ability to control and limit physical, interactional, psychological and informational access to the self or one's group” (p. 132). Finally, Ramsey (2010) differentiated between the five senses of privacy, one of which was: “control over the flow of [our personal] information” (p. 288) (the others being: “freedom from interference and observation” [p. 289], “the maintenance of a sphere of inviolability around each person” [p. 290], “our need for solitude” [p. 290], and “a shared life [with loved ones, requiring] times of invisibility to the rest of the world” [(p. 291)]. In this thesis, I favour Tomescu and Trofin's (2010) control-centred definition of privacy as “the exercise of an authentic option to withhold information on one's self” (p. 308), because the concept of an *authentic* option to withhold information on one's self is particularly relevant in internet contexts, including Facebook.<sup>11</sup>

### 2.2 Privacy taxonomies

Some writers have endeavoured to classify the different types of privacy: Solove's (2006) and Lipton's (2010)

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<sup>11</sup> In *Chapter 1* I argue that users do not have an authentic option to withhold information about themselves on Facebook, in part because they most likely do not fully understand what happens to their information on the site (*information asymmetry* and *cognitive limitations*), and an option cannot be authentic without access to and an understanding of the relevant information. I also argue that the non-neutrality of Facebook's interface, the addictive nature of Facebook, and the fact that Facebook is an intrinsic part of users' lives, further erode the authenticity of users' decision to disclose information on the site.

privacy taxonomies are particularly relevant to this thesis. Solove (2006) proposed four categories of user-corporate privacy-threatening conduct: “information collection” (“surveillance” and “interrogation”); “information processing” (“aggregation”, “identification”, “insecurity”, “secondary use”, and “exclusion”); “information dissemination” (“breach of confidentiality”, “disclosure”, “exposure”, “increased accessibility” of information, “blackmail”, “appropriation”, and “distortion of information”); and “invasions” (“intrusion” and “decisional interference”) (pp. 490-491). Later, Lipton (2010), writing with particular reference to Web 2.0, proposed five dimensions of privacy: “actors and relationships” (p. 494) (“all those involved in a privacy incursion...[and] the relationships between those actors” [p. 494]); “conduct” (p. 498) (“the types of activities individual actors may engage in that threaten privacy in one way or another” [p. 498]); “motivations” (p. 501) (motivations need to be taken into account, and may include those that are “laudable...in a democratic society”, “innocent or...careless” or “for financial profit” [pp. 502-503]); “harms and remedies” (p. 504) (privacy harms in the online world “can include shame, embarrassment, ridicule, humiliation, economic loss, or perhaps even more serious damage to the person by way of physical or psychological harm” [p. 504], and remedies should appropriately fit the harm done); and “the nature and format of...information” (p. 509) (“the substance or content” and “the digital file formats” of the information [p. 509]). Lipton’s dimensions of internet privacy differ from Solove’s in that she covers both user-user and user-corporate privacy breaches, and considers the motivations of actors, as well as the need for remedies.

### 2.3 Privacy paradox and privacy calculus

Key to this thesis are the concepts of the *privacy paradox* and the *privacy calculus*. Since the advent of e-commerce in the late twentieth century, and prior to the immense popularity of SNS, privacy issues have concerned online consumers (Culnan & Armstrong, 1999). The e-commerce literature has consistently referred to the privacy calculus, whereby consumers weigh up the costs (loss of privacy) and benefits (material gain and convenience) of supplying personal information to firms (e.g., Dinev & Hart, 2006), as well as the privacy paradox, whereby “an apparent dichotomy [exists] between privacy attitudes and actual behavior” (Acquisti & Grossklags, 2005, p. 26) on e-commerce websites. The privacy calculus and privacy paradox concepts have also been applied to SNS phenomena. The privacy paradox in relation to SNS maintains that users display puzzling behaviour in that they claim to have privacy concerns on SNS, yet appear to freely divulge their information on these platforms (e.g., Hallam & Zanella, 2017), whereas the privacy calculus claims that users weigh up the costs (once again, loss of privacy, but to other SNS users as well as to SNS providers) and benefits (including the satisfaction of social needs) of disclosing information on SNS (e.g., Dienlin & Metzger, 2016).

## 2.4 Contextual integrity

Nissenbaum (2004) defined *contextual integrity* as a violation of “norms of information flow” (p. 137), and argued against “the tendency to treat information dichotomously as either private or non-private, with no middle ground” (Hull, Lipford, & Latulipe, 2011, p. 291). Instead, she claimed, all information is context-specific: “Personal information revealed in a particular context is always tagged with that context and never ‘up for grabs’ as other accounts would have us believe of public information or information gathered in public places” (Nissenbaum, 2004, p. 143). Nissenbaum used the example of the US initiative of putting public records (such as court records, and birth, death, and marriage records) online to illustrate this point:

Although public records have always been available at the local courthouse, the difficulty of traveling to the courthouse to get them tended to limit their exposure to those with a significant interest in them. Placing records online makes them readily available to those with no connection to the information and no particular interest in it. (Hull et al., 2011, p. 291)

Thus, Nissenbaum argued, the context in which information has been provided should always guide its future use. Pierson and Heyman (2011) called upon Nissenbaum’s (2004) concept of contextual integrity to argue that SNS users are not in a position to make an informed decision about whether and what to disclose on SNS because they do not truly understand what happens to their information in a user-corporate context: specifically, the authors examined “the lack of user awareness regarding cookies” (p. 30). Similarly, Hull et al. (2011) applied Nissenbaum’s concept of contextual integrity to Facebook, arguing that News Feed and Applications should “[make the] flows of information more transparent to users” (p. 289).

## 2.5 The non-neutrality of web technology

Brey (2000) argued that technology, including “the design features...of software” (p. 11) is biased, not neutral, as is often thought. He gave the example of search engines “which seem to have the innocuous task of helping users quickly find relevant information” (p. 11) to illustrate this point: search engine algorithms, he claimed, “are far from neutral, and are often discriminatory, in giving the highest rankings to sites that are large, popular, and designed by knowledgeable computer professionals. In this way the search algorithms threaten the idea of the Web as a public space, in which everyone has an equal opportunity to let one’s voice be heard” (p.11). Because of the non-neutrality of web technology, Brey (2000) advocated the need for a (then) new ethical approach to computer systems – “disclosive computer ethics” – the function of which is to subject “technological artifacts...[to] moral scrutiny independently from, and prior to, particular ways of using them” (p. 11). When Brey wrote this article Facebook did not exist, but other

authors have expressed the opinion that Facebook's interface seems to encourage maximum user disclosure paired with minimal viewer restriction via its privacy settings (Hull, 2015; Light & McGrath, 2010). Whether or not this anti-privacy/pro-openness bias is deliberate on Facebook's part, it gives Facebook "a moral character" (Light & McGrath, 2010, p. 305).

## 2.6 Facebook's history of privacy controversies

Facebook, by its own admission, is no stranger to privacy controversy in the forms of negative media coverage, adverse user reaction, and lawsuits (Facebook, Inc., 2018). Over the years, both user-user and user-corporate privacy concerns on Facebook have been triggered by changes to the privacy policy and privacy settings, new interface features, and scandals such as the Edward Snowden revelations, the 'emotional contagion study', and the misuse of user data by Cambridge Analytica. Some of Facebook's more controversial innovations include *News Feed* (2006), *Beacon* (2007), *Tag Suggestions* (2010), *Timeline* (2011), and *Graph Search* (2013). News Feed and Timeline, while still a part of Facebook today, required a period of adjustment on users' part because they made users' latest posts (in the case of News Feed) and past posts (in the case of Timeline) more visible to their Facebook friends. Graph Search provoked a mixed reaction due to its uncanny search capabilities, while Tag Suggestions, Facebook's facial recognition software, was, due to privacy concerns, suspended in the EU and Canada for a time. Beacon, which tracked users' commercial activity and used their actions in advertisements to their friends, was also discontinued.

### 2.6.1 News Feed (2006)

On September 5, 2006, Facebook introduced News Feed (Facebook Notes, 2006a). News Feed is described by Facebook as "the constantly updating list of stories in the middle of your home page. News Feed includes status updates, photos, videos, links, app activity and likes from people, [and] Pages and groups that you follow on Facebook" (Facebook Help Centre, 2019e). Although News Feed did not (and does not) violate users' privacy settings, it made users' posts more prominent by placing them on the home page of their Facebook friends' accounts, thus making them the first thing those friends saw when they logged into Facebook. News Feed took users by surprise and some users were embarrassed when their information was unexpectedly displayed in this way (boyd, 2008). Katherine Losse, who worked at Facebook's headquarters at the time, described the scene at the office on the morning that News Feed was launched:

E-mail after e-mail of the thousands we received that day told graphically of the betrayal and evisceration the users felt....Phrases like 'I feel violated' and 'You've ruined my life' were common, and the emails were long and passionate, filled with all the personal details and drama that they felt

Facebook had exposed without warning. 'I just broke up with my girlfriend yesterday and thanks to your "News Feed" everyone on campus saw a story about it this morning! How would you like it if people started publishing stories about your life without telling you?' one user howled. (Losse, as cited in Driscoll, 2012)

Within 24 hours, a number of anti-News Feed groups had been set up on Facebook, the largest of which had garnered 284,000 protesters (Schmidt, 2006). Zuckerberg responded with a Facebook blog post titled "Calm down. Breathe. We hear you." (Facebook Notes, 2006b). In this post, he acknowledged users' concerns, but did not give any indication that News Feed would be withdrawn (as indeed it was not). Instead, he counselled users to adjust their privacy settings if they were unhappy with News Feed's exposure of their posts. Despite its 'teething problems', however, News Feed is an integral part of today's Facebook experience (Newcomb, 2016).

#### *2.6.2 Beacon (2007)*

Facebook Beacon, introduced in November 2007, allowed users' actions (such as making a purchase) on 44 of Facebook's partner websites to be posted as "stories" (aka advertisements) on their Facebook profile (Constine, 2018). Beacon was introduced on an opt-out basis, but after user backlash was changed to an opt-in basis (Facebook Notes, 2007), and was discontinued in 2009 in response to a class-action lawsuit in the US (Perez, 2009).

#### *2.6.3 Tag Suggestions (2010)*

In December 2010 Facebook introduced Tag Suggestions (Parr, 2010), which used (and uses) biometric software to recognise and 'tag' the people in photos uploaded by users (Geuss, 2011; Guynn, 2016). Tag Suggestions raised privacy concerns because although users could opt out of it, it was enabled by default, allowing Facebook to collect users' biometric data without their explicit consent (Guynn, 2016). Concern over Tag Suggestions sparked a lawsuit in the US, and suspension of the feature in the EU and Canada (Guynn, 2016; Brook, 2014; Rosenblatt, 2018). In 2018, however, Tag Suggestions was enabled, as an opt-in, in both regions (Facebook Newsroom, 2018a).

#### *2.6.4 Timeline (2011)*

Timeline, introduced in September 2011, replaced Facebook's *Wall* and *Profile* pages (techopedia, 2019). Before the advent of Timeline, users' old posts were archived rather than displayed (techopedia, 2019), but Timeline, as Zuckerberg explained at a news conference on September 22, 2011, would display all users'

posts in reverse-chronological order, becoming “the story of your life” (as cited in Sutter, 2011, para. 5). In other words, users’ old posts, previously hidden by the passage of time, would, with the advent of Timeline, become much easier for others to view. This prompted privacy concerns (Kamdar, 2013a, para. 7), and a number of technology writers advised users to review their every post with a view to deleting or hiding sensitive posts (e.g., Paul, 2011; Jacobsson Purewal, 2012): for avid Facebook users, this was set to be a time-consuming task (Jacobsson Purewal, 2012). Over time, however, Timeline, like News Feed, has become an integral part of Facebook.

#### 2.6.5 Graph Search (2013)

Graph Search, rolled out to US English speaking Facebook users from mid-January 2013 (Facebook Newsroom, 2013a), was “a powerful semantic search engine” (SitePoint, 2015, para. 1) that allowed users to drill down to reveal obscure user content buried by context and the passage of time. Although Facebook assured users that Graph Search respected their privacy settings, revealing nothing to audiences that users had not allowed (Facebook Newsroom, 2013b), commentators expressed concerns about Graph Search because it potentially exposed users’ information to a far greater audience than the one for which it was originally intended (e.g., Kamdar, 2013a; Kamdar, 2013b; Garside, 2013). As was the case with Timeline (e.g., Paul, 2011; Jacobsson Purewal, 2012), a number of commentators advised users to review the privacy settings of their posts, photos, and likes to ensure that they were adequately protected (e.g., Kamdar, 2013c; Nield, 2013). Over the years, “several members of the open source intelligence community built tools” (Cox, 2019, para. 5), including the infamous *Stalkscan* (Verma, 2017), to more effectively harness the capabilities of Graph Search. However, Graph Search was “turned off” (Shu, 2019, para. 1) on June 6, 2019, without an announcement from Facebook. Privacy concerns were rumoured to be the reason (Shu, 2019; Cox, 2019).

#### 2.6.6 Europe versus Facebook (2013)

Commentator David Meyer, writing for *Fortune* in 2019, claimed that: “Facebook[’s] legal woes in Europe over the years have been largely due to the activism of one man: Max Schrems” (para. 1). In 2013 and 2014, Schrems filed two lawsuits, collectively dubbed “Europe versus Facebook” (<http://www.europe-v-facebook.org/index.html>; Bodoni, 2019; Meyer, 2019). The first case targeted, in part, Facebook’s breach of the EU’s “Safe Harbour” agreement. This agreement allowed “the transfer of personal data from the EU to the US” with the proviso that it not “leave the company in control of it” (Murphy, 2015, para. 3). However, ‘whistleblower’ Edward Snowden revealed that Facebook, along with other corporations including Apple, Yahoo, and Microsoft, had allowed the National Security Agency (the United States’ government intelligence

organisation) to have access to – and to conduct mass surveillance of – user data (Greenwald, 2013a; Greenwald, 2013b). On October 6, 2015, the EU’s Supreme Court (the Court of Justice of the European Union [CJEU]) ruled that this surveillance, and Facebook’s complicity, breached EU privacy law (Murphy, 2015). Schrems’ response to the ruling was:

I very much welcome the judgement of the Court, which will hopefully be a milestone when it comes to online privacy. This judgement draws a clear line. It clarifies that mass surveillance violates our fundamental rights. Reasonable legal redress must be possible. The decision also highlights that governments and businesses cannot simply ignore our fundamental right to privacy, but must abide by the law and enforce it. This decision is a major blow for US global surveillance that heavily relies on private partners. The judgement makes it clear that US businesses cannot simply aid US espionage efforts in violation of European fundamental rights. At the same time this case law will be a milestone for constitutional challenges against similar surveillance conducted by EU member states. (Schrems, as cited in Murphy, 2015, para. 19-21)

However, the “Privacy Shield” agreement and “Standard Contractual Clauses” which replaced the Safe Harbour agreement were challenged by Schrems, who argued that they did not solve the problem of US surveillance of EU data, and on October 3, 2017, Schrems won the right to have the case heard by the CJEU for a second time (Schrems, 2016; Schrems, 2017; Orłowski, 2017). The CJEU’s decision on the case is expected in 2020 (DLA Piper, 2019).

The second case was a class action lawsuit, capped at 25,000 claimants with another 55,000 “registered to join the procedures at a later stage” (Gibbs, 2015a, para. 4). The lawsuit focussed on the following user-corporate privacy concerns:

- Data use policy which is invalid under EU law
  - The absence of effective consent to many types of data use
  - Support of the NSA’s ‘PRISM’ surveillance programme
  - Tracking of Internet users on external websites (e.g. through ‘Like buttons’)
  - Monitoring and analysis of users through ‘big data’ systems
  - Unlawful introduction of ‘Graph Search’
  - Unauthorised passing on of user data to external application
- (Schrems, 2014, para. 4: *author’s bullet points*)

The case was originally filed against Facebook in Vienna, Austria, on August 1, 2014 (Prodhan, 2014), but

was passed from court to court till it was finally referred to the CJEU (Meyer, 2016). One of the difficulties faced by Schrems was that class actions were “a relatively novel concept in Europe” (Meyer, 2016, para. 3), and the Austrian courts did not know how to deal with the case. In January 2018, the CJEU ruled that Schrems could not bring a class action against Facebook, but “has the right to personally sue the company for the alleged misuse of his personal data” (Scott, 2018a, para. 2). Following this judgement, Schrems started a non-profit organisation called *none of your business* (noyb), to hold companies accountable for privacy violations, and filed a lawsuit against Facebook under the EU’s tough new *General Data Protection Regulation* (GDPR) (Schrems, 2018; Corfield, 2018; TheJournal.ie, 2018).

#### 2.6.7 Emotional contagion study (2014)

In 2012 two researchers from Cornell University in the US, Jamie Guillory and Jeffery Hancock, in conjunction with a Facebook data scientist, Adam Kramer, ran a study using 689,003 Facebook users, without their knowledge or explicit consent. The study involved altering the unwitting participants’ News Feeds to display either predominantly “positive” or “negative” emotional content (Kramer, Guillory, & Hancock, p. 8788) for one week in January 2012, the stated aim being to see whether this content affected participants’ mood, as evidenced by their ensuing posts. The answer was ‘yes’ (Kramer et al., 2014). When the study was released in 2014, it “spark[ed] widespread public outcry” (Klitzman & Appelbaum, 2014, para. 10). A Facebook representative responded by saying that the aim of the study was “to improve our services and to make the content people see on Facebook as relevant and engaging as possible” (Booth, 2014, para. 8), and Kramer (2014), the Facebook data scientist who led the study, justified the research thus:

The reason we did this research is because we care about the emotional impact of Facebook and the people that use our product. We felt that it was important to investigate the common worry that seeing friends post positive content leads to people feeling negative or left out. At the same time, we were concerned that exposure to friends’ negativity might lead people to avoid visiting Facebook. (Kramer, as cited in Hill, 2014, para. 4).

The researchers stated that the study “was consistent with Facebook’s Data Use Policy, to which all users agree prior to creating an account on Facebook” (Kramer et al., 2014, p. 8789).<sup>12</sup> Grimmelmann (2014), however, maintained in his blog that, without obtaining participants’ informed consent, the research was both illegal and unethical.

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12 It has been claimed that, at the time of the study, Facebook’s Data Policy did not yet include the clause alluding to Facebook’s ‘right’ to use user data for research purposes, and that, in fact, this clause was inserted four months later (Hill, 2014).

### 2.6.8 Cambridge Analytica (2016)

In 2014, Aleksandr Kogan, a researcher affiliated with Cambridge University, harvested data from 270,000 users of a personality test app called “thisisyourdigitallife” (Paganini, 2018). However, because Facebook allowed app developers to access information from the Facebook friends of app users at the time, the total number of users that data was harvested from was estimated at 87 million (Facebook Newsroom, 2018b). Kogan went on to share the data with Cambridge Analytica, a data analytics firm, which then, together with associated companies, allegedly used it to influence voters in advance of the EU Brexit referendum in 2016 and the US presidential election in 2016 (Scott, 2018b). The fallout from the data breach, reportedly discovered by Facebook in 2015 (Paganini, 2018; Prokop, 2018), prompted the company to further restrict the amount of information app developers could access (a process begun in 2014) (Facebook Newsroom, 2018b; Paganini, 2018). Alyssa Newcomb, writing for NBC news, referred to the Cambridge Analytica scandal as “the biggest crisis of [Facebook’s] 14-year existence” (2018, para. 3).

### 2.7 Privacy concerns on Facebook

In this thesis I divide privacy concerns on Facebook into two types: *user-user concerns* and *user-corporate concerns* (Figure 1). User-user concerns relate to the ways in which other users may infringe on a Facebook user’s privacy, whereas user-corporate concerns relate to the ways in which the Facebook corporation and its affiliated businesses may do so. The survey listed twelve Facebook-related privacy concerns, eight of which were user-user concerns, and four of which were user-corporate concerns. The eight user-user privacy concerns were: *Bullying and harassment; Other people posting sensitive photos or videos of me; The wrong person seeing my posts, photos or videos; Stalking; Identity theft; Fraud; and Someone impersonating me*. The four user-corporate concerns were: *Facebook knowing too much about me; Businesses linked to Facebook finding out too much about me; Spam/unsolicited email from businesses linked to Facebook; and Viruses, spyware or other malware from businesses linked to Facebook*.

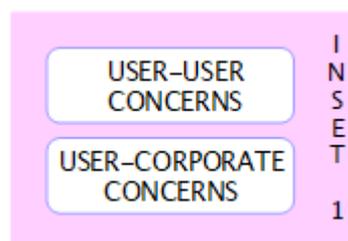


Figure 1. Privacy concerns on Facebook

### 2.7.1 User-user privacy concerns

A major user-user privacy concern on Facebook is cyberbullying. Cyberbullying has been defined as “an aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or herself” (Smith et al., 2008, p. 376).<sup>13</sup> Willard (as cited in Kwan & Skoric, 2013, p. 17) identified eight types of cyberbullying: flaming (“angry and vulgar online exchanges”); harassment (“repeated sending of nasty and insulting messages”); denigration (“spreading of rumors and gossiping about a person online to damage his/her reputation or friendship”); impersonation (“caus[ing] someone to get into trouble or damag[ing] someone’s reputation by pretending to be that person and sending material on that person’s behalf”); outing (“sharing secrets or humiliating information [about] another person [online]”); trickery (“convinc[ing] someone to share humiliating information, then making that information available [online]”); exclusion (“intentionally exclud[ing] someone from an online group in order to cause hurt to the person”); and cyberstalking (“repeatedly harass[ing] someone such that the person feels threatened or afraid”). Note that all these types of cyberbullying have in common the “malicious intent to hurt a weaker party” in an online context (Kwan & Skoric, 2013, p. 17). Sometimes similar behaviours to those listed here are enacted on Facebook, but without malicious intent. For instance, a user may post or share content about another user without realising that this content is perceived as sensitive (i.e., private) by him or her. In such instances malice is not a motive, but the hapless user’s privacy is nonetheless violated (Burkell et al., 2014; Lin & Lin, 2016).

Cyberbullying “has been theorized to peak in early adolescence and then to significantly decrease after high school” (Kokkinos, Baltzidis, & Xynogala, 2016, p. 841). Accordingly, most of the cyberbullying literature is centred on teens (Lowry et al., 2016), but Lowry et al. (2016) found that adults do indeed cyberbully on social media, including Facebook, and that “heavy social media use combined with anonymity...fosters cyberbullying” (p. 962). Other studies have shown that university students have experienced or perpetrated cyberbullying on Facebook: rates of victimisation have been claimed to range from 8% to over 55%, and rates of perpetration have been claimed to range from 14% to over 22% (Kokkinos et al., 2016, p. 841; Crosslin & Golman, 2014). Dredge, Gleeson, and de la Piedad Garcia (2014) found that “[the n]umber of Facebook friends and traditional bullying victimisation were...significant predictors of cyberbullying victimisation” (p. 16) among their sample of 15-24 year olds, and Lee (2017) similarly found that “sharing personal information with a large number of Facebook friends [was] positively associated with victimization” (p. 57) among her sample of African American college students. The author also found, in line

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13 Although “there is common agreement that bullying includes a repetitive behavior” (Slonje & Smith, 2008, p. 153), a number of writers have pointed out that a single act of cyberbullying can cause the victim to suffer repeatedly (e.g., the taking and online ‘sharing’ of a sensitive photo of the victim may cause him or her to suffer every time that photo is viewed and commented on) (Slonje & Smith, 2008; Dooley, Pyzalski, & Cross, 2009; Menesini, Nocentini, & Calussi, 2011), that act thus “meeting the [criterion] of repetition” (Menesini et al., 2011, p. 269).

with Lowry et al. (2016), that “online disinhibition – a lessening of inhibitions during online interactions that would otherwise be present in face-to-face interactions – emerged as the strongest predictor of cyberbullying perpetration” (p. 57). Cyberbullying victimisation in adults has been associated with emotional distress, poor concentration, anxiety and social anxiety, loneliness, depression, and suicidal thoughts (Crosslin & Golman, 2014; Dredge et al., 2014; Varghese & Pistole, 2014), and, in fact, some Facebook users deactivate their account in order to avoid cyberbullying (Crosslin & Golman, 2014).

Another user-user privacy concern on Facebook is the risk of other people posting sensitive information, photos, or videos about or of them (Debatin, 2009). As stated above, behaviours of this type with malicious intent may be classified as cyberbullying or harassment. However, users sometimes post sensitive information about their Facebook friends without malicious intent: sometimes, despite the best of intentions, wires are crossed and signals about the confidentiality of the information are misread (Grimmelmann, 2009).

Many Facebook users feel continually uneasy about the wrong person seeing their posts, photos, or videos (Cover, 2012). The main cause of the wrong person seeing one’s Facebook content is what boyd (2008) referred to as “social convergence”: Grimmelmann (2009) noted that “our social roles are contextual and audience-specific, but when multiple audiences are present simultaneously, it may not be possible to keep up both performances at once” (p. 1177). This problem is compounded by Facebook’s News Feed: News Feed publishes our activities on Facebook, including posts, photos, likes, and comments, on our Facebook friends’ pages, so what could be meant as a semi-private post may end up being prominently and indiscriminately displayed on all of our Facebook friends’ pages (boyd, 2008). Also, Facebook encourages a number of what Grimmelmann called “misperceptions” (2009, pp. 1160-1164), giving users the feeling that they are in a private space with their close friends, as opposed to an open forum with all their Facebook friends, or all Facebook users, or even the general public if their privacy settings have not been adequately tweaked. For instance, university students with unsecured information are likely to forget that potential employers may peruse the Facebook profiles of potential job candidates (Pike, Bateman, & Butler, 2018).

A concern related to “social convergence” (boyd, 2008) is stalking. Facebook does not let users know who has viewed their content (unlike some SNS: e.g., LinkedIn [LinkedIn Help, 2019]), making it very tempting for users to peruse fellow users’ pages. Take, for example, the musings of a hapless journalist with ‘no life’ spending her evenings stalking old classmates on Facebook:

My 10-year high school reunion is less than a month away, and I can’t really see the point in going. Don’t get me wrong, as an awkward teenager I had dreamt of coming back to school in 10 years’ time

and wowing everyone with how successful I was. I would see my arch-nemesis amount to nothing, and the boy who used to throw my shoes on the roof of our science block, would fall over himself to apologise for being a twerp. But those dreams are long behind me, not because I have grown into a better person, sadly, but rather that Facebook has gone and ruined it. Now every Saturday night is a school reunion for me; it's just that my former school mates don't know they are invited. Thanks to Facebook, my insatiable desire to know everyone's business knows no bounds. I already know my arch-nemesis has not developed an exotic facial fungus. I know that she is just as gorgeous as she was at school and is incredibly successful in her chosen field – in fact I even know that she had Thai for dinner last Thursday. This kind of information is usually reserved for a stalker, but thanks to Facebook, I can enjoy all of the benefits of being a hard-core bush creeper without the risk of prosecution. I also know that the boy who picked on me relentlessly, ended up on *A Current Affair* for abusing a pair of teenagers on a train. The chances of him apologising for being a jerk are slim, considering he still is one. Then there's the matter of being a huge success. The most significant thing I have done this year was getting drunk enough to buy \$250 worth of Tupperware. It was my rent money. I'll hardly be ramming that down anyone's throat. (Confessions of a 'Facestalker', 2013)

Seriously, though, 'facestalking' (Young, 2011) (the practice of surreptitiously viewing others' pages on Facebook [p. 26]) is one of the attractions of Facebook (Chaulk & Jones, 2011). Users can adjust the privacy settings to limit most of their profile to friends only, but they cannot hide what Facebook refers to as their 'public' information (Facebook Help Centre, 2019f). Facestalking can be a benign activity prompted by curiosity or even concern (Young, 2011), but it can also be motivated by jealousy (Fleuriet, Cole, & Guerrero, 2014; Muise, Christofides, & Desmarais, 2014), and can even lead to physical stalking, depending upon what information has been made available on Facebook (Gross & Acquisti, 2005).

Facebook users are also concerned about fraudulent attacks on Facebook, (Al-Shamaileh, 2018) and, according to Vishwanath (2014), rightly so. Phishing, "a form of deception in which an attacker attempts to fraudulently acquire sensitive information from a victim by impersonating a trustworthy entity" (Jagatic, Johnson, Jakobsson, & Menczer, 2007, p. 94), was traditionally perpetrated via email, but is increasingly perpetrated using social media, including Facebook (Vishwanath, 2014). Social media attacks are claimed to be much more successful than email attacks, with studies reporting "a 40% success rate", as opposed to a "1% success rate" for email attacks (Vishwanath, 2014, p. 84). A phishing attack on Facebook is a two stage process (Vishwanath, 2014). In "the first stage [of the attack]" (p. 84), the phisher sends the victim a friend request. Once the request has been accepted, the phisher has access to the victim's non-public information, as well as information about the victim's friends and friends of friends. In "the second stage of the attack" (p. 84), the phisher requests critical information from the victim by directly engaging with him or her on

Facebook, and then uses this information to defraud him or her: information gleaned from the victim's News Feed, profile, and posts makes the phisher sound genuine and personable during this process of engagement (Vishwanath, 2014). Vishwanath (2014) noted that "social media attacks have the potential for contagion effects, where the first few victims result in many more victims who see their friends appear as connections to the phisher and [therefore] believe in the legitimacy of the phisher" (p. 84). Fake or duplicate Facebook profiles are also used to defraud Facebook users: Vishwanath (2014) gave the example of a case in which "con artists used photographs and names of real U.S. army soldiers to create Facebook profiles, friend women using these profiles, and scam them" (p. 84). The author found that the key risk factor for being a victim of a phishing attack on Facebook was "habitual Facebook use" (p. 94) which involved routinely accepting friend requests from unknown others, leading to the indiscriminant accumulation of a large number of Facebook friends.

Even the Facebook corporation acknowledges the threat to user data on Facebook through fraud, malware, and viruses:

Our industry is prone to cyber-attacks, with third parties seeking unauthorized access to our data or users' data....In addition, computer malware, viruses, social engineering (predominantly spear phishing attacks), and general hacking have become more prevalent in our industry, have occurred on our systems in the past, and may occur on our systems in the future....Our efforts to protect our company data or the information we receive may also be unsuccessful due to software bugs or other technical malfunctions, employee, contractor, or vendor error or malfeasance, government surveillance, or other threats that evolve. In addition, third parties may attempt to fraudulently induce employees or users to disclose information in order to gain access to our data or our users' data. Cyber-attacks continue to evolve in sophistication and volume, and inherently may be difficult to detect for long periods of time. (Facebook, Inc., 2018, p. 14)

### *2.7.2 User-corporate privacy concerns*

Some users may feel uneasy about the extent of Facebook's knowledge about them (Stern, 2018), and with good reason, because Facebook has a number of ways of obtaining information about its users. Firstly, it obtains information about users from their Facebook profiles, their updates, and from their interactions with other users on the site.

Secondly, Facebook users are tracked outside of Facebook via Facebook's ubiquitous 'Like' button and its other social plugins, which are displayed on third-party websites. These social plugins track the viewer

regardless of whether or not he or she clicks on them or is logged into Facebook. In fact, Facebook tracks all visitors to websites displaying its social plugins, including those visitors who do not have a Facebook account (Facebook Newsroom, 2018c; ACLU of Northern California et al., 2010; Simonite, 2015, Hanson, 2015). For this reason, and because it is found on so many websites, including government and health websites (Gibbs, 2015b), the 'Like' button has raised the ire of privacy advocates the world over (ACLU of Northern California et al., 2010; Shah, 2019): indeed, in 2011 the German state of Schleswig-Holstein outlawed the 'Like' button on websites generated by businesses within its borders, on the basis that the button violated Germany's data protection laws (Daw, 2011), and more recently, in 2016, a Dusseldorf court prosecuted a German website for incorporating Facebook's 'Like' button (Bowen & Govender, 2016). The 'Like' button has come under further threat in the EU, under its new General Data Protection Regulation (GDPR) (White, 2019).

Also embedded on third-party games, applications, and websites is Facebook's Single Sign-On function (SSO),<sup>14</sup> labelled 'Facebook Login' (Dolcourt, 2010; Facebook for Developers, 2019a). Facebook Login enables Facebook users to open an account with or log into third-party websites using their Facebook credentials. The advantage to the user is that he or she does not need to repeat the account creation process for every app or website he or she uses, nor remember multiple passwords and usernames, but the disadvantage is that Facebook is privy to users' activities on these sites (Thurston, 2015; Smolaks, 2019; Facebook Newsroom, 2018c).

However, Facebook now has another way of tracking users across the web. From 2015, website owners have been able to use the 'Facebook pixel', a snippet of JavaScript code, to track the actions of visitors to their website (Campbell, 2018; Facebook for Developers, 2019b, para. 1).<sup>15</sup> The pixel sends tracking data to Facebook, allowing Facebook to identify visitors via their "browser, machine, and IP address" (Cukier, 2016, para. 4) if they are Facebook users. In fact, "if the same user uses several devices and several browsers, and don't we all, all of these combinations can be associated to one, single user" (Cukier, 2016, para. 4).

In addition, advertisers supply Facebook with data pertaining to their offline and online customers or contacts (contacts are people who have provided personally identifying information in the process of, for example, signing up for the vendor's newsletter). The data that advertisers upload to Facebook include names, email addresses, and phone numbers, together with customers' online or offline purchase behaviours. Facebook then matches the personally identifiable details to its database, thereby tying these

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14 In 2010, Facebook's SSO replaced 'Facebook Connect', which had been operating since 2008, and which had provided approximately the same functionality (Rouse, 2010; Dolcourt, 2010).

15 Prior to 2015, Facebook had two pixels: the 'conversion tracking pixel' and the 'custom audience pixel'. After introducing the new 'Facebook pixel' in 2015, it phased the other two pixels out (Campbell, 2018, para. 4 & para. 6; Facebook Ads Help Centre, 2019a).

details to customers' Facebook ID, in one fell swoop both increasing its data on those customers and enabling them to be better targeted for advertisements (AdEspresso, 2019, *Types of custom audiences*; Finn, 2017, #7; Facebook Ads Help Centre, 2019b; Facebook Ads Help Centre, 2019c; Facebook Help Centre, 2019g;).<sup>16</sup>

Moreover, from mid-2013 to mid-2018, Facebook purchased data about its users from external data brokers (Reitman, 2013; Hatmaker, 2018; Facebook Help Centre, 2019c) (data brokers build profiles of subjects over a number of years, "gathering data from government and public records, consumer contests, warranties and surveys, and private commercial sources – like loyalty card purchase histories or magazine subscription lists" [Dewey, 2016, para. 9]). These data included sensitive information such as income, number of credit cards, and shopping habits (Angwin, Mattu, & Parris, 2016). Facebook used these data to slot users into micro-categories, for ad targeting purposes, "such as 'total liquid investible assets \$1-\$24,999', 'People in households that have an estimated household income of between \$100K and \$125K', or even 'Individuals that are frequent transactors at lower cost department or dollar stores'" (Angwin et al., 2016, para. 19). However, even though Facebook stopped purchasing information about users from third-party brokers in 2018, Cyphers (2019) claimed that:

...over a year later, advertisers are still using data broker-provided information to target users on Facebook, and both Facebook and data brokers are still raking in profit. That's because Facebook allows data brokers to upload "custom audience data files" – lists of contact information, drawn from the brokers' vast tranches of personal data – where they can charge advertisers to access those lists. As a result, though the interface has changed, data broker-powered targeting on Facebook is alive and well. (Cyphers, 2019, *Stop data broker-powered ad targeting*)

But that isn't all: Facebook's 'family of companies', which includes WhatsApp (a messaging app) and Instagram (a photo-sharing app), 'share' user account information with Facebook (Facebook Help Centre, 2019a). WhatsApp, acquired by Facebook in 2014 (Facebook Newsroom, 2014; Covert, 2014), started sharing user data with Facebook in 2016,<sup>17</sup> and Instagram, acquired by Facebook in 2012 (Rusli, 2012), changed its privacy policy, effective early 2013, to state that:

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16 Note that in so doing, advertisers will be inadvertently supplying Facebook with the information of customers who are NOT Facebook users.

17 Due to legal action in Europe and the UK, WhatsApp has stopped sharing user data with Facebook "to improve your Facebook product experiences or provide you more relevant Facebook ad experiences on Facebook" (WhatsApp FAQ, 2019, para. 4) in these regions, but it still shares European and UK user data with Facebook for other purposes (WhatsApp FAQ, 2019). Outside of Europe and the UK, "Facebook and the other companies in the Facebook family...may use information from [WhatsApp] to improve your experiences within these services such as making product suggestions (for example, of friends or connections, or of interesting content) and showing relevant offers and ads" (WhatsApp, 2016: *author's brackets*).

We may share User Content and your information (including but not limited to, information from cookies, log files, device identifiers, location data, and usage data) with businesses that are legally part of the same group of companies that Instagram is part of, or that become part of that group (“Affiliates”). (Instagram, as cited in Schroeder, 2012)

In Instagram’s latest privacy policy, the wording has changed, but the meaning is the same:

We connect information about your activities on different Facebook Products and devices to provide a more tailored and consistent experience on all Facebook Products you use, wherever you use them. For example, we can suggest that you join a group on Facebook that includes people you follow on Instagram or communicate with using Messenger. (Instagram, 2018, *Information across Facebook Products and devices*)

Facebook, therefore, has a number of ways of obtaining information about its users, enabling it to build comprehensive profiles of them. Its motive for so doing is to target advertisements to users in a precise fashion within Facebook itself and across the internet.

## 2.8 Suggested approaches to privacy issues on Facebook

Most writers agree that there is no ‘magic bullet’ that will eliminate causes for concern regarding privacy issues on SNS. However, various suggestions have been put forward about how to better safeguard users’ privacy on Facebook. Suggested approaches are: to implement more user-friendly privacy settings, to make transparent “the flows of information” (Hull et al., 2011, p. 289) in a user-user context, legal measures, user responsibility, and open-source SNS.

Regarding the necessity for more user-friendly privacy settings, Hull et al. (2011) and Hull (2015) maintained that Facebook’s privacy settings are hard to understand and awkward and time-consuming to use. Stern and Kumar (2014) suggested a wheel interface which is, in contrast, intuitive, quick, and easy to use. Other suggestions for more user-friendly privacy settings include opt-in as opposed to opt-out settings (Noain-Sanchez, 2016) and ‘privacy nudges’ (Wang et al., 2013). Some writers, however, have implied that Facebook’s interface deliberately downplays users’ privacy options, as Facebook is economically invested in coaxing users to divulge as much information as it can, and as publicly as possible (Light & McGrath, 2010; Debatin et al., 2009; Waldman, 2016; Watson et al., 2015; Heyman, de Wolf, & Pierson, 2014; Jones, 2010). It has also been pointed out that Facebook users are likely to be too eager to socialise on Facebook to take time out to adjust their privacy settings (Light & McGrath, 2010), and besides, the privacy settings are of

limited use because “mutual friends can share information about a user, even if she has barred one of them from seeing the information directly on her Facebook page” (Grimmelmann, 2009, 1186). In addition, there is no privacy setting that allows users to shield their information from Facebook itself (Chaudhry, Saleem, Iqbal, & Yasir, 2015).

Regarding the necessity for more transparent “flows of information”, Hull et al. (2011) maintained that “insofar as the cognitive model users bring to Facebook is offline friendship, they will need extra reminders that the ways they handle information and privacy offline do not port directly to Facebook” (p. 300): in other words, “Facebook needs to do a better job of making the flows of information on the site transparent to users” (p. 300).

...when changes in context generate changes in flows of information, maintaining privacy requires drawing people’s attention to the changes in question....The software could [for example] prominently provide a “delete old updates” button, which would remind users that their updates are permanently on record, unless they take explicit counter-measures. The software could also default to deleting updates, requiring users to “save old updates.” Alternatively, the interface could be changed from the point of view of the reader: attached to each update could be a “view all of Mary’s updates” option, which would subtly remind users that the same option applies to their own updates. It could even be designed to send a notice to users: “Mary has just looked at all of your updates.” This is not to endorse any one of these design options; the point is to underscore that each of these design features embeds normative preferences about the distribution of information and how they develop. Automatic deletion of old updates, for example, would move Facebook’s community closer to an offline small town, where gossip travels quickly but is imperfectly remembered. Retention of updates, combined with reminders to that effect, would further encourage users to view their identities online as constructed and performative...This encouragement would be magnified even more by a “Mary has just looked at all of your updates” option; users would increasingly view their Facebook identities as subject to constant surveillance, and modify them accordingly. (Hull et al., 2011, p. 299-300)

Other writers, however, have suggested that as users have gotten used to Facebook, new norms of information flow have been established. boyd (2008), for instance, argued that although News Feed was met with an outcry when it was first introduced, Facebook users have come to embrace it, and now write their posts with News Feed in mind. Burkell et al. (2014), too, maintained that Facebook is seen predominantly as a public, not private, space: “Our results reveal that online social spaces are indeed loci of public display rather than private revelation: online profiles are structured with the view that ‘everyone’ can

see them, even if the explicitly intended audience is more limited” (p. 974).

Some writers have argued that SNS users need to be protected by legal measures. In relation to user-corporate privacy concerns, Nissenbaum (2011) maintained that governments should “articulate a backdrop of context-specific substantive norms that constrain what information websites can collect, with whom they can share it, and under what conditions it can be shared” (p. 32). Although Nissenbaum’s comment was not directed at SNS specifically, it has great relevance to SNS providers. In relation to user-user privacy concerns, Grimmelmann (2010) made an argument for applying product safety legislation to Facebook: “A site that violates [users’] privacy causes harms, and when those harms are preventable with better design choices or more careful programming, it makes sense to ask whether the site operator should be held accountable for them” (p. 816). He explained that legally, a) “sellers can be held liable even when the consumer is at fault in the accident [because] certain kinds of misuse are foreseeable at the time of sale” (p. 817-818) (e.g., “guards on a punch press keep the operator from sticking his or her hand in at the wrong time” [p. 820]) and b) “disclaimers are not a substitute for a safe product” (p. 818). Grimmelmann gave an example of a *good* design choice made by Facebook: the fact that private messages have a ‘reply’ button but no ‘forward’ button (p. 820). Another good design choice is the fact that “Facebook [allows] users to view their profile from the perspective of other users to see what information is visible about them” (Houghton & Joinson 2010, 90).

In contrast to the above argument, Debatin et al. (2009) placed responsibility for privacy protection on SNS with users: “Safer use of social networking sites would...require a dramatic change in user attitudes: a responsible and informed user with a high level of computer literacy – not just in the technical but in the sociocultural and ethical sense as well” (p. 102). Also in support of user responsibility, Croom, Gross, Rosen, and Rosen (2016) found that participants in their study could only name 72% of their Facebook friends. The authors therefore suggested that: “If [Facebook] users friending each other means allowing the person to take their private content into the public sphere, users should establish some basic criteria for ‘friends’ and realize that ‘friends’ they cannot name may provide a good place to start” (p. 140). Similarly (and as noted in Section 2.7.1), Vishwanath (2014) found that the major risk factor for being a victim of a phishing attack on Facebook was routinely accepting friend requests from unknown others.

Hull (2015), however, presented a counter-argument to sole user responsibility for privacy protection on SNS, stating that, despite their best intentions, “Facebook users do not successfully effectuate their privacy preferences, and...they often do not even know this” (p. 93). Hull (2015) cited two studies to illustrate this point. The first study was carried out by Liu et al. (2011), the authors concluding that their findings “strongly [suggest] that [Facebook] users are having trouble correctly configuring their privacy settings” (p. 65), and

the second study was carried out by Madejski et al. (2011), the authors similarly finding that participants' privacy intentions did not match their privacy settings on Facebook, with "93.8% of participants reveal[ing] some information that they did not want disclosed" (p. 11). Thus, according to these researchers, Facebook is at least partially at fault for users' mismanagement of the privacy settings.

Finally, Fuchs (2012) suggested that we "establish and support noncommercial, nonprofit internet platforms", including "open-source alternative[s] to Facebook" (p. 153). *Diaspora* (<https://diasporafoundation.org/>), launched in 2010, and *Ello* (<https://ello.co/>), launched in 2014, are two such alternatives. However, a major problem with these platforms, according to commentator Will Oremus (2014), is that most people use Facebook: Jim Dwyer, the author of a book about Diaspora (*More awesome than money*, 2014), commented that Diaspora "felt like a 'ghost town' compared with Facebook" (Dwyer, as cited in Oremus, 2014, para. 12). Oremus (2014), however, observed that rivals to Facebook, even if they do not succeed in wresting away the bulk of Facebook users, may serve an important purpose by "calling attention to [Facebook's] shortcomings and forcing it to respond and adapt" (para. 20). Thus, perhaps a combination of legal pressure, user awareness, and Facebook's response to potential threats in the form of competition will help to ameliorate privacy issues for Facebook users.

In this chapter I have discussed definitions of privacy and privacy taxonomies, the privacy paradox and privacy calculus, contextual integrity, and the non-neutrality of web technology. I have also reviewed Facebook's history of privacy controversies, outlined user-user and user-corporate privacy issues on Facebook, and summarised suggestions regarding various approaches to dealing with privacy issues on Facebook. In *Chapter 3* I look at what makes Facebook so compelling in spite of users' privacy concerns: social needs.

### 3. BACKGROUND – SOCIAL NEEDS

In the last chapter I detailed users' privacy concerns on Facebook, and in this chapter I look at the socially motivated reasons why people use Facebook in spite of these concerns. I argue that people seek to satisfy two key social needs on Facebook: *the need for self-portrayal* and *the need for belonging*. I further suggest that, for the purposes of this thesis, there are two facets of self-portrayal – *strategic self-presentation* and *expression of the true self*, and two facets of belonging – *intimacy* and *affiliation* (Figure 2).



Figure 2. Social needs on Facebook

The term *self-portrayal* is inspired by Friedlander's (2011) article comparing "self-representation" (p. 1) on Facebook to traditional portraiture (i.e., "likenesses" [Friedlander, 2011, p. 3] created by visual artists). Friedlander noted that: "Portraiture sits uneasily on the boundaries between the objective world and the recesses of our interiority. So too, the subject in an SNS must balance his or her desire for an acceptable public representation with a need to express himself or herself in some authentic and private way" (p. 4). In a similar vein, I propose that Facebook is used to satisfy users' needs for *strategic self-presentation* (Utz et al., 2012) and *expression of the true self* (McKenna, Green, & Gleason, 2002).

*Strategic self-presentation*, sometimes called "impression management" (e.g., Goffman, 1959) or just "self-presentation" (e.g., Nadkarni & Hoffman, 2012), has been described as "an actor's shaping of his or her responses to create in specific others an impression that is for one reason or another desired by the actor" (Jones & Pittman, 1982, p. 233). According to Jones and Pittman (1982), strategic self-presentational behaviours are not necessarily "false", but rather, "typically involve selective disclosures and omissions, matters of emphasis and toning rather than of deceit and simulation" (p. 233).

The *true self* (Rogers, 1951), on the other hand, has been variously referred to as one's "inner self" (McKenna et al., 2002) or "inner identity" (Tosun & Lajunen, 2009), the "real me" (McKenna et al., 2002; Bargh, McKenna, & Fitzsimons, 2002), and the "authentic self" (Leary, 2003). Current conceptions of the true self are based upon psychologist Carl Rogers' (1951) writings on the subject, and Rogers, in turn, "was

informed by Jung's (1953) distinction between the unconscious self and its public mask, the persona" (Bargh et al., 2002, p. 34). Rogers, like Jung, practised psychotherapy, and for Rogers, "an important feature of the process of therapy was the work towards discovery of the true self, so that the person could express it more freely in his or her interactions with others" (Bargh et al., 2002, p. 34).

Seidman (2014) defined *the need to belong* as "the fundamental motive to connect with and be accepted by others" (p. 368). I propose that Facebook is used to satisfy users' need for belonging in the contexts of both significant (which I call *intimate*) and non-significant (which I call *affiliative*) relationships. For the purposes of this thesis, intimate relationships are characterised by a deep emotional bond, whereas affiliative relationships are characterised by 'common ground' such as mutual interests (e.g., a sporting club), beliefs (e.g., a religious community), experiences (e.g., individuals met while travelling), or circumstances (e.g., workmates). Both intimate and affiliative relationships may be (but are not necessarily) grounded in a group context<sup>18</sup> (e.g., a common interest or family group). Finally, there is a continuum between affiliative and intimate relationships (Altman & Taylor, 1973; Claridge, 2018), and an affiliative relationship may, over time, become intimate (Altman & Taylor, 1973).

*Intimacy* is used, in this thesis, to denote emotional – as opposed to physical – intimacy. Emotional intimacy has been defined as "the sharing of one's innermost self with another" (McAdams, 1989, pp. 199-200), and has been linked to mutual deep self-disclosure (Altman & Taylor, 1973), emotional support (Jacobson, 1986), and strong ties (Choi, Kim, Sung, & Sohn, 2011; Rostila, 2011).

Henry Murray's (1938) "affiliative attitude" is an umbrella term covering the desire for the whole gamut of positive interpersonal relationships: "To form friendships and associations. To greet, join, and live with others. To co-operate and converse sociably with others. To love. To join groups" (p. 80). However, in this thesis, I focus on *affiliation* in the context of non-intimate – which I call *affiliative* – relationships. Affiliative relationships are said to be characterised by breadth, as opposed to depth, of self-disclosures (Choi et al., 2011), cognitive support in the form of specialised services and information (Jacobson, 1986; Rostila, 2011), and weak ties (Choi et al., 2011; Rostila, 2011).

In Sections 3.2 and 3.3, I will explore concepts related to *self-portrayal* and *belonging*. However, because humanism, inclusive of motivation and needs theory, underpins a number of these concepts, I will firstly overview of the origins and fundamental precepts of the humanistic movement.

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18 A group has been defined as "a collection of people who interact with one another, share similar characteristics and collectively have a sense of unity" (Matsiki, Dimou, & Daras, 2014, p. 68).

### 3.1 Humanism, motivation, and needs

Humanism “flourished in academic psychology roughly from the 1940s to the 1970s” (O’Hara & Taylor, 2000, p. 186) and is still “alive and well” (Kirschenbaum & Jourdan, 2005, p. 48) today in the forms of psychotherapy and counselling (e.g., Psychology Today, 2019). Humanistic psychology has been defined as “the study of man based on the assumption that, as a human being, he is free and hence responsible for his actions and their consequences to his well-being and growth [*sic*]” (Jourard, 1974, p. v). It is characterised by its compassionate, self-empowering approach to personality, and has been referred to as “the ‘third force’ of psychology, following on the heels of the [behaviorist] and psychoanalytic schools of thought” (Dye, 2008, p. 12).

According to O’Hara and Taylor (2000), “as a psychology and as a psychotherapy, humanistic psychology rests on four core assumptions”:

1. From infancy to old age, human beings strive to actualize their highest potentials as unique selves at the same time that they establish and maintain close mutual connections with others.
2. When this drive is frustrated by adverse environmental circumstances, people will attempt to realize self and relational potentials through processes of adaptation that result in psychological distress and eventually to suboptimal personality patterns.
3. People, including those with serious psychological problems, possess enormous inner resources for self-regulation and self-healing that can be accessed in the service of recovery, growth, and self-transcendence.
4. Healing, self-actualization, and individual and collective emancipation is facilitated by participation in relationships characterized by a few key interpersonal conditions, namely mutual respect, warmth, acceptance, genuineness, and empathy. (O’Hara & Taylor, 2000, p. 186: *authors’ numbered list*)

The two psychologists who perhaps best embody the humanistic approach are Carl Rogers and Abraham Maslow. Rogers is famed for developing a “person-centred approach” to psychological therapy, which is based on an empathetic relationship between the client and the therapist, allowing the client to achieve emotional growth via collaboration (Kirschenbaum & Jourdan, 2005). Similarly, Maslow “introduced the idea of the self-actualizing personality”, maintaining that “our definition of normality should be based on the best examples of humanity, not on a comparison with psychopathology” (O’Hara & Taylor, 2000, p. 186). Maslow’s (1943) “hierarchy of needs” maps the steps toward self-actualisation, and is based upon Henry Murray’s (1938) “psychogenic needs theory”, the earliest of the humanistic psychological needs theories.

Several years later, McClelland (1961) presented his “trichotomy of needs”, also based on Murray’s work, and together with Murray’s and Maslow’s, his is one of the most influential needs theories of that era. Consistent with humanistic psychology’s positive spin, Maslow, McClelland, Murray, and Rogers are said to have “emphasized the positive growth potential in human character” (Leary, 1996, p. 301).

In his book *Explorations in personality* (1938), Murray, together with 27 junior researchers and co-authors, and based on the study of 51 young men, detailed a comprehensive typology of psychogenic needs, “presumably dependent upon and derived from the primary needs” (p. 80), such as air, water, and food. Murray identified a total of 35 psychogenic needs, as well as four “inner states”, and 12 “general traits” (pp. 144-149). He referred to all this as his – “admittedly vague and incomplete” (p. 38) – “theory of personality” (p. 36). Murray’s was the “first systematic attempt to document and describe the range of human [needs]” (Xu, Mellor, Xu, & Duan, 2014, p. 46).

Maslow (1943), however, apparently referring to Murray’s work, claimed that: “Lists of drives will get us nowhere” because “no need or drive can be treated as if it were isolated or discrete; every drive is related to the state of satisfaction or dissatisfaction of other drives” (p. 370: *author’s italics*). Instead, he postulated that we have five needs, which we seek to satisfy in order of priority from lowest to highest (although in reality, Maslow [1943] claimed, any given need only needs to be “relatively” [p. 376] or “fairly well” [p. 395] satisfied before we seek to satisfy the next in the hierarchy). The needs, in order from lowest to highest, are: *physiological needs*, *safety needs*, *love needs* (“love and affection and belongingness needs” [p. 380]), *esteem needs* (which are of two types: firstly, “the desire for strength, for achievement, for adequacy, for confidence in the face of the world, and for independence and freedom” [p. 381], and secondly, “the desire for reputation or prestige..., recognition, attention, importance or appreciation” [p. 382]), and finally, *the need for self-actualisation*, which is “the desire to become more and more what one is, to become everything that one is capable of becoming”: “A musician must make music, an artist must paint, a poet must write, if he is to be ultimately happy” (p. 382).

McClelland, in his book *The achieving society* (1961), explored the relationship between three of Murray’s needs – *n Achievement*, *n Power* and *n Affiliation* (in the needs literature, “the need for” is typically expressed as “*n*”) – and economic growth. Whereas Murray’s psychogenic needs theory is not well known outside the psychological arena – where it has exerted considerable influence (Xu et al, 2014) – both Maslow’s and McClelland’s theories went on to be employed in managerial training, and are still used in that context today (Rybnicek, Bergner, & Gutschelhofer, 2019, Dye, Mills, & Weatherbee, 2005; Commerce Mates, 2019).

Key terms in the early humanistic literature, therefore, were “need” and “drive”, but the term “motive” (or “motivation”) was later employed in similar contexts. In *Explorations in personality* (1938), Murray variously defined a need as “an organic potentiality or readiness to respond in a certain way under given conditions” (p. 61), “an electro-chemical process of some sort which is inwardly felt as the force of desire” (p. 64), and “a disequilibrium which stresses toward equilibrium” (p. 67). He toyed with the idea of using the term “drive” instead of “need” but decided against it (p. 75), and did not use the term “motive” at all. Maslow, in his 1943 treatise, however, seems to have used the terms “need” and “drive” synonymously, and he also used the term “motivation”, which he did not define, though he did state that: “Any motivated behavior...must be understood to be a channel through which many basic needs may be simultaneously expressed or satisfied. Typically an act has *more* than one motivation” (p. 370: *author’s italics*). Rosenfeld, Culbertson, and Magnusson (1992) later maintained that: “Drives follow from needs....A need becomes a drive when an individual’s energy has been triggered to satisfy it” (p. 2) and: “Psychologists have traditionally considered motivation as closely related to and following from drives” (p. 2). Also, Weiner (2000) stated there is no consensus as to the definition of motivation, “but most agree that an analysis of motivation involves the creation of principles to explain why people...initiate, choose, or persist in specific actions in specific circumstances. Motivational formulations thus include statements about the needs and goals of the person as well as the incentives in the environment” (p. 314). McClelland et al. (e.g., 1989), along with later writers (e.g., Vignoles, 2009; Xu et al., 2014), however, have used the terms “need” and “motive” synonymously.

McClelland and his colleagues were the first to explicitly differentiate between *implicit* and *explicit motives* in the needs literature (McClelland, Koestner, & Weinberger, 1989; Langens & McClelland, 1997): implicit motives “are largely non-conscious” (Langens & McClelland, 1997, p. 1) and “emotion-driven” (Michalak, Puschel, Joormann, & Schulte, 2006, p. 81), as opposed to explicit motives, which comprise “conscious goals and duties” (Langens & McClelland, 1997, p. 1) and are “cognition-based” (Michalak et al., 2006, p.81).<sup>19</sup> Any motive can be assessed for its implicit and explicit dimensions,<sup>20</sup> but it has been found that the two measures do not always correlate (McClelland et al., 1989; Neumann & Schultheiss, 2015). Not surprisingly, however, a strong correlation between implicit and explicit motives has been found, in certain instances, to be associated with increased well-being (Langens & McClelland, 1997) and motivation at work (Thielgen, Krumm, & Hertel, 2014). Most of the research in the area of implicit motives has focussed on the power,

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19 For research and assessment purposes, explicit motives are “derived from self-reports” (and are therefore sometimes called “self-attributed motives”) (McClelland et al., 1989, p. 690), but, because of the non-conscious nature of implicit motives, these motives are gauged “by means of a content analysis of the Thematic Apperception Test...[which] involves the writing of brief imaginative stories in response to certain pictures” (Shipley & Veroff, 1952, p. 349). The TAT was developed by Murray and his colleagues (principally Christiana Morgan) while researching the material for *Explorations in personality* (1938) (Smith, 1990).

20 These are referred to as, for example, ‘the implicit affiliation motive’ and ‘the explicit affiliation motive’ (Quirin, Dusing, & Kuhl, 2013).

achievement, and affiliation motives (Neumann & Schultheiss, 2015; Xu et al, 2014), largely due to the influence of McClelland's work, though later research has explored the needs for belonging, self-presentation, popularity, and affiliation, among others, on SNS (e.g., Nadkarni & Hofmann, 2012; Utz et al., 2012; Park, Jin, & Jin, 2011).

The *approach* and *avoidance* dichotomy is intrinsic to motivation theory: "Approach motivation is the energization of behavior by, or the direction of behavior toward, positive stimuli..., whereas avoidance motivation is the energization of behavior by, or the direction of behavior away from, negative stimuli" (Elliot, 2006, p. 111). The need for affiliation (discussed in Section 3.3.3), for instance, is said to have "two aspects...(a) seeking affiliation because of the pleasant stimulus reward value of the affiliative relationship (approach behavior); and (b) seeking affiliation because of the painful stimulus value of rejection" (Shipley & Veroff, 1952, p. 354: *authors' brackets*).

Few studies have dealt directly with implicit and explicit motives or approach and avoidance motives in relation to Facebook use. Dufner, Arslan, and Denissen (2018), however, explored the relationship between Facebook content and implicit motives in the achievement, affiliation, and power domains. The authors found that "how people create and maintain their [Facebook] profile might...partly depend on their implicit motives" (p. 85), and therefore, "even though people may perceive a high degree of control over the picture they present of themselves" (p. 85) on Facebook, they may unintentionally "reveal aspects of their personality" (p. 85) that they are unaware of.<sup>21</sup>

Regarding approach and avoidance motives, Carpenter, Green, and LaFlam (2011) found that Facebook users' "motivations to either approach or avoid the perspectives of others" (p. 538) influenced their behaviours on Facebook. The authors explained that: "Some individuals are fascinated by the mystery of others' thoughts and feelings and get real pleasure when puzzling out other people's perspectives. Other individuals, however, seem to put energy into outright avoiding exposure to others' mental states" (p. 538). Using Facebook "to find or court new romantic or sexual partners" (p. 539) or to cultivate "Facebook-only relationships" (p. 539) was associated with avoidance motivation in relation to seeking others' perspectives. However, using Facebook to "interact with people [one knows] in-person" (p. 539) or to "schedule or find out about activities" (p. 539) was associated with approach motivation in relation to seeking others' perspectives.

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21 Dufner et al. (2018) pointed out that the revealing of implicit motives on Facebook may have user-corporate privacy repercussions: "Even privacy-conscious users may inadvertently broadcast information about themselves that they are not consciously aware of. It might therefore be possible that some online advertisements are highly manipulative or violate feelings of privacy, because they speak directly to users' implicit motives" (p. 8).

### 3.2 Concepts related to self-portrayal

Below I overview the theoretical background in support of *the need for self-portrayal*. There exists a rich body of work exploring the concepts of *strategic self-presentation* and *expression of the true self*. Influential writers, upon which the work of later writers is based, are Erving Goffman (1959) and Carl Rogers (1951).

#### 3.2.1 True self

The concept of the *true self* was first espoused by the one of the trailblazers of the humanistic psychological movement, Carl Rogers, who called it the “real self” (1951) and, in one instance, the “real me” (1961, p. 205). The true self/real me is equivalent to Higgins’ “actual self” (1987) (discussed in Section 3.2.2), and is sometimes also called the “authentic self” (Newman, Bloom, & Knobe, 2014), especially in popular culture (for instance, “Dr Phil” describes the “authentic self” as opposed to the “fictional self” on his website [<https://www.drphil.com/advice/defining-your-authentic-self/>]). Although Rogers did not explicitly define the true/real self, he did write that the therapist’s goal is to help the individual “become what he is” (1961, p. 167). Describing this process, Rogers (1961) wrote that he helped the client listen to “the deepest recesses of his physiological and emotional being” with the result that the client “finds himself increasingly willing to be, with greater accuracy and depth, the self which he most truly is” (p. 251). The true self has also been referred to as one’s “inner self” (McKenna et al., 2002, p. 9) or “inner identity” (Tosun & Lajunen, 2009, p. 401), and Seidman (2014) stated that the true self “consists of qualities an individual...possesses but does not normally express to others” (p. 367). However, according to Rogers, (1951, 1961), the true self exists whether or not it is publicly expressed, and, in fact, whether or not the individual is aware of or accepting of this self.

McKenna et al. (2002) found that those who have difficulty expressing their true self in face-to-face interactions are more able to do so online, thus enabling them to form “real, deep, and meaningful relationships...on the Internet, and...these relationships [are] stable over time” (p. 28). Regarding SNS, Seidman (2014) reported that “those who feel able to express their ‘true self’ online are more active on Facebook, have more self-oriented motivations for posting, and post more personally revealing and emotional content” (p. 367), and Tosun (2012) found that Facebook users “with [a] high tendency to express their true self on the Internet...use Facebook for establishing new friendships and for initiating/terminating romantic relationships more than...individuals with low and medium levels of the same tendency” (p. 1510). Also, more recently, Wang et al. (2018) found an association between the need to belong and “authentic self-presentation” (“users authentically shar[ing] their feelings, thoughts, and life events” [p. 134]) on SNS. In this thesis, I use the term *expression of the true self* (McKenna et al., 2002) synonymously with the terms *true self expression* (Seidman, 2014) and *authentic self-presentation* (Wang et al., 2018).

### 3.2.2 *Ideal, ought, and actual selves*

E. Tory Higgins' *self-discrepancy theory* (1987) postulates the existence of *ideal*, *ought*, and *actual* selves. According to Higgins (1987), "there are three basic domains of the self" (p. 120): first, "the *actual* self, which is your representation of the attributes that someone (yourself or another) believes you actually possess"; second, "the *ideal* self, which is your representation of the attributes that someone (yourself or another) would like you, ideally, to possess (i.e., a representation of someone's hopes, aspirations, or wishes for you)"; and third, "the *ought* self, which is your representation of the attributes that someone (yourself or another) believes you should or ought to possess (i.e., a representation of someone's sense of your duty, obligations, or responsibilities)" (pp. 320-321: *author's italics & author's brackets*). According to Higgins, therefore, there are "six basic types of self-state representations: actual/own, actual/other, ideal/own, ideal/other, ought/own, and ought/other" (p. 321), and "discrepancies between self-state representations" will lead to emotional "discomfort" (p. 319). Equivalent to Higgins' (1987) representation of the 'ideal/own' self is Baumeister's (1982) "self-construction", which is an attempt to "construct (create, maintain, and modify) one's public self congruent to one's ideal" (p. 3: *author's brackets*). Baumeister (1982) differentiated self-construction from "impression management", which is geared toward Higgins' (1987) 'other', and which I address in Section 3.2.4.

Swann's (2008) *self-enhancement theory* and *self-verification theory* also have elements in common with Higgins' (1987) self-discrepancy theory. Self-enhancement theory proposes that "people desire...self-enhancing or positive evaluations" (p. 430) whereas self-verification theory proposes that "people want others to see them as they see themselves" (p. 430). According to Bareket-Bojmel et al. (2016), the "key difference" (p. 789) between self-enhancers and self-verifiers on SNS is that self-enhancers only disclose positive information about themselves, whereas self-verifiers disclose both positive and negative information about themselves. Interestingly, the authors found that not only were self-enhancing posts "positively related to the number of audience 'likes' and comments" (p. 793) on Facebook, but so were self-deprecating posts: Facebook users "who were 'courageous' enough to engage in self-derogation were rewarded with social network support" (p. 793).

### 3.2.3 *Self-concept and multiple selves*

McConnell (2011) claimed that "most view self-concept as the content of what people believe to be true about themselves" (p. 3), and, more specifically, Graeff (1996) defined self-concept as "a person's perception of his own abilities, limitations, appearance, and characteristics, including his own personality

[sic]" (p. 481). Horowitz (2000), p. 208), however, stated that "each person can have multiple self-concepts, even contradictory ones", but that "with maturation" these self-concepts may be integrated into a bigger, harmonious whole. McConnell's (2011) *multiple self-aspect framework*, which "conceives of the self-concept as a collection of multiple, context-dependent selves" (p. 3), supports this proposition. In a similar vein, Turkle (1995) proposed a multiple, fluid, flexible self: "The flexible self is not unitary, nor are its parts stable entities. A person cycles through its aspects, and these are themselves ever-changing and in constant communication with each other" (p. 261). To Turkle, communication between the different aspects of the self is of crucial importance, because it allows one to "have a sense of self without being one self" (p. 258). Reminiscent of Turkle's fluid, flexible self, Rogers (1961) saw "oneself as a stream of becoming, not a finished product....a fluid process, not a fixed and static entity; a flowing river of change, not a block of solid material; a continually changing constellation of potentialities, not a fixed quantity of traits" (p. 179).

Turkle (1995) claimed, in regard to constructed personas on MUDs (Multi-User Dungeons – online games, usually text-based, and involving multiple players), that "[there are] places where persona and self merge – places where the multiple personae join to comprise what the individual thinks of as his or her authentic self" (p. 185-186). While Turkle wrote this prior to the advent of Web 2.0, and in relation to unabashedly fictitious personae, there is a common thread to the later practice of presenting different selves on SNS. Brivio and Cilento-Ibarra (2009), exploring this practice on blogs and SNS, concluded that "behind the multiple presentations there is something, the Self that allows users to feel a sense of coherence and uniqueness, multiple Self Presentations notwithstanding" (p. 115).

### 3.2.4 Strategic self-presentation

Erving Goffman's acclaimed work *The Presentation of Self in Everyday Life*, first published in 1959, introduced the concept of "impression management" (p. 203): this concept is akin to what later writers have referred to as "strategic self-presentation" (e.g., Jones & Pittman, 1982; Utz et al., 2012; Bareket-Bojmel et al., 2016), or "self-presentation" (e.g., Schlenker, 1975; Paulhus & Trapnell, 2008; Nadkarni & Hofmann, 2012). These three terms are therefore used synonymously in this thesis. Baumeister (1982) described impression management as "the attempt to please a particular audience", and listed "[the wish for] a particular benefit", "a desire to be liked", and "the desire for self-esteem" (p. 3) as motives for so doing. Grimmelman (2009) noted that SNS "offer a gloriously direct tool for... 'impression management': the profile page" (p. 1152):

Many users choose to display the most flattering photographs of themselves that they can. Each additional datum is a strategic revelation, one more daub of paint in your self-portrait. Facebook's

profile fields aren't a list of things most important to its users; they're a list of things its users most want to say about themselves. (Grimmelmann, 2009, p. 1152)

Less positively, however, Gil-Or, Levi-Belz, and Turel (2015) asserted that "some [Facebook] users decide, consciously or unconsciously, to present an identity or a self that deviates from their true-self" (p. 1): the authors called this the "false Facebook-self" (p. 1). Finally, Rui and Stefanone (2013) noted that on Facebook, users' efforts at strategic self-presentation may be hampered by "*other-provided information* in the form of text posts and digital images on their profile pages" (p. 110: *authors' italics*).

### 3.2.5 Narcissism and the need for popularity

*Narcissism* and the *need for popularity* are both said to motivate strategic self-presentation on SNS (Buffardi & Campbell, 2008; Ong et al. 2011; Utz et al., 2012; Nadkarni & Hofmann, 2012). Ong et al. (2011) described the features of narcissism as follows:

Narcissism is characterized by a highly inflated, positive but unrealistic self-concept, a lack of interest in forming strong interpersonal relationships, and an engagement in self-regulatory strategies to affirm...positive self-views....Narcissists are exhibitionistic, attention-seeking, and are acutely concerned about their physical appearance....Narcissists are also often skilled with dealing with new social settings and with starting new relationships, though they mostly seek relationships which can enhance their status and positive self-views. (Ong et al., 2011, p. 181)

Ong et al. (2011) and Buffardi and Campbell (2008), studying the effects of narcissism on Facebook use in adolescents and college students respectively, found that the more narcissistic respondents were, the more content they posted on Facebook: according to Buffardi and Campbell (2008), "participating in social networking online is arguably attractive to narcissists in that it allows for controlled self-presentation, satiates the craving for attention, and promotes shallow relationships, all of which are associated with narcissism" (p. 1312). Other studies add weight to these findings. Ryan and Xenos (2011) studied 1324 Australian internet users aged 18-44, some of whom used Facebook and some of whom did not, and found that the Facebook users tended to be more narcissistic than the non-users. Also, Smith, Mendez, and White (2014) found that narcissists were more likely than the general Facebook population to post on Facebook but were less likely to use the privacy settings, and Winter et al. (2014) found that narcissism was associated with "deeper self-disclosure and more self-promotional content" (p. 194) in status updates on Facebook.

Utz et al. (2012) found that the need for popularity (NfP), defined as "the motivation to do certain things in

order to appear popular” (p. 38), predicted the following behaviours on SNS: “grooming (“cultivat[ing] bonds with others” [p. 38]), strategic self-presentation, profile enhancement, disclosure of feelings, routine use of SNS, and number of friends” (p. 37). Utz et al. (2012) took care to clarify the differences between NfP and narcissism, stating that “narcissists actually believe they are superior [to others, whereas]...individuals with a high NfP merely want to be perceived as popular” (p. 38). The authors suggested that SNS “are ideal venues” for those with a high need for popularity because they “facilitate selective self-presentation and provide users with a large audience” (p. 41).

### 3.3 Concepts related to belonging

In Section 3.2, I overviewed the concepts of the *true self*, *ideal*, *ought*, and *actual selves*, *multiple selves*, and *strategic self-presentation*, together with SNS-related research concerning *narcissism* and *the need for popularity*. These concepts and studies form the basis of the *self-portrayal* component of this thesis. In the following sub-sections I overview the concepts of *social support*, *social capital*, *affiliation*, *intimacy*, and *self-disclosure*, which form the basis of the *belonging* component of this thesis.

#### 3.3.1 Social support

In her review of social support definitions, Hupcey (1998) found that these definitions fall into five categories: “the type of support provided”, “recipients’ perceptions” of the quality of support provided, support providers’ “intentions or behaviours”, reciprocity (“an exchange of resources”), and the “social networks” through which support is accessed (p. 1232). Hupcey (1998) therefore concluded that the concept of social support “remains extremely complex and illusive” (p. 1239). However, for the purposes of this thesis, I will adopt Lin, Ensel, Simeone, and Kuo’s (1979) network-based definition of social support as “support accessible to an individual through social ties to other individuals, groups, and the larger community” (p. 109).

Writers who have reviewed the empirical social support research advocate anywhere from two to six types of social support. Pattison, Llamas, and Hurd (1979), for instance, listed two types of social support – *affective* and *instrumental* – while Jacobson (1986) claimed that the literature reflects three types of social support:

*Emotional support* refers to behavior that fosters feelings of comfort and leads an individual to believe that he or she is admired, respected, and loved, and that others are available to provide caring and security. *Cognitive support* refers to information, knowledge, and/or advice that helps the

individual to understand his or her world and to adjust to changes within it. *Materials support* refers to goods and services that help to solve practical problems. (Jacobson, 1986, p. 252: *author's italics*)

Cohen and Wills (1985), however, proposed four types of social support:

*Esteem support* is information that a person is esteemed and accepted. Self-esteem is enhanced by communicating to persons that they are valued for their own worth and experiences and are accepted despite any difficulties or personal faults....*Informational support* is help in defining, understanding, and coping with problematic events....*Social companionship* is spending time with others in leisure and recreational activities. This may reduce stress by fulfilling a need for affiliation and contact with others, by helping to distract persons from worrying about problems, or by facilitating positive affective moods....Finally, *instrumental support* is the provision of financial aid, material resources, and needed services. Instrumental aid may help reduce stress by direct resolution of instrumental problems or by providing the recipient with increased time for activities such as relaxation or entertainment. (Cohen & Wills, 1985, p. 313: *my italics*)

Cutrona and Suhr (1992, p. 155) suggested, based on their review of the literature, five types of social support: "informational, tangible, esteem, emotional, and social network support". *Informational support* refers to "advice", "factual input", and "feedback on actions"; *tangible support* refers to "offers to provide needed goods...and services"; *esteem support* refers to "expressions of regard for one's skills, abilities...and intrinsic value"; *emotional support* refers to "expressions of caring", "concern", "empathy", and "sympathy"; and *social network support* "entails a sense of belonging among people with similar interests and concerns".

Finally, Barrera and Ainlay (1983) documented six types of social support:

*Material Aid*: providing tangible materials in the form of money and other physical objects; *Behavioral Assistance*: sharing of tasks through physical labor; *Intimate Interaction*: traditional nondirective counseling behaviors such as listening; and expressing esteem, caring, and understanding; *Guidance*: offering advice, information, or instruction; *Feedback*: providing individuals with feedback about their behavior, thoughts, or feelings; [and] *Positive Social Interaction*: engaging in social interactions for fun and relaxation. (Barrera & Ainlay, 1983, p. 135-136: *reformatted from dot points, my italics*)

Regarding social support given in the context of SNS, Manago, Taylor, and Geenfield (2012) found that the greater the number of Facebook friends, the higher the level of perceived social support on Facebook.

However, Lonqvist and Deters (2016) conversely found that the number of Facebook friends was not related to perceived social support on the site. Chiang and Huang (2016) found that Facebook users communicated social support via likes and comments, and Niland et al. (2015) described Facebook as a place where friends give and receive social support in the forms of “emotional and instrumental assistance” (p. 11). However, there is a downside: “Facebook...‘reaches out’ through its affordances with ‘always on’ friend activities, calling for responses 24/7, and a ‘real’ friend is always there to respond” (p. 13).

Regarding the association between wellbeing and social support in relation to SNS, Shensa, Sidani, Lin, Bowman, and Primack (2016) found that those who perceived themselves as lacking in offline social support spent more time on SNS than those who perceived themselves as having adequate offline social support. The authors did not determine causality, so it may have been either that the perceived lack of offline social support caused respondents to turn to SNS “to fill this void” (p. 4), or that spending “substantial” (p. 4) time on SNS led to the perceived lack of offline social support. Perhaps similarly, Tang, Chen, Yang, Chung, and Lee (2016) found that social support (in the forms information, affection, and companionship) received on Facebook was positively correlated with Facebook addiction. Also, Indian and Grieve (2014) found that social support given to socially anxious individuals on Facebook significantly improved their wellbeing, but Park et al., (2016), studying the relationship between depression and social support given on Facebook, found that “although depressed individuals consistently received more social support when they disclosed negative information [on Facebook], they paradoxically perceived themselves as receiving *less* social support than their non-depressed counterparts” (p. 43: *authors’ italics*).

### 3.3.2 Social capital

The concept of *social capital* is said to have its origins in the works of Alexis de Tocqueville, Karl Marx, Emile Durkheim, Max Weber, Ferdinand Tonnies, and Georg Simmel (Koniordos, 2008; Rostila, 2011), but the term “social capital” is said to have been first used in 1916 by Lyda Hanifan, a district school inspector, who wrote that: “[Social capital...refers not] to real estate, or to personal property or to cold cash, but rather to that in life which tends to make those tangible substances count for most in the daily lives of people, namely goodwill, fellowship, mutual sympathy and social intercourse” (p. 130).

Pierre Bourdieu, James Coleman, and Robert Putnam are said to be the major influences in the development of the concept of social capital as it is used today (Bjornskov & Sonderskov, 2012; Rostila, 2011). The late Bourdieu (1930-2002) was an advocate for social equality. In his tribute to Bourdieu, Desan (2013) wrote that: “Bourdieu was a sort of patron saint for the French social movements of the past 15 years.....In a post-Marxist age, Bourdieu’s ‘critical sociology’ offered a new framework for understanding

social domination” (p. 135). Bourdieu (1986) postulated that there are three “fundamental” types of capital: economic, cultural, and social (p. 242). To Bourdieu (1986), social capital is “made up of social obligations (‘connections’)” and “is convertible, in certain conditions, into economic capital” (p. 242: *author’s brackets*): examples of social capital in action, according to Bourdieu, are “‘a helping hand’, ‘string-pulling’, [and] the ‘old boy network’” (p. 258).

Coleman (1926-1995) was a “social theorist and empirical researcher” (Cooper & Valentine, 2003, p. 324) who focussed on secondary school education in the United States. Coleman defined social capital, in relation to school students, as “the set of resources that inhere in family relations and in community social organization and that are useful for the cognitive or social development of a child or young person” (as cited by Cooper & Valentine, 2003, p. 325). Coleman also penned a more general definition, however, as follows:

Social capital is defined by its function. It is not a single entity but a variety of different entities, with two elements in common: they all consist of some aspect of social structures, and they facilitate certain actions of actors – whether persons or corporate actors – within the structure. (Coleman, 1988, p. S98)

According to Coleman (1988) there are three forms of social capital: “obligations, expectations, and trustworthiness of [social] structures” (p. S102), “information channels” (p. S104), and “norms and effective sanctions” (p. S104).

Putnam is a political scientist best known for the publication of two books: *Making Democracy Work: Civic Traditions in Modern Italy* (1993) in which he postulated that some regions of Italy are more economically and governmentally successful than others because they have higher levels of social capital, and *Bowling Alone: The Collapse and Revival of American Community* (2000) in which he lamented the decline of social capital in America. Putnam (1993) defined social capital as “features of social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions” (p. 167).

Each of these three theorists has his own angle on social capital: Bourdieu’s is neo-Marxist (or anti-neoliberalist), Coleman’s is the conversion of social capital to human capital in the form of education, and Putnam’s is civic society (“the ways in which an active community – one characterized by a high level of social capital – contributes to the welfare of society and the effectiveness of government” [Rochon, 2008, p. 641]).

The concept of social capital has been criticised for being “vague and somewhat obscure” (Rostila, 2011, p.

312). According to Portes (2000), this confusion has arisen because Putnam (1993; 2000) focused on the benefits of social capital at the civic level whereas Bourdieu (1986) and Coleman (1988) before him focused on its benefits at the individual and familial levels. Portes (2000) asserted that Putnam's "conceptual stretch" – his shifting of focus from the micro to the macro level – "was never explicitly theorized, giving rise to the present state of confusion about the meaning of the term" (p. 3), and "causes and effects of social capital as a collective trait were never disentangled, giving rise to much circular reasoning" (p. 4).

Similarly, Fukuyama (2001) maintained that "many" definitions of social capital "refer to manifestations of social capital rather than to social capital itself", hence the confusion about the definition of this term. According to Fukuyama, "trust, networks, civil society, and the like...are all epiphenomenal, arising as a result of social capital but not constituting social capital itself" (p. 7). He himself defined social capital as "an instantiated informal norm that promotes cooperation between two or more individuals" (p. 7). Fukuyama further stated that, according to his definition, any co-operative norm: e.g., "honesty, the keeping of commitments, reliable performance of duties, reciprocity, and the like" can constitute social capital (p. 8).

But how does one qualify social capital? Putnam (2000) introduced the terms "bonding" and "bridging" in relation to social capital. Bonding capital is likely to supply us with, in Jacobson's lexicon (1986) (referred to in Section 3.3.1), emotional and material support, and bridging capital is likely to provide us with cognitive support in the form of "novel information" (Choi et al., 2011, pp. 109). Putnam's bridging and bonding social capital roughly equate with Granovetter's (1973) "strong" and "weak" ties: strong ties are equivalent to bonding capital, and weak ties to bridging capital (Choi et al., 2011, p. 109-110). Granovetter (1973) proposed that "the strength of a tie is a (probably linear) combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie" (p. 1361: *author's brackets*). Rostila (2011) noted that Granovetter's strong ties "seem to refer to intimate ties with immediate family and close friends and tend to be multi-stranded and regularly maintained", whereas his weak ties "are non-intimate ones, such as social contacts with acquaintances. Such ties tend to be single-stranded and infrequently maintained" (p. 313).

De Meo et al. (2014) proposed a definition of strong and weak ties on Facebook based on "the topology of the social network" (p. 78): "Weak ties are connections between individuals belonging to distant areas of the social graph, or the ones that happen to have most of their relationships in different national, linguistic, age, or common-experience groups" (p. 79) whereas "strong ties are ties between trusted/known persons (such as family ties and close friendships)" (p. 79: *author's brackets*). The authors found that weak ties far outnumbered strong ties on Facebook. Thompson (2008), writing for *The New York Times*, supported this finding:

Many [SNS users] maintained that their circle of true intimates, their very close friends and family, had not become bigger. Constant online contact had made those ties immeasurably richer, but it hadn't actually increased the number of them....But where their sociality had truly exploded was in their 'weak ties' – loose acquaintances, people they knew less well. It might be someone they met at a conference, or someone from high school who recently 'friended' them on Facebook, or somebody from last year's holiday party. (Thompson, 2008, p. 6)

The author went on to note that he had 254 Facebook friends, "yet only 20 are family or people I'd consider close friends. The rest are weak ties – maintained via technology" (p. 6).

De Meo et al. (2014) noted that weak ties are beneficial in that they "optimize the coverage of information spread" on Facebook (p. 78). Thompson (2008) referred to this too:

Sociologists have long found that 'weak ties' greatly expand your ability to solve problems. For example, if you're looking for a job and ask your friends, they won't be much help; they're too similar to you, and thus probably won't have any leads you don't already have yourself. Remote acquaintances will be much more useful, because they're further afield, yet still socially intimate enough to want to help you out. (Thompson, 2008, p. 6)

Luarn, Kuo, Chiu, and Chang (2015) found that those with strong ties on Facebook were more likely to give social support by "clicking 'like', writing comments, and sending private messages" (p. 44) than those with weak ties, the implication being that these exchanges of social support occurred more between strong than weak ties. Between them, then, De Meo (2014) and Luarn et al. (2015) support the view that, in terms of social support, strong ties provide emotional support on Facebook and weak ties provide informational support.

### 3.3.3 Affiliation

Henry Murray (1938) defined his "affiliative attitude" (*the need for affiliation/affiliation motive*) as: "To form friendships and associations. To greet, join, and live with others. To co-operate and converse sociably with others. To love. To join groups" (p. 80). Later definitions of *n* affiliation, based on Murray's work, include "a desire to establish and/or maintain warm and friendly interpersonal relations" (French & Chadwick, 1956, p. 296), and "motivation for social acceptance" (Atkinson, Heyns, & Veroff, 1954, p. 405). In this thesis, I frame affiliation in the context of non-intimate relationships based on 'common ground': both French and

Chadwick's (1956) and Atkinson et al.'s (1954) definitions of affiliation support this framing, as do parts of Murray's (1938) "affiliative attitude" ("To form friendships and associations...To co-operate and converse sociably with others" [p. 80]).

Affiliative relationships provide a sense of belonging on SNS, partly because they enable a sense of connection to a wider network (Thompson, 2008), partly because they provide emotional support (though not to the extent of intimate relationships) (Vitak & Ellison, 2012, p. 250), and partly because they help provide a sense of identity, particularly if such relationships are set in a group context (Robards & Bennett, 2011).

Regarding this latter point, Robards and Bennett (2011) found that affiliative relationships in both offline and SNS (including Facebook) contexts facilitated the process of identity formation. The authors interviewed 32 young adults, "uncovering how their identities are constructed and subsequently situated within, across or in-between systems of belonging" (p. 309):

...individuals seek each other out...in a reflexive process of self-selection based around perceived commonality in terms of taste, aesthetics, outlook, and other cultural attributes....Due to the cultural fragmentation associated with late modernity, the everyday terrains that individuals must traverse in their search for like-minded others are increasingly vast and multi-layered. Thus, temporary engagement with a variety of collectivities becomes an increasingly necessary step in seeking out those individuals and collective spaces (virtual and physical) with whom and within which one feels 'at home'. (Robards & Bennett, 2011, p. 314: *authors' brackets*)

Also, in this thesis, I associate affiliation with bridging social capital and weak ties. Vitak and Ellison (2012) and De Meo et al. (2014) respectively found that bridging social capital and weak ties were associated with informational support on Facebook. The provision of informational support on Facebook has been found to be valuable not only in a practical sense, but also in the sense of engendering in recipients a sense of belonging (Erfani, Abedin, & Blount, 2016).

### 3.3.4 Intimacy

There is a lack of consensus among theorists as to the definition of *intimacy*, and according to Register and Henley (1992), "at least twenty significantly different definitions of intimacy can be found" (p. 468). Although intimacy has been identified as a component of romantic love (Rubin, 1973; Sternberg, 1986), the experience of intimacy is not confined to romantic relationships. Prager (1955) defined intimacy as a

“positively cathected psychological relation between two or more people in which partners share that which is private and personal with one another” (as cited in Archer, 2000, p. 360), and for McAdams (1989), intimacy “refers to the sharing of one’s innermost self with another” (pp. 199-200). Similarly, Reis (1990) described intimacy as a “process” which “begins when one person expresses, through verbal or nonverbal means, personally revealing feelings or information to another person. It continues when the listener responds supportively or empathetically. For an interaction to become intimate, the discloser must feel understood, validated, and cared for by the listener” (p. 16). Also, Laurenceau and Kleinman (2006) stated that “intimacy is best conceptualized as a personal, subjective (and often momentary) sense of connectedness that is the outcome of an interpersonal, transactional process consisting of self-disclosure and partner responsiveness” (p. 638: *authors’ brackets*). Intimacy has been said to exist in a range of contexts, including those of same- and opposite-sex friendships (Helgeson, Shaver, & Dyer, 1987; Aukett, Ritchie, & Mill, 1988) and marriage (Waring & Chelune, 1983; Dandeneau & Johnson, 2007).

A number of studies have sought to determine lay meanings of intimacy (e.g., Helgeson et al., 1987; Monsour, 1992; Waring, Tillman, Frelick, Russell, & Weisz, 1980; Register & Henley, 1992). For instance, Monsour (1992), in his study of intimacy between cross- and same-sex friends, found that “five of the seven most frequently mentioned definitions of intimacy were specified by both cross-and same-sex friends: self-disclosures, emotional expressiveness, unconditional support, physical contact and trust” (p. 277), and Waring et al. (1980) identified self-disclosure as “a fundamental aspect of intimacy in interpersonal relationships and marriage. Expression of affection, compatibility, cohesion, identity [“knowing oneself, knowing one’s needs, and a sense of self-esteem” (p. 473)], and the ability to resolve conflict were also considered important aspects of intimacy” (p. 471). However, Helgeson et al. (1987), in their study of same-sex friendships and opposite-sex couples, concluded that intimacy, “which has sometimes been treated in the scientific literature as a synonym for self-disclosure, is more accurately described as appreciation, affection or warmth” (p. 223). Perhaps the last word on this topic should go to McAdams (1989), who stated that: “A person who is high in intimacy motivation [the need for intimacy]...is consistently ready for the experience of intimacy. Such a person is on the lookout for opportunities to share the inner self and to experience the wholeness of the other” (p. 49).

Ljepava, Orr, Locke, and Ross (2013) found that “frequent Facebook users...reported having more intimate friendships both online and offline” (p. 1606) than non-Facebook users, and speculated that “close friendships might now be a part of online social networks and may contribute to the feeling of closeness and intimacy between friends, thus deepening the connections that previously existed” (p. 1606). Also, Park et al. (2011), exploring “the association between self-disclosure and intimacy in the context of Facebook” (p. 1981), found that frequent positive status updates (measured by questions such as “I frequently talk

about myself in Facebook” and “I usually disclose positive things about myself in Facebook” [p. 1977]) contributed to a feeling of intimacy between users. The authors speculated that “linear self-disclosure [progressively deepening self-disclosure as per Altman and Taylor (1973), discussed below] may not be essential in maintaining relationships on Facebook as one knows one’s close friends already and he or she may be able to communicate with his/her close friends through other channels as well, including [face-to-face] communication or phones, not purely via Facebook” (p. 1981).<sup>22</sup> Similarly, Utz (2015) found that, on Facebook, not only were intimate self-disclosures related to a feeling of connection, but so were entertaining and humorous self-disclosures. Finally, Barazova (2012) found that Facebook users felt that it was inappropriate to share intimate self-disclosures publicly (via status updates) on Facebook. However, intimate self-disclosures shared privately (via messages) enhanced the feeling of “relational intimacy” (p. 815) between discloser and confidant.

### 3.3.5 Self-disclosure

According to Laurenceau and Kleinman (2006), “self-disclosure has traditionally been considered an important component and index of intimacy” (p. 641). The use of the term *self-disclosure* dates from the 1950s (Bevan-Dye & Akpojivi, 2016), when Jourard and Lasakow published findings based on the JSDQ (Jourard-Lasakow Self-Disclosure Questionnaire) (Chen & Nakazawa, 2009, p. 82), which measured levels of self-disclosure to key others (“mother, father, opposite-sex best friend, and same-sex best friend” [Cozby, 1973, p. 73]). Jourard argued that self-disclosure was important because “the ability to allow one’s real self to be known to at least one ‘significant’ other is a prerequisite for a healthy personality” (Cozby, p. 77).

It is widely acknowledged that self-disclosures can be both non-verbal and unintentional (Reis, 2000; Greene, Derlaga, & Mathew, 2006), but definitions of self-disclosure are generally limited to verbal and intentional disclosures only. For instance, Cozby (1973) defined self-disclosure as “any information about himself which Person A communicates verbally to a Person B [*sic*]” (p. 73), and, thirty years later, Greene et al. (2006) defined self-disclosure as “an interaction between at least two individuals where one intends to deliberately divulge something personal to another” (p. 411).

Altman and Taylor (1973) explored the relationship between self-disclosure and relationship development, coining the term *social penetration theory*. Key to Altman and Taylor’s (1973) social penetration theory are the hypotheses that “interpersonal exchange gradually progresses from superficial, nonintimate areas to more intimate, deeper layers of the selves of the social actors” (p. 6), and that “people assess [the] interpersonal rewards and costs...gained from interaction with others” (p. 6). One of the rewards may be

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<sup>22</sup> In support of this point, Yang, Brown, and Braun (2013) found “a sequence of media use tied to stages of relationship development – from Facebook in early stages to instant messaging and then cell phones as the relationship progressed” (p. 5).

intimacy, and one of the costs, vulnerability. Eldridge Cleaver (1968) eloquently described this cost in reference to a deepening romantic relationship:

The reason two people are reluctant to really strip themselves down in front of each other is because in doing so they make themselves vulnerable and give enormous power over themselves one to the other....The prospect is terrifying. The stakes are high. (Cleaver, as cited in Altman & Taylor, 1973, p. 41)

According to Altman and Taylor, (1973), we tend to proceed cautiously in interpersonal relationships, sharing first the public, and then progressively more private aspects of ourselves to minimise the risks of sharing too much with an unknown other. As well as increased vulnerability, these risks may include “negative reactions” such as criticism and rejection (Ignatius & Kokkonen, 2007, p. 380).

Altman and Taylor (1973), however, explained that not all relationships become close: “Some are much more segmental and fragmentary, examples being associations between members of the PTA, a working committee, a school or work associate. In such relationships, people learn about one another in areas necessary to function in the group and often only interact within the framework of the group’s goals” (p. 12). (“Of course”, Altman and Taylor (1973) added, “such groups can serve as a springboard for more intimate relationships” [pp. 12-13]). In this regard, Altman and Taylor’s social penetration theory parallels social capital theory (discussed in Section 3.3.2), which postulates bonding and bridging capital/strong and weak ties.

Self-disclosures are usually measured in terms of breadth and depth: “Depth refers to the intimacy level of the disclosure, whereas breadth refers to the amount of information exchanged” (Collins & Miller, 1994, p. 458). The most intimate self-disclosures are considered to be those describing “personal emotions and self-perceptions (e.g., feelings, fears, wishes, and needs)” (Reis, 2000, p. 211: *author’s brackets*). Self-disclosure has been studied from four perspectives (Reis, 2000, p. 211): the *relationship stage approach*, epitomised by Altman and Taylor (1973) (discussed above); the *social skills approach*, which postulates that there are “fairly strict social rules governing what information is appropriate to reveal and in what contexts” (Collins & Miller, 1994, p. 459); the *goal-oriented approach*, which postulates that “self-disclosure may be enacted for any of several purposes: for example, to elicit a supportive response: to foster a deepening relationship: to unburden the self: or to manipulate the other into complementary self-revelations” (Reis, 2000, p. 211); and the *individual differences approach*, which focusses on who is more likely to self-disclose, and under what conditions.

Cultural background and gender are among the factors that researchers have considered as influencing the level of self-disclosure. Regarding the influence of culture on self-disclosure, Brinthaupt (2008) stated that “cultures with a greater emphasis on nuclear and extended families...are more self-disclosing than cultures with less closely knit social or family structures” and that “members of Eastern cultures...tend to report less frequent self-disclosures than members of Western cultures” (p. 408). Regarding the influence of gender, Ignatius and Kokkonen (2007), after reviewing the literature, claimed that “the current body of evidence does not lend itself to secure conclusions” (p. 382) about its role in self-disclosure, whereas Brinthaupt (2008), in contrast, claimed that “researchers have consistently found that females tend to show more self-disclosure than males”, but added that this is “a relatively small effect” (p. 408). Shaffer, Pegalis, and Cornell (1992), however, found that “sex role identity” or “masculinity and femininity” predicted self-disclosure more accurately than actual gender: femininity was correlated with higher self-disclosure than masculinity, but “androgynous” people (those expressing high levels of both masculinity and femininity) self-disclosed most of all (p. 307).

Three other observations related to self-disclosure, and perhaps relevant to this thesis, are as follows. Firstly, strongly felt emotions, such as those stirred by traumatic life events (Rimé, Philippot, Boca, & Mesquita, 1992) and anxiety (Stiles, Shuster, & Harrigan, 1992) are said to prompt self-disclosure, but loneliness is said to have the opposite effect (Schwab, Scalise, Ginter, & Whipple, 1998). Secondly, reciprocity is said to be key to self-disclosure in that a disclosure will often evoke another, similar disclosure from its recipient (Cozby, 1972). Finally, an individual’s predisposition to volunteer unsolicited disclosures – his or her “baseline of disclosure” – must be taken into account when considering his or her self-disclosing behaviours (McAllister & Bregman, 1985, p. 775). This “baseline of disclosure”, is most likely synonymous with *the need to disclose*, defined as “the need to reveal information about the self” (Chen, 2012, p. 171).

Cheung, Lee, and Chan (2015) found that “[the] convenience of maintaining existing relationships, new relationship building, self-presentation, and enjoyment” (p. 292) motivated self-disclosure on Facebook.<sup>23</sup> Also, Trepte and Reinecke (2013) found that “the psychological disposition for self-disclosure” was associated with “a higher tendency to use SNS” (including Facebook), and “frequent SNS use increases the wish to self-disclose online because self-disclosing behaviors are reinforced through social capital [including advice, offers of material aid, and “someone to talk to” (p. 1106)] within the SNS environment” (p. 1102). Similarly, Zhang (2017) found that Facebook users who self-disclosed on Facebook “in times of stress” (p. 257) received social support, which in turn “reduced depression” (p. 257). Forest and Wood (2012), however, found that those with low self-esteem tended to post more negative status updates (expressing

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<sup>23</sup> Incidentally, the authors also found that “perceived privacy risk does not have any significant impact on self-disclosure” on Facebook (Cheung et al., 2015, p. 279).

“sadness, anger, frustration, anxiety, fear, and irritability” [p. 297]) on Facebook than did those with high self-esteem, but that other Facebook users responded negatively to these updates. The apparent discrepancy between Zhang’s (2017) and Forest and Wood’s (2012) findings may be explained by both Zhang’s and Forest and Wood’s suggestion that those who post with an awareness of self-presentational issues in times of stress may receive a more positive response than those who are too “honest” (Zhang, p. 535). Additionally, in support of Forest and Wood’s (2012) findings, Ardi and Maison (2014) found that those with higher self-esteem tended to post more positive content on Facebook than those with lower self-esteem. Finally, self-disclosure has been explicitly linked with expression of the true self online (McKenna et al., 2002) and on SNS in particular (Seidman, 2014 [“true self expression”]; Wang et al., 2018 [“authentic self-presentation”]).

In summary, I propose, based on the literature, that Facebook users seek to portray themselves on Facebook both strategically and authentically, and also that they seek to belong in the contexts of both intimate and affiliative relationships. I equate intimate relationships with bonding social capital and strong ties, and affiliative relationships with bridging social capital and weak ties. In terms of social support, and using Jacobson’s three categories of social support (1986), intimate relationships are more likely to provide emotional, and possibly material, support on Facebook, and affiliative relationships are more likely to provide cognitive support on the site (Luarn et al., 2015; Trepte & Reinecke, 2013; De Meo, 2014). In terms of self-disclosure, deep mutual self-disclosure on Facebook is not necessary to promote a feeling of intimacy: instead, frequent, positive, entertaining, and humorous updates have been found to promote intimacy (Park et al., 2011; Utz, 2015).

In *Chapter 4* I provide an overview of the research design for this study.

## 4. RESEARCH DESIGN

This study is based on the results of a survey containing both open- and closed-ended questions, as well as open-ended questions posed to a focus group. The survey was available online for six weeks in August, September, and October 2014. It was preceded by an online pilot survey, held in late 2013. The focus group was held in November 2014. Prospective participants for the main and pilot surveys and the focus group included staff and students at ECU, as well as members of the general public. Participants had to be aged 18 and over and included Facebook users, people who had used Facebook but had deleted or deactivated their account, and people who had never used Facebook but had thought about it. A sample of twenty respondents (10% of the projected sample for the main survey) completed the pilot survey and there were 404 completed and valid responses for the main survey. Of this latter group, four respondents had never had a Facebook account, five had deleted their account, four had deactivated their account, and 391 had an active Facebook account. Focus group participants were recruited from the main survey (as explained in Section 4.5.2).

Most of the study data are quantitative because the survey was comprised largely of closed-ended questions, but these findings are enriched by qualitative data from the open-ended questions in the survey, and from the focus group discussion. The quantitative data situate the findings in a broad demographic context, while the qualitative data add richness and depth to the data and provide illustrative quotes.

### 4.1 Quantitative, qualitative, and mixed methods research

Because this study is based on quantitative data, and enriched by qualitative data, it is situated in the paradigmatic context of a mixed methods study with a predominantly quantitative focus. Qualitative and quantitative research methods are said to be grounded in different paradigms (a paradigm has been defined as a “worldview, complete with the assumptions that are associated with that view” [Merton, as cited in Teddlie & Tashakkori, 2009, p. 20]): “Quantitative methods are, in general, supported by the positivistic or scientific paradigm, which leads us to regard the world as made up of observable, measurable facts” whereas “qualitative methods are generally supported by the interpretivist paradigm, which portrays a world in which reality is socially constructed, complex, and ever changing” (Glesne & Peshkin, as cited in Thomas, 2003, p. 6).

In practice, quantitative research is typically based upon research hypotheses, and data are numeric and subject to statistical analysis, while qualitative research is usually exploratory, and based on narrative data which are subject to thematic analysis (Teddlie & Tashakkori, 2009). Kumar (1996) described the differing

purposes of the two approaches thus: “A study is classed as qualitative if [its] purpose...is primarily to describe a...phenomenon...and if analysis is done *to establish the variation* in the...phenomenon...*without quantifying it*”, but “if you want to *quantify the variation* in a phenomenon...and if the analysis is geared to ascertain the *magnitude of the variation*, the study is classified as a quantitative study” (p. 10: *author’s italics*). The qualitative approach has been criticised for “researcher bias”, lack of “reproductibility”, and lack of “generalisability” (Mays & Pope, as cited in Crossan, 2003, pp. 53-54), but proponents of this approach argue that it allows a depth of insight that quantitative research strategies cannot obtain.

Historically, the quantitative and qualitative research approaches have been considered to be incompatible, but it is now widely acknowledged that the two approaches can complement each other (Thomas, 2003), and it has, in fact, been suggested that they can be described as the opposing poles of a continuum with mixed methods research at the midpoint (Teddlie & Tashakkori, 2009). Johnson, Onwuegbuzie, and Turner (2007) defined mixed methods research as “an intellectual and practical synthesis based on qualitative and quantitative research....It recognizes the importance of traditional quantitative and qualitative research but also offers a powerful third paradigm choice that often will provide the most informative, complete, balanced, and useful research results” (p. 129). Note that Johnson et al.’s (2007) definition highlights a melding of both the practical and paradigmatic aspects of the qualitative and quantitative approaches, and indicates that mixed methods researchers are adaptable in that they use whatever combination of methods and approaches they believe will best answer the research question.

One way of combining quantitative and qualitative research is to use surveys in conjunction with focus groups. Morgan (1996) noted that: “While studies that bring together focus groups and surveys are one of the leading ways of combining qualitative and quantitative methods, such designs also raise a complex set of issues, since the two methods produce such different kinds of data” (p. 134). In an attempt to clarify these issues, he identified four ways of combining surveys and focus groups: firstly, “surveys are the primary method and focus groups serve in a preliminary capacity”; secondly, “focus groups are the primary method while surveys provide preliminary inputs”; thirdly, “surveys [are] the primary method, [while] focus groups...act as a follow-up that assists in interpreting the survey results” and “can be quoted in conjunction with quantitative findings”; and finally, “focus groups [are] the primary method and surveys [act] as a source of follow-up data” (pp. 134-135). In this study, I have adopted the third strategy: the focus group – along with the open-ended questions in the survey – added depth to the broad but ‘thin’ survey data.

#### 4.2 The hypotheses

The hypotheses, expressed in brief, are as follows: The demographic factors of age, gender, education, and

cultural background help shape both the Facebook-related privacy concerns and social needs of Facebook users. These concerns and needs, in turn, shape users' privacy- and social needs-related behaviours on Facebook. Users' privacy concerns are also partly dependent on their perceptions both of what the Facebook corporation 'knows' about them and with whom it shares their data (Figure 3).

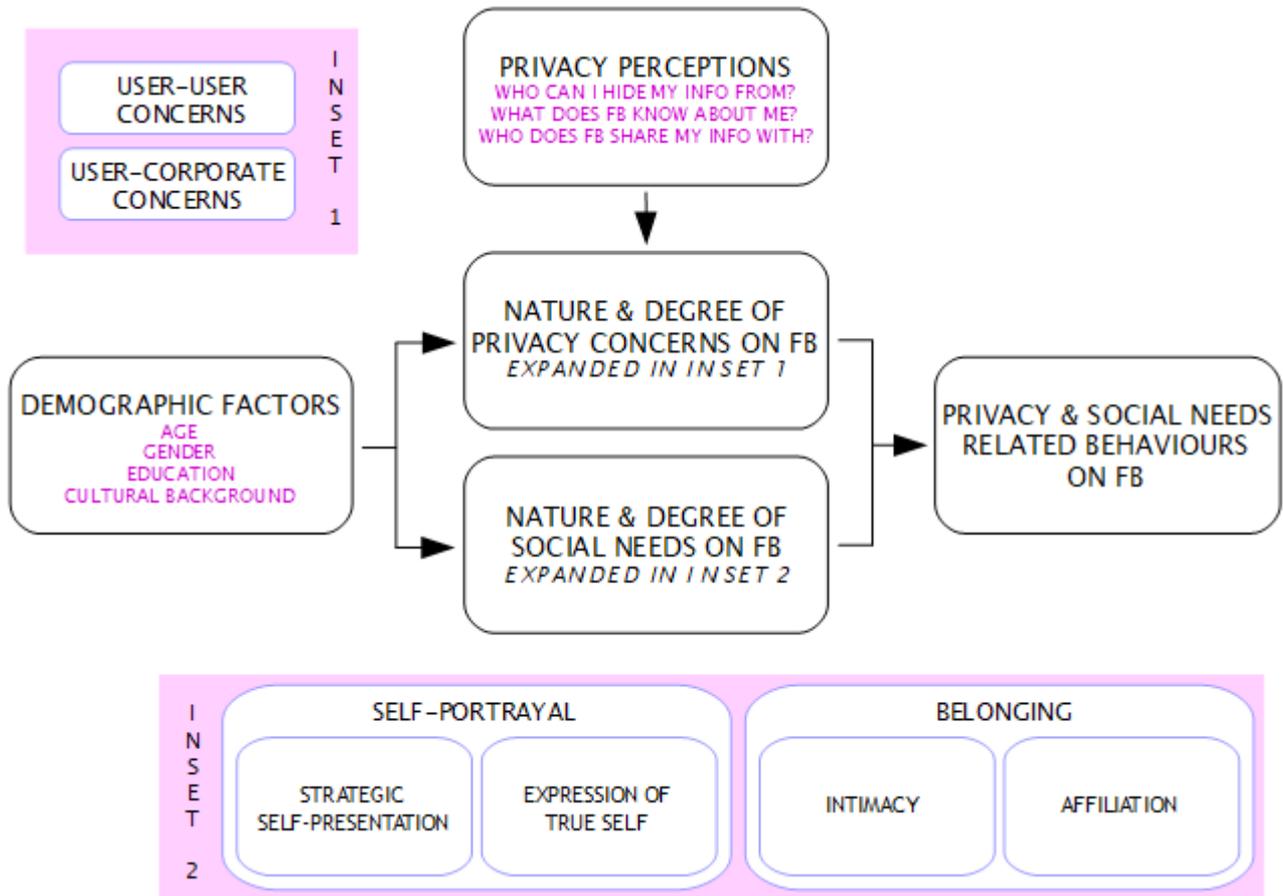


Figure 3. Model of hypotheses

The hypotheses listed, together with supporting evidence, are as follows:

➔ *Hypothesis #1: Demographic factors influence the nature and degree of privacy concerns on Facebook.*

In this study I hypothesise that the demographic factors of age, gender, formal education, and cultural background influence the nature and degree of privacy concerns on Facebook.

Age and gender have been found by some researchers to influence the nature and degree of privacy concerns on SNS. Younger users expressed a greater degree of user-user privacy concern on Facebook than did older users (Malik, Hiekkanen, & Nieminen, 2016), and were more likely to use privacy management

strategies on Facebook (Malik et al., 2016; Kezer, Sevi, Cemalcilar, & Baruh, 2016; Van den Broeck, Poels, & Walrave, 2015; Litt, 2013; Lang & Barton, 2015; BUT O'Brien & Torres, 2012, p. 85, found that, for privacy reasons, older users "are more cautious about what they say and do" on Facebook than younger users), possibly because they tended to share more information on the site than did older users (Malik et al., 2016; Ozimek & Bierhoff, 2016; Kezer et al., 2016; McAndrew & Jeong, 2012; BUT Taddicken, 2014, p. 265, found that "age has hardly any effect on self-disclosure" on SNS). However, older users expressed a greater degree of user-corporate privacy concern on Facebook than did younger users (O'Brien & Torres, 2012; Jeong & Coyle, 2014).

Regarding gender, females were less inclined than males to provide contact information on SNS (Special & Li-Barber, 2012; Fogel & Nehmad, 2009), possibly due to fears of stalking and harassment (Malik et al., 2016; Litt, 2013; Grubbs-Hoy & Milne, 2010; Fogel & Nehmad, 2009). Females were also less likely than males to disclose other types of personal information, such as interests and current location, on SNS (Saeri, Ogilvie, La Macchia, Smith, & Louis, 2014), and were more likely than males to use the privacy settings (Litt, 2013), screen friend requests, and untag photos of themselves (De Wolf, Willaert, & Pierson, 2014; Grubbs-Hoy & Milne, 2010; BUT Lang & Barton, 2015, p. 147, found that: "Contrary to previous studies, [our] findings suggested that women were not more likely to untag [photos of themselves on Facebook] than men", and Malik et al., 2016, similarly found that although females were more concerned about the privacy of their photos on SNS than males were, they did not engage in more photo-related privacy-protective behaviours). Finally, females had a greater degree of user-corporate privacy concern on Facebook than did males (Grubbs-Hoy & Milne, 2010).

I have only found one study dealing with the effect of formal education on privacy concerns on SNS: Blank et al. (2014) found a positive association between SNS users' level of formal education and their use of the privacy settings, reflecting user-user privacy concerns. Similarly, in an e-commerce context, some researchers have found that consumers with a higher level of formal education place more importance on user-corporate privacy than those with a lower level of formal education (e.g., Riquelme & Roman, 2014; Yang, Lin, Chandrees, & Chao, 2009; Cho, Rivera-Sanchez, & Lim, 2009).

A number of researchers measuring the effect of culture on online privacy concerns have used Hofstede's cultural taxonomy (e.g., Cho et al., 2009; Reay, Beatty, & Miller, 2013; Li, Kobsa, Knijnenburg, & Nguyen, 2017; Hallikainen & Laukkanen, 2018). Hofstede (n.d.) defines culture as "the collective programming of the mind distinguishing the members of one group or category of people from others" (<https://www.hofstede-insights.com/models/national-culture/>). In 1980, Hofstede published his foundational work *Culture's consequences: International differences in work-related values* in which he postulated, based on "his

analysis of some 116,000 survey questionnaires administered to employees of the IBM corporation in 72 countries” (Minkov & Hofstede, 2011, p. 11), that there are “four major dimensions of national culture” (Minkov & Hofstede, 2011, p. 11) as follows: *power distance* – “social inequality, including the relationship with authority”; *individualism/collectivism* – “the relationship between the individual and the group”; *masculinity/femininity* – “the social implications of having been born as a boy or a girl”; and *uncertainty avoidance* – “ways of dealing with uncertainty, relating to the control of aggression and the expression of emotions” (Minkov & Hofstede, 2011, p. 12). In 1991, in his book *Cultures and Organizations: Software of the Mind*, Hofstede added a fifth dimension: *long-term versus short-term orientation* – “the focus of people’s efforts: on the future or the present and the past” (Minkov & Hofstede, 2011, pp. 13-14), and in 2007 Minkov added two new dimensions, based on his analysis of *World Values Survey* data (<http://www.worldvaluessurvey.org/wvs.jsp>): *indulgence versus restraint* – “a tendency to allow relatively free gratification of basic and natural human desires related to enjoying life and having fun [versus]...a conviction that such gratification needs to be curbed and regulated by strict social norms” (Hofstede, Hofstede & Minkov, 2010, p. 281), and *monumentalism versus flexumity* which “contrasts societies in which the human self is like a proud and stable monolithic monument versus societies whose cultures promote humility, flexibility, and adaptability to changing circumstances” (Hofstede, Hofstede, & Minkov, 2010, p. 252).<sup>24 25</sup>

Hofstede’s dimensions of national culture have been criticised on two major counts. First, some researchers have asserted that Hofstede’s correlation of cultural dimensions with nations can be misleading because some cultures cross national boundaries and/or multiple cultures co-exist in certain nations (McSweeney, 2002; Peterson & Sondergaard, 2011). A second criticism of Hofstede’s cultural model is the fact that it is based on quantitative research, and thus lacks the depth that qualitative approaches provide (Jahoda, 2012). In this sense, Hofstede’s cultural taxonomy stands in stark contrast to the in situ ethnographic work of Kluckhohn, Wedgwood, Mead, and other social anthropologists that preceded it.

As mentioned above, there exist a number of studies exploring the relationship between Hofstede’s dimensions of national culture and online privacy concerns. Some of these studies focus specifically on privacy concerns in an SNS context. For instance, Krasnova, Veltri, and Gunther (2012), who studied German

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24 Minkov also found a third dimension, *exclusionism versus universalism*, but this dimension “correlated with” the pre-existing *individualism versus collectivism* (Hofstede, Hofstede, & Minkov, 2010, p. 252).

25 Hofstede’s work has been extended by Project GLOBE (The Global Leadership and Organizational Behavior Effectiveness Project), which proposed, based on data collected from managers in 61 nations, nine cultural dimensions: *future orientation*, *performance orientation*, *humane orientation*, *power distance*, *uncertainty avoidance*, *in-group collectivism*, *institutional collectivism*, *gender egalitarianism*, and *assertiveness*. Six of these dimensions were derived from Hofstede’s work: “The dimensions of *power distance* and *uncertainty avoidance* are identical in the two taxonomies. Hofstede’s *individualism-collectivism* dimension has been separated into two GLOBE components: *in-group collectivism* and *institutional collectivism*. Similarly, Hofstede’s *masculinity-femininity* dimension has been divided into two components: *gender egalitarianism* and *assertiveness*” (Lustig & Koestler, 2010, pp. 124-125: *my italics*).

and US Facebook users, found that a high level of individualism was associated with a high level of user-corporate and user-user trust and, therefore, a high level of self-disclosure on Facebook, while a low level of uncertainty-avoidance “leads users to ignore their privacy concerns” (p. 134) on Facebook in favour of self-disclosure. Also, studies by Park, Jun, and Lee (2015) (centred on South Korea and the US), James, Wallace, Warkentin, Kim, and Collignon (2017) (also centred on South Korea and the US), and Cho, Knijnenburg, Kobsa, and Li (2018) (centred on Singapore, South Korea, and the US) all found that a high level of collectivism was associated with a low level of concern about user-user privacy issues in an SNS context. Finally, Bauer and Schiffinger (2016), in their meta-analysis of 38 studies, measured the effect of Hofstede’s national cultural dimensions (individualism/collectivism, uncertainty avoidance, power distance, long-term orientation, masculinity, and indulgence) on “online self-disclosure (OSD) in person-to-crowd settings” (p. 1: *authors’ brackets*) including SNS. The authors found that the effect of privacy concerns and “trust beliefs” (“confidence that personal information submitted to Internet websites will be handled competently, reliably, and safely” [p. 8]) on OSD were not moderated by cultural context, but the effect of anticipated benefits and “risk beliefs” (perceived risk of privacy violation) on OSD were. Uncertainty avoidance and indulgence were found to reduce the effect of anticipated benefits on OSD, and masculinity and power distance were found to increase it. Also, uncertainty avoidance and long-term orientation were found to reduce the effect of risk beliefs on OSD, and indulgence was found to increase it.<sup>26</sup> The authors suggested, in view of their findings, that future research concerning OSD and Hofstede’s national cultural dimensions should encompass not just individualism/collectivism and uncertainty avoidance, the two most commonly researched dimensions (particularly since they did not find individualism/collectivism statistically significant<sup>27</sup>), but at least some of the other dimensions.

While Hofstede’s national cultural dimensions are a relatively popular choice for the cultural component of research concerning privacy concerns on SNS, some researchers have used different theoretical foundations for this type of research. Thomson, Yuki, and Ito (2015), who studied Japanese and US SNS users, for example, based the cultural component of their research on the concept of *relational mobility*. The authors defined relational mobility as “the degree to which individuals have opportunities and the freedom to voluntarily form new relationships and terminate old ones in a given social environment, according to one’s preference” (p. 287), and claimed that cultures with a high degree of relational mobility (such as the US, as opposed to Japan) foster “general trust”, which is “a psychological state to accept vulnerability based solely on [a person’s] expectations that most people are reliable, honest, good and kind, acting fairly, and not harming [others] intentionally” (Gheorghiu, Vignoles, & Smith, as cited in Thomson et al., 2017, p. 286). A

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26 The authors conceded that certain of these findings appeared to be “counter-intuitive” and “puzzling” (p. 12), but suggested possible rationalisations for them.

27 This is in marked contrast to Park et al. (2015), James et al. (2017), and Cho et al. (2018), cited above, all of whom did find individualism/collectivism statistically significant.

high level of general trust, in turn, was found to mitigate privacy concerns on SNS.

Gunsoy, Cross, Saribay, Okten, and Kurutas (2015), who studied Turkish and US Facebook users, on the other hand, based the cultural component of their research on the concept of *honour versus dignity cultures*. The authors explained that:

In honour cultures (Turkey), esteem depends [both] on one's own perception of self-worth and on other people's opinions. In those cultures, honor is easily lost and difficult to regain. In dignity cultures (northern America), esteem mainly depends on the individual and cannot be taken away by others. (Gunsoy et al., 2015, p. 323: *authors' brackets*)

The authors explored Turkish and US Facebook users' attitudes to posting "potentially improper" (p. 323) photos ("e.g., at a party; with one's boyfriend/girlfriend" [p. 323]) on Facebook and found that Turkish participants (especially women) were more reluctant to post such photos on the site than were US participants.

Chen (2018), however, did not use a cultural construct (e.g., Hofstede's national cultural dimensions, relational mobility, honour versus dignity cultures) of any kind for his research concerning the privacy paradox in Hong Kong and US SNS users. I have similarly not based the cultural component of this research on a cultural construct.

➡ *Hypothesis #2: Demographic factors influence the nature and degree of social needs on Facebook.*

In this study I hypothesise that the demographic factors of age, gender, formal education, and cultural background influence the nature and degree of the social needs that users seek to fulfil on Facebook.

Younger Facebook users were more active on Facebook than were older users (Ozimek & Bierhoff, 2016; Malik et al., 2016; Przepiorka, Blachnio, & Diaz-Morales, 2016; Kezer et al., 2016; McAndrew & Jeong, 2012) and had more Facebook friends than did older users (Kezer et al., 2016). However, Grieve and Kemp (2015) found that older users derived more "social connectedness" (p. 241) from Facebook interaction than did younger users. This "might reflect", the authors suggested, "an age-based shift from bridging social capital towards bonding social capital in later years" (p. 241). In addition, younger users tended to use Facebook more "as a pastime activity" (Papacharissi, as cited in Malik et al., 2016, p. 465), and for the purposes of social comparison (Ozimek & Bierhoff, 2016) and "voyeurism" (Van den Broeck et al., 2015, p. 6) than did older users, and it could be argued that such activities are not conducive to a sense of social connectedness.

Regarding gender, males tended to use SNS more to find new friends and romantic partners than did females, whereas females tended to use Facebook more to communicate with family and existing friends than did males (Muscanell & Guadagno, 2012; McAndrew & Jeong, 2012). Also, males' profile photos on Facebook "accentuated status (using objects or formal clothing) and risk taking (outdoor settings), while females' photos accentuated familial relations (family photos) and emotional expression (eye contact, smile intensity and lack of sunglasses)" (Tifferet & Vilnai-Yavetz, 2014, p. 388: *authors' brackets*; BUT Hum et al., 2011, p. 1828, found that "the content...of Facebook profile photographs...did not significantly vary by gender"). Males were also less likely than females to show emotional support via public replies to status updates on Facebook, although they were equally as likely as females to show emotional support in private messages (Joiner et al., 2014). Regarding motives for Facebook use, Krasnova, Veltri, Eling, and Buxmann (2017) found that females "focus on maintaining strong relationships with close ties", whereas males "are mainly driven by the ability to gain general information" (p. 273) (general information includes information on topics "such as current affairs, politics, money, business, and other topics of broad interest" [Krasnova et al., 2017, p. 274]). However, according to Krasnova et al. (2017), both genders were equally motivated to use Facebook for the purpose of self-presentation ("self-enhancement" [p. 275]).

I have found only one study regarding the effect of formal educational status on Facebook use for the fulfilment of social needs: Syn and Oh (2015) found that Facebook users with a higher level of formal education "tend to be motivated more by enjoyment, learning and reputation" (p. 565) than those with a lower level of formal education. The authors speculated that "Facebook users who have certain levels of education may think that sharing information will help them learn new information and grow their reputation among community members, and may enjoy sharing and searching for information for others" (p. 565).

I have not found many studies dealing directly with the relationship between cultural background and the use of SNS to fulfil social needs, but some studies using Hofstede's national cultural dimensions have addressed this topic. Krasnova et al. (2012), in their study comparing the levels of individualism and uncertainty avoidance of US and German Facebook users, observed that users from both cultures equally enjoyed sharing information on Facebook, and neither the degree of uncertainty avoidance nor individualism appeared to impact upon the level of enjoyment. Also, as mentioned above, Bauer and Schiffinger's (2016) meta-analysis of 38 studies in regard to "online self-disclosure (OSD) in person-to-crowd settings" (p. 1: *authors' brackets*) including SNS, found that Hofstede's national cultural dimensions of uncertainty avoidance and indulgence reduced the effect of anticipated benefits on OSD, whereas masculinity and power distance increased it. The authors were not surprised to find that uncertainty

avoidance reduced the effect of anticipated benefits on OSD, but they were unsure as to why indulgence should do so. In another study, centred on Indonesia (a collectivistic nation) and Poland (an individualistic nation), Ardi and Maison (2014) found that Indonesian Facebook users disclosed more on Facebook and had a greater number of Facebook friends than Polish users. The authors speculated that Indonesians' propensity to disclose more on Facebook may be because:

In [face-to-face] encounters, collectivists are more likely to have many rules, especially those relating to various social norms and respecting people with authority. However, Facebook is a platform that provides freedom of expression due to visual anonymity....This may enable users in collectivist cultures, like Indonesian, to express themselves more freely in an online setting than they would do publicly or in front of a figure of authority. People do not need to be worried about their gestures, facial expression or voice when they disclose themselves on SNS, even if everyone knows about their identity. (Ardi & Maison, 2014, p. 208)

Finally, Kohl and Gotzenbrucker (2014) explored the relationship between culture and the use of SNS to fulfil social needs without using a cultural construct (such as Hofstede's national cultural dimensions), and found that although both Austrian and Thai users used SNS for "lifelogging and mood management" (p. 521), "Austrian respondents prefer using SNS to communicate, [whereas] Thai respondents were more likely to use them as playful tools for overcoming emotional barriers and expressing vernacular creativity" (p. 521).

In summary, three points need to be made regarding studies related to *Hypothesis #1* and *Hypothesis #2*. First, although a number of studies have addressed the impact of age and gender on privacy concerns and the expression of social needs on SNS, there are some inconsistencies in their findings. Second, few studies have addressed the impact of formal education on privacy concerns and the expression of social needs on SNS. Third, although several studies have addressed the impact of cultural background on privacy concerns and the expression of social needs on SNS, I am not aware of any such studies centred on Australian culture in a cross-cultural context. Therefore, clarification of the roles of gender, age, formal education, and Australian cultural background on privacy concerns and the expression of social needs on SNS is needed.

➡ *Hypothesis #3: Privacy perceptions influence the nature and degree of privacy concerns on Facebook.*

In this study I hypothesise that Facebook users' privacy perceptions in three key areas (who users can hide their information from, what Facebook knows about them, and who Facebook shares their information with) influence the nature and degree of their privacy concerns on Facebook. The term "privacy

perceptions” refers to users’ beliefs regarding these three areas, which encompass both user-corporate and user-user privacy issues.

I have found few studies that measure Facebook users’ privacy perceptions in the three key areas stated above. In 2012, O’Brien and Torres found that “there is a high level of awareness of activities concerning information privacy (what information is protected, how information is shared and who has access) among Facebook users” (p. 89: *authors’ brackets*), although almost 35% of users appeared to be uncertain about what information is made available to “third parties” (p. 84), and almost 25% were uncertain about “the risk to information from using applications and games” on Facebook (p. 84). More recently, Golbeck and Mauriello (2016) found that Facebook users were “generally under-informed about what data apps could access from their profile”, and “even after receiving explicit information on the topic, many subjects still did not fully understand the extent to which apps could access their data” (p. 1).

Regarding the effect of privacy perceptions on privacy concerns, Zlatolas, Welzer, Hericko, and Holbl (2015) found that the less users believed that they could control who saw their information on Facebook and how Facebook used their information, the greater their Facebook-related privacy concerns, and the greater users’ Facebook-related privacy concerns, the less information they shared on the site. However, given the lack of studies on the influence of users’ Facebook-related privacy perceptions on their privacy concerns, more research is needed on this topic.

➡ *Hypothesis #4: The nature and degree of privacy concerns and social needs on Facebook combine to influence behaviours on Facebook.*

In this study I hypothesise that the nature and degree of social needs and the nature and degree of privacy concerns on Facebook influence behaviours on Facebook: these behaviours may be social or privacy-related, or some combination of the two.

The privacy paradox and privacy calculus theories are relevant to this hypothesis. Barth and de Jong (2017) defined the privacy paradox as “a dichotomy between privacy attitudes and actual behaviour” (p. 1039), and explained that: “While [internet] users claim to be very concerned about their privacy, they nevertheless undertake very little to protect their personal data” (p. 1038). Privacy calculus theory, however, “states that people will self-disclose personal information when perceived benefits exceed perceived negative consequences” (Dienlin & Metzger, 2016, p. 2).

A number of studies have examined the privacy paradox and privacy calculus in relation to SNS. Min and

Kim (2015) found support for the privacy calculus in that, although privacy concerns “severely inhibit[ed]” (p. 851) self-disclosure on Facebook, the combined effect of the motives for “relationship management” and “self-presentation” (p. 851) enticed users to self-disclose on the site. Similarly, Lee, Park, and Kim (2013) found that the intention to self-disclose on SNS (including Facebook) “is influenced by expected benefit and expected risk simultaneously” but “the effect of expected benefit is larger than that of expected risk” (p. 873), and Dienlin and Metzger (2016) found that, when deciding whether or not to disclose on Facebook, “the net effect of benefits exceeded that of privacy concerns” (p. 277) for users. Hallam and Zanella (2017), however, found support for both the privacy paradox and privacy calculus on SNS in that, although users do weigh up the costs and benefits of self-disclosure, “a privacy breach, not yet experienced and psychologically distant, has less weight in everyday choices than more concrete and psychologically-near social networking activities” (p. 217). Finally, in support of the privacy paradox, Saeri et al. (2014) found that privacy concerns on Facebook were associated with “intentions to protect...privacy” (p. 363) but the authors did not find an association between privacy concerns and “actual privacy protection behaviour” (p. 363).

Some researchers have reviewed multiple studies centred on the privacy paradox. Barth and de Jong (2017) conducted a systematic review of 35 studies concerning the privacy paradox, including studies centred on SNS, and concluded that the paradox may be largely explained by “the non-rational processes of decision-making” (p. 1045). Also, Baruh, Secinti, and Cemalcilar (2017) carried out a meta-analysis of 166 studies involving 34 countries, examining the privacy paradox in relation to “online services” (such as e-commerce, e-government, and online banking) and SNS. Interestingly, the authors found that the privacy paradox did not apply to online service use but it did apply to SNS use: i.e., people curbed their use of online services due to privacy concerns, but they continued to use SNS despite their privacy concerns. Baruh et al. (2017) speculated that this may be the case because, in contrast to online service use, SNS use generates a myriad of social benefits, thus prompting users to override their privacy concerns.<sup>28</sup> Finally, Kokolakis (2017) reviewed 51 studies related to the privacy paradox in both e-commerce and SNS contexts, and concluded that “the diverse research results [some in support of the privacy paradox and some not] are explained by the diversity in research methods, the different contexts and the different conceptualisations of the privacy paradox” (p. 122).

Other researchers, however, have claimed that privacy concerns do not directly influence self-disclosure on SNS: instead, other variables are said to mediate the relationship between privacy concerns and self-disclosure. For example, Taddei and Contena (2013), following the lead of Krasnova, Spiekermann, Koroleva,

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28 Baruh et al. (2017) noted that “the findings can be generalized across gender, cultural orientation, and national legal systems” (p. 26).

and Hildebrand (2010) and Joinson, Reips, Buchanan, and Paine-Schofield (2010), concluded that both perceived control over one's information on Facebook, and trust ("defined as the belief that legal structure, providers' characteristics and [SNS] members' characteristics inhibit opportunistic and dangerous behaviours because of their competence, benevolence and integrity" [p. 822]) interacted with privacy concerns to influence self-disclosure on SNS. Gupta and Dhimi (2015) similarly found that the level of perceived privacy and security risks of Facebook use influenced the level of trust on the site, and the level of trust, in turn, influenced the degree of self-disclosure. Also, Dienlin and Trepte (2015) found that privacy intentions (the extent to which Facebook users "*wanted to*" [p. 290: *authors' italics*] enact specific behaviours on Facebook), and privacy attitudes (the extent to which Facebook users thought specific behaviours on Facebook were "*useful*", "*advantageous*", "*worrying*", "*dangerous*", "*careless*", or "*bad*" [p. 289]) mediated the relationship between privacy concerns and privacy-related behaviours on Facebook. Thus, privacy paradox and privacy calculus research portrays SNS users as constantly juggling their social needs with their needs for user-user and user-corporate privacy.

Facebook requires authenticity in order to reap social capital (Kohl & Gotzenbrucker, 2014). However, the key issue regarding user-user privacy concerns on Facebook is "context collapse" whereby users' information may be viewed by unintended audiences (Marwick & boyd, 2011; Vitak et al., 2015). Researchers have found that three approaches to user-user privacy management are employed on Facebook: use of the privacy settings, network management, and content management (Lankton, McKnight, & Tripp, 2017; Vitak et al., 2015).

The privacy settings allow users to limit their audience by using the *Friends only* setting and/or setting up friend lists (Vitak et al., 2015). Network management strategies include "defriending" (Vitak et al., 2015, p. 1495) or blocking certain Facebook friends, and rejecting or ignoring friend requests from unknown or inappropriate people (such as previous romantic partners or one's employer, teacher, or students) (Vitak et al., 2015). Content management strategies include "hid[ing] information in plain sight" by way of using ambiguous phrasing, intentional vagueness (Child & Starcher, 2016, referred to this as "vaguebooking"), and "in-group language" when composing status updates, so that only the poster's "private sphere of friends" knows what the post is referring to (Georgalou, 2016, pp. 47-48). Posters may even use song lyrics or the title of a song to convey their message to the in-group (Georgalou, 2016). Other content management strategies include deleting one's own posts so as to delete revealing comments to the posts, or just deleting the comments, and untagging oneself in embarrassing or compromising photos, or asking the person who posted such a photo to remove it (Georgalou, 2016). Another content management strategy is to leave other users' questions unanswered because "they require personal information to be given publicly" (Georgalou, 2016, p. 57) (but the question may be answered via a private message, chat or phone call [Vitak

et al., 2015]). Also, sometimes users take the “lowest common denominator approach” (Vitak et al., 2015, p. 1489) when uploading content to Facebook, whereby only content deemed inoffensive to all of their Facebook friends is posted. The ultimate content management strategy, however, is to modify one’s behaviour in the offline world: by so doing, no photos showing one in embarrassing or compromising situations can be taken and posted on Facebook (Marder et al., 2016).

The most effective option available to those with user-corporate privacy concerns on Facebook is to refrain from using the site. However, as mentioned previously, this strategy raises a user-user privacy-related issue: non-users are not able to monitor their presence on Facebook as actualised by Facebook users (Trottier, 2012). Furthermore, as also mentioned previously, users may feel that they need the site to maintain their offline relationships: if all their face-to-face friends are using Facebook, their decision not to use the site may lead to their exclusion from the group. In other words, users may feel that, due to a desire to be socially included, they no real choice but to keep using the site (Trottier, 2012; Quan-Haase & Young, 2010; Blank et al., 2014). Some users, may, however, minimise their use of the site (Zheng, Shi, Zu, & Zhang, 2012).

In summary, there have been some illuminating qualitative studies exploring users’ behaviours in relation to privacy concerns on Facebook (e.g., Trottier, 2012; Vitak et al., 2015; Georgalou, 2016), but findings concerning the privacy paradox and privacy calculus in relation to Facebook are inconsistent, and clarification of the role of privacy concerns and social needs in relation to behavioural outcomes on the site would therefore be beneficial.

#### 4.3 Survey design

The survey opened with an *INFORMATION AND CONSENT* section, which provided information about the research and the survey, and asked prospective respondents to agree and continue or exit, and if continuing, whether they were aged 18 or over. The survey questions were then organised into blocks. Block 1, *MY BACKGROUND*, asked respondents for their demographic details (gender, age group, level of formal education, and cultural background). Block 2, *THE STATUS OF MY FACEBOOK ACCOUNT*, asked respondents whether they had an active, deactivated, or deleted Facebook account, or whether they had never had an account. Block 3, *MY PRIVACY CONCERNS ABOUT FACEBOOK*, asked respondents about the nature and degree of their privacy concerns on Facebook. Block 4, *FACEBOOK PRIVACY – MY PERCEPTIONS*, had three sub-sections asking respondents about their privacy perceptions on Facebook: *WHO CAN I HIDE MY INFORMATION FROM? WHAT DOES FACEBOOK KNOW ABOUT ME?* and *WHO DOES FACEBOOK SHARE MY INFORMATION WITH?* Block 5, *READING & UNDERSTANDING FACEBOOK’S PRIVACY POLICY*, asked respondents whether they had read none, some or all of Facebook’s privacy policy, and how well they had

understood what they had read. Block 6, *UNDERSTANDING FACEBOOK'S PRIVACY SETTINGS*, asked to what extent respondents got confused when adjusting their privacy settings on Facebook. Block 7, *HOW I USE FACEBOOK*, asked respondents about their behaviours on Facebook. There were seven sub-sections in this block: *TIME SPENT ON FACEBOOK*, *REGISTRATION*, *PROFILE*, *POSTS*, *OUTSIDE FACEBOOK*, *CHANGES IN DEGREE*, and *INTERACTION*. Finally, Block 8, *WHY I USE FACEBOOK*, asked respondents about their motivations for using Facebook.

#### 4.3.1 Likert scale items

Many of the survey questions used a Likert scale format. Likert scales are named after their originator, Rensis Likert, who published an article describing them in 1932, and use graded points to measure attitudes or behaviours (Jamieson, 2008). A typical attitudinal scale might have points ranging from *Strongly agree* to *Strongly disagree*, and a typical behavioural scale might have points ranging from *Always* to *Never* (Viljoen, 2012). Some researchers maintain that the points on any given Likert scale cannot be assumed, for the purposes of analysis, to be equally spaced (Jamieson, 2008). However, Chang (1997) found that if the points are numbered (as well as verbally labelled if desired), respondents automatically assume them to be equidistant, and the researcher can consequently assume the same.<sup>29</sup> Therefore, following Chang's advice, I gave every Likert scale point a number (as well as a verbal label).

Researchers also debate both the optimum number of points to be used in Likert scales, and whether there should be an odd or even number of points (Barnette, 2010). Likert scales were originally devised with an odd number of points, but some researchers prefer to have an even number of points, thus avoiding what is termed *central tendency bias* (i.e., a documented tendency for respondents to pick the middle or neutral response) (Barnette, 2010). Another advantage of even-numbered scales, according to some researchers, is that they are more reliable than odd-numbered scales because of the difficulty in naming the midpoint in the latter in a manner that will not skew the data (Chang, 1997). I decided to use a 4 point Likert scale as opposed to the usual 5 or 7 point scale for two reasons. Firstly, I wanted the survey to be as user friendly as possible, and I felt that a 4 point scale would be less complex and the individual points more meaningful for respondents than a scale with more points. Secondly, I did not want a midpoint to the scale because I wanted to avoid central tendency bias, and I did not want to risk skewing the data.

As well as central tendency bias, researchers have noted two other types of bias appearing in Likert scale data: *acquiescence bias* and *social desirability bias*. Acquiescence bias refers to a tendency for respondents to agree with positively worded items, and researchers often seek to remedy this tendency by including

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<sup>29</sup> Evenly spaced Likert scale points are particularly desirable if the researcher wishes to use parametric tests, which supposedly require interval, as opposed to ordinal, data (Lantz, 2013; BUT Norman, 2010, disagreed).

some negatively worded items (referred to as “reversed items”) in their scales (Barnette, 2010). Some researchers, however, claim that negatively worded items reduce data reliability (Barnette, 2010). I decided not to include negatively worded items in my scales because their benefits are unproven and I did not want the reliability of my data compromised. Social desirability bias is the tendency for respondents to provide what they perceive to be socially acceptable answers to questions as opposed to expressing what they really think or feel. Barnette (2010) noted that: “Likert surveys on rather personal attitudes or opinions related to behaviors considered by society to be illegal, immoral, unacceptable, or personally embarrassing are more prone to this problem. This problem is exacerbated if respondents have any feeling that their responses can be directly or even indirectly attributed to them personally” (p. 717). I expected social desirability bias on some items, so I minimised its possible effect by mixing these items in with other items and assuring respondents of the anonymity of their survey responses.

#### *4.3.2 The pilot survey’s role in shaping the main survey*

Hassan, Schattner, and Mazza (2006) explained that the purpose of a pilot study is to “identify problem areas and deficiencies in the research instruments and protocol prior to implementation during the full study” (p. 70). Before launching the main survey, I ran a pilot survey to fulfil these functions. I wanted to ascertain whether: a) the mechanics of the survey were working correctly; b) the survey was user-friendly in terms of phrasing and layout; c) there were any other items I should include in the survey, or items I should drop; or d) there were any other problems. The survey included a text box asking for feedback. The feedback I received was very supportive and constructive, and I made several modifications to the survey because of it, ranging from minor spelling errors to the rewording of several questions to more accurately reflect their objectives.

#### 4.4 Focus group design

Focus groups are often used in qualitative and mixed methods research (Morgan, 1996). Folch-Lyon and Trost (1981) defined a focus group session as “a discussion in which a small number...of respondents, under the guidance of a moderator, talk about topics that are believed to be of special importance to the investigation” (p. 444). A key characteristic of focus groups, and their major advantage over individual interviews, is the participant interaction they enable: “The fact that the participants both query each other and explain themselves to each other....offers valuable data on the extent of consensus and diversity among [them]”, thus offering the researcher more insight than “aggregating individual data in order to speculate about whether or why the interviewees differ” (Morgan, 1996, p. 139).

Focus group guidelines, including recommendations for the number of participants and sessions, session length, the framing of questions, and management of participants, can be found in the social sciences literature. Focus groups usually consist of between 6-12 participants (Folch-Lyon & Trost, 1981), although, according to Hollis, Openshaw, and Goble (2002): “The more complex or sensitive the issue, the smaller the group should be. If there are fewer than five people the range of experience will be less, but this might be a compromise for depth of experience” (pp. 2-3). An upper limit of 12 is recommended because “with more than 12, not all participants have a chance to present their point of view, and the discussion becomes difficult for the moderator to control” (Folch-Lyon & Trost, 1981, p. 446).

Regarding the number and length of sessions, Hollis et al. (2002) maintained that data saturation (the point after which no new information emerges) may occur after two focus group sessions, but “in reality, the number of groups is influenced, if not determined, by the budget for the study or the time available” (p. 3). Session length is usually one to two hours (Gibbs, 1994), because “if a focus group extends beyond 2 hours, fatigue or disinterest may set in” (Packer-Muti, 2010, p. 1025). Regarding the framing of questions, open-ended questions are preferable to closed-ended questions, and questions should be unambiguous, unidimensional, and easily understood by participants (Hollis et al., 2002). Finally, the facilitator has an important role in ensuring the success of the group. An effective facilitator encourages open discussion, is a good listener, and balances the contributions of dominant and shy participants (Hollis et al., 2002; Tynan & Drayton, 1988).

Although not considered ideal, I was limited to one focus group because of time constraints. However, the group dynamic was excellent: participants related well to another, chatted easily, and were respectful of one another’s opinions (Section 4.5.4 explains about the group).

## 4.5 Data collection

In this section I give more information about the pilot survey, main survey, and focus group, and outline the steps that were taken to ensure ethical data collection.

### 4.5.1 *Main survey*

There were several key considerations in implementing the main survey. These included promoting the survey, ensuring data quality, and ensuring anonymity whilst allowing respondents to enter the prize draw, express interest in participating in a focus group, and request a report of the survey findings.

Regarding the promotion of the survey, a survey link was posted on various Facebook profiles, groups, and pages. Within ECU, the link was posted on the current students' intranet news page, and this link was shared on the Faculty's Facebook page. A link to the survey was also briefly posted on the Student Guild's Facebook page, and I sent two emails containing the link to the Graduate Research School's Google group. I also asked people I knew, within and outside of ECU, if they would like to complete the survey, and if they could ask other people if they would like to ('snowballing').

When doing the survey, respondents could not proceed from one page to the next until they had answered all questions on the current page except for those using text boxes, which they could leave blank. In this way, I avoided the difficulty of having to deal with missing data while respondents were afforded some flexibility in what they chose to answer. The text box responses were not included in the quantitative analysis but provided a great deal of insight into users' privacy perceptions concerning, and motivations for using Facebook. A required response format is also advantageous in that it ensures that respondents do not accidentally miss questions or parts of questions. A disadvantage of this format, however, is that respondents may not wish to answer all questions and so quit the survey before they finish. My policy (as stated in the information letter) was to delete incomplete survey responses, so these responses did not contribute to the data set.

On average, the survey took about 15 minutes to complete (for those with active and deactivated accounts: those who had never had an account or who had deleted their account had much briefer surveys), but some respondents completed it in less than seven minutes, while others took over an hour to complete it, or came back to it the next day.

Once respondents clicked the finish button to complete the survey, they were transferred to another website where they had the opportunity to enter a prize draw for one of five \$100 Coles-Myer gift vouchers, express an interest in participating in a focus group or interview, and/or request a copy of a report of the survey findings. Transferring respondents to another website where they had the option of providing their contact details ensured that these details were kept separate from their survey responses, thus ensuring anonymity of said responses. I also blocked Qualtrics from recording respondents' IP addresses, thus providing respondents with further anonymity. Finally, I allocated a number to everyone who was interested in participating in the prize draw and/or focus group, and used a free online random number generator (<http://appincredible.com/online/random-number-generator/>) to select 20 focus group invitees and five prize draw winners.

#### *4.5.2 Pilot survey*

Twenty respondents, representing 10% of the projected sample for the main survey (Hertzog, 2008), completed the pilot survey. Respondents came from within and outside of ECU, and were recruited by word of mouth and snowballing. The pilot survey was similar to the main survey in that most of the questions were the same (although there were some changes in the main survey due to pilot survey feedback), and in that a required response format was used for all questions except for those using text boxes. As was the case in the main survey, I ensured the anonymity of survey responses firstly by transferring respondents to another website to register their contact details for the \$80 prize draw, and secondly by blocking Qualtrics from recording IP addresses.

#### *4.5.3 Focus group*

I held one focus group, with four participants, to explore areas about which I was still unsure. Twenty randomly selected invitees were emailed an information and consent form, and those agreeing to participate in the focus group brought the completed consent form with them on the day. Before the session started, participants filled out a form with demographic details (the same details as were requested in the survey – participants were not asked to provide personally identifying details). Of the twenty invitees, the four who accepted and could make it on the day were women in the 18-24 and 25-34 age groups. Participants received an \$80 Coles-Myer gift voucher as a token of appreciation for their time. The session was recorded and later transcribed.

#### *4.5.4 Ethical considerations*

Ethical considerations in undertaking this study included identifying risk factors, providing information and consent, and ensuring anonymity. The study (Application # 9745) received approval from the ECU ethics committee before implementation. The only risk identified was that participants “may be reminded of unpleasant online experiences they have had” and the strategy to counter this risk was to provide the contact details of the ECU counselling service on the survey and focus group information letters.

As indicated in Section 4.3, an information and consent form was incorporated into the online survey: prospective respondents could either select “Agree and continue” or “Exit”. Respondents who continued were then asked whether they were aged 18 or over, as ethics approval was only requested for respondents aged 18+. Survey and focus group participants were informed of the objectives of the research, and main survey respondents had the option of receiving a report with the results of the study when it was completed. Participants’ privacy was respected by keeping their data secure and confidential, and

anonymity was assured: participants' data were anonymously collected and were not used in any way that could identify them.

#### 4.6 Analysis of survey results – Test assumptions, validity, and reliability

When undertaking statistical analysis, key considerations include the validity and reliability of data, and whether to use parametric or non-parametric tests.

##### 4.6.1 Validity

Validity has been defined as “the degree to which the researcher has measured what he has set out to measure [*sic*]” (Smith, as cited in Kumar, 1996, p. 137). However, validity can be difficult to establish when measuring intangible concepts such as “effectiveness, attitude, or satisfaction” (Kumar, 1996, p. 138). Factors affecting validity include social desirability bias, Likert scale bias, misinterpretation of questions, random responses, and intentionally misleading responses (Black, 1999, pp. 223-224).

There are four commonly mentioned types of (ways of assessing) validity: *face validity*, *content validity*, *criterion validity*, and *construct validity*. *Face validity* is similar to *content validity* in that both types of validity are judgement-based, but whereas face validity is an informal assessment of validity (Does the survey look like it is measuring what it is supposed to measure?), content validity is more exacting, and is assessed by experts in the field (Kumar, 1996). However, the problem with these types of assessment is that “different people may have different opinions about the face and content validity of an instrument” (Kumar, 1996, p. 139).

There are two main types of *criterion validity*: *concurrent validity* and *predictive validity*. Concurrent validity assesses how well a new scale measures a construct by comparing the results to those obtained from an established scale measuring the same construct (Laerd dissertation, 2012). Black (1999) noted that this strategy “may be of limited value, since [it] is passing the responsibility for ensuring validity to another researcher”, and therefore “it should not be the only justification for validity” (p. 229). Predictive validity, on the other hand, assesses how well a scale “can forecast an outcome” (Kumar, 1996, p. 139) (e.g., Does a high score in an IQ test taken prior to university entry predict a high GPA at university level? [Laerd dissertation, 2012]). One problem with this type of validity is that it can only be determined retrospectively (Kumar, 1996).

*Construct validity* has been defined as “the correlation between two underlying constructs or factors” and

“is an attempt to deal with the problem of not having a valid criterion that can be used as a standard against which to compare some measure” (Maxim, 1999, p. 265). Construct validity involves the use of statistical procedures to ascertain “the contribution of each construct to the total variance observed in a phenomenon” (Kumar, 1996, p. 139). According to Bollen (as cited in Maxim 1999, p. 209), “No one empirical [statistical] test determines construct validity. Establishing construct validity is a long process, with each test providing information and suggesting revisions that can aid the next empirical test”. Construct validity is usually measured using the *convergent/discriminant* approach:

Campbell and Fiske (1959) introduced a technique for deciding validity that they termed the multitrait, multimethod technique. Here, a correlation or covariance matrix comprising at least two different constructs measured by at least two different techniques is estimated....The basic premise behind this model is that two different measures of the same concept ought to be highly intercorrelated. This Campbell and Fiske termed *convergent validity*. Further, the correlation between the two methods designed to measure the same trait ought to be higher than the correlations among the traits. This Campbell and Fiske called *divergent validity*. In other words, unless constructs are more dissimilar than the techniques used to measure them, they can no longer be considered separate entities. (Maxim, 1999, pp. 210).

There are two problems with this approach. Firstly, “the multitrait, multimethod approach assumes that the measurement methods used to gather the data are equally good”, and secondly, “Campbell and Fiske did not initially specify the type of statistical criterion that should be used to evaluate the model. Many authors have put forth suggestions: the soundest may be the use of SEM or confirmatory factor analysis” (Maxim, 1999, pp. 210-211). Stapleton (1997) similarly maintained that exploratory factor analysis (EFA) is the best way to measure construct validity.

The survey items for this thesis were grounded in the relevant literature, and were, in some cases, adopted or modified from existing surveys.<sup>30</sup> They were also approved by pilot survey respondents. All this suggests content validity. In addition, EFA has yielded encouraging results, as detailed in *Chapters 5 and 6*, suggesting construct validity (given the robust nature of factor analysis [Allen & Bennett, p. 202], the non-normality of much of the survey data was not considered problematic).

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30 Five of this study's *Privacy perceptions* statements (1.1, 1.2, 1.4, 1.5, & 3C [Table 50]) were closely modelled on O'Brien and Torres (2012) corresponding *Privacy awareness* statements (p. 85). Also, some of this study's more general survey questions were similar to those used by Ross et al. (2009, pp. 583-585) (*Do you currently have a Facebook account? If not, why not? How many minutes per day do you spend on Facebook? Who can see your Facebook profile? Do you provide your mailing address on your Facebook profile? Do you provide a phone number on your Facebook profile? Approximately how many friends are on your Facebook Friends List? How many Networks do you belong to? How many Facebook Groups do you belong to? Approximately how long have you had your Facebook profile?*) and O'Brien and Torres (2012, pp. 79-82) (reasons for joining Facebook, details disclosed on Facebook, activities on Facebook, *Have you read Facebook's privacy policy? If not, why not?*).

#### 4.6.2 Reliability

According to Wisker (2001), “research....is considered reliable if another researcher carrying out the same research activities with the same kind of group would be likely to replicate [the] findings” (p. 253). Factors affecting reliability include ambiguity in the wording of questions and “the respondent’s mood” (Kumar, 1996, p. 141). There are three ways of assessing the reliability of an instrument: *test/retest*, *parallel forms of the same test*, and the *split-half technique*. The first two ways are classified as “external consistency procedures” whereas the third way is classified as an “internal consistency procedure” (Kumar, 1996, p. 143).

The *test/retest* method involves giving the same test to the same respondents under similar conditions at two different times. The greater the difference between the test scores, the less reliable the test is. According to Kumar (1996), “the main advantage of the test/retest procedure is that it permits the instrument to be compared with itself, thus avoiding the sorts of problems that could arise with the use of another instrument”, and “the main disadvantage is that a respondent may recall the responses that he or she gave in the first round, which in turn may affect the reliability of the instrument” (p. 141).

When conducting *parallel forms of the same test*, “the researcher constructs two instruments that are intended to measure the same phenomenon” and “the two instruments are then administered to two similar populations”. The test results are compared, and “if they are similar, it is assumed that the instruments are reliable” (Kumar, 1996, p. 142). According to Kumar (1996): “The main advantage of this procedure is that it does not suffer from the problem of recall found in the test/re-test procedure”. However, “it is extremely difficult to construct two instruments that are comparable in their measurement of a phenomenon” (Kumar, 1996, p. 142).

The *split half technique* “is designed to correlate half of the items with the other half and is appropriate for instruments that are designed to measure attitudes towards an issue or phenomenon. The questions or statements are divided in half in such a way that any two questions or statements intended to measure the same aspect fall into different halves” (Kumar, 1996, p. 142). The resulting scores are correlated, and the greater the correlation, the more reliable the instrument is assumed to be. One of the most common statistical methods of evaluating the reliability of a survey instrument (via internal consistency) is *Cronbach’s alpha* (Allen & Bennett, 2012, p. 211). I have used Cronbach’s alpha to determine the reliability of survey sub-scales: reliability was found to be high for most items (as detailed in *Chapters 5 and 6*).

#### 4.6.3 Parametric versus non-parametric tests

Parametric tests are based on one or more of the following assumptions: normality, homoscedasticity, additivity, linearity, and/or independence of variables. If any of these assumptions are violated, or if the data contains outliers, parametric test results could be biased (Field, 2013, pp. 164-176). If one cannot use parametric tests because of a violation of one or more of these assumptions, or because the data contains outliers, there are five alternatives: to transform the data (which “involves applying a mathematical function to scores” [Field, 2013, p. 196]), to trim the data (which involves “deleting...scores from the extremes” [Field, 2013, p. 196]), to winsorise the data (which “involves replacing outliers with the next highest score that is not an outlier” [Field, 2013, p.198]), to use robust methods (i.e., bootstrapping together with trimmed means [Field, 2013, pp. 198-200]), or to use non-parametric tests. The drawbacks of non-parametric tests are that they are commonly held to be less powerful than their parametric equivalents (Field, 2013, p. 214), and that there is only a limited range of such tests, which may or may not meet the researcher’s needs (Field, 2013, p. 199), but their advantage is that the data can be used as is. Because much of the survey data for this thesis does not meet the requirements for parametric tests, I have opted to use non-parametric tests.

In this chapter I have reviewed the literature directly relating to *Hypotheses #1, #2, #3, and #4*, and addressed considerations and methods regarding survey design, focus group design, data collection, and data analysis. In *Chapter 5* I analyse the data relating to *Hypotheses #1 and #2*, in *Chapter 6* I analyse the data relating to *Hypotheses #3 and #4*, and in *Chapter 7* I discuss the results in relation to the pre-existing literature.

## 5. RESULTS – DEMOGRAPHIC FACTORS, PRIVACY CONCERNS, AND REASONS FOR USING FACEBOOK

Those who had an active Facebook account, who had deactivated or deleted their account, or who had never had a Facebook account but who had thought about Facebook, were all invited to complete the survey. The survey was completed by 414 people, with 404 valid responses.<sup>31</sup> Of these 404 respondents, by far the greatest number ( $n = 391$ /approx. 97%) had an active Facebook account at the time of the survey. However, five respondents (approx. 1%) used to have a Facebook account but had deleted it, four respondents (approx. 1%) had a Facebook account but had deactivated it, and another four respondents (approx. 1%) had never had a Facebook account (Table 1). I analyse the privacy concerns of these 13 respondents in *Appendix A*.

*Table 1. Account status (all valid responses)*

<i>Account status</i>	<i>Frequency</i>	<i>Percent</i>
I have an active Facebook account.	391	96.78
I used to have a Facebook account but I have deleted it.	5	1.24
I have a Facebook account but I have deactivated it.	4	.99
I have never had a Facebook account.	4	.99
Total	404	100.00

The analysis in *Chapters 5 and 6* refers to respondents with an active Facebook account.

### 5.1 Demographic profile of respondents

In this section I explore respondents' demographic profile in terms of gender, age, Australian cultural background, and formal educational level.

#### 5.1.1 Gender and age

Of the 391 respondents with an active Facebook account, 312 (approx. 80%) were female, 77 (approx. 20%) were male, and 2 selected *Another identity*. Five age groups were represented in a step-wise progression, with the most respondents in the lowest age group and the least respondents in the highest age group: 163 respondents (approx. 42%) were aged 18-24, 125 respondents (approx. 32%) were aged 25-34, 47 respondents (approx. 12%) were aged 35-44, 44 respondents (approx. 11%) were aged 45-54, and 12 respondents (approx. 3%) were aged 55-64 (Table 2).

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<sup>31</sup> Some respondents who completed the survey had ticked the same response for every item in one or more of the longer multiple item Likert scale questions. There were 10 completed surveys in which this had been done for two or more of the longer questions, and I did not include these surveys in the analysis (thus reducing the number of survey responses analysed from 414 to 404). However, I still included 46 completed surveys in which respondents had ticked the same response for every item in only one of the longer questions.

Table 2. Gender and age

<i>Gender</i>	<i>Frequency</i>	<i>Percent</i>
Female	312	79.80
Male	77	19.69
Another identity	2	.51
Total	391	100.00
<i>Age</i>	<i>Frequency</i>	<i>Percent</i>
18-24 years old	163	41.69
25-34 years old	125	31.97
35-44 years old	47	12.02
45-54 years old	44	11.25
55-64 years old	12	3.07
65 years old or older	-	-
Total	391	100.00

As only two respondents with an active Facebook account selected *Another identity* for gender (Table 2), I cannot include these respondents in gender-based analyses, but they are included in non-gender based analyses (analyses based on age, cultural, and educational background, and on non-demographic criteria).

### 5.1.2 Cultural background

By far the greatest number of respondents with an active account ( $n = 244$ /approx. 62%) were born in Australia, while 46 respondents (approx. 12%) with an active account were born in the UK.<sup>32</sup> Respondents born in Australia and the UK therefore comprised almost 75% of the total number of respondents with an active account. The next most represented countries/regions of birth were New Zealand ( $n = 12$ /approx. 3%), India ( $n = 11$ /approx. 3%), South Africa ( $n = 9$ /approx. 2%), the Philippines ( $n = 8$ /approx. 2%), and China ( $n = 7$ /approx. 2%).<sup>33</sup> A total of 34 countries/regions of birth were represented by respondents' countries/regions of birth (if the four countries of the UK are grouped together, and China and Hong Kong are grouped together) (Table 3).

Table 3. Respondents' country of birth

<i>Respondents' COB</i>	<i>Frequency COB</i>	<i>Frequency (respondents)</i>	<i>Percent (respondents)</i>	<i>Cum Percent (respondents)</i>
Australia	1	244	62.40	62.40
UK <sup>a</sup>	1	46	11.76	74.16

32 Some respondents listed the UK as their and/or one or both of their parents' country of birth, whereas others listed England, Scotland, Wales, or Ireland. The UK is composed of England, Scotland, Wales, and Northern Ireland (Briney, 2018), so I have grouped England, Scotland, Wales, and Ireland responses together with UK responses for the purposes of analysis, calling this group 'UK'.

33 Some respondents listed China as their and/or one or both of their parents' country of birth, whereas others listed Hong Kong. Hong Kong is officially a part of China (although in practice Hong Kong is, in some ways, distinct from China) (Boland, 2019), so I have grouped Hong Kong responses together with China responses for the purposes of analysis, calling this group 'China'.

<i>Respondents' COB</i>	<i>Frequency COB</i>	<i>Frequency (respondents)</i>	<i>Percent (respondents)</i>	<i>Cum Percent (respondents)</i>
NZ	1	12	3.07	77.23
India	1	11	2.81	80.04
South Africa	1	9	2.30	82.34
Philippines	1	8	2.05	84.39
China <sup>b</sup>	1	7	1.79	86.18
Malaysia	1	6	1.53	87.71
Zimbabwe	1	6	1.53	89.24
COB – 5 or less respondents <sup>c</sup>	25	42	10.76	100.00
Total	34	391	100.00	

a. 'UK' is comprised of England, Scotland, Wales, and Northern Ireland  
b. 'China' is comprised of mainland China and Hong Kong  
c. 25 COBs were represented by 5 or less respondents

Approximately 36% of respondents' parents ( $n = 140$ ) were both born in Australia, approximately 15% ( $n = 59$ ) of respondents' parents were both born in the UK, and approximately 10% ( $n = 38$ ) of respondents had one parent born in Australia and the other parent born in the UK (Table 4). Therefore, Australia, followed by the UK, was by far the most predominant country of respondents' parents' birth.

Table 4. Parents' countries of birth

<i>Parents' COB (same)</i>	<i>Frequency COB combination</i>	<i>Frequency (respondents)</i>	<i>Percent (respondents)</i>	<i>Valid Percent (respondents)</i>	<i>Cum Percent (respondents)</i>
Australia	1	140	35.81	48.11	48.11
UK <sup>a</sup>	1	59	15.09	20.27	68.38
India	1	12	3.07	4.12	72.51
China <sup>b</sup>	1	8	2.05	2.75	80.76
NZ	1	8	2.05	2.75	75.26
South Africa	1	8	2.05	2.75	78.01
Philippines	1	7	1.79	2.41	83.16
Malaysia	1	6	1.53	2.06	85.22
Parents' COB (same) – 5 or less respondents <sup>c</sup>	26	43	10.98	14.78	100.00
		100	25.58	Missing	
Total	34	391	100.00		
<i>Parents' COB (different)</i>	<i>Frequency COB</i>	<i>Frequency (respondents)</i>	<i>Percent (respondents)</i>	<i>Valid Percent (respondents)</i>	<i>Cum Percent (respondents)</i>
Australia & UK	1	38	9.72	38.00	38.00
Parents' COB (different) – 5 or less respondents <sup>d</sup>	41	62	15.86	62.00	62.00
		291	74.42	Missing	100.00
Total	42	391	100.00		

a. 'UK' is comprised of England, Scotland, Wales, and Northern Ireland  
b. 'China' is comprised of mainland China and Hong Kong  
c. 26 parents' COB, where both parents were born in the same country, were represented by 5 or less respondents  
d. 41 combinations of parents' COB, where both parents were born in different countries, were represented by 5 or less respondents

However, respondents' cultural backgrounds, in terms of countries/regions of birth, were diverse, with a total of 56 countries/regions of birth being represented by their and their parents' countries/regions of birth (Table 5).

Table 5. Respondents' and parents' countries of birth in alphabetical order

Country	Count	Country	Count	Country	Count
Afghanistan	1	Greece	20	Pakistan	39
Angola	2	Hungary	21	Philippines	40
Argentina	3	India	22	PNG	41
Australia	4	Indonesia	23	Poland	42
Austria	5	Iran	24	Russia	43
Bangladesh	6	Iraq	25	Saudi Arabia	44
Brunei	7	Italy	26	Singapore	45
Cambodia	8	Kazakhstan	27	Spain	46
Canada	9	Kenya	28	Swaziland	47
Canary Islands	10	Lebanon	29	Sweden	48
Central African Republic	11	Macedonia	30	Switzerland	49
Chile	12	Malaysia	31	Thailand	50
China	13	Maldives	32	Tunisia	51
Colombia	14	Malta	33	UK	52
Croatia	15	Morocco	34	Ukraine	53
Czechoslovakia	16	Mauritius	35	USA	54
Egypt	17	Myanmar	36	Zambia	55
Finland	18	Netherlands	37	Zimbabwe	56
Germany	19	NZ	38		

Most respondents ( $n = 283$ /approx. 72%) had lived in Australia for more than 15 years, approximately 14% ( $n = 54$ ) of respondents had lived in Australia for 6-15 years, approximately 9% ( $n = 37$ ) of respondents had lived in Australia for 1-5 years, and approximately 4% ( $n = 17$ ) of respondents had lived in Australia for less than a year (Table 6).

Table 6. Length of time lived in Australia

Lived in Australia	Frequency	Percent
More than 15 years	283	72.38
6-15 years	54	13.81
1-5 years	37	9.46
Less than a year	17	4.35
Total	391	100.0

The *combined cultural background* (the country of birth of the respondent and both parents, together with the length of time the respondent had lived in Australia) of 137 respondents (approx. 35%) was unambiguously Australian, with the respondent and both parents having been born in Australia and the respondent having spent more than 15 years in Australia. This was the biggest single category for *combined cultural background* of the 391 respondents with an active Facebook account. The second biggest category ( $n = 37$ /approx. 9%) comprised respondents who, together with one parent, had been born in Australia, while the other parent had been born in the UK. These respondents had spent more than 15 years in Australia. The third biggest category ( $n = 17$ /approx. 4%) comprised respondents who had spent more than

15 years in Australia but who, together with both parents, had been born in the UK. The fourth biggest category ( $n = 16$ /approx. 4%) comprised respondents who had spent more than 15 years in Australia, and had been born in Australia, whereas both parents had been born in the UK. Cumulatively these four groups comprised approximately 53% ( $n = 207$ ) of the total number of respondents with active Facebook accounts. The fifth and sixth largest categories comprised the respondent and both parents having been born in the UK, and the respondent having spent 6-15 years and 1-5 years in Australia ( $n = 12$ /approx. 3% and  $n = 10$ /approx. 3% respectively). Therefore, almost 60% of respondents with an active Facebook account had an exclusively Australian and/or UK *combined cultural background* (if we assume that respondents in categories five and six had spent most of their previous life in the UK). Altogether, there was a total of 124 different combined cultural backgrounds (Table 7).

Table 7. Combined cultural background

<i>COB, P#1 COB, P#2 COB, time lived Aus</i>	<i>Frequency CCB *</i>	<i>Frequency (respondents)</i>	<i>Percent (respondents)</i>	<i>Cum Percent (respondents)</i>
Aus, Aus, Aus, 15+ yrs	1	137	35.04	35.04
Aus, Aus, UK, 15+ yrs <sup>a</sup>	1	37	9.46	44.50
UK, UK, UK, 15+ yrs	1	17	4.35	48.85
Aus, UK, UK, 15+ yrs	1	16	4.09	52.94
UK, UK, UK, 6-15 yrs	1	12	3.07	56.01
UK, UK, UK, 1-5 yrs	1	10	2.56	58.57
India, India, India, < 1 yr	1	8	2.05	60.62
COB, P#1 COB, P#2 COB, time lived Aus – 5 or less respondents <sup>b</sup>	117	154	39.38	100.00
Total	124	391	100.00	

\* CCB = Combined Cultural Background  
a. 'UK' is comprised of England, Scotland, Wales, and Northern Ireland  
b. 117 combinations of COB, P#1 COB, P#2 COB, and time lived in Australia were represented by 5 or less respondents

With regard to measures of cultural background for the testing of *Hypotheses #1* and *#2*, I cannot include all countries of birth because the sample is heavily skewed in favour of Australia as the country of birth, followed by the UK, with a large variety of other countries represented in small to minute proportions (Table 3, Table 4, & Table 5). Therefore, I shall use respondents' and their parents' countries of birth in relation to Australia (Was the respondent born in Australia? Were neither, one, or both parents born in Australia?) as shown in Table 8, as well as well as the length of time respondents had lived in Australia at the time of the survey (Table 6) as measures of cultural influence. These measures, in combination, will be referred to as *Australian cultural influence*.

Table 8. Respondents' and parents' countries of birth in relation to Australia

<i>Respondent born in Australia?</i>	<i>Frequency</i>	<i>Percent</i>
Born in Australia	244	62.40
Not born in Australia	147	37.60

<i>Respondent born in Australia?</i>	<i>Frequency</i>	<i>Percent</i>
Total	391	100.00
<i>Respondents' parents born in Australia?</i>	<i>Frequency</i>	<i>Percent</i>
Neither parent born in Australia	182	46.55
One parent born in Australia	69	17.65
Both parents born in Australia	140	35.81
Total	391	100.00

### 5.1.3 Education

Respondents were asked to select any of the following educational qualifications that they had completed: *A post-secondary (e.g., TAFE) certificate or Diploma, An undergraduate or Honours degree, and A postgraduate degree or qualification.* I had neglected to include a *Secondary school qualification* option in the list of educational qualifications completed, and for a number of respondents, this was the sole educational qualification they had obtained. However, I did include an *Other* option, in which 36 respondents listed the following qualifications: *Year 12, Secondary education, High school graduate, TEE, WACE, HSC, GCE A level, Australian matriculation, and WAUFP.* For the purposes of this study I will consider all these qualifications to be equivalent to a secondary school qualification. Forty-nine respondents left the whole question blank – perhaps they thought that high school graduation, not being listed, ‘didn’t count’ for the purposes of this survey (this was one of the few non-forced questions in the survey) – and I listed 46 of these respondents as having completed a secondary school qualification because they were currently undertaking undergraduate/Honours or post-secondary (e.g., TAFE) study (43 and three respondents respectively). I was unsure, however, how to classify three current postgraduate students who had not responded to the ‘Completed Education’ question, as it seemed unlikely that year 12 was their ‘highest’ previous level of formal education. In the end I decided to classify them as having completed an undergraduate or Honours degree, as this was respondents’ most frequently selected pathway to current postgraduate study.

According to this classification, then, 125 respondents (approx. 32%) with an active Facebook account selected *A post-secondary (e.g., TAFE) certificate or Diploma* as the ‘highest’ level of education completed, 113 respondents (approx. 29%) selected *An undergraduate or Honours degree*, 84 respondents (approx. 21%) selected what I have interpreted as *Completion of Year 12 or equivalent* (as explained above), and 69 respondents (approx. 18%) selected *A postgraduate degree or qualification* (Table 9).

*Table 9. Completed education*

<i>Completed education</i>	<i>Frequency</i>	<i>Percent</i>
A post-secondary certificate or Diploma	125	31.97
An undergraduate or Honours degree	113	28.90

<i>Completed education</i>	<i>Frequency</i>	<i>Percent</i>
Completion of Year 12 or equivalent	84	21.48
A postgraduate degree or qualification	69	17.65
Total	391	100.00

At the time of the survey, approximately 60% of respondents with an active Facebook account ( $n = 236$ ) were undergraduate or Honours students, and approximately 31% ( $n = 120$ ) were postgraduate students, making a combined total of approximately 91% of respondents ( $n = 356$ ). Twenty-seven respondents (approx. 7%) selected *I am not a student at this time*, and only 8 respondents (approx. 2%) were post-secondary students (Table 10).

Table 10. Current student status

<i>Current student status</i>	<i>Frequency</i>	<i>Percent</i>
An undergraduate or Honours student	236	60.36
A postgraduate student	120	30.69
I am not a student at this time	27	6.91
A post-secondary (e.g., TAFE) student	8	2.05
Total	391	100.00

Regarding measures of formal education for the testing of *Hypotheses #1* and *#2*, I cannot use respondents' current educational status in analyses, because a number of respondents were not students at the time of the survey, rendering that measure meaningless for those respondents (Table 10). I shall therefore use the 'highest' level of formal education completed (Table 9) as the measure for educational influence.

## 5.2 Privacy concerns on Facebook

### 5.2.1 Means – Privacy concerns

Respondents were given a list of 12 Facebook-related privacy concerns together with a 4 point Likert scale with levels of concern ranging from 1 – *Very much* to 4 – *Not at all* (the lower the mean, the greater the level of concern), and were asked to rate each of the concerns. Eight of the concerns were *user-user* related and the other four concerns were *user-corporate* related, three of them to do with 'businesses linked to Facebook', and one referring to the Facebook corporation itself.

The greatest Facebook-related privacy concerns for respondents who had an active Facebook account were *Viruses, spyware or other malware from businesses linked to Facebook* ( $M = 2.18, SD = 1.066$ ), *Facebook knowing too much about me* ( $M = 2.19, SD = 1.091$ ), *Spam/unsolicited email from businesses linked to Facebook* ( $M = 2.26, SD = 1.043$ ), and *Businesses linked to Facebook finding out too much about me* ( $M = 2.27, SD = 1.037$ ). These are all user-corporate concerns. *Bullying or harassment* ( $M = 2.82, SD = 1.110$ ) was

of least concern to this group of respondents (Table 11).

Table 11. Privacy concerns – Means

<i>On Facebook, how much, if at all, do the following possibilities concern you?</i>	<i>N</i>	<i>Mean*</i>	<i>Std Dev</i>
Viruses, spyware or other malware from businesses linked to Facebook	391	2.18	1.066
Facebook knowing too much about me	391	2.19	1.091
Spam/unsolicited email from businesses linked to Facebook	391	2.26	1.043
Businesses linked to Facebook finding out too much about me	391	2.27	1.037
The wrong person seeing my posts, photos or videos	391	2.33	1.087
Other people posting sensitive information about me	391	2.37	1.057
Other people posting sensitive photos or videos of me	391	2.39	1.118
Identity theft	391	2.47	1.150
Fraud	391	2.54	1.140
Someone impersonating me	391	2.65	1.153
Stalking	391	2.67	1.108
Bullying or harassment	391	2.82	1.110

\* The lower the mean, the greater the level of concern (1 – *Very much*; 2 – *Moderately*; 3 – *A little*; 4 – *Not at all*)

### 5.2.2 Changes in the level of concern

At the time of the survey, over 75% of respondents with an active Facebook account were more concerned about privacy issues than they used to be when they first joined Facebook: approximately 42% ( $n = 166$ ) were a lot more concerned, and approximately 34% ( $n = 133$ ) were a little more concerned. Approximately 5% of respondents were less concerned – approximately 2% ( $n = 8$ ) were a lot less concerned and approximately 3% ( $n = 12$ ) were a little less concerned – and approximately 18% of respondents ( $n = 72$ ) had about the same level of concern as when they first joined Facebook (Table 12).

Table 12. Changes in the level of privacy concern

<i>Which one of the following statements is true for you?</i>	<i>Frequency</i>	<i>Percent</i>
I'm a little more concerned about privacy issues than I used to be when I first joined Facebook.	133	34.02
I'm a lot more concerned about privacy issues than I used to be when I first joined Facebook.	166	42.46
I'm a little less concerned about privacy issues than I used to be when I first joined Facebook.	12	3.07
I'm a lot less concerned about privacy issues than I used to be when I first joined Facebook.	8	2.05
My level of concern about privacy issues is about the same as when I first joined Facebook.	72	18.41
Total	391	100.00

### 5.2.3 Reading and understanding Facebook's privacy policy

Approximately 6% ( $n = 25$ ) of the 391 respondents with an active Facebook account had read all of Facebook's privacy policy, approximately 57% ( $n = 224$ ) had read some of it, and approximately 36% ( $n = 142$ ) had read none of it. Of those who had read all of it, 24% ( $n = 6$ ) had understood it all, while 76% ( $n = 19$ ) had understood some of it. Of those who had read some of it, 12.5% ( $n = 28$ ) had understood all of what

they had read, approximately 81% ( $n = 182$ ) had understood some of what they had read, and approximately 6% ( $n = 14$ ) had understood none of what they had read (Table 13).

Table 13. Reading and understanding Facebook's privacy policy

<i>Have you read Facebook's privacy policy?</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cum Percent</i>
Yes, all of it.	25	6.39	6.39	6.39
Yes, some of it.	224	57.29	57.29	63.68
No, none of it.	142	36.32	36.32	100.00
Total	391	100.00	100.00	
<i>Do you understand Facebook's privacy policy? (Those who had read all of it)</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cum Percent</i>
Yes, all of it.	6	1.53	24.00	24.00
Yes, some of it.	19	4.86	76.00	100.00
No, none of it.	-	-	-	
	366	93.61	Missing	
Total	391	100.00		
<i>Do you understand what you have read of Facebook's privacy policy? (Those who had read some of it)</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cum Percent</i>
Yes, all of it.	28	7.16	12.50	12.50
Yes, some of it.	182	46.55	81.25	93.75
No, none of it.	14	3.58	6.25	100.00
	167	42.71	Missing	
Total	391	100.00		

#### 5.2.4 Understanding Facebook's privacy settings

Using a 4 point Likert scale with levels of agreement ranging from 1 – *Strongly agree* to 4 – *Strongly disagree*, respondents were asked to rate the statement *I get confused when trying to adjust my privacy settings on Facebook*. Of those respondents with an active Facebook account, approximately 14% ( $n = 56$ ) strongly agreed with this statement, approximately 39% ( $n = 152$ ) agreed, approximately 38% ( $n = 149$ ) disagreed, and approximately 9% ( $n = 34$ ) strongly disagreed (Table 14). To put that another way, over half of respondents with an active Facebook account (approx. 53%) agreed or strongly agreed with the statement *I get confused when trying to adjust my privacy settings on Facebook*.

Table 14. Confusion over Facebook's privacy settings

<i>I get confused when trying to adjust my privacy settings on Facebook.</i>	<i>Frequency</i>	<i>Percent</i>
Strongly agree	56	14.32
Agree	152	38.87
Disagree	149	38.11
Strongly disagree	34	8.70
Total	391	100.00

### 5.2.5 Factor analysis and reliability – Privacy concerns

Cronbach's alpha for the 12 item *Privacy concerns on Facebook* scale showed high reliability (.928).

A rotated factor matrix (PAF/Promax, *KMO* = .890) for the 12 item *Privacy concerns on Facebook* scale revealed two factors with eigenvalues exceeding Kaiser's criterion of 1. These factors accounted for just over 61% of the variance for the 12 concerns (Table 15).

Table 15. Privacy concerns (2 factor extraction) – Total Variance Explained (PAF – Promax)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings <sup>a</sup>
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	6.752	56.264	56.264	6.382	53.180	53.180	5.914
2	1.397	11.640	67.903	1.001	8.342	61.522	5.057
3	.939	7.823	75.726				
4	.679	5.659	81.385				
5	.571	4.762	86.147				
6	.488	4.068	90.215				
7	.324	2.696	92.911				
8	.284	2.366	95.278				
9	.217	1.808	97.086				
10	.156	1.298	98.384				
11	.116	.964	99.348				
12	.078	.652	100.000				

Extraction Method: Principal Axis Factoring.  
a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

The underlying factors identified were: Factor #1 – *User-user privacy concerns* and Factor #2 – *User-corporate privacy concerns* (Table 16). However, there was a third group of variables that loaded predominantly onto the first factor and at low levels (below the lower limit of .4, as recommended by Stevens [1992]) onto the second factor: *Fraud, identity theft, and Someone impersonating me*. These variables could be described as security concerns, and although fraud, identity theft, and impersonation on Facebook are perpetrated by Facebook users, not the Facebook corporation, users may have seen the Facebook corporation as partly responsible for their perpetration: this may be why they loaded at low levels onto the second factor.

Table 16. Privacy concerns (2 factor extraction) – Pattern Matrix (PAF – Promax)

Privacy concerns	Factor <sup>a</sup>	
	1	2
Other people posting sensitive photos or videos of me	.921	-.155
Other people posting sensitive information about me	.903	-.126
The wrong person seeing my posts, photos or videos	.737	
Stalking	.714	
Bullying or harassment	.679	
Someone impersonating me	.627	.251

<i>Privacy concerns</i>	<i>Factor<sup>a</sup></i>	
	<i>1</i>	<i>2</i>
Identity theft	.622	.290
Fraud	.604	.324
Businesses linked to Facebook finding out too much about me	-.100	.883
Spam/unsolicited email from businesses linked to Facebook	-.124	.837
Facebook knowing too much about me		.757
Viruses, spyware or other malware from businesses linked to Facebook	.123	.635
Extraction Method: Principal Axis Factoring.		
Rotation Method: Promax with Kaiser Normalization.		
a. Rotation converged in 3 iterations.		
Note. Coefficients below .1 suppressed.		

I therefore tried a three factor extraction, the eigenvalues exceeding Joliffe’s criterion of .7, to see whether (as the marginal loadings on the two factor model seemed to indicate) a security concerns factor would emerge. The three factors accounted for just over 69% of the variance for the 12 concerns (Table 17).

*Table 17. Privacy concerns (3 factor extraction) – Total Variance Explained (PAF – Promax)*

<i>Factor</i>	<i>Initial Eigenvalues</i>			<i>Extraction Sums of Squared Loadings</i>			<i>Rotation Sums of Squared Loadings<sup>a</sup></i>
	<i>Total</i>	<i>% of Variance</i>	<i>Cumulative %</i>	<i>Total</i>	<i>% of Variance</i>	<i>Cumulative %</i>	<i>Total</i>
1	6.752	56.264	56.264	6.473	53.941	53.941	5.543
2	1.397	11.640	67.903	1.070	8.913	62.855	4.981
3	.939	7.823	75.726	.758	6.313	69.168	4.612
4	.679	5.659	81.385				
5	.571	4.762	86.147				
6	.488	4.068	90.215				
7	.324	2.696	92.911				
8	.284	2.366	95.278				
9	.217	1.808	97.086				
10	.156	1.298	98.384				
11	.116	.964	99.348				
12	.078	.652	100.000				
Extraction Method: Principal Axis Factoring.							
a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.							

The three-factor extraction did indeed reveal a security concerns factor (Factor #1) (the variables loading  $\geq .4$  onto this factor were: *Fraud; Identity theft; Someone impersonating me; and Stalking*), as well as a user-user privacy concerns factor (Factor #2) (the variables loading  $\geq .4$  onto this factor were: *Other people posting sensitive photos or videos of me; Other people posting sensitive information about me; The wrong person seeing my posts, photos or videos; and Bullying or harassment*) and a user-corporate privacy concerns factor (Factor #3) (the variables loading onto this factor  $\geq .4$  were: *Businesses linked to Facebook finding out too much about me; Facebook knowing too much about me; Spam/unsolicited email from businesses linked to Facebook; and Viruses, spyware or other malware from businesses linked to Facebook*) (Table 18).

Table 18. Privacy concerns (3 factor extraction) – Pattern Matrix (PAF – Promax)

Privacy concerns	Factor <sup>a</sup>		
	1	2	3
Fraud	.944		
Identity theft	.930		
Someone impersonating me	.884		
Stalking	.446	.361	
Other people posting sensitive photos or videos of me		.993	
Other people posting sensitive information about me		.906	
The wrong person seeing my posts, photos or videos	.121	.615	
Bullying or harassment	.308	.420	
Businesses linked to Facebook finding out too much about me			.925
Facebook knowing too much about me			.767
Spam/unsolicited email from businesses linked to Facebook			.747
Viruses, spyware or other malware from businesses linked to Facebook	.281		.506
Extraction Method: Principal Axis Factoring.			
Rotation Method: Promax with Kaiser Normalization.			
a. Rotation converged in 6 iterations.			
Note. Coefficients below .1 suppressed.			

A lower limit of .3 (as opposed to .4) for factor loadings has been recommended for sample sizes in excess of 350 (Hair, Tatham, Anderson, & Black, 1998). In the three factor extraction (Table 18), two variables – *Stalking* and *Bullying or harassment* – loaded onto two factors, one loading being above .4, and the other loading being between .3 and .4. Although the variable *Stalking* loaded predominantly onto Factor #1, it loaded at .361 onto Factor #2, indicating that stalking was perceived not only as a security concern but also as a user-user privacy concern. Similarly, the variable *Bullying or harassment* loaded predominantly onto Factor #2, and at .308 onto Factor #1, indicating that bullying and harassment were seen primarily as user-user privacy concerns, but also as security concerns.

It was interesting to note that the variable *Viruses, spyware or other malware from businesses linked to Facebook* loaded not far below the lower limit of .3 (.281) onto the security concerns factor. Although this variable could not be included in this factor, its marginal loading made me think carefully about the names of the first and third factors, which I thus called *User-user security concerns* and *User-corporate privacy and security concerns* respectively. The factors extracted using a lower limit of .3, therefore, were: Factor #1 – *User-user security concerns (Fraud; Identity theft; Someone impersonating me; Stalking; Bullying or harassment)*, Factor #2 – *User-user privacy concerns (Other people posting sensitive photos or videos of me; Other people posting sensitive information about me; The wrong person seeing my posts, photos or videos; Bullying or harassment; Stalking)*, and Factor #3 – *User-corporate privacy and security concerns (Businesses linked to Facebook finding out too much about me; Facebook knowing too much about me; Spam/unsolicited email from businesses linked to Facebook; Viruses, spyware or other malware from businesses linked to Facebook)*.

Confirmatory factor analyses (CFAs), using robust weighted least squares estimation (WLSM), of the two and three factor models, with and without factor loadings of between .3 and .4, revealed that the three factor model with factor loadings  $\geq .3$  gave the best fit, and it was, in fact, an excellent fit ( $CFI = .994$ ,  $RMSEA = .051$ ,  $SRMR = .040$ )<sup>34</sup> (Table 19). (A CFI above .90 is said to indicate an acceptable fit, and above .95, a good fit [Matsunaga, 2010, p. 108]; a RMSEA below .08 is said to indicate an acceptable fit, and below .06, a good fit [Matsunaga, 2010, p. 108]; and an SRMR below .08 is said to indicate an acceptable fit, and below .05, a good fit [Hooper, Coughlan, & Mullen, 2008, p.55].<sup>35</sup>)

Table 19. Privacy concerns (2 and 3 factors with factor loadings  $\geq .3$  and  $\geq .4$ ) – WLSM

2 factors (factor loadings $\geq .4$ )*					
$\chi^2$	df	p	CFI	RMSEA	SRMR
621.800	53	.000	.980	.092	.066
3 factors (factor loadings $\geq .4$ )*					
$\chi^2$	df	p	CFI	RMSEA	SRMR
361.824	51	.000	.990	.066	.050
2 factors (factor loadings $\geq .3$ )*					
$\chi^2$	df	p	CFI	RMSEA	SRMR
624.189	52	.000	.980	.093	.066
3 factors (factor loadings $\geq .3$ )*					
$\chi^2$	df	p	CFI	RMSEA	SRMR
245.883	49	.000	.994	.051	.040

\* All values are robust.

Note. Computed using the *lavaan* package in R (v 4).

### 5.3 Demographic factors and privacy concerns (Hypothesis #1)

*Hypothesis #1* states that demographic factors influence the nature and degree of privacy concerns on Facebook. Because the survey data do not meet parametric test assumptions including normality, I used non-parametric tests to analyse relationships between variables to test this and the other three hypotheses.

#### 5.3.1 Gender and privacy concerns

A Mann-Whitney U test indicated that there was a statistically significant gender-based difference in levels of concern for nine out of the 12 privacy concerns on Facebook, with females being more concerned than males in every case. However, the effect sizes, as per the  $r$  scores, were small,<sup>36</sup> the concern *Viruses, spyware or other malware from businesses linked to Facebook* showing the biggest difference between

34 Although Chi-square ( $\chi^2$ ) is traditionally reported in CFA, this statistic is sensitive to larger sample sizes (Vandenberg, 2006).

35 The recommended cut-off points for CFIs and RMSEAs are “arbitrary” (Lai & Green, 2016, p. 220). In fact, according to Hooper et al. (2008), “recommendations for RMSEA cut-off points have been reduced considerably in the last fifteen years” (p. 54), and an upper limit of .1 was considered acceptable in the early 1990s. According to this guideline, the RMSEAs of both the two and three factor privacy concern models, with and without factor loadings of between .3 and .4, are acceptable.

36 According to Cohen (as cited in Allen & Bennet, 2012, p. 243), an  $r$  score of .1 indicates a “small” effect, an  $r$  score of .3 indicates a “medium” effect, and an  $r$  score of .5 indicates a “large” effect.

genders (*Mean Rank for Males = 232.12 and for Females = 185.84, U = 9153.50, z = -3.370, p = .001, r = .170*). The three privacy concerns that did not show a statistically significant gender-based difference in levels of concern were *Identity theft, Fraud and Businesses linked to Facebook finding out too much about me* (Table 20 & Table 21).

**Table 20.** Gender and privacy concerns – Mann-Whitney Ranks

Privacy concerns	Gender	N*	MW Mean Rank	Sum of Ranks
Bullying or harassment	Male	77	218.63	16834.50
	Female	312	189.17	59020.50
	Total	389		
Other people posting sensitive information about me	Male	77	217.07	16714.50
	Female	312	189.55	59140.50
	Total	389		
Other people posting sensitive photos or videos of me	Male	77	223.34	17197.50
	Female	312	188.00	58657.50
	Total	389		
The wrong person seeing my posts, photos or videos	Male	77	220.14	16950.50
	Female	312	188.80	58904.50
	Total	389		
Stalking	Male	77	221.14	17027.50
	Female	312	188.55	58827.50
	Total	389		
Identity theft	Male	77	211.11	16255.50
	Female	312	191.02	59599.50
	Total	389		
Fraud	Male	77	215.62	16602.50
	Female	312	189.91	59252.50
	Total	389		
Someone impersonating me	Male	77	217.82	16772.00
	Female	312	189.37	59083.00
	Total	389		
Facebook knowing too much about me	Male	77	219.57	16907.00
	Female	312	188.94	58948.00
	Total	389		
Businesses linked to Facebook finding out too much about me	Male	77	212.29	16346.50
	Female	312	190.73	59508.50
	Total	389		
Spam/unsolicited email from businesses linked to Facebook	Male	77	219.53	16903.50
	Female	312	188.95	58951.50
	Total	389		
Viruses, spyware or other malware from businesses linked to Facebook	Male	77	232.12	17873.50
	Female	312	185.84	57981.50
	Total	389		

\* Gender 'Another Identity' (N = 2) excluded

**Table 21.** Gender and privacy concerns – Mann-Whitney Test Statistics

Privacy concerns <sup>a</sup>	N*	Mann-Whitney U	Wilcoxon W	z	Asymp. Sig. (2-tailed)	r (r = z ÷ √n)
Bullying or harassment	389	10192.500	59020.500	-2.145	.032	.108
Other people posting sensitive information about me	389	10312.500	59140.500	-1.995	.046	.101
Other people posting sensitive photos or videos of me	389	9829.500	58657.500	-2.554	.011	.129
The wrong person seeing my posts, photos or videos	389	10076.500	58904.500	-2.268	.023	.114
Stalking	389	9999.500	58827.500	-2.359	.018	.119
Identity theft	389	10771.500	59599.500	-1.451	.147	.073
Fraud	389	10424.500	59252.500	-1.856	.063	.094
Someone impersonating me	389	10255.000	59083.000	-2.060	.039	.104
Facebook knowing too much about me	389	10120.000	58948.000	-2.229	.026	.113
Businesses linked to Facebook finding out too much about me	389	10680.500	59508.500	-1.565	.117	.079
Spam/unsolicited email from businesses linked to Facebook	389	10123.500	58951.500	-2.220	.026	.112

Privacy concerns <sup>a</sup>	N*	Mann-Whitney U	Wilcoxon W	z	Asymp. Sig. (2-tailed)	r (r = z ÷ √n)
Viruses, spyware or other malware from businesses linked to Facebook	389	9153.500	57981.500	-3.370	.001	.170

a. Grouping Variable: Gender  
\* Gender 'Another identity' (N = 2) excluded

### 5.3.2 Age and privacy concerns

A Jonckheere-Terpstra test and Kendall's Tau-b showed significant age-related trends for two out of the 12 privacy concerns on Facebook: *Stalking* ( $j = 30,748$ ,  $z = 3.526$ ,  $p = .000$ ,  $r = .178$ ,  $\tau = .151$ ) and *Spam/unsolicited email from businesses linked to Facebook* ( $j = 23,297.5$ ,  $z = -2.815$ ,  $p = .005$ ,  $r = .142$ ,  $\tau = -.121$ ).<sup>37</sup> The results showed that concern about *Stalking* decreased slightly with age and concern about *Spam* increased slightly with age (Table 22 & Table 23). However, the effect sizes, as per the  $r$  scores and  $\tau$  values, were small.

Table 22. Age and privacy concerns – Jonckheere-Terpstra Test

Privacy concerns <sup>a</sup>	*	N	Observed J-T Statistic	Mean J-T Statistic	Std. Devn. of J-T Statistic	Std. J-T Statistic	Asymp. Sig. (2-tailed)	r (r = z ÷ √n)
Bullying or harassment	5	391	27602.500	26599.500	1168.921	0.858	.391	.043
Other people posting sensitive information about me	5	391	25775.500	26599.500	1175.124	-0.701	.483	.035
Other people posting sensitive photos or videos of me	5	391	26357.000	26599.500	1178.454	-0.206	.837	.010
The wrong person seeing my posts, photos or videos	5	391	27418.000	26599.500	1176.531	0.696	.487	.035
Stalking	5	391	30748.000	26599.500	1176.686	3.526	.000	.178
Identity theft	5	391	25796.000	26599.500	1179.057	-0.681	.496	.034
Fraud	5	391	25113.000	26599.500	1179.200	-1.261	.207	.063
Someone impersonating me	5	391	26647.000	26599.500	1176.132	0.040	.968	.000
Facebook knowing too much about me	5	391	25281.500	26599.500	1170.247	-1.126	.260	.056
Businesses linked to Facebook finding out too much about me	5	391	24713.500	26599.500	1172.846	-1.608	.108	.081
Spam/unsolicited email from businesses linked to Facebook	5	391	23297.500	26599.500	1173.123	-2.815	.005	.142
Viruses, spyware or other malware from businesses linked to Facebook	5	391	24737.500	26599.500	1169.913	-1.592	.111	.005

a. Grouping Variable: Age group  
\* Number of Levels in Age group

Table 23. Age and privacy concerns – Kendall's Tau-b

Privacy concerns	Kendall's Tau-b	Age group
Bullying or harassment	Correlation Coefficient	.037
	Sig. (2-tailed)	.391
	N	391
Other people posting sensitive information about me	Correlation Coefficient	-.030
	Sig. (2-tailed)	.483
	N	391
Other people posting sensitive photos or videos of me	Correlation Coefficient	-.009
	Sig. (2-tailed)	.837
	N	391
The wrong person seeing my posts, photos or videos	Correlation Coefficient	.030
	Sig. (2-tailed)	.487
	N	391
Stalking	Correlation Coefficient	.151

37 According to Botsch (2011, section 2), a Kendall's Tau-b below  $\pm .1$  indicates a "very weak" association, between  $\pm .1$  and  $.19$  indicates a "weak" association, between  $\pm .2$  and  $.29$  indicates a "moderate" association, and of  $\pm .3$  or above indicates a "strong" association.

Privacy concerns	Kendall's Tau-b	Age group
	Sig. (2-tailed)	.000
	N	391
Identity theft	Correlation Coefficient	-.029
	Sig. (2-tailed)	.496
	N	391
Fraud	Correlation Coefficient	-.054
	Sig. (2-tailed)	.207
	N	391
Someone impersonating me	Correlation Coefficient	.002
	Sig. (2-tailed)	.968
	N	391
Facebook knowing too much about me	Correlation Coefficient	-.048
	Sig. (2-tailed)	.260
	N	391
Businesses linked to Facebook finding out too much about me	Correlation Coefficient	-.069
	Sig. (2-tailed)	.108
	N	391
Spam/unsolicited email from businesses linked to Facebook	Correlation Coefficient	-.121
	Sig. (2-tailed)	.005
	N	391
Viruses, spyware or other malware from businesses linked to Facebook	Correlation Coefficient	-.068
	Sig. (2-tailed)	.111
	N	391

### 5.3.3 Australian cultural influence and privacy concerns

*Australian cultural influence* is measured by the length of time respondents had lived in Australia at the time of the survey (*Less than a year, 1-5 years, 6-15 years, More than 15 years*), and by respondents' and their parents' countries of birth in relation to Australia (Was the respondent born in Australia? Were neither, one, or both parents born in Australia?). A Jonckheere-Terpstra test and Kendall's Tau-b showed significant trends regarding the length of time respondents had lived in Australia for two out of the 12 privacy concerns on Facebook: *Stalking* ( $j = 20,152.5, z = 3.165, p = .002, r = .160, \tau = .141$ ) and *Fraud* ( $j = 19,184, z = 2.171, p = .030, r = .109, \tau = .096$ ). The results showed that the longer respondents had lived in Australia, the less concerned they tended to be about both *Stalking* and *Fraud*. However, the effect sizes, as per the  $r$  scores and  $\tau$  values, were small (Table 24 & Table 25).

Table 24. Length of time lived in Australia and privacy concerns – Jonckheere-Terpstra Test

Privacy concerns <sup>a</sup>	*	N	Observed J-T Statistic	Mean J-T Statistic	Std. Devn. of J-T Statistic	Std. J-T Statistic	Asymp. Sig. (2-tailed)	r ( $r = z \div \sqrt{n}$ )
Bullying or harassment	4	391	18759.000	17054.500	972.521	1.753	.080	.088
Other people posting sensitive information about me	4	391	17500.500	17054.500	977.680	0.456	.648	.023
Other people posting sensitive photos or videos of me	4	391	17951.000	17054.500	980.449	0.914	.361	.046
The wrong person seeing my posts, photos or videos	4	391	18459.500	17054.500	978.851	1.435	.151	.072
Stalking	4	391	20152.500	17054.500	978.979	3.165	.002	.160
Identity theft	4	391	18779.500	17054.500	980.951	1.758	.079	.088
Fraud	4	391	19184.000	17054.500	981.070	2.171	.030	.109
Someone impersonating me	4	391	18826.000	17054.500	978.519	1.810	.070	.091
Facebook knowing too much about me	4	391	17550.000	17054.500	973.624	0.509	.611	.025
Businesses linked to Facebook finding out too much about me	4	391	17315.000	17054.500	975.786	0.267	.789	.013
Spam/unsolicited email from businesses linked to Facebook	4	391	16511.500	17054.500	976.016	-0.556	.578	.028
Viruses, spyware or other malware from businesses linked to Facebook	4	391	16965.000	17054.500	973.346	-0.092	.927	.004

a. Grouping Variable: Length of time lived in Australia in total

Privacy concerns <sup>a</sup>	*	N	Observed J-T Statistic	Mean J-T Statistic	Std. Devn. of J-T Statistic	Std. J-T Statistic	Asymp. Sig. (2-tailed)	r ( $r = z \div \sqrt{n}$ )
* Number of Levels in Length of time lived in Australia in total								

Table 25. Length of time lived in Australia and privacy concerns – Kendall's Tau-b

Privacy concerns	Kendall's Tau-b	Time lived in Australia
Bullying or harassment	Correlation Coefficient	.078
	Sig. (2-tailed)	.080
	N	391
Other people posting sensitive information about me	Correlation Coefficient	.020
	Sig. (2-tailed)	.648
	N	391
Other people posting sensitive photos or videos of me	Correlation Coefficient	.041
	Sig. (2-tailed)	.361
	N	391
The wrong person seeing my posts, photos or videos	Correlation Coefficient	.064
	Sig. (2-tailed)	.151
	N	391
Stalking	Correlation Coefficient	.141
	Sig. (2-tailed)	.002
	N	391
Identity theft	Correlation Coefficient	.078
	Sig. (2-tailed)	.079
	N	391
Fraud	Correlation Coefficient	.096
	Sig. (2-tailed)	.030
	N	391
Someone impersonating me	Correlation Coefficient	.081
	Sig. (2-tailed)	.070
	N	391
Facebook knowing too much about me	Correlation Coefficient	.023
	Sig. (2-tailed)	.611
	N	391
Businesses linked to Facebook finding out too much about me	Correlation Coefficient	.012
	Sig. (2-tailed)	.789
	N	391
Spam/unsolicited email from businesses linked to Facebook	Correlation Coefficient	-.025
	Sig. (2-tailed)	.578
	N	391
Viruses, spyware or other malware from businesses linked to Facebook	Correlation Coefficient	-.004
	Sig. (2-tailed)	.927
	N	391

A Mann-Whitney U test indicated that there was a statistically significant difference in levels of concern for three out of the 12 privacy concerns on Facebook, in relation to respondents' country of birth: *Identity theft* (Mean Rank for Australian born = 205.50 and for Another COB = 180.24,  $U = 15617.00$ ,  $z = -2.212$ ,  $p = .027$ ,  $r = .111$ ), *Fraud* (Mean Rank for Australian born = 205.93 and for Another COB = 179.51,  $U = 15510.50$ ,  $z = -2.313$ ,  $p = .021$ ,  $r = .116$ ), and *Someone impersonating me* (Mean Rank for Australian born = 204.45 and for Another COB = 181.97,  $U = 15872.00$ ,  $z = -1.974$ ,  $p = .048$ ,  $r = .099$ ). In all three cases, respondents who had been born in Australia indicated less concern than those with another country of birth. However, the effect sizes, as per the  $r$  scores, were small (Table 26 & Table 27).

Table 26. Respondents' country of birth and privacy concerns – Mann-Whitney Ranks

Privacy concerns	Respondents' COB	N	MW Mean Rank	Sum of Ranks
Bullying or harassment	Australian born	244	198.75	48496.00
	Another COB	147	191.43	28140.00
	Total	391		
Other people posting sensitive information about me	Australian born	244	199.96	48790.50
	Another COB	147	189.43	27845.50
	Total	391		
Other people posting sensitive photos or videos of me	Australian born	244	200.88	49015.50
	Another COB	147	187.89	27620.50
	Total	391		
The wrong person seeing my posts, photos or videos	Australian born	244	200.91	49022.50
	Another COB	147	187.85	27613.50
	Total	391		
Stalking	Australian born	244	202.96	49523.00
	Another COB	147	184.44	27113.00
	Total	391		
Identity theft	Australian born	244	205.50	50141.00
	Another COB	147	180.24	26495.00
	Total	391		
Fraud	Australian born	244	205.93	50247.50
	Another COB	147	179.51	26388.50
	Total	391		
Someone impersonating me	Australia	244	204.45	49886.00
	Another COB	147	181.97	26750.00
	Total	391		
Facebook knowing too much about me	Australian born	244	199.88	48771.50
	Another COB	147	189.55	27864.50
	Total	391		
Businesses linked to Facebook finding out too much about me	Australian born	244	198.69	48481.00
	Another COB	147	191.53	28155.00
	Total	391		
Spam/unsolicited email from businesses linked to Facebook	Australian born	244	197.48	48186.00
	Another COB	147	193.54	28450.00
	Total	391		
Viruses, spyware or other malware from businesses linked to Facebook	Australian born	244	199.44	48663.00
	Another COB	147	190.29	27973.00
	Total	391		

Table 27. Respondents' country of birth and privacy concerns – Mann-Whitney Test Statistics

Privacy concerns <sup>a</sup>	N	Mann-Whitney U	Wilcoxon W	z	Asymp. Sig. (2-tailed)	r (r = z ÷ √n)
Bullying or harassment	391	17262.000	28140.000	-0.647	.518	.031
Other people posting sensitive information about me	391	16967.500	27845.500	-0.926	.355	.046
Other people posting sensitive photos or videos of me	391	16742.500	27620.500	-1.138	.255	.057
The wrong person seeing my posts, photos or videos	391	16735.500	27613.500	-1.147	.252	.058
Stalking	391	16235.000	27113.000	-1.625	.104	.082
Identity theft	391	15617.000	26495.000	-2.212	.027	.111
Fraud	391	15510.500	26388.500	-2.313	.021	.116
Someone impersonating me	391	15872.000	26750.000	-1.974	.048	.099
Facebook knowing too much about me	391	16986.500	27864.500	-0.911	.362	.046
Businesses linked to Facebook finding out too much about me	391	17277.000	28155.000	-0.631	.528	.031
Spam/unsolicited email from businesses linked to Facebook	391	17572.000	28450.000	-0.347	.728	.017
Viruses, spyware or other malware from businesses linked to Facebook	391	17095.000	27973.000	-0.807	.420	.040

a. Grouping Variable: Respondents' COB

A Jonckheere-Terpstra test and Kendall's Tau-b showed significant trends regarding respondents' parents' countries of birth in relation to Australia for six out of the 12 privacy concerns on Facebook. The three greatest concerns were *Fraud* ( $j = 27,788$ ,  $z = 3.426$ ,  $p = .001$ ,  $r = .172$ ,  $\tau = .151$ ), followed by *Identity theft* ( $j = 27,788$ ,  $z = 3.174$ ,  $p = .002$ ,  $r = .160$ ,  $\tau = .140$ ) and *Someone impersonating me* ( $j = 27,019.5$ ,  $z = 2.765$ ,  $p = .$

006,  $r = .139$ ,  $\tau = .122$ ). The results showed that respondents with neither parent born in Australia tended to be the most concerned about each of the six privacy concerns, and respondents with both parents born in Australia tended to be the least concerned. However, the effect sizes, as per the  $r$  scores and  $\tau$  values, were small (Table 28 & Table 29).

**Table 28.** Parents' country of birth and privacy concerns – Jonckheere-Terpstra Test

Privacy concerns <sup>a</sup>	*	N	Observed J-T Statistic	Mean J-T Statistic	Std. Devn. of J-T Statistic	Std. J-T Statistic	Asymp. Sig. (2-tailed)	r (r = z ÷ √n)
Bullying or harassment	3	391	24178.000	23849.000	1139.721	0.289	.773	.014
Other people posting sensitive information about me	3	391	25166.500	23849.000	1145.768	1.150	.250	.058
Other people posting sensitive photos or videos of me	3	391	25678.500	23849.000	1149.014	1.592	.111	.080
The wrong person seeing my posts, photos or videos	3	391	26790.500	23849.000	1147.140	2.564	.010	.129
Stalking	3	391	26815.500	23849.000	1147.291	2.586	.010	.130
Identity theft	3	391	27498.000	23849.000	1149.601	3.174	.002	.160
Fraud	3	391	27788.000	23849.000	1149.741	3.426	.001	.172
Someone impersonating me	3	391	27019.500	23849.000	1146.751	2.765	.006	.139
Facebook knowing too much about me	3	391	25613.000	23849.000	1141.014	1.546	.122	.078
Businesses linked to Facebook finding out too much about me	3	391	25098.500	23849.000	1143.548	1.093	.275	.055
Spam/unsolicited email from businesses linked to Facebook	3	391	25343.500	23849.000	1143.818	1.307	.191	.066
Viruses, spyware or other malware from businesses linked to Facebook	3	391	26166.500	23849.000	1140.689	2.032	.042	.102

a. Grouping Variable: Parents' COB  
\* Number of Levels in Parents' COB

**Table 29.** Parents' country of birth and privacy concerns – Kendall's Tau-b

Privacy concerns	Kendall's Tau-b	Parents' COB
Bullying or harassment	Correlation Coefficient	.013
	Sig. (2-tailed)	.773
	N	391
Other people posting sensitive information about me	Correlation Coefficient	.051
	Sig. (2-tailed)	.250
	N	391
Other people posting sensitive photos or videos of me	Correlation Coefficient	.070
	Sig. (2-tailed)	.111
	N	391
The wrong person seeing my posts, photos or videos	Correlation Coefficient	.113
	Sig. (2-tailed)	.010
	N	391
Stalking	Correlation Coefficient	.114
	Sig. (2-tailed)	.010
	N	391
Identity theft	Correlation Coefficient	.140
	Sig. (2-tailed)	.002
	N	391
Fraud	Correlation Coefficient	.151
	Sig. (2-tailed)	.001
	N	391
Someone impersonating me	Correlation Coefficient	.122
	Sig. (2-tailed)	.006
	N	391
Facebook knowing too much about me	Correlation Coefficient	.068
	Sig. (2-tailed)	.122
	N	391
Businesses linked to Facebook finding out too much about me	Correlation Coefficient	.048
	Sig. (2-tailed)	.275
	N	391
Spam/unsolicited email from businesses linked to Facebook	Correlation Coefficient	.058
	Sig. (2-tailed)	.191

<i>Privacy concerns</i>	<i>Kendall's Tau-b</i>	<i>Parents' COB</i>
	N	391
Viruses, spyware or other malware from businesses linked to Facebook	Correlation Coefficient	.090
	Sig. (2-tailed)	.042
	N	391

In summary, and according to the statistically significant associations for the three measures of Australian cultural influence, the less time respondents had lived in Australia at the time of the survey, the more likely they were to be concerned about *Stalking* and *Fraud* on Facebook. Also, respondents who were not born in Australia tended to rate *Fraud*, *Identity theft*, and *Someone impersonating me* higher than respondents who were born in Australia. Finally, respondents whose parents were not born in Australia were the most likely, in terms of their parents' countries of birth, to be concerned about *Stalking*, *Fraud*, *Identity theft*, *Someone impersonating me*, and two other risks: *The wrong person seeing my posts, photos or videos* and *Viruses, spyware or other malware from businesses linked to Facebook* (Table 30). In all instances, however, the effect sizes, as per the *r* scores, were small.

Table 30. Australian cultural influence and privacy concerns on Facebook – Summary

<i>Reasons for using Facebook</i>	<i>r (r = z ÷ √n)</i>		
	<i>Time lived Australia</i>	<i>Respondents' COB</i>	<i>Parents' COB</i>
Stalking	.160		.130
Fraud	.109	.116	.172
Identity theft		.111	.160
Someone impersonating me		.099	.139
The wrong person seeing my posts, photos or videos			.129
Viruses, spyware or other malware from businesses linked to Facebook			.102

Note. Where the *r* scores are not provided, the *p* value is not statistically significant.

#### 5.3.4 Completed education and privacy concerns

A Jonckheere-Terpstra test and Kendall's Tau-b indicated that there were no statistically significant correlations between the 'highest' level of formal education respondents had completed at the time of the survey (*Year 12, Post-secondary, Undergraduate or Honours, Postgraduate*) and the 12 privacy concerns on Facebook (Table 31 & Table 32).

Table 31. Completed education and privacy concerns – Jonckheere-Terpstra Test

<i>Privacy concerns<sup>a</sup></i>	<i>*</i>	<i>N</i>	<i>Observed J-T Statistic</i>	<i>Mean J-T Statistic</i>	<i>Std. Devn. of J-T Statistic</i>	<i>Std. J-T Statistic</i>	<i>Asymp. Sig. (2-tailed)</i>	<i>r (r = z ÷ √n)</i>
Bullying or harassment	4	391	29139.500	28167.500	1192.354	0.815	.415	.041
Other people posting sensitive information about me	4	391	26349.500	28167.500	1198.682	-1.517	.129	.076
Other people posting sensitive photos or videos of me	4	391	27238.500	28167.500	1202.079	-0.773	.440	.039
The wrong person seeing my posts, photos or videos	4	391	26177.000	28167.500	1200.118	-1.659	.097	.083
Stalking	4	391	28780.500	28167.500	1200.276	0.511	.610	.025
Identity theft	4	391	28288.000	28167.500	1202.694	0.100	.920	.005

<i>Privacy concerns</i> <sup>a</sup>	*	N	Observed J-T Statistic	Mean J-T Statistic	Std. Devn. of J-T Statistic	Std. J-T Statistic	Asymp. Sig. (2-tailed)	r (r = z ÷ √n)
Fraud	4	391	28365.000	28167.500	1202.840	0.164	.870	.042
Someone impersonating me	4	391	29691.000	28167.500	1199.711	1.270	.204	.064
Facebook knowing too much about me	4	391	26860.000	28167.500	1193.706	-1.095	.273	.055
Businesses linked to Facebook finding out too much about me	4	391	27182.500	28167.500	1196.358	-0.823	.410	.041
Spam/unsolicited email from businesses linked to Facebook	4	391	26038.500	28167.500	1196.641	-1.779	.075	.089
Viruses, spyware or other malware from businesses linked to Facebook	4	391	27752.500	28167.500	1193.366	-0.348	.728	.036

a. Grouping Variable: Completed education  
\* Number of Levels in Completed education

**Table 32.** Completed education and privacy concerns – Kendall’s Tau-b

<i>Privacy concerns</i>	<i>Kendall’s Tau-b</i>	<i>Completed education</i>
Bullying or harassment	Correlation Coefficient	.035
	Sig. (2-tailed)	.415
	N	391
Other people posting sensitive information about me	Correlation Coefficient	-.064
	Sig. (2-tailed)	.129
	N	391
Other people posting sensitive photos or videos of me	Correlation Coefficient	-.033
	Sig. (2-tailed)	.440
	N	391
The wrong person seeing my posts, photos or videos	Correlation Coefficient	-.070
	Sig. (2-tailed)	.097
	N	391
Stalking	Correlation Coefficient	.022
	Sig. (2-tailed)	.610
	N	391
Identity theft	Correlation Coefficient	.004
	Sig. (2-tailed)	.920
	N	391
Fraud	Correlation Coefficient	.007
	Sig. (2-tailed)	.870
	N	391
Someone impersonating me	Correlation Coefficient	.054
	Sig. (2-tailed)	.204
	N	391
Facebook knowing too much about me	Correlation Coefficient	-.047
	Sig. (2-tailed)	.273
	N	391
Businesses linked to Facebook finding out too much about me	Correlation Coefficient	-.035
	Sig. (2-tailed)	.410
	N	391
Spam/unsolicited email from businesses linked to Facebook	Correlation Coefficient	-.076
	Sig. (2-tailed)	.075
	N	391
Viruses, spyware or other malware from businesses linked to Facebook	Correlation Coefficient	-.015
	Sig. (2-tailed)	.728
	N	391

## 5.4 Why respondents use Facebook

### 5.4.1 Means – Reasons for using Facebook

Respondents were given a list of 24 reasons for using Facebook, and were asked how often, using a 4 point Likert scale with levels of frequency ranging from 1 – *Very often* to 4 – *Never*, they used Facebook for those reasons (the lower the mean, the greater the frequency). For those respondents with an active account,

Facebook was used most often to keep in touch with friends ( $M = 1.55$ ,  $SD = 0.755$ ) and to keep in touch with family ( $M = 1.96$ ,  $SD = 1.011$ ). The third most common reason for using Facebook was boredom ( $M = 2.25$ ,  $SD = 1.045$ ), followed by to keep in touch with people from one's past ( $M = 2.29$ ,  $SD = 0.964$ ) and to put off doing one's work ( $M = 2.48$ ,  $SD = 1.071$ ). Respondents used Facebook least to meet new romantic or sexual partners ( $M = 3.88$ ,  $SD = 0.401$ ) (Table 33).

Table 33. Reasons for using Facebook – Means

<i>Reasons for using Facebook</i>	<i>N</i>	<i>Mean *</i>	<i>Std Dev</i>
To keep in touch with friends	391	1.55	0.755
To keep in touch with family	391	1.96	1.011
Because I'm bored	391	2.25	1.045
To keep in touch with people from my past	391	2.29	0.964
To put off doing my work	391	2.48	1.071
To be there for others (i.e., to be supportive, offer help or show an interest)	391	2.54	0.922
To share my news	391	2.60	0.909
To have fun	391	2.62	0.975
To share my thoughts and feelings	391	2.96	0.880
To find out about people I am curious about	391	3.07	0.899
To express who I am	391	3.17	0.883
To ask for advice or help	391	3.29	0.841
To keep an eye on someone	391	3.31	0.869
To find out more about potential or new friends or partners	391	3.34	0.837
To feel less lonely	391	3.34	0.871
To find people who share similar interests	391	3.40	0.866
To work with others who have similar goals	391	3.43	0.835
To expand my network	391	3.44	0.805
To find like-minded people	391	3.46	0.812
To project my best self	391	3.46	0.821
To make new friends	391	3.46	0.818
To express myself in ways that I can't offline	391	3.48	0.819
To enhance my image	391	3.56	0.735
To meet new romantic or sexual partners	391	3.88	0.401

\* The lower the mean, the more Facebook is used for that reason (1 – *Very often*, 2 – *Quite often*, 3 – *Sometimes*, 4 – *Never*)

#### 5.4.2 Factor analysis and reliability – Reasons for using Facebook

Cronbach's alpha for the 24 item *Reasons for using Facebook* scale showed high reliability (.919).

A rotated factor matrix (PAF/Promax,  $KMO = .902$ ) for the 24 item *Reasons for using Facebook* scale revealed five factors with eigenvalues exceeding Kaiser's criterion of 1. These factors accounted for just over 55% of the variance for the 24 reasons (Table 34).

Table 34. Reasons for using Facebook (5 factor extraction) – Total Variance Explained (PAF – Promax)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings <sup>a</sup>
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	8.731	36.381	36.381	8.310	34.624	34.624	7.048
2	2.056	8.567	44.948	1.651	6.878	41.503	6.355
3	1.730	7.207	52.155	1.338	5.574	47.076	4.994
4	1.485	6.188	58.343	1.091	4.545	51.621	5.126
5	1.273	5.305	63.648	.894	3.726	55.348	1.242
6	.941	3.920	67.568				
7	.791	3.294	70.863				
8	.678	2.826	73.689				
9	.666	2.775	76.463				
10	.637	2.654	79.118				
11	.561	2.338	81.455				
12	.519	2.164	83.619				
13	.499	2.081	85.700				
14	.489	2.039	87.739				
15	.441	1.836	89.574				
16	.430	1.790	91.365				
17	.367	1.528	92.893				
18	.340	1.415	94.308				
19	.320	1.331	95.639				
20	.283	1.180	96.819				
21	.273	1.138	97.958				
22	.223	.928	98.886				
23	.141	.585	99.471				
24	.127	.529	100.000				

Extraction Method: Principal Axis Factoring.  
a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Using the guideline of factor loadings  $\geq .4$  as significant (Stevens, 1992), the underlying factors identified were: Factor #1 – *Relationship seeking* (at least partly for the purposes of working with others who have similar goals and asking for advice or help); Factor #2 – *Strategic self-presentation and authentic self-expression*; Factor #3 – *Relationship maintenance*; Factor #4 – *Entertainment, procrastination, and fun*; and Factor #5 – *Facetalking* (possibly with a view to forming new relationships with suitable others) (Table 35). Three reasons did not load significantly ( $\geq .4$ ) onto any factor: *To feel less lonely*, *To share my news*, and *To share my thoughts and feelings*.

Table 35. Reasons for using Facebook (5 factor extraction) – Pattern Matrix (PAF – Promax)

Reasons for using Facebook	Factor <sup>a</sup>				
	1	2	3	4	5
To find people who share similar interests	1.039	-.188			
To find like-minded people	.944		-.123		
To work with others who have similar goals	.896			-.142	
To make new friends	.692			-.143	.239
To expand my network	.579	.137			.189
To ask for advice or help	.510		.134		
To meet new romantic or sexual partners	.440	.124	-.202		.151
To feel less lonely	.244	.236		.228	.135
To project my best self	-.151	1.030		-.106	.182
To enhance my image		1.019	-.118		.197
To express who I am	.111	.644	.100		-.110
To express myself in ways that I can't offline	.284	.522			

Reasons for using Facebook	Factor <sup>a</sup>				
	1	2	3	4	5
To share my news		.330	.294	.159	-.319
To keep in touch with friends	-.141		.875		.120
To keep in touch with family	-.118	-.104	.846	-.165	
To keep in touch with people from my past			.654	-.133	.103
To be there for others (i.e., to be supportive, offer help or show an interest)	.157		.496		.183
Because I'm bored			-.138	1.010	.184
To put off doing my work	-.165			.985	.170
To have fun	.238		.143	.493	
To find out about people I am curious about	.274		.211	.135	.541
To keep an eye on someone		.137	.148	.285	.531
To find out more about potential or new friends or partners	.279	.149			.426
To share my thoughts and feelings	.325	.207	.107	.159	-.396

Extraction Method: Principal Axis Factoring.  
Rotation Method: Promax with Kaiser Normalization.  
a. Rotation converged in 7 iterations  
Note. Coefficients below .1 suppressed.

In the above five factor configuration, I wanted to test the strength of the association between the *strategic self-presentation* and *authentic self-expression* facets of Factor #2. Also, Factor #1 (*Relationship seeking*) appeared to contain a diverse set of variables (reasons). To see if either of these factors would split into two, I extracted another factor for the 24 reasons (making a total of six factors, the eigenvalues exceeding Joliffe's criterion of .7) (Table 36 & Table 37). Factor #2 remained stable, but Factor #1 did split into two: the resulting factors were *Affiliation* and *Relationship seeking*. The two factors differed in that *Affiliation* emphasised a search for group identity (*To find people who share similar interests, To work with others who have similar goals, To find like-minded people, To expand my network*) whereas *Relationship seeking* focused on a search for new relationships, most likely significant (intimate) relationships (*To meet new romantic or sexual partners, To make new friends, To find out more about potential or new friends or partners*), motivated at least partly by a need for emotional or practical support (*To feel less lonely, To ask for advice or help*).

Table 36. Reasons for using Facebook (6 factor extraction) – Pattern Matrix (PAF – Promax)

Reasons for using Facebook	Factor <sup>a</sup>					
	1	2	3	4	5	6
To find people who share similar interests	1.083				-.152	
To find like-minded people	.896					.108
To work with others who have similar goals	.715		-.120		.148	
To expand my network	.451	.162			.155	
To project my best self		1.000				
To enhance my image		.967		-.102		
To express who I am		.513				.387
To express myself in ways that I can't offline	.158	.407			.123	.287
To put off doing my work			.964		-.160	
Because I'm bored		-.102	.937	-.133		.102
To have fun	.151	-.144	.436	.124		.273

Reasons for using Facebook	Factor <sup>a</sup>					
	1	2	3	4	5	6
To keep an eye on someone		.247	.332	.175	.105	-.326
To keep in touch with friends				.828	-.111	.130
To keep in touch with family			-.138	.820	-.218	
To keep in touch with people from my past			-.128	.614		.119
To be there for others (i.e., to be supportive, offer help or show an interest)				.461	.266	.106
To meet new romantic or sexual partners				-.250	.722	
To find out more about potential or new friends or partners					.642	-.171
To make new friends	.286		-.166		.593	
To ask for advice or help	.119	-.127			.523	.221
To feel less lonely			.176		.453	.184
To share my thoughts and feelings	.176					.652
To share my news		.152		.243		.601
To find out about people I am curious about	.253	.172	.193	.242	.145	-.354

Extraction Method: Principal Axis Factoring.  
Rotation Method: Promax with Kaiser Normalization.  
a. Rotation converged in 10 iterations.  
Note. Coefficients below .1 suppressed.

In this new six factor configuration of the 24 reasons for using Facebook, not only did the *Strategic self-presentation and authentic self-expression* factor from Table 35 remain stable, but so did both the *Entertainment, procrastination, and fun* factor and the *Relationship maintenance* factor. However, a new factor was formed, consisting of two variables that did not load significantly ( $\geq .4$ ) onto any factor in Table 35 (*To share my news, To share my thoughts and feelings*), and also, the *Facetalking* factor in Table 35 disintegrated, two components of which did not load significantly ( $\geq .4$ ) onto any factor in Table 36 (*To keep an eye on someone, To find out about people I am curious about*), and the third of which loaded onto the new *Relationship seeking* factor (*To find out more about potential or new friends or partners*). To summarise, therefore, the six factors were: Factor #1 – *Affiliation*, Factor #2 – *Strategic self-presentation and authentic self-expression*, Factor #3 – *Entertainment, procrastination, and fun*, Factor #4 – *Relationship maintenance*, Factor #5 – *Relationship seeking*, and Factor #6 – *Sharing of news, thoughts, and feelings*. These factors accounted for 57.5% of the variance for the 24 reasons (Table 37).

Table 37. Reasons for using Facebook (6 factor extraction) – Total Variance Explained (PAF – Promax)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings <sup>a</sup>
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	8.731	36.381	36.381	8.332	34.717	34.717	6.375
2	2.056	8.567	44.948	1.674	6.975	41.691	5.754
3	1.730	7.207	52.155	1.356	5.651	47.343	4.708
4	1.485	6.188	58.343	1.105	4.605	51.947	4.983
5	1.273	5.305	63.648	.907	3.780	55.727	6.413
6	.941	3.920	67.568	.436	1.817	57.544	3.177
7	.791	3.294	70.863				
8	.678	2.826	73.689				
9	.666	2.775	76.463				
10	.637	2.654	79.118				
11	.561	2.338	81.455				

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings <sup>a</sup>
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
12	.519	2.164	83.619				
13	.499	2.081	85.700				
14	.489	2.039	87.739				
15	.441	1.836	89.574				
16	.430	1.790	91.365				
17	.367	1.528	92.893				
18	.340	1.415	94.308				
19	.320	1.331	95.639				
20	.283	1.180	96.819				
21	.273	1.138	97.958				
22	.223	.928	98.886				
23	.141	.585	99.471				
24	.127	.529	100.000				

Extraction Method: Principal Axis Factoring.  
a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

In another attempt to test the strength of the association between the *strategic self-presentation* and *authentic self-expression* facets of Factor #2, and to see if the *To keep an eye on someone* and *To find out about people I am curious about* variables would coalesce into a factor, I extracted another factor for the 24 reasons (making a total of seven factors, the eigenvalues exceeding Joliffe’s criterion of .7) (Table 38 & Table 39).

Table 38. Reasons for using Facebook (7 factor extraction) – Pattern Matrix (PAF – Promax)

Reasons for using Facebook	Factor <sup>a</sup>						
	1	2	3	4	5	6	7
To find people who share similar interests	1.039					-.126	
To find like-minded people	.880						
To work with others who have similar goals	.713					.146	
To expand my network	.407	.127				.121	.166
To project my best self		.988					
To enhance my image		.924					
To express myself in ways that I can’t offline	.144	.351			.317	.108	
To keep in touch with friends			.808	.105			
To keep in touch with family			.778			-.180	
To keep in touch with people from my past			.566				
To be there for others (i.e., to be supportive, offer help or show an interest)			.431			.233	
Because I’m bored				.905			
To put off doing my work				.904		-.125	
To share my thoughts and feelings		-.108			.950		
To share my news	-.135		.107		.827	-.105	
To express who I am		.420			.482		
To have fun	.113	-.164		.343	.355		
To meet new romantic or sexual partners			.157			.715	-.125
To make new friends	.300			-.114	-.104	.566	
To find out more about potential or new friends or partners	-.112					.555	.282
To ask for advice or help	.157		.118		.156	.472	
To feel less lonely				.154	.177	.403	
To find out about people I am curious about						-.102	1.051
To keep an eye on someone		.134		.192	-.142		.535

Reasons for using Facebook	Factor <sup>a</sup>						
	1	2	3	4	5	6	7
Extraction Method: Principal Axis Factoring.							
Rotation Method: Promax with Kaiser Normalization.							
a. Rotation converged in 7 iterations.							
Note. Coefficients below .1 suppressed.							

These two variables did, in fact, coalesce into a factor: therefore, the *Facestalking* factor was back. In this new seven factor configuration of the 24 reasons for using Facebook, the *Affiliation*, *Relationship maintenance*, and *Relationship seeking* factors from Table 36 remained stable. However, the *To express myself in ways that I can't offline* variable no longer loaded significantly ( $\geq .4$ ) onto the *Strategic self-presentation and authentic self-expression* factor from Table 36 (nor onto any other factor), and the *To express who I am* variable loaded significantly ( $\geq .4$ ) onto not only the *Strategic self-presentation and authentic self-expression* factor, but also the *Sharing of news, thoughts, and feelings* factor from Table 36. This latter factor could thus more appropriately be called *Authentic self-expression*. Also, the *Entertainment, procrastination, and fun* factor from Tables 35 and 36 lost the *To have fun* variable, which did not load significantly ( $\geq .4$ ) onto any factor.

As previously mentioned, a lower limit of .3 (as opposed to .4) for factor loadings has been recommended for sample sizes in excess of 350 (Hair et al., 1998). There were five loadings of between .3 and .4 in the seven factor extraction (Table 38). First, the *To express myself in ways that I can't offline* variable loaded at .351 onto Factor #2 (*Strategic self-presentation and authentic self-expression*). It was therefore apparent that the *strategic self-presentation* and *authentic self-expression* facets of Factor #2 were stable, and this factor could thus be called *Strategic yet authentic self-presentation*. Second, this variable loaded at .317 onto Factor #5 (*Authentic self-expression*), thus strengthening this factor. Third, the *To have fun* variable loaded at .343 onto Factor #4 (*Entertainment and procrastination*), which could thus again be called *Entertainment, procrastination, and fun*, and fourth, this variable loaded at .355 onto Factor #5 (*Authentic self-expression*), which seemed to indicate that respondents found authentic self-expression on Facebook enjoyable. Finally, the *To make new friends* variable loaded at .300 onto Factor #1 (*Affiliation*), which is arguably consistent with this factor.

To summarise, therefore, the seven factors were: Factor #1 – *Affiliation*, Factor #2 – *Strategic yet authentic self-presentation*, Factor #3 – *Relationship maintenance*, Factor #4 – *Entertainment, procrastination, and fun*, Factor #5 – *Authentic self-expression*, Factor #6 – *Relationship seeking*, and Factor #7 – *Facestalking*. These factors accounted for almost 60% of the variance for the 24 reasons (Table 39).

Table 39. Reasons for using Facebook (7 factor extraction) – Total Variance Explained (PAF – Promax)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings <sup>a</sup>
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	8.731	36.381	36.381	8.355	34.813	34.813	6.052
2	2.056	8.567	44.948	1.689	7.036	41.849	5.337
3	1.730	7.207	52.155	1.386	5.777	47.626	4.403
4	1.485	6.188	58.343	1.163	4.846	52.472	4.087
5	1.273	5.305	63.648	.938	3.910	56.382	5.890
6	.941	3.920	67.568	.461	1.922	58.304	6.143
7	.791	3.294	70.863	.378	1.573	59.878	4.847
8	.678	2.826	73.689				
9	.666	2.775	76.463				
10	.637	2.654	79.118				
11	.561	2.338	81.455				
12	.519	2.164	83.619				
13	.499	2.081	85.700				
14	.489	2.039	87.739				
15	.441	1.836	89.574				
16	.430	1.790	91.365				
17	.367	1.528	92.893				
18	.340	1.415	94.308				
19	.320	1.331	95.639				
20	.283	1.180	96.819				
21	.273	1.138	97.958				
22	.223	.928	98.886				
23	.141	.585	99.471				
24	.127	.529	100.000				

Extraction Method: Principal Axis Factoring.  
a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Confirmatory factor analyses, using robust weighted least squares estimation (WLSM), of the five, six, and seven factor models, with and without factor loadings of between .3 and .4, revealed that the seven factor model with factor loadings  $\geq .3$  gave the best fit, and it was a good, verging on excellent, fit ( $CFI = .982$ ,  $RMSEA = .043$ ,  $SRMR = .052$ ) (Table 40).

Table 40. Reasons for using Facebook (5, 6, and 7 factors with factor loadings  $\geq .3$  and  $\geq .4$ ) – WLSM

5 factors (factor loadings $\geq .4$ )*					
$\chi^2$	df	p	CFI	RMSEA	SRMR
692.809	179	.000	.972	.052	.060
6 factors (factor loadings $\geq .4$ )*					
$\chi^2$	df	p	CFI	RMSEA	SRMR
814.832	194	.000	.971	.054	.061
7 factors (factor loadings $\geq .4$ )*					
$\chi^2$	df	p	CFI	RMSEA	SRMR
660.260	187	.000	.977	.047	.054
5 factors (factor loadings $\geq .3$ )*					
$\chi^2$	df	p	CFI	RMSEA	SRMR
1098.188	220	.000	.959	.062	.070
6 factors (factor loadings $\geq .3$ )*					
$\chi^2$	df	p	CFI	RMSEA	SRMR
908.060	214	.000	.969	.055	.062
7 factors (factor loadings $\geq .3$ )*					
$\chi^2$	df	p	CFI	RMSEA	SRMR
713.546	227	.000	.982	.043	.052

\* All values are robust.  
Note. Computed using the *lavaan* package in R (v 4).

## 5.5 Demographic factors and reasons for using Facebook (Hypothesis #2)

*Hypothesis #2* states that demographic factors influence the nature and degree of social needs on Facebook. I used the *Reasons for using Facebook* variable to measure social needs on Facebook.

### 5.5.1 Gender and reasons for using Facebook

A Mann-Whitney U test indicated that gender influenced respondents' reasons for using Facebook. There was a statistically significant difference between genders for eight of the 24 reasons given. Females used Facebook more than males for the following five reasons: *To keep in touch with friends* (Mean Rank for Males = 216.56 and for Females = 189.67,  $U = 10349.50$ ,  $z = -2.14$ ,  $p = .032$ ,  $r = 0.108$ ), *To keep in touch with family* (Mean Rank for Males = 234.37 and for Females = 185.28,  $U = 8980.50$ ,  $z = -3.64$ ,  $p = .000$ ,  $r = 0.184$ ), *To be there for others* (Mean Rank for Males = 234.64 and for Females = 185.22,  $U = 8960.00$ ,  $z = -3.64$ ,  $p = .000$ ,  $r = 0.184$ ), *To share my news* (Mean Rank for Males = 225.58 and for Females = 187.45,  $U = 9657.50$ ,  $z = -2.82$ ,  $p = .005$ ,  $r = 0.142$ ), and *To put off doing my work* (Mean Rank for Males = 220.69 and for Females = 188.66,  $U = 10034.00$ ,  $z = -2.32$ ,  $p = .020$ ,  $r = 0.117$ ). However, males used Facebook more than females for the following three reasons: *To make new friends* (Mean Rank for Males = 170.63 and for Females = 201.01,  $U = 10135.50$ ,  $z = -3.64$ ,  $p = .014$ ,  $r = 0.124$ ), *To meet new romantic or sexual partners* (Mean Rank for Males = 180.03 and for Females = 198.70,  $U = 10859.00$ ,  $z = -2.57$ ,  $p = .010$ ,  $r = 0.130$ ), and *To find out more about potential or new friends or partners* (Mean Rank for Males = 168.06 and for Females = 201.65,  $U = 9937.50$ ,  $z = -2.60$ ,  $p = .009$ ,  $r = 0.131$ ). The biggest differences were for the reasons *To keep in touch with family* and *To be there for others* (both  $r = 0.184$ ), both of which females used Facebook for more than males. However, the effect sizes for all eight reasons, as per the  $r$  scores, were small (Table B1 & Table 41).

Table 41. Gender and reasons for using Facebook – Mann-Whitney Test Statistics

Reasons for using Facebook <sup>a</sup>	N*	Mann-Whitney U	Wilcoxon W	z	Asymp. Sig. (2-tailed)	r (r = z ÷ √n)
To keep in touch with friends	389	10349.500	59177.500	-2.141	.032	.108
To keep in touch with family	389	8980.500	57808.500	-3.638	.000	.184
To keep in touch with people from my past	389	11869.500	60697.500	-0.170	.865	.008
To make new friends	389	10135.500	13138.500	-2.456	.014	.124
To meet new romantic or sexual partners	389	10859.000	13862.000	-2.566	.010	.130
To find out more about potential or new friends or partners	389	9937.500	12940.500	-2.596	.009	.131
To be there for others (i.e., to be supportive, offer help or show an interest)	389	8960.000	57788.000	-3.636	.000	.184
To ask for advice or help	389	11674.000	60502.000	-0.418	.676	.021
To feel less lonely	389	11132.000	59960.000	-1.109	.267	.056
To enhance my image	389	10781.000	13784.000	-1.689	.091	.085
To project my best self	389	11907.500	14910.500	-0.138	.890	.006
To express who I am	389	11946.000	14949.000	-0.080	.936	.004
To express myself in ways that I can't offline	389	11602.500	14605.500	-0.548	.584	.027
To share my news	389	9657.500	58485.500	-2.818	.005	.142

<i>Reasons for using Facebook<sup>a</sup></i>	<i>N*</i>	<i>Mann-Whitney U</i>	<i>Wilcoxon W</i>	<i>z</i>	<i>Asymp. Sig. (2-tailed)</i>	<i>r (r = z ÷ √n)</i>
To share my thoughts and feelings	389	10800.500	59628.500	-1.466	.143	.074
To find like-minded people	389	10653.000	13656.000	-1.794	.073	.090
To find people who share similar interests	389	10655.500	13658.500	-1.760	.078	.089
To work with others who have similar goals	389	11746.500	14749.500	-0.348	.728	.017
To find out about people I am curious about	389	11696.000	14699.000	-0.381	.703	.019
To keep an eye on someone	389	11955.500	14958.500	-0.071	.944	.003
To expand my network	389	11203.000	14206.000	-1.053	.292	.053
To have fun	389	11383.000	60211.000	-0.744	.457	.037
To put off doing my work	389	10034.000	58862.000	-2.322	.020	.117
Because I'm bored	389	11364.500	60192.500	-0.761	.446	.038

a. Grouping Variable: Gender  
\* Gender 'Another identity' (N = 2) excluded

### 5.5.2 Age and reasons for using Facebook

A Jonckheere-Terpstra test and Kendall's Tau-b showed significant age-related trends for 21 out of the 24 reasons for using Facebook. Six of these reasons had both an *r* score and a  $\tau$  value above .2. They are, in descending order according to the *r*-scores: *Because I'm bored* ( $j = 37,111, z = 8.965, p = .000, r = .453, \tau = .385$ ), *To put off doing my work* ( $j = 34,107, z = 6.392, p = .000, r = .323, \tau = .274$ ), *To find out more about potential or new friends or partners* ( $j = 33,198; z = 5.989; p = .000, r = .302, \tau = .266$ ), *To keep in touch with friends* ( $j = 32,943.5, z = 5.931, p = .000, r = .299, \tau = .266$ ), *To keep an eye on someone* ( $j = 32,901.5, z = 5.711, p = .000, r = .288, \tau = .253$ ), and *To find out about people I am curious about* ( $j = 32,095.5, z = 4.803, p = .000, r = .242, \tau = .210$ ). The younger the respondent, the more likely he or she was to have used Facebook for each of the 21 reasons. This age-related trend, according to the *r* scores, ranged from large to small, *Because I'm bored* having the largest effect. The three reasons that did not show an age-related trend were: *To keep in touch with family*, *To share my news*, and *To work with others who have similar goals* (Table 42 & Table B2).

Table 42. Age and reasons for using Facebook – Jonckheere-Terpstra Test

<i>Reasons for using Facebook<sup>a</sup></i>	<i>*</i>	<i>N</i>	<i>Observed J-T Statistic</i>	<i>Mean J-T Statistic</i>	<i>Std. Devn. of J-T Statistic</i>	<i>Std. J-T Statistic</i>	<i>Asymp. Sig. (2-tailed)</i>	<i>r (r = z ÷ √n)</i>
To keep in touch with friends	5	391	32943.500	26599.500	1069.566	5.931	.000	.299
To keep in touch with family	5	391	27881.500	26599.500	1149.049	1.116	.265	.056
To keep in touch with people from my past	5	391	29446.000	26599.500	1158.274	2.458	.014	.124
To make new friends	5	391	30204.500	26599.500	1053.661	3.421	.001	.173
To meet new romantic or sexual partners	5	391	28388.000	26599.500	618.155	2.893	.004	.146
To find out more about potential or new friends or partners	5	391	33198.000	26599.500	1101.725	5.989	.000	.302
To be there for others (i.e., to be supportive, offer help or show an interest)	5	391	29165.000	26599.500	1157.397	2.217	.027	.112
To ask for advice or help	5	391	29742.000	26599.500	1115.149	2.818	.005	.142
To feel less lonely	5	391	30084.000	26599.500	1092.678	3.189	.001	.161
To enhance my image	5	391	30593.500	26599.500	1005.564	3.972	.000	.200
To project my best self	5	391	30514.000	26599.500	1045.476	3.744	.000	.189
To express who I am	5	391	31754.000	26599.500	1134.067	4.545	.000	.229
To express myself in ways that I can't offline	5	391	30376.500	26599.500	1031.670	3.661	.000	.185
To share my news	5	391	28112.500	26599.500	1152.748	1.313	.189	.066
To share my thoughts and feelings	5	391	30110.500	26599.500	1139.959	3.080	.002	.155
To find like-minded people	5	391	29845.000	26599.500	1045.200	3.105	.002	.157
To find people who share similar interests	5	391	29492.500	26599.500	1063.472	2.720	.007	.137

<i>Reasons for using Facebook</i> <sup>a</sup>	*	N	Observed J-T Statistic	Mean J-T Statistic	Std. Devn. of J-T Statistic	Std. J-T Statistic	Asymp. Sig. (2-tailed)	r (r = z ÷ √n)
To work with others who have similar goals	5	391	28553.500	26599.500	1053.990	1.854	.064	.093
To find out about people I am curious about	5	391	32095.500	26599.500	1144.288	4.803	.000	.242
To keep an eye on someone	5	391	32901.500	26599.500	1103.539	5.711	.000	.288
To expand my network	5	391	29839.000	26599.500	1059.533	3.057	.002	.154
To have fun	5	391	31758.500	26599.500	1166.338	4.423	.000	.223
To put off doing my work	5	391	34107.000	26599.500	1174.554	6.392	.000	.323
Because I'm bored	5	391	37111.000	26599.500	1172.479	8.965	.000	.453

a. Grouping Variable: Age group  
\* Number of Levels in Age group

### 5.5.3 Australian cultural influence and reasons for using Facebook

*Australian cultural influence* is measured by the length of time respondents had lived in Australia at the time of the survey (*Less than a year, 1-5 years, 6-15 years, More than 15 years*), and by respondents' and their parents' countries of birth in relation to Australia (Was the respondent born in Australia? Were neither, one, or both parents born in Australia?). A Jonckheere-Terpstra test and Kendall's Tau-b showed statistically significant trends for the length of time respondents had lived in Australia and two of the listed reasons for using Facebook: *To keep in touch with people from my past* ( $j = 19,714$ ,  $z = 2.760$ ,  $p = .006$ ,  $r = .139$ ,  $\tau = .124$ ) and *To make new friends* ( $j = 19,764.5$ ,  $z = 3.091$ ,  $p = .002$ ,  $r = .156$ ,  $\tau = .144$ ). The less time respondents had lived in Australia at the time of the survey, the more likely they were to have used Facebook for both of these reasons. According to the  $r$  scores and  $\tau$  values, however, the effect sizes were small (Table 43 & Table B3).

Table 43. Length of time lived in Australia and reasons for using Facebook – Jonckheere-Terpstra Test

<i>Reasons for using Facebook</i> <sup>a</sup>	*	N	Observed J-T Statistic	Mean J-T Statistic	Std. Devn. of J-T Statistic	Std. J-T Statistic	Asymp. Sig. (2-tailed)	r (r = z ÷ √n)
To keep in touch with friends	4	391	18001.500	17054.500	889.878	1.064	.287	.053
To keep in touch with family	4	391	18480.000	17054.500	955.993	1.491	.136	.075
To keep in touch with people from my past	4	391	19714.000	17054.500	963.667	2.760	.006	.139
To make new friends	4	391	19764.500	17054.500	876.646	3.091	.002	.156
To meet new romantic or sexual partners	4	391	17134.000	17054.500	514.313	0.155	.877	.007
To find out more about potential or new friends or partners	4	391	17700.000	17054.500	916.631	0.704	.481	.035
To be there for others (i.e., to be supportive, offer help or show an interest)	4	391	16566.000	17054.500	962.936	-0.507	.612	.025
To ask for advice or help	4	391	18383.500	17054.500	927.798	1.432	.152	.072
To feel less lonely	4	391	17214.000	17054.500	909.103	0.175	.861	.008
To enhance my image	4	391	17669.500	17054.500	836.633	0.735	.462	.037
To project my best self	4	391	18289.500	17054.500	869.835	1.420	.156	.071
To express who I am	4	391	17364.000	17054.500	943.534	0.328	.743	.016
To express myself in ways that I can't offline	4	391	18105.000	17054.500	858.349	1.224	.221	.061
To share my news	4	391	17183.500	17054.500	959.069	0.135	.893	.006
To share my thoughts and feelings	4	391	17946.500	17054.500	948.433	0.940	.347	.047
To find like-minded people	4	391	17960.000	17054.500	869.605	1.041	.298	.052
To find people who share similar interests	4	391	17696.000	17054.500	884.805	0.725	.468	.036
To work with others who have similar goals	4	391	17105.000	17054.500	876.918	0.058	.954	.002
To find out about people I am curious about	4	391	17786.500	17054.500	952.035	0.769	.442	.038
To keep an eye on someone	4	391	16204.000	17054.500	918.139	-0.926	.315	.046
To expand my network	4	391	17940.000	17054.500	881.530	1.005	.315	.050
To have fun	4	391	17671.500	17054.500	970.372	0.636	.525	.032
To put off doing my work	4	391	15239.500	17054.500	977.206	-1.857	.063	.093
Because I'm bored	4	391	16.136.500	17054.500	975.481	-0.941	.347	.047

<i>Reasons for using Facebook</i> <sup>a</sup>	*	N	Observed J-T Statistic	Mean J-T Statistic	Std. Devn. of J-T Statistic	Std. J-T Statistic	Asymp. Sig. (2-tailed)	r ( $r = z \div \sqrt{n}$ )
a. Grouping Variable Length of time lived in Australia in total								
* Number of Levels in Length of time lived in Australia in total								

A Mann-Whitney U test showed significant trends regarding respondents' countries of birth in relation to Australia for five out of the 24 reasons for using Facebook: *To keep in touch with people from my past*, *To make new friends*, *To keep an eye on someone*, *To put off doing my work*, and *Because I'm bored* (Table B4 & Table 44). Respondents who were not born in Australia tended to use Facebook more for the reasons *To keep in touch with people from my past* (Mean Rank for Australian born = 206.45 and for Another COB = 178.65,  $U = 15383.00$ ,  $z = -2.479$ ,  $p = .013$ ,  $r = .126$ ) and *To make new friends* (Mean Rank for Australian born = 206.75 and for Another COB = 178.16,  $U = 15311.50$ ,  $z = -2.802$ ,  $p = .005$ ,  $r = .141$ ) than those who were born in Australia, but respondents who were born in Australia tended to use Facebook more for the reasons *To keep an eye on someone* (Mean Rank for Australian born = 187.03 and for Another COB = 210.88,  $U = 15746.00$ ,  $z = -2.232$ ,  $p = .026$ ,  $r = .112$ ), *To put off doing my work* (Mean Rank for Australian born = 181.53 and for Another COB = 220.01,  $U = 14404.00$ ,  $z = -3.383$ ,  $p = .001$ ,  $r = .171$ ), and *Because I'm bored* (Mean Rank for Australian born = 185.64 and for Another COB = 213.19,  $U = 15406.50$ ,  $z = -2.427$ ,  $p = .015$ ,  $r = .122$ ) than those who were not born in Australia. The most pronounced effects were for the reasons *To put off doing my work* followed by *To make new friends*, but as per the  $r$  scores, the effect sizes for all five reasons were small.

Table 44. Respondents' country of birth and reasons for using Facebook – Mann-Whitney Test Statistics

<i>Reasons for using Facebook</i> <sup>a</sup>	N*	Mann-Whitney U	Wilcoxon W	z	Asymp. Sig. (2-tailed)	r ( $r = z \div \sqrt{n}$ )
To keep in touch with friends	391	17897.500	28775.500	-0.038	.969	.002
To keep in touch with family	391	16080.500	26958.500	-1.816	.069	.091
To keep in touch with people from my past	391	15383.000	26261.000	-2.479	.013	.126
To make new friends	391	15311.500	26189.500	-2.802	.005	.141
To meet new romantic or sexual partners	391	17508.000	28386.000	-0.776	.438	.039
To find out more about potential or new friends or partners	391	17435.000	47325.000	-0.510	.610	.025
To be there for others (i.e., to be supportive, offer help or show an interest)	391	17908.500	47798.500	-0.025	.980	.001
To ask for advice or help	391	17443.000	28321.000	-0.496	.620	.025
To feel less lonely	391	17314.500	28192.500	-0.638	.523	.032
To enhance my image	391	17684.500	47574.500	-0.279	.780	.014
To project my best self	391	17433.000	28311.000	-0.539	.590	.027
To express who I am	391	17665.000	47555.000	-0.267	.789	.013
To express myself in ways that I can't offline	391	17856.500	47746.500	-0.085	.933	.004
To share my news	391	17342.500	47232.500	-0.578	.564	.029
To share my thoughts and feelings	391	17902.000	47792.000	-0.032	.975	.001
To find like-minded people	391	17449.500	28327.500	-0.522	.602	.026
To find people who share similar interests	391	17647.000	28525.000	-0.304	.761	.015
To work with others who have similar goals	391	17312.000	28190.000	-0.664	.507	.033
To find out about people I am curious about	391	16981.500	46871.500	-0.937	.349	.047
To keep an eye on someone	391	15746.000	45636.000	-2.232	.026	.112
To expand my network	391	17217.500	28095.500	-0.761	.447	.038
To have fun	391	17108.000	46998.000	-0.797	.425	.040
To put off doing my work	391	14404.000	44294.000	-3.383	.001	.171
Because I'm bored	391	15406.500	45296.500	-2.427	.015	.122
a. Grouping Variable: Respondents' COB						

A Jonckheere-Terpstra test and Kendall's Tau-b showed significant trends regarding respondents' parents' countries of birth in relation to Australia for three out of the 24 reasons for using Facebook: *To keep an eye on someone* ( $j = 21,008, z = -2.640, p = .008, r = .133, \tau = -.120$ ), *To put off doing my work* ( $j = 19,340.5, z = -3.937, p = .000, r = .199, \tau = -.174$ ), and *Because I'm bored* ( $j = 20,143.5, z = -3.241, p = .001, r = .163, \tau = -.143$ ). The results show that respondents with both parents born in Australia tended to use Facebook the most for all three reasons, and respondents with neither parent born in Australia tended to use Facebook the least for all three reasons. According to the  $r$  scores and  $\tau$  values, however, the effect sizes for all three reasons were small (Table 45 & Table B5).

Table 45. Parents' country of birth and reasons for using Facebook – Jonckheere-Terpstra Test

Reasons for using Facebook <sup>a</sup>	*	N	Observed J-T Statistic	Mean J-T Statistic	Std. Devn. of J-T Statistic	Std. J-T Statistic	Asymp. Sig. (2-tailed)	r (r = z ÷ √n)
To keep in touch with friends	3	391	23453.500	23849.000	1042.865	-0.379	.705	.019
To keep in touch with family	3	391	25659.000	23849.000	1120.351	1.616	.106	.081
To keep in touch with people from my past	3	391	26017.500	23849.000	1129.344	1.920	.055	.097
To make new friends	3	391	25381.500	23849.000	1027.358	1.492	.136	.075
To meet new romantic or sexual partners	3	391	23261.500	23849.000	602.731	-0.975	.330	.049
To find out more about potential or new friends or partners	3	391	22895.000	23849.000	1074.218	-0.888	.374	.044
To be there for others (i.e., to be supportive, offer help or show an interest)	3	391	22947.000	23849.000	1128.488	-0.799	.424	.040
To ask for advice or help	3	391	23228.500	23849.000	1087.305	-0.571	.568	.028
To feel less lonely	3	391	23182.000	23849.000	1065.396	-0.626	.531	.031
To enhance my image	3	391	22925.000	23849.000	980.465	-0.942	.346	.047
To project my best self	3	391	23779.500	23849.000	1019.376	-0.068	.946	.003
To express who I am	3	391	22471.000	23849.000	1105.748	-1.246	.213	.063
To express myself in ways that I can't offline	3	391	22672.000	23849.000	1005.915	-1.170	.242	.059
To share my news	3	391	22665.500	23849.000	1123.956	-1.053	.292	.053
To share my thoughts and feelings	3	391	23422.000	23849.000	1111.490	-0.384	.701	.019
To find like-minded people	3	391	22521.000	23849.000	1019.107	-1.303	.193	.065
To find people who share similar interests	3	391	22587.500	23849.000	1036.921	-1.217	.224	.061
To work with others who have similar goals	3	391	22751.000	23849.000	1027.677	-1.068	.285	.053
To find out about people I am curious about	3	391	22167.500	23849.000	1115.711	-1.507	.132	.076
To keep an eye on someone	3	391	21008.000	23849.000	1075.986	-2.640	.008	.133
To expand my network	3	391	23719.000	23849.000	1033.082	-0.126	.900	.006
To have fun	3	391	21816.500	23849.000	1137.203	-1.787	.074	.090
To put off doing my work	3	391	19340.500	23849.000	1145.212	-3.937	.000	.199
Because I'm bored	3	391	20143.500	23849.000	1143.190	-3.241	.001	.163

\* Number of Levels in Parents' COB  
a. Grouping Variable: Parents' COB

In summary, and according to the statistically significant associations for the three measures of Australian cultural influence, the less time respondents had lived in Australia at the time of the survey, the more likely they were to have used Facebook for the reasons *To keep in touch with people from my past* and *To make new friends*. Similarly, respondents who were not born in Australia tended to use Facebook more for these two reasons. However, respondents whose parents were born in Australia and who were born in Australia themselves were the most likely to use Facebook for the reasons *To keep an eye on someone*, *To put off doing my work*, and *Because I'm bored* (Table 46). In all instances, however, the effect sizes, as per the  $r$

scores, were small.

Table 46. Australian cultural influence and reasons for using Facebook – Summary

Reasons for using Facebook	$r$ ( $r = z \div \sqrt{n}$ )		
	Time lived Australia	Respondents' COB	Parents' COB
To keep in touch with people from my past	.139	.126	
To make new friends	.156	.141	
To keep an eye on someone		.112	.133
To put off doing my work		.171	.199
Because I'm bored		.122	.163

Note. Where the  $r$  scores are not provided, the  $p$  value is not statistically significant.

#### 5.5.4 Completed education and reasons for using Facebook

A Jonckheere-Terpstra test and Kendall's Tau-b showed significant trends across groups describing the 'highest' completed level of formal education for 19 of the 24 reasons for using Facebook. Two of these reasons had both an  $r$  score and a  $\tau$  value above .2: *Because I'm bored* ( $j = 34,624$ ,  $z = 5.398$ ,  $p = .000$ ,  $r = .272$ ,  $\tau = .230$ ) and *To make new friends* ( $j = 33,113$ ,  $z = 4.601$ ,  $p = .000$ ,  $r = .232$ ,  $\tau = .205$ ). For all 19 reasons, the 'higher' the level of formal education completed, the less likely respondents were to use Facebook for that reason (Table 47 & Table B6).

Table 47. Completed education and reasons for using Facebook – Jonckheere-Terpstra Test

Reasons for using Facebook <sup>a</sup>	*	N	Observed J-T Statistic	Mean J-T Statistic	Std. Devn. of J-T Statistic	Std. J-T Statistic	Asymp. Sig. (2-tailed)	$r$ ( $r = z \div \sqrt{n}$ )
To keep in touch with friends	4	391	32714.500	28167.500	1091.001	4.168	.000	.210
To keep in touch with family	4	391	29908.000	28167.500	1172.082	1.485	.138	.075
To keep in touch with people from my past	4	391	29714.000	28167.500	1181.493	1.309	.191	.066
To make new friends	4	391	33113.000	28167.500	1074.777	4.601	.000	.232
To meet new romantic or sexual partners	4	391	30545.000	28167.500	630.541	3.771	.000	.190
To find out more about potential or new friends or partners	4	391	32934.500	28167.500	1123.806	4.242	.000	.214
To be there for others (i.e., to be supportive, offer help or show an interest)	4	391	31396.500	28167.500	1180.598	2.735	.006	.138
To ask for advice or help	4	391	32961.000	28167.500	1137.499	4.214	.000	.213
To feel less lonely	4	391	32398.500	28167.500	1114.578	3.796	.000	.191
To enhance my image	4	391	29444.000	28167.500	1025.716	1.244	.213	.062
To project my best self	4	391	29043.500	28167.500	1066.429	0.821	.411	.041
To express who I am	4	391	31612.500	28167.500	1156.798	2.978	.003	.150
To express myself in ways that I can't offline	4	391	30405.500	28167.500	1052.346	2.127	.033	.107
To share my news	4	391	30232.500	28167.500	1175.856	1.756	.079	.088
To share my thoughts and feelings	4	391	30798.000	28167.500	1162.809	2.262	.024	.114
To find like-minded people	4	391	32654.500	28167.500	1066.147	4.209	.000	.212
To find people who share similar interests	4	391	32546.000	28167.500	1084.786	4.036	.000	.204
To work with others who have similar goals	4	391	32157.500	28167.500	1075.114	3.711	.000	.187
To find out about people I am curious about	4	391	32254.000	28167.500	1167.224	3.501	.000	.177
To keep an eye on someone	4	391	32904.500	28167.500	1125.657	4.208	.000	.212
To expand my network	4	391	31121.000	28167.500	1080.767	2.733	.006	.138
To have fun	4	391	33667.000	28167.500	1189.719	4.623	.000	.233
To put off doing my work	4	391	32184.000	28167.500	1198.100	3.352	.001	.169
Because I'm bored	4	391	34624.000	28167.500	1195.984	5.398	.000	.272

\* Number of Levels in Completed education  
a. Grouping Variable: Completed education

These test results may indicate an age-related as opposed to an education-related trend, as respondents aged 18-24 were most likely to have completed Year 12 as the ‘highest’ level of formal education completed, and those aged 25-34 were most likely to have completed an undergraduate or Honours qualification as the ‘highest’ level of formal education completed. Also, the percentage of respondents who had completed a post-secondary qualification as the ‘highest’ level of formal education completed dropped steadily as age increased, and those aged 18-24 were least likely to have completed a post-graduate qualification as the ‘highest’ level of formal education completed (Figure 4 & Table 48).

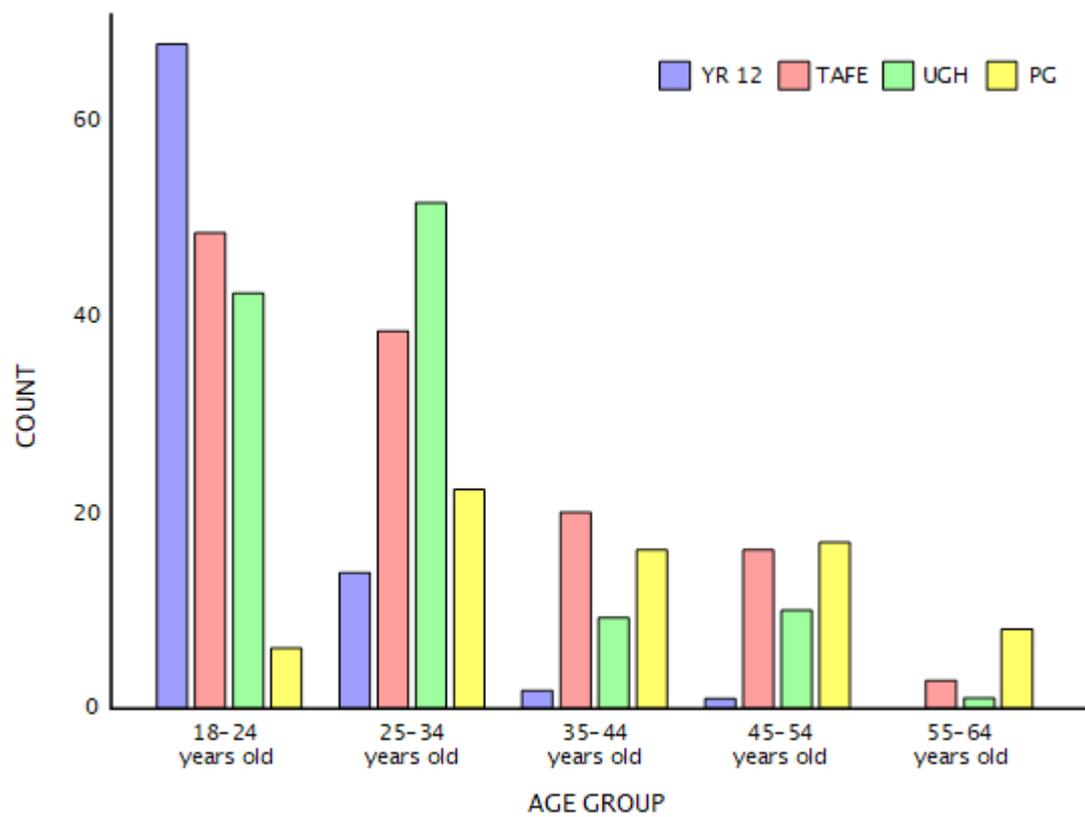


Figure 4. Completed education and age

Table 48. Completed education and age – Crosstabs

My age group	YR12	TAFE	UGH	PG	Total
18-24 years old	67	48	42	6	163
25-34 years old	14	38	51	22	125
35-44 years old	2	20	9	16	47
45-54 years old	1	16	10	17	44
55-64 years old	0	3	1	8	12
Total	84	125	113	69	391

In fact, a Jonckheere-Terpstra test and Kendall's Tau-b confirmed an age-related trend regarding the 'highest' level of formal education completed ( $j = 36,673$ ,  $z = 8.583$ ,  $p = .000$ ,  $r = .433$ ,  $\tau = .368$ ) (a medium-large effect). However, it was possible that, in spite of this association, the 'highest' level of formal education completed may, in itself, have influenced reasons for using Facebook. To test this theory, I used Kendall's Tau-b in the context of partial correlation, and found that the impact of formal education per se on reasons for using Facebook, while still existent, was reduced: instead of 19 of the 24 reasons for using Facebook being significantly associated with education, only 15 reasons were, and the highest  $\tau$  value was .161 (for the reason *To make new friends* [ $z = 4.758$ ,  $p = .000$ ]), as opposed to .230 (for the reason *Because I'm bored* [ $z = 5.398$ ,  $p = .000$ ]) when age was not controlled for (Table B6 & Table B7).

In this chapter I have analysed the survey data related to *Hypotheses #1* and *#2*, and in *Chapter 6* I analyse the survey data related to *Hypotheses #3* and *#4*.

## 6. RESULTS – PRIVACY PERCEPTIONS, PRIVACY CONCERNS, SOCIAL NEEDS, AND FACEBOOK USE

*Hypothesis #3* states that Facebook users' privacy perceptions (what users think is happening in regard to their privacy on Facebook) influence the nature and degree of their privacy concerns on Facebook. *User-user concerns* are centred on other Facebook users, whereas *user-corporate concerns* are centred on the Facebook corporation (Facebook, Inc.) and its affiliated businesses. *Facebook* refers, in this thesis, to both the Facebook corporation and the Facebook platform. Businesses linked to the Facebook platform are of four types: other businesses owned by the Facebook corporation (e.g., Instagram and WhatsApp), independent app developers who integrate their apps into the Facebook platform, businesses that advertise on the Facebook platform, and websites that link to the Facebook platform via social plugins and Single Sign-On (SSO).

The *Perceptions* section of the survey, based on a similar (in some cases almost identical) set of statements by O'Brien and Torres (2012, p. 85), presented respondents with two questions: *WHO CAN I HIDE MY INFORMATION FROM?* and *WHAT DOES FACEBOOK KNOW ABOUT ME?* comprising five statements each, and respondents were asked to select *True*, *False*, or *Don't know* for each statement. There was also a multiple choice question: *WHO DOES FACEBOOK SHARE MY INFORMATION WITH?* with three choices. Table 49 shows the correct answers to these questions at the time of the survey in 2014.

*Table 49. Privacy perceptions – Background (as of 28.7.2014)*

WHO CAN I HIDE MY INFORMATION FROM? (Q1) Please indicate whether you think the following statements are true or false.				
#	Statement	True	False	Background
1.1	I can control who sees all of my information on Facebook.		✓	False: You cannot hide your 'public information' (your name, profile pictures, cover photos, gender, networks, username, and User ID [account number]) on Facebook, and although you can control who sees the friends section of your Timeline, your friends control who can see their friendships on their own Timelines. If people can see your friendship on another Timeline, they will also be able to see it in News Feed, search, and other places on Facebook. Also, anyone who has your username or User ID can access your age range, language, and country. (Facebook FAQ, 2014; Facebook Help Centre, 2014a; Facebook Help Centre, 2014b)
1.2	My friends' activities on Facebook may result in my information being made available to other businesses.	✓		True: Your friends' friends lists (in the form user IDs [account numbers]) are made available to the games and apps they use. Once they have your account number, those games and apps can access your public information as listed above, as well as your age range, language, and country. You can only stop this happening by opting out, in the privacy settings, of using games and apps yourself. (Facebook, 2014b; Facebook Help Centre, 2014c)
1.3	Only my friends can tag me in photos and videos.		✓	False: Any Facebook member can tag you. However, Facebook offers four tools to help users manage tags: Timeline review (which needs to be turned on), tag review (which also needs

				to be turned on), an option to choose an audience for tagged posts after they appear on your Timeline, and an option to turn off tag suggestions. (Facebook Help Centre, 2014d; Facebook Help Centre, 2014e; Facebook Help Centre, 2014f; Facebook Help Centre, 2014g)
1.4	Information I set to 'Public' is available to everyone on the internet, not just Facebook users.	✓		True: Information you set to 'Public' can show up on a public search engine, even if you block public search engines from linking to your profile in your privacy settings. Also, when you write on a Page's wall or comment on a news article that uses Facebook's comments plugin, you do not get to choose an audience, as these posts are always public. (Facebook Help Centre, 2014b; Facebook Help Centre, 2014h)
1.5	Using the games and applications means I am making my information available to other businesses.	✓		True: Games and apps are "other businesses" in the sense that they are affiliated with, as opposed to being owned by, Facebook. Games and apps have access to your 'public information' (your name, profile pictures, cover photos, gender, networks, username, user ID [account number], and any information you choose to make public), your friend list, and through your account number, your age range, language, and country. (Facebook, 2014b; Facebook Help Centre, 2014c)
<b>WHAT DOES FACEBOOK KNOW ABOUT ME? (Q2)</b> <i>Please indicate whether you think the following statements are true or false.</i>				
2.1	Facebook may know where I am when I log in.	✓		True: Facebook collects device locations, including specific geographic locations, through GPS, Bluetooth, and WiFi signals. (Facebook, 2014)
2.2	Businesses that advertise on Facebook do not share information with Facebook about how I respond to their ads.		✓	False: Facebook receives information about you and your activities on and off Facebook from third-party partners including advertisers. (Facebook, 2014)
2.3	Facebook gathers data about all my actions on Facebook.	✓		True. (Facebook, 2014)
2.4	When I post photos and videos on Facebook, Facebook may receive data about the time, place and date I took them.	✓		True. (Facebook, 2014)
2.5	Facebook has access to all the information I post and put on my profile.	✓		True. (Facebook, 2014)
<b>WHO DOES FACEBOOK SHARE MY INFORMATION WITH? (Q3)</b> <i>Please indicate which statement you think is true.</i>				
3A	Facebook may share my information with other businesses in a way that allows me to be personally identified.	✓		It is true that Facebook does not share personally identifying information with advertisers, but it does allow app developers access to your personally identifying information. The Facebook platform also shares your personally identifying information with other businesses owned by the Facebook corporation (e.g., Instagram). (Facebook, 2014)
3B	Facebook may share my information with other businesses, but never in a way that allows me to be personally identified.		✓	
3C	Facebook doesn't share any of my information with other businesses.		✓	

*Note.*

- Background information was correct as of 28.7.2014.
- For the purpose of clarity, I have not enclosed direct quotations within quotation marks within the table cells.
- On 30.8.2019, some of the cited URLs were automatically redirected by Facebook, and much of the web page content had changed.
- Since the time of the survey in 2014, Facebook has changed some of its practices in relation to apps' access to user data. For instance, according to Facebook documentation, in 2019, an app only has access to those friends in users' friends lists who use the app (Facebook for developers, 2019c, Friend permissions > question #2), and to access those friends, the app must request prior permission from Facebook (Facebook for developers, 2019d, User data > user\_friends). Also, "in order for a person to show up in another's friend list, both people must have shared their list of friends with the app and not disabled permission during login" (Facebook for developers, 2019d, User data > user\_friends).

## 6.1 Respondents' privacy perceptions

Table 50 shows respondents' perceptions regarding Q1, Q2, and Q3.

Table 50. Respondents' privacy perceptions

WHO CAN I HIDE MY INFORMATION FROM? (Q1) Please indicate whether you think the following statements are true or false.									
#	Statement	True	False	Respondents' perceptions					
				True		False		Don't know	
				Freq	Percent	Freq	Percent	Freq	Percent
1.1	I can control who sees all of my information on Facebook.		✓	240	61.38	112	28.64	39	9.97
1.2	My friends' activities on Facebook may result in my information being made available to other businesses.	✓		277	70.84	38	9.72	76	19.44
1.3	Only my friends can tag me in photos and videos.		✓	261	66.75	86	21.99	44	11.25
1.4	Information I set to 'Public' is available to everyone on the internet, not just Facebook users.	✓		307	78.52	43	11.00	41	10.49
1.5	Using the games and applications means I am making my information available to other businesses.	✓		287	73.40	19	4.86	85	21.74
WHAT DOES FACEBOOK KNOW ABOUT ME? (Q2) Please indicate whether you think the following statements are true or false.									
2.1	Facebook may know where I am when I log in.	✓		354	90.54	15	3.84	22	5.63
2.2	Businesses that advertise on Facebook do not share information with Facebook about how I respond to their ads.		✓	43	11.00	196	50.13	152	38.87
2.3	Facebook gathers data about all my actions on Facebook.	✓		348	89.00	4	1.02	39	9.97
2.4	When I post photos and videos on Facebook, Facebook may receive data about the time, place and date I took them.	✓		337	86.19	17	4.35	37	9.46
2.5	Facebook has access to all the information I post and put on my profile.	✓		370	94.63	3	.77	18	4.60
WHO DOES FACEBOOK SHARE MY INFORMATION WITH? (Q3) Please indicate which statement you think is true.									
3A	Facebook may share my information with other businesses in a way that allows me to be personally identified.	✓		152	38.90				
3B	Facebook may share my information with other businesses, but never in a way that allows me to be personally identified.		✓	204	52.20				
3C	Facebook doesn't share any of my information with other businesses.		✓	35	9.00				

The five statements comprising the *WHO CAN I HIDE MY INFORMATION FROM?* question (Q1) are polarised into two groups in terms of response rates: three of the statements (statements 1.2, 1.4, and 1.5), all of which are *True*, had correct response rates of between approximately 71-79%, and the other two statements (statements 1.1 and 1.3), both of which are *False*, had a correct response rate of approximately 29% and 22% respectively. Similarly, four of the five statements comprising the *WHAT DOES FACEBOOK KNOW ABOUT ME?* question (Q2), all of which are *True*, had correct response rates of approximately 86-95% (statements 2.1, 2.3, 2.4, and 2.5), and the remaining statement (statement 2.2), the only *False* statement in this question, had a correct response rate of approximately 50%. It is unlikely to be coincidental that the three statements in Q1 and Q2 with the lowest correct response rates are all *False*, whereas the other seven statements are *True*. This discrepancy between the correct response rates for the true and false statements raises the possibility that even though there was a *Don't know* option, some

respondents may have chosen the *True* or *False* options when they were not sure of the answers. Together with the fact that some respondents did choose the *Don't know* option, most notably for statement 2.2, the aforementioned discrepancy suggests that a considerable percentage of respondents may have been confused about privacy issues on Facebook.

For the *WHO DOES FACEBOOK SHARE MY INFORMATION WITH?* question, over 50% of respondents chose statement 3B (*Facebook may share my information with other businesses, but never in a way that allows me to be personally identified*) as being *True*. These respondents may not have taken into account the fact that other businesses besides those that advertise on Facebook (the platform) are associated with it, and these businesses do receive personally identifiable information about users.

## 6.2 Association between privacy perceptions and privacy concerns (Hypothesis #3)

To explore the veracity of *Hypothesis #3*, I used a Kruskal-Wallis test to measure the relationship between responses to the ten statements comprising the *WHO CAN I HIDE MY INFORMATION FROM?* and *WHAT DOES FACEBOOK KNOW ABOUT ME?* questions (*True, False, Don't know*) plus responses to the *WHO DOES FACEBOOK SHARE MY INFORMATION WITH?* multiple choice question (*Please indicate which statement you think is true*), and the 12 privacy concerns. Note that for the testing of this hypothesis, what is relevant is not whether respondents were correct or incorrect in assessing the truth of the statements, but, rather, what they believed to be the case.

A Kruskal-Wallis test indicated that responses to six of the 10 statements, as well as to the *WHO DOES FACEBOOK SHARE MY INFORMATION WITH?* multiple choice question, were significantly associated with one or more privacy concerns on Facebook. Responses to the statement *Facebook gathers data about all my actions on Facebook* paired significantly with by far the most privacy concerns (11 out of 12), followed by responses to the statement *When I post photos and videos on Facebook, Facebook may receive data about the time, place and date I took them* (four out of 12) (Table 51). According to the Kruskal-Wallis mean ranks, for all the significant statement/concern pairs in relation to Q1 and Q2, respondents who selected *True* expressed more privacy concern than those who selected *False* or *Don't know* (Table B8 & Table B9). For five of the six statements, this was not surprising, because these statements were phrased so that those who selected *True* indicated a belief in the worst case scenario (*My friends' activities on Facebook may result in my information being made available to other businesses; Using the games and applications means I am making my information available to other businesses; Facebook gathers data about all my actions on Facebook; When I post photos and videos on Facebook, Facebook may receive data about the time, place and date I took them; and Facebook has access to all the information I post and put on my profile*). However,

for the remaining statement, it was surprising, because the statement was phrased so that those who selected *True* indicated a belief in the BEST case scenario (*Businesses that advertise on Facebook do not share information with Facebook about how I respond to their ads*).

In some instances, there appeared to be a direct causal link between significant statement/concern pairs (e.g., *Facebook gathers data about all my actions on Facebook* and *Facebook knowing too much about me*), whereas in other instances the reason for the significant link between a perception and a concern was puzzling (e.g., *Facebook gathers data about all my actions on Facebook* and *Bullying or harassment*). In most instances, however, there was a loose association between significant statement/concern pairs (Table 51).

Table 51. Privacy perceptions and privacy concerns – Kruskal-Wallis Test

	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12
Q1.1 WHO CAN I HIDE MY INFORMATION FROM? <i>I can control who sees all of my information on Facebook.</i>												
Kruskal-Wallis H	.958	1.499	1.802	.244	3.891	1.881	2.063	4.783	4.269	4.231	4.445	2.857
df	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.619	.473	.406	.885	.143	.390	.356	.091	.118	.121	.108	.240
Q1.2 WHO CAN I HIDE MY INFORMATION FROM? <i>My friends' activities on Facebook may result in my information being made available to other businesses.</i>												
Kruskal-Wallis H	3.535	6.661	5.417	.105	1.293	1.614	1.662	.367	2.940	2.990	5.051	4.701
df	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.171	.036	.067	.949	.524	.446	.436	.832	.230	.224	.080	.095
Q1.3 WHO CAN I HIDE MY INFORMATION FROM? <i>Only my friends can tag me in photos and videos.</i>												
Kruskal-Wallis H	2.561	1.815	4.502	.973	4.209	.554	1.783	3.612	2.657	2.108	2.588	1.913
df	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.278	.403	.105	.615	.122	.758	.410	.164	.265	.348	.274	.384
Q1.4 WHO CAN I HIDE MY INFORMATION FROM? <i>Information I set to 'Public' is available to everyone on the internet, not just Facebook users.</i>												
Kruskal-Wallis H	.698	2.002	.702	1.824	2.051	4.743	4.617	2.514	5.736	3.072	3.734	2.951
df	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.705	.367	.704	.402	.359	.093	.099	.285	.057	.215	.155	.229
Q1.5 WHO CAN I HIDE MY INFORMATION FROM? <i>Using the games and applications means I am making my information available to other businesses.</i>												
Kruskal-Wallis H	2.163	2.931	1.692	2.414	1.074	1.452	1.461	.452	5.503	5.461	9.722	14.043
df	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.339	.231	.429	.299	.585	.484	.482	.798	.064	.065	.008	.001
Q2.1 WHAT DOES FACEBOOK KNOW ABOUT ME? <i>Facebook may know where I am when I log in.</i>												
Kruskal-Wallis H	.571	.027	.229	2.972	1.261	.182	.689	.185	1.560	2.243	.749	.104
df	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.752	.986	.892	.226	.532	.913	.709	.912	.458	.326	.688	.949
Q2.2 WHAT DOES FACEBOOK KNOW ABOUT ME? <i>Businesses that advertise on Facebook do not share information with Facebook about how I respond to their ads.</i>												
Kruskal-Wallis H	2.024	.722	.334	.549	7.874	.348	1.284	3.117	1.524	1.589	.667	.830
df	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.363	.697	.846	.760	.020	.840	.526	.210	.467	.452	.717	.660
Q2.3 WHAT DOES FACEBOOK KNOW ABOUT ME? <i>Facebook gathers data about all my actions on Facebook.</i>												
Kruskal-Wallis H	7.080	3.509	8.228	6.646	6.490	7.730	7.356	7.124	7.856	10.285	8.188	8.308
df	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	*.029	.173	.016	.036	.039	.021	.025	.028	*.020	.006	.017	.016
Q2.4 WHAT DOES FACEBOOK KNOW ABOUT ME? <i>When I post photos and videos on Facebook, Facebook may receive data about the time, place and date I took them.</i>												
Kruskal-Wallis H	3.254	8.602	6.040	9.263	3.934	2.606	1.646	.061	1.348	1.327	10.381	5.839

	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12
df	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.196	*.014	*.049	.010	.140	.272	.439	.970	.510	.515	.006	.054
Q2.5 WHAT DOES FACEBOOK KNOW ABOUT ME?												
<i>Facebook has access to all the information I post and put on my profile.</i>												
Kruskal-Wallis H	2.560	1.618	.601	1.033	2.605	1.682	.598	.245	7.195	4.841	4.089	5.353
df	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.278	.445	.740	.597	.272	.431	.742	.885	.027	.089	.129	.069
Q3 WHO DOES FACEBOOK SHARE MY INFORMATION WITH?												
<i>Please indicate which statement you think is true.</i>												
Kruskal-Wallis H	1.755	1.476	2.577	4.539	4.292	6.405	5.521	3.125	6.616	2.531	3.760	.602
df	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.416	.478	.276	.103	.117	*.041	.063	.210	.037	.282	.153	.740
PC1. Bullying or harassment PC2. Other people posting sensitive information about me PC3. Other people posting sensitive photos or videos of me PC4. The wrong person seeing my posts, photos or videos PC5. Stalking PC6. Identity theft						PC7. Fraud PC8. Someone impersonating me PC9. Facebook knowing too much about me PC10. Businesses linked to Facebook finding out too much about me PC11. Spam/unsolicited email from businesses linked to Facebook PC12. Viruses, spyware or other malware from businesses linked to Facebook						
* Though the Kruskal-Wallis test statistic was significant, the pairwise comparisons were not.												

Pairwise comparisons with adjusted *p* values revealed that in most instances where the Kruskal-Wallis result was significant, the significant differences lay in the *True/False* pairs only. However, in one instance (Q1.5 and PC12) both the *True/False* and *True/Don't know* pairs were significant, in another instance (Q2.4 and PC11) both the *True/False* and *False/Don't know* pairs were significant, and in two instances (Q1.2 and PC2; Q1.5 and PC11) only the *True/Don't know* pairs were significant (Table 52). For Q3 (*Please indicate which statement you think is true*), those who thought Statement A (*Facebook may share my information with other businesses in a way that allows me to be personally identified*) was true were significantly more concerned about PC9 (*Facebook knowing too much about me*) than those who thought Statement B (*Facebook may share my information with other businesses, but never in a way that allows me to be personally identified*) was true. The *r* scores of the Kruskal-Wallis pairwise comparisons indicated that in all cases the effect of perceptions on privacy concerns was small, the highest *r* score being *r* = .162 followed by *r* = .151 (Table 52). Given the few significant pairings and the small *r* scores, we must conclude that privacy perceptions as tested did not greatly influence privacy concerns on Facebook.

Table 52. Privacy perceptions and privacy concerns – Kruskal-Wallis Pairwise Comparisons

Privacy concerns	True – Don't know				True – False				Don't know – False			
	Test Stat.	z	Adj. Sig.	r	Test Stat.	z	Adj. Sig.	r	Test Stat.	z	Adj. Sig.	r
Q1.2 My friends' activities on Facebook may result in my information being made available to other businesses.												
PC2	-35.484	-2.514	.036	.127								
Q1.5 Using the games and applications means I am making my information available to other businesses.												
PC11	-33.231	-2.473	.040	.125								
PC12	-34.782	-2.596	.028	.131	-76.931	-2.993	.008	.151				
Q2.2 Businesses that advertise on Facebook do not share information with Facebook about how I respond to their ads.												
PC5					-47.632	-2.592	.029	.131				
Q2.3 Facebook gathers data about all my actions on Facebook.												
PC3					-135.010	-2.456	.042	.124				
PC4					-140.322	-2.557	.032	.129				
PC5					-139.743	-2.546	.033	.128				
PC6					-148.417	-2.699	.021	.136				
PC7					-143.945	-2.617	.027	.132				
PC8					-135.871	-2.477	.040	.125				

Privacy concerns	True – Don't know				True – False				Don't know – False			
	Test Stat.	z	Adj. Sig.	r	Test Stat.	z	Adj. Sig.	r	Test Stat.	z	Adj. Sig.	r
PC10					-151.795	-2.775	.017	.140				
PC11					-131.105	-2.396	.050	.121				
PC12					-151.171	-2.770	.017	.140				
<i>Q2.4 When I post photos and videos on Facebook, Facebook may receive data about the time, place and date I took them.</i>												
PC4					-70.811	-2.610	.027	.131				
PC11					-87.121	-3.221	.004	.162	81.429	2.554	.032	.129
<i>Q2.5 Facebook has access to all the information I post and put on my profile.</i>												
PC9					-165.007	-2.622	.026	.132				
<i>Q 4.3 Please indicate which statement you think is true.</i>												
<i>A – B</i>												
	Test Stat.				z				Adj. Sig.			r
PC9	-29.237				-2.514				.036			.127
Note. Only statistically significant values are provided.												
PC1. Bullying or harassment						PC7. Fraud						
PC2. Other people posting sensitive information about me						PC8. Someone impersonating me						
PC3. Other people posting sensitive photos or videos of me						PC9. Facebook knowing too much about me						
PC4. The wrong person seeing my posts, photos or videos						PC10. Businesses linked to Facebook finding out too much about me						
PC5. Stalking						PC11. Spam/unsolicited email from businesses linked to Facebook						
PC6. Identity theft						PC12. Viruses, spyware or other malware from businesses linked to Facebook						
A. Facebook may share my information with other businesses in a way that allows me to be personally identified.												
B. Facebook may share my information with other businesses, but never in a way that allows me to be personally identified												
C. Facebook doesn't share any of my information with other businesses.												

### 6.3 How respondents use Facebook

#### 6.3.1 Time spent on Facebook

Of those respondents with an active Facebook account, most (approx. 80%,  $n = 312$ ) visited Facebook every day, and only eight respondents (approx. 2%) visited Facebook less than once a week. Of those respondents who visited Facebook every day, approximately 40% ( $n = 127$ ) visited Facebook six or more times a day, and, at the other end of the scale, approximately 5% ( $n = 17$ ) visited Facebook once a day. Of those respondents who did not visit Facebook every day, approximately 65% ( $n = 51$ ) sometimes logged in more than once a day on the days they did visit it. Almost 85% ( $n = 43$ ) of these respondents logged in 2-3 times a day, approximately 12% ( $n = 6$ ) logged in 4-5 times a day, and 2 respondents logged in six or more times a day (Table 53).

Table 53. Frequency of Facebook visits

Frequency of Facebook visits	Frequency	Percent	Valid Percent	Cum Percent
<i>Please indicate how many days a week, fortnight or month, on average, you visit Facebook.</i>				
Every day	312	79.80	79.80	79.80
6 days a week	18	4.60	4.60	84.40
5 days a week	12	3.07	3.07	87.47
4 days a week	10	2.56	2.56	90.03
3 days a week	9	2.30	2.30	92.33
2 days a week	7	1.79	1.79	94.12
1 day a week	15	3.84	3.84	97.95
One day a fortnight	2	.51	.51	98.47
One day every three weeks	1	.26	.26	98.72
One day a month	3	.77	.77	99.49

<i>Frequency of Facebook visits</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cum Percent</i>
Less than one day a month	2	.51	.51	100.00
Total	391	100.00	100.00	
<i>How many times a day, on average, do you visit Facebook? (respondents who visited Facebook daily)</i>				
Once a day	17	4.35	5.45	5.45
2-3 times a day	102	26.09	32.69	38.14
4-5 times a day	66	16.88	21.15	59.29
6 or more times a day	127	32.48	40.71	100.00
	79	20.20	Missing	
Total	391	100.00		
<i>On those days that you visit Facebook, do you ever do so more than once a day? (respondents who did not visit Facebook daily)</i>				
Yes	51	13.04	64.56	64.56
No	28	7.16	35.44	100.00
	312	79.80	Missing	
Total	391	100.00		
<i>On those days that you visit Facebook, how many times a day, on average, do you do so? (respondents who selected 'Yes' to the question above)</i>				
2-3 times a day	43	11.00	84.31	84.31
4-5 times a day	6	1.53	11.76	96.08
6 or more times a day	2	.51	3.92	100.00
	340	86.96	Missing	
Total	391	100.0		

Over seventy percent of respondents with an active Facebook account ( $n = 277$ ) spent less than 15 minutes on Facebook per visit on average, approximately 27% ( $n = 107$ ) spent 15-60 minutes on Facebook per visit on average, and less than two percent ( $n = 7$ ) spent more than an hour on Facebook per visit on average (Table 54).

Table 54. Time spent on Facebook per visit

<i>Time spent on Facebook per visit</i>	<i>Frequency</i>	<i>Percent</i>
Less than 15 minutes	277	70.84
15-60 minutes	107	27.37
More than an hour	7	1.79
Total	391	100.00

Over 90% of respondents ( $n = 356$ ) had been Facebook members for more than two years, approximately 7% ( $n = 29$ ) had been Facebook members for 1-2 years, and less than two percent ( $n = 6$ ) had been Facebook members for less than a year (Table 55).

Table 55. Length of Facebook membership

<i>Length of Facebook membership</i>	<i>Frequency</i>	<i>Percent</i>
More than 2 years	356	91.05
1-2 years	29	7.42
Less than a year	6	1.53
Total	391	100.00

More than half of respondents spent more time on Facebook than when they first joined: approximately 33% ( $n = 129$ ) spent a *lot* more time on Facebook, and over 20% ( $n = 82$ ) spent a *little* more time on Facebook. Over 30% of respondents spent less time on Facebook than when they first joined – approximately 18% ( $n = 69$ ) spent *much* less time on Facebook and approximately 14% ( $n = 54$ ) spent a *little* less time on Facebook – and approximately 15% of respondents ( $n = 57$ ) spent about the same amount of time on Facebook as when they first joined (Table 56).

Table 56. Changes in time spent on Facebook

<i>Which one of the following statements is true for you?</i>	<i>Frequency</i>	<i>Percent</i>
I spend a little more time on Facebook than I used to when I first joined.	82	20.97
I spend a lot more time on Facebook than I used to when I first joined.	129	32.99
I spend a little less time on Facebook than I used to when I first joined.	54	13.81
I spend a lot less time on Facebook than I used to when I first joined.	69	17.65
The amount of time I spend on Facebook is about the same as when I first joined.	57	14.58
Total	391	100.00

### 6.3.2 Registration and profile

Most respondents with an active Facebook account gave their real details when they registered on Facebook: approximately 95% ( $n = 371$ ) gave their real first name, approximately 94% ( $n = 367$ ) gave their real surname, approximately 98% ( $n = 382$ ) gave their real gender, and approximately 85% ( $n = 334$ ) gave their real date of birth (Table 57).

Table 57. Information provided on registration

<i>When you registered on Facebook, did you provide the following information?</i>		
<i>Your real first name</i>	<i>Frequency</i>	<i>Percent</i>
Yes	371	94.88
No	20	5.12
Total	391	100.00
<i>Your real surname</i>	<i>Frequency</i>	<i>Percent</i>
Yes	367	93.86
No	24	6.14
Total	391	100.00
<i>Your real gender</i>	<i>Frequency</i>	<i>Percent</i>
Yes	382	97.70
No	9	2.30
Total	391	100.00
<i>Your real date of birth</i>	<i>Frequency</i>	<i>Percent</i>
Yes	334	85.42
No	57	14.58
Total	391	100.00

Some respondents may not have given their real name when they registered on Facebook in order to protect their privacy. In fact, focus group respondents indicated that they knew people who, when registering on Facebook, had altered their name for this reason.

Over seventy percent of respondents ( $n = 276$ ) used a recognisable photo of themselves as their current profile picture, 11.00% ( $n = 43$ ) used a photo of themselves but were not sure if it was recognisable, and approximately 18% ( $n = 72$ ) did not use a recognisable photo of themselves. Of those who did not use a recognisable photo of themselves, approximately 56% ( $n = 40$ ) selected *Privacy reasons*, one respondent selected *Cultural reasons*, and approximately 43% ( $n = 31$ ) selected *Other reasons* (Table 58). These reasons included: liking other photos better because they were of loved ones or they reflected the respondent's interests, or they were fun, cute, quirky, or artistic – they were just great photos (21 respondents); not liking how they looked in photos (3 respondents); “personal security” (1 respondent) (this could perhaps be classed as a privacy reason); religious reasons (1 respondent) (this could perhaps be classed as a cultural reason); and a “work requirement” (1 respondent).

Table 58. Is your current profile picture a recognisable photo of you? If not, why not?

<i>Current profile picture</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cum Percent</i>
<i>Is your current profile picture a recognisable photo of you?</i>				
Yes	276	70.59	70.59	70.59
No	72	18.41	18.41	89.00
It is a photo of me but I don't know if it's recognisable	43	11.00	11.00	100.00
Total	391	100.00	100.00	
<i>If no, why not?</i>				
Privacy reasons	40	10.23	55.56	55.56
Other reasons (please specify)	31	7.93	43.06	98.61
Cultural reasons	1	.26	1.39	100.00
	319	81.59	Missing	
Total	391	100.00		

Facebook encourages users to supply information about themselves on their profile. Respondents were asked whether they had supplied the following 14 key pieces of information on their profile: *High school*, *Post-secondary education*, *Job(s)*, *Hometown*, *Current city*, *Relationship status*, *'Interested in' women or men*, *Family members/relatives*, *About you*, *Favourite quote(s)*, *Religious views*, *Political views*, *Phone number(s)*, and *Address*. Of these pieces of information, respondents had most frequently supplied *Post-secondary education* (approx. 77% of respondents,  $n = 302$ ), *Current city* (approx. 74% of respondents,  $n = 290$ ), and *High school* (approx. 74% of respondents,  $n = 289$ ), and least frequently supplied *Political views* (approx. 19% of respondents,  $n = 74$ ), *Phone number(s)* (approx. 15% of respondents,  $n = 59$ ), and *Address* (approx. 3% of respondents,  $n = 12$ ) (Table B10). At the time of the survey, Facebook gave users the option of adjusting the privacy settings for each piece of information to *Public*, *Friends*, *Only me*, and *Custom*. For

all 14 pieces of information, *Friends* was by far the most frequently used setting, *Public* was the second most frequently used, and *Only me* and *Custom* were the least frequently used. For 10 of the 14 pieces of information, approximately 15-20% of respondents who had supplied the information indicated that they had used the *Public* setting. However, almost 25% ( $n = 71$ ) of respondents who had supplied their *Current city* indicated that they had set this information to *Public*, while, at the other end of the spectrum, approximately 10% ( $n = 20$ ) of respondents who had supplied their *Family members/relatives* indicated that they had set this information to *Public*, and only 8.47% ( $n = 5$ ) and 8.33% ( $n = 1$ ) respectively of respondents who had supplied their *Phone numbers(s)* and *Address* indicated that they had set this information to *Public*. Finally, for 13 of the 14 pieces of information, approximately 5-10% of respondents who had supplied the information indicated that they did not know which setting governed it. The exception was *Address*: all respondents who had supplied their address knew which setting governed this piece of information (Table B11).

Facebook also encourages users to supply information regarding their interests and likes on their profile. Respondents were asked whether they had supplied the following: *Movies watched, wanting to watch, or liked*; *TV shows watched, wanting to watch, or liked*; *Books read, wanting to read, or liked*; *Music liked, or wanting to listen to*; *Sports teams or athletes liked*; and *Likes*. The first four of these interests/likes were supplied by approximately 50-57% ( $n = 197-224$ ) of respondents, but *Sports teams or athletes liked* was supplied by approximately 38% ( $n = 150$ ) of respondents, and conversely, *Likes* was supplied by approximately 75% ( $n = 295$ ) of respondents (Table B12). At the time of the survey, as for the 14 key pieces of information, Facebook gave users the option of adjusting the privacy settings for each piece of information to *Public*, *Friends*, *Only me*, and *Custom*. For all six interests/likes (and as for the 14 key pieces of information), *Friends* was by far the most frequently used setting, *Public* was the second most frequently used, and *Only me* and *Custom* were the least frequently used. Also, for all six interests/likes, approximately 17-20% of respondents who had supplied the information indicated that they had used the *Public* setting, and approximately 12% of respondents who had supplied the information indicated that they did not know which setting governed it (Table B13).

### 6.3.3 Posts and privacy measures

Facebook allows users to set the audience for future posts. At the time of the survey, the options were (as for profile information): *Public*, *Friends*, *Only me*, and *Custom*. Respondents were asked who could see their future posts. Most respondents indicated that they used the *Friends* setting (approx. 78%,  $n = 304$ ), followed by *Custom* (11%,  $n = 43$ ), *Public* (approx. 4%,  $n = 16$ ), and *Only me* (approx. 1.5%,  $n = 6$ ). Over 5% ( $n = 22$ ) of respondents indicated that they did not know which setting governed the visibility of their future

posts (Table 59).

Table 59. Visibility of future posts

<i>Who can see your future posts?</i>	<i>Frequency</i>	<i>Percent</i>
Public	16	4.09
Friends	304	77.75
Only me	6	1.53
Custom	43	11.00
Don't know	22	5.63
Total	391	100.00

Respondents were asked how often they changed the audience for something they posted using the 'audience selector' for that post. Forty-five percent of respondents ( $n = 176$ ) never did so, approximately 42% of respondents ( $n = 165$ ) sometimes did so, approximately 10% of respondents ( $n = 38$ ) quite often did so, and approximately 3% of respondents ( $n = 12$ ) very often did so. Respondents were also asked how often they had deleted a post for privacy reasons. Almost 58% of respondents ( $n = 225$ ) had sometimes done so, approximately 29% of respondents ( $n = 112$ ) had never done so, and almost 7% of respondents had quite often or very often done so ( $n = 27$  in both instances). Finally, respondents were asked how often they had decided not to post something because the wrong person might see it. Over 46% of respondents ( $n = 181$ ) had sometimes done so, 22% ( $n = 86$ ) had quite often done so, approximately 20% ( $n = 77$ ) had very often done so, and 12% ( $n = 47$ ) had never done so (Table 60).

Table 60. Proactive privacy measures re posts

<i>Proactive privacy measures re posts</i>	<i>Frequency</i>	<i>Percent</i>
<i>How often do you change the audience for something you post using the 'audience selector' for that post?</i>		
Very often	12	3.07
Quite often	38	9.72
Sometimes	165	42.20
Never	176	45.01
Total	391	100.00
<i>How often, if ever, have you deleted a post for privacy reasons?</i>		
Very often	27	6.91
Quite often	27	6.91
Sometimes	225	57.54
Never	112	28.64
Total	391	100.00
<i>How often, if ever, have you decided not to post something because the wrong person might see it?</i>		
Very often	77	19.69
Quite often	86	21.99
Sometimes	181	46.29
Never	47	12.02
Total	391	100.00

### 6.3.4 Third-party access to one's information

Respondents were asked whether they let search engines outside of Facebook link to their timeline. Over 65% of respondents ( $n = 255$ ) indicated that they did not, almost 9% of respondents ( $n = 34$ ) indicated that they did, and over 26% of respondents ( $n = 102$ ) indicated that they did not know whether search engines outside of Facebook could link to their timeline. Respondents were also asked whether they had Facebook Platform turned on. Over 45% of respondents ( $n = 179$ ) indicated that they did not, almost 5% ( $n = 19$ ) indicated that they did, and almost 50% ( $n = 193$ ) indicated that they did not know whether they had Facebook Platform turned on. Finally, respondents were asked whether they used third-party apps, games, or instant personalisation. This question was asked to further explore respondents' understanding of the role of Facebook Platform: without having Platform turned on, users cannot use third-party apps, games, or instant personalisation. However, the responses to this question did not tally with the responses to the last question. Over 58% of respondents ( $n = 229$ ) answered *No* to this question, almost 27% ( $n = 105$ ) answered *Yes*, and almost 15% of respondents ( $n = 57$ ) answered *Don't know*. The combined results of these two questions may indicate that respondents did not fully comprehend the role of Platform in allowing third-party business access to their information (Table 61).

Table 61. Allowing third-party access to one's information on Facebook

<i>Allowing third-party access to one's information</i>	<i>Frequency</i>	<i>Percent</i>
<i>Do you let search engines outside Facebook link to your timeline?</i>		
Yes	34	8.70
No	255	65.22
Don't know	102	26.09
Total	391	100.00
<i>Do you have Facebook Platform turned on?</i>		
Yes	19	4.86
No	179	45.78
Don't know	193	49.36
Total	391	100.00
<i>Do you use third-party apps, games or instant personalisation?</i>		
Yes	105	26.85
No	229	58.57
Don't know	57	14.58
Total	391	100.00

### 6.3.5 Number of Facebook friends, groups, and networks

Respondents were asked how many Facebook friends they had. The most frequently selected categories were: *101-200* (approx. 19% of respondents,  $n = 76$ ), *201-300* (approx. 17% of respondents,  $n = 65$ ), and *More than 500* (also approx. 17% of respondents,  $n = 65$ ). Less than 2% of respondents ( $n = 7$ ) had 10 or less

Facebook friends. Respondents were also asked how many groups they belonged to. The most frequently selected category for this question was 5 or more (almost 45% of respondents,  $n = 173$ ). The other categories (*None, 1, 2, 3, 4*) were approximately equally represented with 7-15% of respondents selecting each. Respondents were also asked how many networks they belonged to.<sup>38</sup> Most respondents indicated that they did not belong to any networks (approx. 58%,  $n = 225$ ), and fewest respondents indicated that they belonged to three, four, or five networks (approx. 15% in total,  $n = 58$ ). Finally, almost 62% of respondents ( $n = 241$ ) had used Facebook's *Find Friends* function (Table 62).

Table 62. Facebook friends, groups, and networks

<i>How many Facebook friends do you have?</i>	<i>Frequency</i>	<i>Percent</i>
10 or less	7	1.79
11-25	19	4.86
26-50	30	7.67
51-100	54	13.81
101-200	76	19.44
201-300	65	16.62
301-400	50	12.79
401-500	25	6.39
More than 500	65	16.62
Total	391	100.00
<i>How many groups do you belong to?</i>	<i>Frequency</i>	<i>Percent</i>
None	37	9.46
1	28	7.16
2	45	11.51
3	57	14.58
4	51	13.04
5 or more	173	44.25
Total	391	100.00
<i>How many networks do you belong to?</i>	<i>Frequency</i>	<i>Percent</i>
None	225	57.54
1	47	12.02
2	61	15.60
3	29	7.42
4	12	3.07
5	17	4.35
Total	391	100.00
<i>Have you used Facebook's 'Find Friends' function?</i>	<i>Frequency</i>	<i>Percent</i>
Yes	241	61.64
No	150	38.36
Total	391	100.00

### 6.3.6 Means – Activities on Facebook

Respondents were given a list of 23 social/entertaining activities on Facebook, and were asked how often, using a 4 point Likert scale with levels of frequency ranging from 1 – *Very often* to 4 – *Never*, they performed these activities (the lower the mean, the greater the frequency). The most frequently selected activities

38 At one time, users could join up to five networks. However, Facebook began phasing out networks before the time of the survey. At the time of the survey, respondents could keep their old networks but not join new ones.

were: 'Like' a friend's photo, video or post (Mean = 1.89, SD = .799), Send a message (Mean = 1.98, SD = .849), Comment on or reply to a friend's post (Mean = 2.21, SD = .789), Read group posts (Mean = 2.34, SD = .937), Use Facebook Chat (Mean = 2.38, SD = 1.131), and Search for someone you want to find out more about (Mean = 2.51, SD = .900). The least frequently selected activities were: Play games by yourself (Mean = 3.56, SD = .826), Use other apps (Mean = 3.60, SD = .708), Write a note (Mean = 3.69, SD = .589), and Play games with your friends (Mean = 3.78, SD = .568). Therefore, Facebook was used mostly to read and provide feedback to others' posts, to message and chat, and to find out more about others. It was used least to access affiliated games and apps, and to write notes (Facebook Notes are like status updates, but use a text editor). Interestingly, posting status updates was not one of respondents' most frequent activities on Facebook. When respondents did post, they most frequently posted photos (Mean = 2.69, SD = .589), then text (Mean = 2.81, SD = .764), and least frequently posted videos (Mean = 3.43, SD = .628) (Table 63).

Table 63. Activities on Facebook – Means

<i>On Facebook, how often do you:</i>	<i>N</i>	<i>Mean *</i>	<i>Std Dev</i>
'Like' a friend's photo, video or post	391	1.89	.799
Send a message <sup>a</sup>	391	1.98	.849
Comment on or reply to a friend's post	391	2.21	.789
Read group posts	391	2.34	.937
Use Facebook Chat <sup>a</sup>	391	2.38	1.131
Search for someone you want to find out more about	391	2.51	.900
Post a photo on your timeline	391	2.69	.719
Tag people in something you post	391	2.70	.872
RSVP to an event	391	2.71	.839
Post on a friend's timeline	391	2.76	.712
Post a 'status update' or 'life event' with just words on your timeline	391	2.81	.764
Post on a group's page	391	2.84	.924
Share a friend's photo or video	391	3.04	.839
Organise an event for friends or family	391	3.09	.908
Add a location to something you post	391	3.09	.799
Create a photo album	391	3.14	.640
Organise a group event	391	3.17	.893
Tag people in a photo or video you didn't post	391	3.40	.819
Post a video on your timeline	391	3.43	.628
Play games by yourself	391	3.56	.826
Use other apps	391	3.60	.708
Write a note <sup>b</sup>	391	3.69	.589
Play games with your friends	391	3.78	.568

\* The lower the mean, the more frequent the activity (1 – Very often; 2 – Quite often; 3 – Sometimes; 4 – Never)

a. At the time of the survey, Facebook had just obligated users to download the separate Messenger app if they wished to keep using Facebook messaging and chat on their device (Coldewey, 2014). However, to this day, Messenger is still integrated into the Facebook website.

b. "Facebook Notes is a simple word-processing feature for Facebook users" (Leon, 2019).

#### 6.4 How privacy concerns and social needs impact behaviours on Facebook (Hypothesis #4)

*Hypothesis #4* states that the nature and degree of privacy concerns and social needs on Facebook combine to influence behaviours on Facebook. For this hypothesis, I measured the effect of privacy concerns and social needs (reasons for using Facebook) on several behaviours on Facebook: engagement in social/entertaining activities on the site; the number of Facebook friends, groups, and networks; use of the *Find Friends* function; post-protective behaviours; and the provision of profile information.

##### 6.4.1 Privacy concerns, reasons for using Facebook, and activities on Facebook

Kendall's Tau-b indicated that reasons for using Facebook were significantly associated with social/entertaining activities on the site proportionally far more frequently than privacy concerns were (Table B14, Table B15 – Part 1, & Table B15 – Part 2). In fact, less than 25% of the privacy concern/activity pairings correlated significantly (64 significant associations out of a possible 276), and two privacy concerns did not correlate significantly with activities on Facebook at all – *Facebook knowing too much about me* and *Businesses linked to Facebook finding out too much about me*. Note that these two concerns differ from the other ten concerns in that they do not specify tangible repercussions in the way that, for example, *Spam/unsolicited email from businesses linked to Facebook* and *Viruses, spyware or other malware from businesses linked to Facebook* do: rather, they solely indicate a feeling of unease. The two privacy concerns that were by far the most frequently associated with activities on Facebook were *Stalking* (significantly correlated with 19 of the 23 activities on Facebook) and *Bullying or harassment* (significantly correlated with 14 of the 23 activities on Facebook). Both of these are user-user concerns. According to Botsch (2011, section 2), a Kendall's Tau-b below  $\pm .1$  indicates a "very weak" association, between  $\pm .1$  and  $.19$  indicates a "weak" association, between  $\pm .2$  and  $.29$  indicates a "moderate" association, and of  $\pm .3$  or above indicates a "strong" association. The highest correlation between activities and privacy concerns was  $.177$ , hence, according to Botsch's (2011) guideline, all of the significant correlations were weak (Table B14).

Since only one of the correlations was negative (i.e., *Using Facebook Chat* was negatively correlated with *Spam*), in each instance but one, an increase in activity on Facebook was associated with an increase in privacy concern (Table B14). It is likely that, in most of these instances, increased activity caused increased privacy concern due to increased exposure to risk (e.g., posting a video on my timeline would increase the risk of both the wrong person seeing my videos and being stalked). However, in some instances the reason for the association between an activity and a concern was not obvious (e.g., the activity *Search for someone you want to find out more about* and the concern *Stalking*; the activity *Tag people in something you post* and all eight user-user concerns). Perhaps, in these instances, high Facebook use 'across the board' led to privacy concerns not directly associated with the activity in question. In a minority of instances, the concern

is likely to have dictated the activity (e.g., the concern *Bullying and harassment* could plausibly have led to a preference for the solitary activity *Play games by yourself*).

Regarding the association between reasons for using Facebook and social/entertaining activities on the site, 19 out of the 23 activities correlated significantly with between 20-24 of the 24 reasons each (Table B15 – Part 1 & Table B15 – Part 2). The activity *Write a note* was significantly correlated with by far the least reasons for using Facebook (nine out of 24 reasons) and included the only two negative significant correlations between activities and reasons: *To put off doing my work* and *Because I'm bored*. These negative correlations signify that the more likely the respondent was to write a Facebook note, the less likely his or her reason for using Facebook was procrastination or boredom. Because all the other significant correlations between activities and reasons were positive, they indicate that the more likely the respondent was to use Facebook for the specified activity, the more likely he or she was to use it for the associated reason. The other three activities that correlated significantly with less than 20 reasons were *Play games with your friends*, *Play games by yourself* (both 15 out of 24 reasons), and *Use other apps* (19 out of 24 reasons).

Seven reasons correlated significantly with all 23 activities: *To make new friends*, *To express myself in ways that I can't offline*, *To share my thoughts and feelings*, *To find people who share similar interests*, *To work with others who have similar goals*, *To put off doing my work*, and *Because I'm bored*. The reason that correlated with the least activities was *To meet new romantic or sexual partners* (13 out of 23 activities). This result is consistent with the fact that, according to the means, *To meet new romantic or sexual partners* was the least common reason for using Facebook (Table 33).

Table 64 shows the frequency of correlations  $\geq .2$  between reasons for using Facebook and social/entertaining activities on Facebook.

Table 64. Activities on Facebook and reasons for using Facebook – Frequency of correlations  $\geq .2$

Reasons for using Facebook	Frequency of correlations with Activities on Facebook $\geq .2$		
	$\tau = .2 - .299$	$\tau = .3 - .399$	$\tau = .4 - .499$
To keep in touch with friends	11	5	1
To keep in touch with family	10	-	-
To keep in touch with people from my past	6	-	-
To make new friends	2	-	-
To meet new romantic or sexual partners	2	-	-
To find out more about potential or new friends or partners	4	1	-
To be there for others (i.e., to be supportive, offer help or show an interest)	6	-	-

Reasons for using Facebook	Frequency of correlations with Activities on Facebook $\geq 2$		
	$\tau = .2 - .299$	$\tau = .3 - .399$	$\tau = .4 - .499$
To ask for advice or help	12	2	-
To feel less lonely	6	-	-
To enhance my image	10	-	-
To project my best self	8	-	-
To express who I am	9	3	-
To express myself in ways that I can't offline	10	-	-
To share my news	11	2	4
To share my thoughts and feelings	9	3	1
To find like-minded people	7	-	-
To find people who share similar interests	10	-	-
To work with others who have similar goals	9	-	-
To find out about people I am curious about	2	-	1
To keep an eye on someone	4	1	-
To expand my network	12	-	-
To have fun	10	7	-
To put off doing my work	8	3	-
Because I'm bored	11	3	-

In many instances there appeared to be a cause-and-effect relationship between a reason for using Facebook and its associated activity (e.g., the respondent's wish to keep in touch with friends is likely to have led her to 'Like' a friend's photo, video, or post), but in some instances a cause-and-effect relationship was not readily apparent (e.g., *To keep in touch with family and Play games by yourself*; *To share my news* and 'Like' a friend's photo, video or post). In these instances, it is possible that respondents routinely visited Facebook to complete one activity and ended up being drawn into other activities on the site.

Therefore, it appears that social needs (reasons for using Facebook) did indeed largely influence behaviours on Facebook in the form of social/entertaining activities. However, as regards privacy concerns, in most instances the reverse appeared to be the case: an increase in social/entertaining activity appeared to cause an increase in privacy concern due to increased exposure to risk. In a minority of instances, however, privacy concerns did appear to influence the choice of social/entertaining activities on Facebook.

#### 6.4.2 Privacy concerns, reasons for using Facebook, and Facebook friends, groups, and networks

Regarding associations between privacy concerns on Facebook and the number of Facebook friends, Kendall's Tau-b found statistically significant but weak inverse correlations between the number of Facebook friends and three out of the 12 concerns listed: *Bullying and harassment* ( $\tau = -.126, p = .002$ ), *Stalking* ( $\tau = -.167, p = .000$ ), and *Someone impersonating me* ( $\tau = -.097, p = .017$ ) (Table B16). The direction of the correlations indicates that the more Facebook friends respondents had, the more concerned they were about these three issues: therefore, the number of Facebook friends appears to have triggered the privacy concerns.

The number of groups respondents belonged to correlated significantly, inversely, and weakly with the privacy concerns *Bullying and harassment* ( $\tau = -.121, p = .004$ ) and *Stalking* ( $\tau = -.092, p = .029$ ), and the number of networks respondents belonged to correlated significantly, inversely, and weakly with the privacy concerns *Bullying and harassment* ( $\tau = -.092, p = .033$ ), *Stalking* ( $\tau = -.155, p = .000$ ), *Identity theft* ( $\tau = -.092, p = .031$ ), *Fraud* ( $\tau = -.110, p = .011$ ), and *Someone impersonating me* ( $\tau = -.108, p = .012$ ) (Table B16). The inverse correlations indicate that the more groups and networks respondents belonged to, the greater their degree of concern about the associated issues. It seems likely, therefore, that group and network membership triggered the privacy concerns.

All 24 reasons for using Facebook correlated significantly and inversely with the number of Facebook friends, so the more Facebook friends respondents had, the more likely they were to use Facebook for all 24 reasons (Table B17). The lowest correlation was for the reason *To feel less lonely* ( $\tau = -.090, p = .031$ ) and the highest were for the reasons *To find out more about potential or new friends and partners* ( $\tau = -.262, p = .000$ ), *Because I'm bored* ( $\tau = -.245, p = .000$ ), *To have fun* ( $\tau = -.229, p = .000$ ), and *To put off doing my work* ( $\tau = -.220, p = .000$ ). As was the case for the associations between reasons for using Facebook and the 23 listed activities, it appears that respondents' reasons for using Facebook motivated their accumulation of Facebook friends.

Twenty-three of the 24 reasons for using Facebook correlated significantly and inversely with the number of groups respondents belonged to. The lowest significant correlation was for the reason *To project my best self* ( $\tau = -.097, p = .027$ ) and the highest was for the reason *To ask for advice or help* ( $\tau = -.271, p = .000$ ). The reason *To enhance my image* did not correlate significantly but was close to doing so ( $\tau = -.083, p = .060$ ). Eighteen of the 24 reasons for using Facebook correlated significantly and inversely with the number of networks respondents belonged to (Table B17). The lowest significant correlation was for the reason *To keep in touch with friends* ( $\tau = -.099, p = .028$ ) and the highest was for the reason *To expand my network* ( $\tau = -.285, p = .000$ ). The reasons that did not correlate significantly with the number of networks respondents belonged to were *To keep in touch with family*, *To share my news*, *To share my thoughts and feelings*, *To have fun*, *To put off doing my work*, and *Because I'm bored*. The inverse correlations indicate that the more groups and networks respondents belonged to, the more likely they were to use Facebook for the associated reasons. Therefore, it appears likely that respondents' reasons for using Facebook motivated group and network membership.

#### 6.4.3 Privacy concerns, reasons for using Facebook, and Facebook's 'Find Friends' function

Kendall's Tau-b found weak but statistically significant positive correlations between whether or not respondents had used Facebook's *Find Friends* function and the privacy concerns *Bullying and harassment* ( $\tau = .143, p = .002$ ), *Stalking* ( $\tau = .135, p = .004$ ), *Identity theft* ( $\tau = .119, p = .010$ ), *Fraud* ( $\tau = .119, p = .010$ ), *Someone impersonating me* ( $\tau = .136, p = .003$ ), and *Spam/unsolicited email from businesses linked to Facebook* ( $\tau = .103, p = .026$ ) (Table B16). All but the last of these were the same privacy concerns that correlated significantly with the number of networks respondents belonged to. These correlations indicate that in each instance, respondents who had used the *Find Friends* function had a greater degree of privacy concern than those who had not. It seems likely, therefore, that the increased concern stemmed from the perceived risk of using the function.

Kendall's Tau-b found weak but statistically significant positive correlations between whether or not respondents had used Facebook's *Find Friends* function and eight of the 24 reasons for using Facebook: *To keep in touch with people from my past* ( $\tau = .108, p = .021$ ), *To be there for others* ( $\tau = .127, p = .007$ ), *To feel less lonely* ( $\tau = .115, p = .016$ ), *To express who I am* ( $\tau = .101, p = .033$ ), *To express myself in ways that I can't offline* ( $\tau = .118, p = .015$ ), *To find out about people I am curious about* ( $\tau = .094, p = .046$ ), *To expand my network* ( $\tau = .132, p = .006$ ), and *To have fun* ( $\tau = .102, p = .029$ ) (Table B17). These correlations indicate that in each instance, respondents who had used the *Find Friends* function used Facebook more for the associated reason than those who had not. It seems likely that in most of these instances, the reason for using Facebook motivated use of the *Find Friends* function (e.g., a wish to keep in touch with people from one's past could indeed motivate use of the *Find Friends* function). However, a cause-and-effect relationship between use of the *Find Friends* function and two of the significantly associated reasons – *To express who I am* and *To express myself in ways that I can't offline*, while possible, does not seem likely. Perhaps, in these instances, respondents engaged in a number of activities on Facebook to meet their social needs, even activities not closely related to those needs.

#### 6.4.4 Privacy concerns, reasons for using Facebook, and post-protection

Respondents were asked three questions to ascertain what steps they took to ensure the privacy of their posts: *How often do you change the audience for something you post using the 'audience selector' for that post?* *How often, if ever, have you deleted a post for privacy reasons?* and *How often, if ever, have you decided not to post something because the wrong person might see it?* Kendall's Tau-b found that all eight user-user privacy concerns correlated significantly with the first question. Correlations were weak and ranged from .124 ( $p = .005$ ) for *Other people posting sensitive information about me* to .166 ( $p = .000$ ) for *Someone impersonating me*. None of the four user-corporate privacy concerns (*Facebook knowing too*

*much about me; Businesses linked to Facebook finding out too much about me; Spam/unsolicited email from businesses linked to Facebook; Viruses, spyware or other malware from businesses linked to Facebook*) correlated significantly with this question. However, all 12 privacy concerns correlated significantly with the second and third questions. Correlations above .2 for the second question were: *The wrong person seeing my posts, photos or videos* ( $\tau = .286, p = .000$ ), *Stalking* ( $\tau = .282, p = .000$ ), *Other people posting sensitive photos or videos of me* ( $\tau = .207, p = .000$ ), *Fraud* ( $\tau = .207, p = .000$ ), and *Someone impersonating me* ( $\tau = .207, p = .000$ ). Correlations above .2 for the third question were: *The wrong person seeing my posts, photos or videos* ( $\tau = .275, p = .000$ ), *Other people posting sensitive photos or videos of me* ( $\tau = .240, p = .000$ ), and *Stalking* ( $\tau = .208, p = .000$ ). The weakest correlation for the second question was for the concern *Viruses, spyware or other malware from businesses linked to Facebook* ( $\tau = .116, p = .009$ ) and the weakest correlation for the third question was for the concern *Spam/unsolicited email from businesses linked to Facebook* ( $\tau = .139, p = .001$ ): both of these are user-corporate concerns (Table B16). All the correlations were positive, indicating that the more often respondents had changed the audience for something they posted using the ‘audience selector’ for that post, deleted a post for privacy reasons, or decided not to post something because the wrong person might see it, the greater their degree of privacy concern. It is likely, therefore, that respondents’ privacy concerns motivated these privacy-protective strategies on Facebook (e.g., the respondent’s fear of being stalked could have motivated her to refrain from posting something on Facebook).

Kendall’s Tau-b found that reasons for using Facebook significantly correlated proportionally more frequently with the first question than did privacy concerns, but proportionally far less frequently with the second and third questions than did privacy concerns (Table B17). The first question (*How often do you change the audience for something you post using the ‘audience selector’ for that post?*) correlated with the most reasons for using Facebook (18 out of 24), with the weakest significant correlation being for the reason *To make new friends* ( $\tau = .092, p = .047$ ) and the strongest being for the reason *To keep in touch with friends* ( $\tau = .188, p = .000$ ). The reasons that did not correlate significantly with this question were: *To keep in touch with people from my past*, *To meet new romantic or sexual partners*, *To feel less lonely*, *To enhance my image*, *To project my best self*, and *To keep an eye on someone*. The second question (*How often, if ever, have you deleted a post for privacy reasons?*) correlated significantly with 10 of the 24 reasons for using Facebook, the weakest significant correlation being for the reason *Because I’m bored* ( $\tau = .091, p = .039$ ) and the strongest being for the reason *To keep an eye on someone* ( $\tau = .143, p = .002$ ). The third question (*How often, if ever, have you decided not to post something because the wrong person might see it?*) correlated significantly with only five of the 24 reasons for using Facebook: *To find out more about potential or new friends or partners* ( $\tau = .175, p = .000$ ), *To keep an eye on someone* ( $\tau = .125, p = .005$ ), *To keep in touch with family* ( $\tau = .112, p = .010$ ), *To be there for others* ( $\tau = .109, p = .012$ ), and *To expand my network* ( $\tau = .090, p$

= .045). The direction of the correlations indicates that the more often respondents had changed the audience for something they posted using the 'audience selector' for that post, deleted a post for privacy reasons, or decided not to post something because the wrong person might see it, the more they had used Facebook for the significantly correlated reasons. It may be that there was no direct relationship between the use of Facebook for the correlated reasons and the three privacy-protection strategies, or, alternatively, that the perceived privacy risks of Facebook use for the correlated reasons necessitated use of the strategies (e.g., the respondent's use of Facebook to keep in touch with family could have motivated her to refrain from posting something so as to prevent the wrong person [a relative] from seeing it). The significant correlations were all below .2, indicating a small effect.

#### 6.4.5 Privacy concerns, reasons for using Facebook, and profile information

Respondents were asked whether they had provided the following 14 key pieces of information on their profile: *Your high school, Your post-secondary education, Your job(s), Your hometown, Your current city, Your relationship status, A list of family members/relatives, Something 'About You', Your favourite quote(s), Your religious views, Your political views, Your phone number(s), Your address, and Whether you are 'interested in' women or men.* Respondents were also asked whether they had added the following six likes to their profile: *Movies watched, wanting to watch, or liked; TV shows watched, wanting to watch, or liked; Books read, wanting to read, or liked; Music liked, or wanting to listen to; Likes; and Sports teams or athletes liked.* Kendall's Tau-b indicated that, for the most part, respondents' choice whether or not to provide this information did not correlate significantly with their privacy concerns on Facebook. However, there were some exceptions. The privacy concerns *Bullying or harassment* and *Stalking* featured most prominently, correlating positively and significantly with three and two respectively of the 14 key pieces of information, and five and four respectively of the six likes. Also, the two user-corporate concerns *Facebook knowing too much about me* and *Businesses linked to Facebook finding out too much about me* correlated negatively and significantly with four and five respectively of the 14 key pieces of information. Finally, the privacy concerns *Identity theft* and *Fraud* correlated positively and significantly with one of the key pieces of information: *Your phone number* (Table B18 & Table B19).

The negative direction of the significant correlations between the user-corporate privacy concerns *Facebook knowing too much about me* and *Businesses linked to Facebook finding out too much about me* with certain key pieces of information indicates that respondents who did NOT provide the information had a greater degree of concern about Facebook and its related businesses finding out too much about them than those who did. The implication, therefore, is that respondents' decision not to provide the information was motivated by their concern about these two issues. However, all the correlations between the user-

user concerns *Bullying or harassment, Stalking, Identity theft, and Fraud* with the provision of information were positive, indicating that respondents who DID provide the information had a greater degree of concern about these four issues. The implication with regard to these user-user concerns, therefore, is that the perceived risk of providing the information triggered the concerns. However, all the statistically significant correlations between privacy concerns and the provision of profile information were weak (ranging from  $\tau = .093, p = .046$  to  $\tau = -.159, p = .001$ ) (Table B18 & Table B19).

Reasons for using Facebook correlated significantly with the provision of profile information to a far greater extent than did privacy concerns. The reason that correlated significantly with the most pieces of profile information was *To have fun*, which correlated significantly with all 20 pieces of profile information. This was followed by *To share my thoughts and feelings* and *To expand my network*, which correlated significantly with 19 pieces of profile information. Next were the reasons *To ask for advice or help, To express myself in ways that I can't offline, To find like-minded people, and To find people who share similar interests*, which correlated significantly with 18 pieces of profile information, followed by *To express who I am*, which correlated significantly with 17 pieces of information. The reason that correlated significantly with the least pieces of profile information was *To keep in touch with family* (5 pieces of information) (Table B20 & Table B21).

The strongest significant correlations were between the reason *To express who I am* and the provision of *Books read, wanting to read, or liked* ( $\tau = .278, p = .000$ ) and *TV shows watched, wanting to watch, or liked* ( $\tau = .244, p = .000$ ); the reason *To find like-minded people* and the provision of *TV shows watched, wanting to watch, or liked* ( $\tau = .278, p = .000$ ), *Movies watched, wanting to watch, or liked* ( $\tau = .257, p = .000$ ), and *Books read, wanting to read, or liked* ( $\tau = .243, p = .000$ ); the reason *To find people who share similar interests* and the provision of *TV shows watched, wanting to watch, or liked* ( $\tau = .255, p = .000$ ), *Likes* ( $\tau = .245, p = .000$ ), and *Movies watched, wanting to watch, or liked* ( $\tau = .244, p = .000$ ); the reason *To express myself in ways that I can't offline* and the provision of *Books read, wanting to read, or liked* ( $\tau = .254, p = .000$ ); and the reason *To keep in touch with family* and the provision of *A list of family members/relatives* ( $\tau = .245, p = .000$ ). All of this provided information, except for *A list of family members/relatives*, falls into the *Likes* category (Table B20 & Table B21). All of the significant correlations between reasons for using Facebook and the provision of information were positive, indicating that respondents who provided the significantly correlated information were likely to use Facebook for the given reason. It is possible and perhaps even likely that in many instances the provision of information was motivated by the associated reason for using Facebook.

In summary, reasons for using Facebook were proportionally far more frequently significantly correlated

with the 23 Facebook-related social/entertaining activities than privacy concerns were. Similarly, the number of Facebook friends respondents had, the number of groups and networks they belonged to, and the provision of the 14 key pieces of profile information and six profile-based likes correlated significantly with reasons for using Facebook proportionally far more frequently than with privacy concerns. The first privacy-protective strategy (use of the 'audience selector') also correlated significantly proportionally more frequently with reasons for using Facebook than with privacy concerns, though not by a great extent. However, use of the *Find Friends* function correlated significantly with privacy concerns proportionally more frequently than with reasons for using Facebook, as did use of the second and third post-related privacy-protective strategies (far more frequently in the latter instances).

Correlations do not determine causation. However, increased participation in social/entertaining activities on Facebook, increased accumulation of Facebook friends, increased group and network membership, increased use of the *Find Friends* function, and increased provision of the 14 key pieces of profile information and six likes, together with increased use of Facebook for the associated reasons, suggests that, in most instances, reasons for using Facebook motivated participation in social/entertaining activities on Facebook, the accumulation of Facebook friends, group and network membership, use of the *Find Friends* function, and the provision of profile information and likes. Increased privacy concern was also associated with increased participation in social/entertaining activities on Facebook, increased accumulation of Facebook friends, increased group and network membership, and increased use of the *Find Friends* function, suggesting that, in most instances, these uses of Facebook triggered the concern (although in a minority of instances the reverse appeared to be the case). Also, in some instances, increased provision of the 14 key pieces of profile information and six likes was associated with increased privacy concern, suggesting that provision of the information triggered the concern, but in other instances, non-provision of the information was associated with increased privacy concern, suggesting that privacy concern motivated the non-provision of the information. Finally, increased use of the three post-protective strategies was associated with increased privacy concern, suggesting that the concern motivated use of the strategies, and also with increased use of Facebook for the associated reasons, suggesting that the perceived privacy risks of Facebook use for these reasons necessitated use of the strategies.

In these last two chapters, I have analysed the survey data related to *Hypotheses #1, #2, #3, and #4*, and in *Chapter 7* I compare and contrast the results of the analysis with the relevant literature, and also incorporate focus group and survey comments into the discussion to amplify and support the quantitative survey findings.

## 7. DISCUSSION

This research aimed to investigate the relationship between Facebook users' privacy concerns and social needs on Facebook, as manifested in reported behaviours on the site. To this end, I developed a model based on the literature and encompassing privacy concerns, social needs, demographic factors, and privacy perceptions in the context of Facebook. I theorised that demographic factors and privacy perceptions influence privacy concerns on Facebook, that demographic factors influence the use of Facebook to satisfy social needs, and that both privacy concerns and social needs influence behaviours on Facebook. I also differentiated between user-user and user-corporate privacy concerns on Facebook, which few researchers have explicitly done in an SNS context (some exceptions being Young and Quan-Haase [2013] and Heyman et al. [2014]). Influential in developing the social needs component of the model were Nadkarni and Hoffman's (2012) proposal that Facebook use is motivated by both "the need to belong" and "the need for self-presentation", Siedman's (2014) study of "true self expression" on Facebook, and Friedlander's (2011) concept of "self-portrayal". Influential in developing *Hypothesis #3 (Privacy perceptions influence the nature and degree of privacy concerns on Facebook)* was O'Brien and Torres' (2012) study, entitled *Social networking and online privacy: Facebook users' perceptions*, and influential in developing *Hypothesis #4 (The nature and degree of privacy concerns and social needs on Facebook combine to influence behaviours on Facebook)* were Utz and Kramer's (2009) exploration of "the trade-off between privacy concerns and impression management" (p. 1) on SNS, as well as Grimmelmann's (2009) analysis of the link between "peer-to-peer privacy violations" (p. 1137) on Facebook and users' motives for using the site ("identity", "relationship", and "community").

### 7.1 Privacy concerns on Facebook

In this thesis, I proposed that privacy concerns on Facebook are best understood as *user-user concerns* and *user-corporate concerns*. User-user concerns revolve around other Facebook users, whereas user-corporate concerns revolve around The Facebook corporation (Facebook, Inc.) and its affiliated businesses. However, confirmatory factor analysis revealed that a three factor extraction (with factor loadings  $\geq .3$ ) more accurately reflected respondents' Facebook-related privacy concerns. The factors identified were (with variables listed in order of prominence): *User-user security concerns (Fraud; Identity theft; Someone impersonating me; Stalking; Bullying or harassment)*, *User-user privacy concerns (Other people posting sensitive photos or videos of me; Other people posting sensitive information about me; The wrong person seeing my posts, photos or videos; Bullying or harassment; Stalking)*, and *User-corporate privacy and security concerns (Businesses linked to Facebook finding out too much about me; Facebook knowing too much about me; Spam/unsolicited email from businesses linked to Facebook; Viruses, spyware or other*

*malware from businesses linked to Facebook*). In this extraction, two variables loaded onto two factors: *Stalking* and *Bullying or harassment*. Conceptually, it makes sense that *Stalking* and *Bullying or harassment* should load not only as privacy concerns, but also as security concerns: cyberstalking “[can] convey implicit or explicit threats...thus induc[ing] fear in online victims” (Lowry et al., 2016, p. 964), cyberbullying “is an aggressive...act” (Smith et al., 2008, p. 376), and cyberharassment, by definition, “[is] intended to upset, disturb, or threaten other people” (Lowry et al., 2016, p. 964).

In addition to the 12 listed privacy concerns, respondents expressed concern about hacking (which is related to the concerns *Fraud*, *Identity theft*, and *Someone impersonating me*), Facebook’s policy of allowing user data to be used for research purposes, and “Records of private conversations held somewhere, even after deleting them”. Also, some respondents’ comments were centred on the concerns *Facebook knowing too much about me* and *Businesses linked to Facebook finding out too much about me*: “I have an unhealthy paranoia about Facebook collecting personal info for marketing purposes”; “As soon as I became engaged, suddenly all the advertisements were wedding and marriage related. It feels a little unnerving”; and “Facebook uses third-party cookies to track your online activity even if you’re logged out and then uses that information for commercial use”. Other respondents expressed concern about Facebook’s continually changing privacy policy and privacy settings: “Settings continually being updated without warning”; and “I get the impression they change the terms and conditions and settings a lot so you never know how private anything is”. One respondent also commented on the time-consuming nature of the privacy settings (“Photo privacy – all aspects of hiding from timeline or deleting takes a long time one by one”), and another respondent commented on the confusing nature of the privacy settings (“Inconsistent privacy settings that are hard to understand”). It is worth noting here that over half of respondents (53%) agreed or strongly agreed with the statement *I get confused when trying to adjust my privacy settings on Facebook*.

Some respondents also expressed concern about being over-exposed to other Facebook users. This concern appeared to be similar to – but not as focussed and intense as – a fear of being stalked: perhaps it was a fear of the repercussions of “context collapse” (Marwick & boyd, 2011; Vitak et al., 2015), or maybe it was a simple desire for “freedom from interference and observation” (Ramsey, 2010, p. 289). Comments expressing concern about over-exposure to other users were: “That people who are not friends can still see posts or pictures from people not in their ‘friend list’ vicariously”; “I hate it when other people can see that I like a page or made a comment”; “People knowing where I am at any time – I do not post where I am, or allow others to tag me”; “I deliberately try not to think about [who can see my information], as I think then I would be more worried”; and “Who really can access my information? Even if I post ‘private’, can it still be viewed by someone? Where does the information go?” This last comment also seems to indicate frustration with Facebook’s lack of transparency from both a user-user and user-corporate privacy perspective.

Also, regarding the concern *The wrong person seeing my posts, photos or videos*, one respondent wrote: “I do not need to worry about people seeing sensitive photos or videos of me as I do not post them”. This comment inadvertently highlighted a major privacy-related issue on Facebook: i.e., even though users may be careful about what they post, other users could post sensitive material on their behalf. For this reason, users are not fully in control of their information on the site. Another respondent indicated concern about this lack of control: “Not everyone has the same ideas about privacy and respect as I do so I’m a little concerned that someone else may treat my information/posts more informally or casually than I would like them to”. A number of researchers have also noted Facebook users’ concern about lack of control over their information (e.g., Trottier, 2012; Marder et al., 2016; Metzger & Suh, 2017).

Finally, respondents indicated that they modified their behaviour off Facebook so as to control how they were represented on the site: “I very much filter what I post, but I also just don’t get drunk in public”, and “If you lose control and somebody else takes [a photo of you and posts it on Facebook], it could ruin your career”. Marder et al. (2016) and Trottier (2012) noted that similar concerns were expressed by Facebook users, and similar preventative actions taken.

## 7.2 Social needs on Facebook

Regarding the social needs component of this thesis, I proposed that socially-related Facebook use is driven by two fundamental motives: *self-portrayal* (inspired by Friedlander, 2011) and *belonging* (Seidman, 2014). Self-portrayal comprises *strategic self-presentation* (Utz et al., 2012) and *expression of the true self* (McKenna et al., 2002), whereas belonging comprises *intimacy* (McAdams, 1989) and *affiliation* (Murray, 1938). The key difference between strategic self-presentation and expression of the true self is motivational: expression of the true self is driven by a need to express oneself authentically, whereas strategic self-presentation is motivated by a need to present oneself in such a way as to gain the approval of others. Additionally, intimacy differs from affiliation, for the purposes of this thesis, in that intimate relationships are ‘deep’ relationships with a chosen few, whereas affiliative relationships are more superficial relationships with a greater number and broader range of others. Intimate relationships provide emotional sustenance (bonding capital) whereas affiliative relationships provide group identity and helpful contacts (bridging capital) (Luarn et al., 2015; Trepte & Reinecke, 2013; De Meo, 2014; Robards & Bennett, 2011).

Confirmatory factor analysis revealed that a seven factor extraction (with factor loadings  $\geq .3$ ) best reflected respondents’ socially-related reasons for using Facebook. The factors identified were (with variables listed in

order of prominence): *Affiliation* (To find people who share similar interests; To find like-minded people; To work with others who have similar goals; To expand my network; To make new friends), *Strategic yet authentic self-presentation* (To project my best self; To enhance my image; To express who I am; To express myself in ways that I can't offline), *Relationship maintenance* (To keep in touch with friends; To keep in touch with family; To keep in touch with people from my past; To be there for others [i.e., to be supportive, offer help or show an interest]), *Entertainment, procrastination, and fun* (Because I'm bored; To put off doing my work; To have fun), *Authentic self-expression* (To share my thoughts and feelings; To share my news; To express who I am; To have fun; To express myself in ways that I can't offline), *Relationship seeking* (To meet new romantic or sexual partners; To make new friends; To find out more about potential or new friends or partners; To ask for advice or help; To feel less lonely), and *Facestalking* (To find out about people I am curious about; To keep an eye on someone). In this extraction, four variables loaded onto two factors: the *To express who I am* and the *To express myself in ways that I can't offline* variables loaded onto both the *Strategic yet authentic self-presentation* and *Authentic self-expression* factors, the *To make new friends* variable loaded onto both the *Affiliation* and *Relationship seeking* factors, which suggests that respondents were seeking both intimate and affiliative friendships, and the *To have fun* variable loaded onto both the *Entertainment, procrastination, and fun* and *Authentic self-expression* factors. This last loading suggests that respondents enjoyed expressing their authentic selves on Facebook.

This seven factor extraction indicated that the social needs part of the hypothesised model (Figure 3) was accurate in some, but not all, respects. The *Affiliation* factor aligns directly with the hypothesised model, the *Authentic self-expression* factor aligns with the *expression of the true self* component in the hypothesised model, and the *Relationship maintenance* and *Relationship seeking* factors encompass both the *intimacy* and *affiliation* components in the hypothesised model, but appear to lean more toward intimacy than affiliation. The fact that the *To ask for advice or help* and *To feel less lonely* variables loaded onto the *Relationship seeking* factor suggests that respondents were not deriving enough social support (i.e., emotional, cognitive, and materials support [Jacobson, 1986, p. 252]) from existing relationships. The *Entertainment, procrastination, and fun* and *Facestalking* factors were not included in the hypothesised model, not being directly related to social needs. However, facestalking is, in a sense, a social activity in that it involves an interest in other people, and respondents' comments indicated that the use of Facebook for entertainment, procrastination, and fun also most likely included engagement in social activities: e.g., "[Facebook offers] fun and laughs" and is "an avenue to talk nonsense which I guess is entertainment". Also, Niland et al. (2015) found (and respondents confirmed) that fun and facestalking converged in that offline friends "have fun together" (p. 129) stalking others on Facebook.

However, perhaps the most interesting finding of the seven factor extraction is that the *strategic self-*

*presentation* component in the hypothesised model was not entirely accurate: instead of presenting themselves strategically on Facebook, respondents presented themselves strategically *yet authentically* on the site (i.e., respondents aimed at eliciting the approval of others whilst simultaneously remaining true to themselves). The *Strategic yet authentic self-presentation* factor does, however, align directly with the *self-portrayal* component in the hypothesised model. As previously noted, this component comprises *strategic self-presentation* and *expression of the true self*, and was inspired by Friedlander (2011), who wrote that “the subject in an SNS must balance his or her desire for an acceptable public representation with a need to express himself or herself in some authentic and private way” (p. 4). I did not expect factor extraction to reveal a self-portrayal factor per se, only its constituent components, but perhaps I should have. In *Chapter 3* I noted that there is a continuum between intimate and affiliative relationships (Altman & Taylor, 1973; Claridge, 2018) (which was reflected in the factor loadings): it appears that there is also a continuum between strategic self-presentation and authentic self-expression, and strategic yet authentic self-presentation lies along this continuum. (However, the factor extraction also revealed an authentic self-expression factor [as well as an affiliation factor].)

There is some (but not much) direct support in the literature for the concept of strategic yet authentic self-presentation on SNS: Zhang et al. (2017) found that stressed Facebook users, who made an effort to present themselves strategically whilst posting about their stress, received more social support than those who did not. Hence, the supported users were presenting themselves both strategically and authentically. Also, Forest and Wood (2012) found that Facebook users with low self-esteem posted more “negative” status updates on the site than those with higher self-esteem, and this barrage of negativity provoked a negative response from other users. The authors therefore advised depressed users not to be “inauthentic” on the site, but to make an effort to post about the “positive” events in their lives as well as the negative ones (p. 300).

The concept of strategic self-presentation, as described in the literature, however, usually involves or implies some degree of authenticity: Jones and Pittman (1982), for instance, maintained that strategic self-presentational behaviours are not necessarily “false”, but rather, “typically involve selective disclosures and omissions, matters of emphasis and toning rather than of deceit and simulation” (p. 233). In relation to SNS, Grimmelmann’s (2009) description of impression management on Facebook, whereby “each additional datum is a strategic revelation, one more daub of paint in your self-portrait” (p. 1152), suggests the “selective self-presentation” (Rui & Stefanone, 2013, p. 111) of which Jones and Pittman (1982) wrote. Therefore, what is the difference between strategic self-presentation and strategic yet authentic self-presentation? Perhaps the difference between the two is partly a matter of the degree of authenticity involved: Gil-Or et al. (2015), who measured “the gap between the true and Facebook self” and “the gap

between the Facebook self and real-life self” (p. 5) found that, for some of their respondents, these gaps were “large” (p. 1), but for other respondents they were not. Those respondents with a small gap between “the true and Facebook self” and “the Facebook and real-life self” (p. 5) were perhaps acting strategically yet authentically on Facebook.

To further clarify the difference between strategic self-presentation and strategic yet authentic self-presentation, we need to look at the motives for authentic self-expression (expression of the true self) and strategic self-presentation. Authenticity “is the degree to which one is true to his or her own personality, spirit, or character, despite external pressures” (Gil-or et al., 2015, p. 4). The needs for both self-validation (Seidman, 2014) and relationship formation (McKenna et al., 2002) have been found to be motives for authentic self-expression online (McKenna et al., 2002) and on SNS (Seidman, 2014): according to Seidman (2014), the expression of “identity-important self-aspects” on Facebook, which are then “validated by others can ultimately increase self-acceptance” (p. 368), and according to McKenna et al. (2002), the expression of one’s true self online is a prerequisite for the formation and maintenance of “real, deep, and meaningful relationships” (p. 28). Strategic self-presentation, however, “[is a striving] to manipulate how [one is] viewed by others” (AliAlassiri, Muda, Ghazali, & Ahamefula, 2014, p. 45). People engage in strategic self-presentation “to invoke a desired response from others” (Vannini & Franzese, 2008, p. 1627), such as, in the context of SNS, “liking and respect” (Bareket-Bojmel et al., 2016, p. 788), and, in fact, Gil-Or et al. (2015) found that “low self-esteem and unawareness of the true self” are “personality characteristics that contribute to the presentation of a false-self” (p. 3) on Facebook. Therefore, authentic self-expression is said to be coming from a place of self-acceptance (Gil-Or et al., 2015), or the striving for self-acceptance (Seidman, 2014), and the wish for the formation and maintenance of genuine and deep relationships based on self-acceptance and other-acceptance of oneself (McKenna et al., 2002), whereas strategic self-presentation is said to be motivated by a need for approval (Vannini & Franzese, 2008; Bareket-Bojmel et al., 2016). Strategic yet authentic self-presentation, a combination of the two, may therefore encompass a need for self- and other-acceptance and approval of one’s true self, providing a foundation for genuine relationships.

Although there is not much direct support in the literature for strategic yet authentic self-presentation on Facebook, existing research confirms that the other six factors are motivations for Facebook use. For instance, Special and Li-Barber (2012) found that relationship maintenance was one of the “most common motives” for Facebook use (p. 624); Seidman (2014) found that Facebook was used for “true self expression” (p. 367); Young (2011) found that ‘facestalking’ was a popular activity on Facebook; Basak and Calisir (2015) found that Facebook use was partially motivated by entertainment; Przepiorka et al. (2016) found that procrastination was associated with “intensity” (p. 61) of Facebook use; Robards and Bennett

(2011) found that affiliation on SNS helped provide a sense of identity; Kim, Sohn, and Choi (2011) found that “seeking friends” was a “major” motive for SNS use (p. 365); and Park et al. (2011) found that frequent positive communication on Facebook promoted a feeling of intimacy between friends.

One aspect of Facebook, supported in the literature but not directly enumerated in the factor analysis, is convenience (Trottier, 2012; Krasnova et al., 2010). Some respondents commented on the convenience of Facebook in regard to keeping in touch with family and friends living or travelling overseas or interstate: “I contact the people that I’ve met all around the world...on Facebook”; “It...cut[s] down on time spent emailing family and friends overseas”; “It offers me the chance to keep in touch with family members when they are overseas, using a fast but inexpensive mode of communication”; and “It is a convenient way of my large family keeping in touch, as in cousins, sisters etc., as we are spread all over Australia”. But Facebook is also a convenient way to keep in touch with people closer to home: “Keeps you in the same room as people you like. Makes everything easier rarely missing a beat”.

In the next section I relate the findings of this research to the hypotheses, and discuss whether or not these findings are in agreement with the existing research.

### 7.3 Demographic factors and privacy concerns on Facebook

The first hypothesis was: *Demographic factors influence the nature and degree of privacy concerns on Facebook*. There was a small but statistically significant gender-based difference in levels of concern for nine out of the 12 privacy concerns on Facebook, with females being more concerned than males in every case. The three concerns that did not show a statistically significant gender-based difference were *Identity theft*, *Fraud*, and *Businesses linked to Facebook finding out too much about me*. There was also a small but statistically significant age-related trend for two out of the 12 privacy concerns on Facebook: *Stalking* and *Spam/unsolicited email from businesses linked to Facebook*. *Stalking* was shown to be more of a concern among younger Facebook users, whereas *Spam/unsolicited email from businesses linked to Facebook* was shown to be more of a concern among older users. *Australian cultural influence*, measured by respondents’ and their parents’ countries of birth (Australia/not Australia) as well as the length of time respondents had lived in Australia, was significantly related to six of the privacy concerns on Facebook: *Stalking*; *Fraud*; *Identity theft*; *Someone impersonating me*; *The wrong person seeing my posts, photos or videos*; and *Viruses, spyware or other malware from businesses linked to Facebook*. In all six instances, the lesser the degree of Australian cultural influence, the greater the degree of concern. However, as was the case for the gender and age-based associations, the degree of influence was small. Finally, there were no statistically significant differences for the ‘highest’ level of formal education completed and privacy concerns on

Facebook.

How do these findings tally with those from other studies? Some researchers have found that females were more likely than males to use privacy-protective strategies on SNS. These strategies included use of the privacy settings (Litt, 2013), the non-provision of contact information (Special & Li-Barber, 2012; Fogel & Nehmad, 2009), and the careful selection of Facebook friends (De Wolf et al., 2014; Grubbs-Hoy & Milne, 2010). Possibly, females used more privacy-protective strategies than males due to greater fears about stalking and harassment (Malik et al., 2016; Litt, 2013; Grubbs-Hoy & Milne, 2010; Fogel & Nehmad, 2009). This study similarly found that females were more concerned about *Bullying or harassment* and *Stalking* than were males.

Regarding the influence of age on SNS-related privacy concerns, other studies have found that younger users tended to be more concerned about user-user privacy issues than older users, whereas older users tended to be more concerned about user-corporate privacy issues than younger users (Malik et al., 2016; O'Brien & Torres, 2012; Jeong & Coyle, 2014; Elueze & Quan-Haase, 2018). Younger users' increased concern about user-user privacy issues on SNS was possibly due to the fact that they posted more (Malik et al., 2016; Ozimek & Bierhoff, 2016; Kezer et al., 2016; McAndrew & Jeong, 2012) and had more Facebook friends (Kezer et al., 2016) than older users. This study similarly found that older users were more concerned about the user-corporate concern *Spam/unsolicited email from businesses linked to Facebook* than were younger users, and that the reverse was the case for the user-user concern *Stalking*.

Regarding the influence of education on privacy concerns, Blank et al. (2014) found that higher levels of formal education were associated with greater use of the privacy settings on SNS, and several researchers have found that higher levels of formal education were associated with increased user-corporate privacy concern in an e-commerce context (Riquelme & Roman, 2014; Yang et al., 2009; Cho et al., 2009). In contrast, this study did not find a statistically significant association between education and privacy concern.

A number of studies have found that cultural background impacts upon privacy concern on SNS (e.g., Cho et al., 2018 [Singapore, South Korea, and the US]; James et al., 2017 [South Korea and the US]; Bauer & Schiffinger, 2016 [meta-analysis of 38 studies]; Park et al., 2015 [South Korea and the US]; Krasnova et al., 2012 [Germany and the US]; Thomson et al., 2017 [Japan and the US]; Gunsoy et al., 2015 [Turkey and the US]), but I have not found any studies referring specifically to the influence of Australian cultural background.

#### 7.4 Demographic factors and reasons for using Facebook

The second hypothesis was: *Demographic factors influence the nature and degree of social needs on Facebook*. There was a small but statistically significant difference between genders for eight of the 24 reasons for using Facebook. Females used Facebook more than males for the following reasons: *To keep in touch with friends*, *To keep in touch with family*, *To be there for others (i.e., to be supportive, offer help or to show an interest)*, *To share my news*, and *To put off doing my work*. However, males used Facebook more than females for the following reasons: *To make new friends*, *To meet new romantic or sexual partners*, and *To find out more about potential or new friends or partners*. There was also a statistically significant age-related trend for 21 of the 24 reasons for using Facebook: the younger the age group, the more Facebook was used for each reason. This trend ranged from small to large. The reasons that did not show an age-related trend were: *To keep in touch with family*, *To share my news*, and *To work with others who have similar goals*. Australian cultural influence was found to be significantly associated with five reasons for using Facebook: *To keep in touch with people from my past*, *To make new friends*, *To keep an eye on someone*, *To put off doing my work*, and *Because I'm bored*. Respondents who had not been born in Australia and who had lived in Australia for less than a year were the most likely to use Facebook for the reasons *To keep in touch with people from my past* and *To make new friends*, whereas respondents who had been born in Australia, and whose parents had been born in Australia, were the most likely to use Facebook for the reasons *To keep an eye on someone*, *To put off doing my work*, and *Because I'm bored*. However, for all five reasons, the degree of influence was small. Finally, there were small but statistically significant differences across groups describing the 'highest' level of formal education completed for 15 of the 24 reasons for using Facebook, independent of the effect of age. For all 15 reasons, the 'higher' the level of completed education, the less Facebook was used for that reason.

How do these findings compare with those from other studies? Regarding gender, other researchers have also found that males used SNS more to find new friends and romantic partners than did females, whereas females used SNS more to communicate with family and existing friends than did males (Muscanell & Guadagno, 2012; McAndrew & Jeong, 2012). Krasnova et al. (2017), however, found that males and females were equally likely to use Facebook for the purpose of strategic self-presentation. This study similarly found that Facebook use for the reasons *To enhance my image* and *To project my best self* did not differ significantly between the genders.

Regarding age, other studies have found that although younger users spent more time on Facebook than did older users (Ozimek & Bierhoff, 2016; Malik et al., 2016; Kezer et al., 2016; McAndrew & Jeong, 2012), and had more Facebook friends than did older users (Kezer et al., 2016), older users derived more "social

connectedness” from the site (Grieve & Kemp, 2015, p. 241). The different ways in which younger and older people used Facebook reflected (or caused?) the differing levels of social connectedness they derived from the site: younger users tended to use Facebook more “as a pastime activity” (Papacharissi, as cited in Malik et al., 2016, p. 465), and for the purposes of social comparison (Ozimek & Bierhoff, 2016) and “voyeurism” (Van den Broeck et al., 2015, p. 6) than did older users, whereas older users tended to use Facebook more for the purpose of deepening bonds with significant others than did younger users (Grieve & Kemp, 2015). The findings of this study partially confirmed the aforementioned findings. Younger users were found to use Facebook more for most the 24 listed reasons, including *To find out about people I am curious about*, *Stalking*, *To put off doing my work*, *Because I’m bored*, and *To have fun*. On the other hand, younger users were also found to use Facebook more for the reason *To be there for others* (among other reasons that imply a wish for social connectedness). Also, younger and older users used Facebook approximately equally for the reasons *To keep in touch with family* and *To share my news*.

I was only able to find one study regarding the effect of formal education on reasons for using Facebook. Syn and Oh (2015) found that Facebook users with a higher level of formal education enjoyed knowledge-sharing on the site more than did users with a lower level of formal education. The authors noted that not only was knowledge-sharing on Facebook enjoyable and educational, but that it also enhanced users’ reputation. The reasons for using Facebook that align most closely with knowledge sharing as explored in Syn and Oh’s study (2015) are *To find people who share similar interests* and *To work with others who have similar goals*. Both these reasons correlated significantly with completed education, even when age was taken into account, but in contrast to Syn and Oh’s findings (2015), the higher the level of formal education completed, the less likely respondents were to use Facebook for them.

I did not find any comparable studies exploring the effect of culture on Facebook use.

### 7.5 Privacy perceptions and privacy concerns on Facebook

The third hypothesis was: *Privacy perceptions influence the nature and degree of privacy concerns on Facebook*. To test this hypothesis, I gave respondents ten statements concerning the workings of Facebook in relation to privacy (e.g., *Only my friends can tag me in photos and videos*) and respondents were asked to select *True*, *False*, or *Don’t know* for each statement. Respondents were also asked which one of the following statements was true: A) *Facebook may share my information with other businesses in a way that allows me to be personally identified*, B) *Facebook may share my information with other businesses, but never in a way that allows me to be personally identified*, or C) *Facebook doesn’t share any of my information with other businesses*. The results suggested that respondents’ privacy perceptions, as

indicated by their selection of *True, False, or Don't know*, and *A, B, or C*, were associated with privacy concern on Facebook, but not to a great extent, as evidenced by the fact that most perception/concern pairs were not significantly associated, and the significant associations were not strong. In some instances, there appeared to be a direct causative link between a perception and its associated concern, but in other instances the reason for significant perception/concern pairings was not readily apparent.

It is notable that there was a high incorrect response rate for some of the questions (up to over 66%), and the *Don't know* response also rated quite highly for some questions (up to over 38%). These percentages seem to indicate that respondents were confused about privacy issues on Facebook. Furthermore, respondents who selected statements *A* or *B* for the *Please indicate which statement you think is true* question were asked who they thought Facebook shared their information with, and respondents' answers (via text box) indicated confusion about this topic. Confusion about third-party access to users' information was also noted by O'Brien and Torres in 2012, and more recently by Golbeck and Mauriello (2016), who found that Facebook users "did not fully understand the extent to which apps could access their data" (p. 1).

Respondents' privacy perceptions did not appear to predict their privacy concerns on Facebook to the extent that I had expected. Perhaps, therefore, there were other factors (aside from demographic factors) that shaped respondents' privacy concerns on the site. For instance, Taddei and Contena (2013) and Krasnova et al. (2010) found that both trust in one's SNS provider and perceived control over one's information on SNS mitigated SNS-related privacy concerns.

## 7.6 The effect of privacy concerns and social needs on Facebook-related behaviours

The last hypothesis was: *The nature and degree of privacy concerns and social needs on Facebook combine to influence behaviours on Facebook.*

### 7.6.1 Privacy concerns and behaviours on Facebook

For this hypothesis, I measured the relationship between privacy concerns on Facebook and 23 Facebook-related activities, the number of Facebook friends respondents had, the number of groups and networks they belonged to, and whether or not they had used Facebook's *Find Friends* function. Regarding the 23 Facebook-related activities, less than a quarter of the privacy concern/activity pairs correlated significantly, and all of the significant correlations were low. Notwithstanding these caveats, the analysis found that (with one exception) the more users engaged in the 23 activities, the higher their privacy concerns tended to be. Therefore, it seems likely that in most instances, increased activity on Facebook led to increased privacy

concern due to increased risk perception. Similarly, the more Facebook friends respondents had, and the more groups and networks they belonged to, the more concerned they tended to be about *Bullying or harassment* and *Stalking* (amongst other issues, but these two concerns were in common). Also, respondents who had used Facebook's *Find Friends* function tended to be more concerned about *Bullying or harassment* and *Stalking* (amongst other issues) than those who had not. Therefore, it appears likely that increased privacy concern was generated by increased connection via Facebook friends, group and network membership, and use of the *Find Friends* function.

I also measured the relationship between privacy concerns on Facebook and the provision of 14 key pieces of profile information and six profile-based likes. In general, respondents' choice whether or not to provide this information did not correlate significantly with their privacy concerns on Facebook – there were only 25 significant associations out of a possible 240. The privacy concerns that featured most prominently, however, were the user-user concerns *Bullying or harassment* and *Stalking*, correlating significantly with the provision of eight and six pieces of profile information respectively, followed by the user-corporate concerns *Facebook knowing too much about me* and *Businesses linked to Facebook finding out too much about me*, correlating significantly with the provision of four and five pieces of profile information respectively. The direction of the user-user correlations indicated that respondents who had provided the associated information had a greater degree of privacy concern than those who had not, but for the user-corporate correlations, the reverse was the case: respondents who had not provided the information had a greater degree of privacy concern. It seems, therefore, that respondents' user-user concerns were escalated by the provision of the associated information, whereas their user-corporate concerns acted to discourage the provision of the associated information.

Finally, I measured the relationship between privacy concerns on Facebook and respondents' privacy-protective strategies regarding their posts, as measured by three questions: *How often do you change the audience for something you post using the 'audience selector' for that post?* *How often, if ever, have you deleted a post for privacy reasons?* and *How often, if ever, have you decided not to post something because the wrong person might see it?* All eight user-user privacy concerns correlated significantly with the first question, and all 12 privacy concerns correlated significantly with the second and third questions. The significant correlations consistently indicated that the greater respondents' degree of privacy concern, the more proactive they were about protecting their posts. It therefore appears likely that respondents' privacy concerns motivated these post-related privacy-protective strategies.

### 7.6.2 Social needs and behaviours on Facebook

I also measured the relationship between reasons for using Facebook and the 23 Facebook-related activities, the number of Facebook friends respondents had, the number of groups and networks they belonged to, and whether or not they had used Facebook's *Find Friends* function. Reasons for using Facebook significantly correlated proportionally far more frequently and strongly with the 23 Facebook-related activities than did privacy concerns. Nineteen of the 23 activities correlated significantly with between 20-24 of the 24 reasons, and three activities correlated significantly with 15-19 reasons. The activity *Write a note* was exceptional in that it was significantly correlated with only nine of 24 the reasons, and two of these correlations were negative: these were the only two negative significant correlations for the activity/reason pairs. All the other correlations were positive, indicating that the more respondents used Facebook for the specified activity, the more they tended to use it for the associated reason. In many instances there appeared to be a causative link between a reason for using Facebook and its associated activity, but in some instances a cause-and-effect relationship was not readily apparent. In these instances, it is possible that respondents routinely visited Facebook to complete one activity and ended up being drawn into other activities on the site.

The number of Facebook friends respondents had, as well as the number of groups and networks they belonged to, also significantly correlated proportionally far more frequently with reasons for using Facebook than with privacy concerns. All 24 reasons for using Facebook correlated significantly with the number of Facebook friends respondents had, 23 reasons correlated significantly with the number of groups they belonged to, and 18 reasons correlated significantly with the number of networks they belonged to. The direction of the significant correlations indicated that the more Facebook friends respondents had, and the more groups and networks they belonged to, the more they used Facebook for the associated reasons. It appears likely, therefore, that increased accumulation of Facebook friends, together with increased group and network membership, was motivated by increased use of Facebook for the associated reasons.

With only eight significant correlations, use of the *Find Friends* function significantly correlated proportionally less frequently with reasons for using Facebook than with privacy concerns. In each instance, however, respondents who had used the *Find Friends* function used Facebook more for the associated reason than those who had not. It appears likely, therefore, that increased use of the *Find Friends* function was motivated by increased use of Facebook for the associated reasons.

The provision of the 14 key pieces of profile information and six profile-based likes was significantly associated proportionally far more frequently with reasons for using Facebook than privacy concerns were.

The direction of the significant correlations indicated that, once again, the more likely respondents were to provide the information, the more likely they were to use Facebook for the associated reason. In many instances there appeared to be a causative link between the provision of information and the associated reason.

Finally, use of the first post-related privacy-protective strategy was significantly associated proportionally more frequently with reasons for using Facebook than with privacy concerns, but use of the second and third post-related privacy-protective strategies was significantly associated proportionally far more frequently with privacy concerns than with reasons for using Facebook. The direction of all the significant correlations indicated that the more respondents used the three post-related privacy-protective strategies, the more they used Facebook for the significantly correlated reasons. Regarding causation, it is possible, even likely, that the perceived risks of Facebook use for the correlated reasons necessitated use of the strategies.

### 7.6.3 Putting it all together

In summary, increased social (and entertainment-based) activity on Facebook was associated with increased privacy concerns: therefore, it appears that the activity sparked the concerns rather than the concerns curbing the activity. The only exceptions to this rule were that the user-corporate privacy concerns *Facebook knowing too much about me* and *Businesses linked to Facebook finding out too much about me* were associated with the non-provision of some key pieces of profile information: in these instances, therefore, privacy concerns appeared to curb the provision of information. Regarding the three post-related privacy-protective strategies, increased privacy concerns were associated with increased use of the strategies, so, in these instances, the concerns appeared to motivate the strategies (this is not surprising). Increased social activity was also associated with increased use of the strategies, which suggests that the more respondents used Facebook for the associated reasons, the more they felt they needed to protect their post-related privacy on the site. The three strategies, in essence, revolve around attempts to prevent “context collapse” (Marwick & boyd, 2011; Vitak et al., 2015), which is the merging of one’s social networks (e.g., family, work colleagues, and close friends), and which is considered to be one of the major privacy-related problems of Facebook use.

The findings suggest that the benefits of using Facebook in terms of social interaction and entertainment far outweighed the privacy concerns that these activities generated: i.e., respondents used Facebook in spite of their privacy concerns. However, privacy concerns did appear to trigger privacy-protective strategies in the form of post regulation and the non-provision of certain key pieces of profile information. What is especially

interesting about the latter is that it was user-corporate concerns – not user-user concerns – that appeared to trigger the non-provision of the information. Perhaps user-user concerns were not significant motivators regarding the non-provision of profile information because respondents had the option of making the information available to the audience of their choice. Similarly, the four user-corporate concerns (as well as all eight user-user concerns) were associated with the second and third post-related privacy-protective strategies (deleting a post for privacy reasons, and deciding not to post something because the wrong person might see it) but not the first (using the ‘audience selector’ to change the audience for a post), probably because using the ‘audience selector’ cannot limit Facebook’s access to posts. Both these findings indicate that respondents were, in fact, concerned about user-corporate as well as user-user privacy.

Overall, reasons for using Facebook were found to outweigh Facebook-related privacy concerns. The privacy paradox was evidenced by the fact that increased socially motivated action in the forms of increased participation in the 23 activities, increased numbers of Facebook friends, increased group and network membership, use of the *Find Friends* function, and the provision of profile information (with the exception of the curbing effect of user-corporate concerns) was associated with increased privacy concern. On the other hand, there was some evidence in support of the privacy calculus too, because privacy concern did appear to influence self-disclosure to some extent, as indicated by the use of the three post-related privacy-protective strategies and the non-provision of some key pieces of profile information. Therefore, evidence was found to support the existence of both the privacy paradox and the privacy calculus, but the privacy paradox was paramount.

These findings suggest that respondents felt that they did not have a real choice when it came to providing information on Facebook – social needs were too important. Respondents’ comments supported this view: “Facebook to me is a security blanket as many people can’t actually make friends in the ‘old’ way of talking to people”, and “I had held off joining for so long, but found out I was missing out on a lot of news about my friends and event invites as they were all on Facebook”. Other researchers have also found that social needs outweigh privacy concerns in influencing self-disclosure on SNS (e.g., Dienlin & Metzger, 2016; Min & Kim, 2015; Lee et al., 2013). However, even though Facebook users may prioritise their social needs over their privacy concerns, that doesn’t mean they are happy about having to do so. The following post on Facebook’s privacy page sums up this clash between user-corporate privacy concerns and the lure of social needs:

Stop pretending [you’re] giving us more control. With every [change] you make you remove the best of what [Facebook] used to be...or maybe stand for. It is simple. We just want to be connected. We [don’t] want [you] to spy, intrude, advertise etc. We just want to CONNECT. (Descoteaux, 2014)

An argument could be made here that the privacy paradox and the privacy calculus are one and the same: i.e., it could be that SNS (and other internet) users with privacy concerns consistently weigh up the costs and benefits of self-disclosure (or information disclosure) and act accordingly. When they act in favour of their privacy concerns, it is referred to as the privacy calculus, but when they act in favour of their social (or other) needs it is referred to, perhaps misleadingly, as the privacy paradox. To apply this argument to the context of this study, respondents appeared to modify their behaviour on Facebook in response to privacy concerns in some instances, but appeared to act in ways that increased their privacy concerns in other instances. I have cited the former instances as suggestive of the privacy calculus and the latter instances as evidence of the privacy paradox. However, I also inferred that, in these latter instances, respondents' social needs took precedence over their privacy concerns. If this is the case, respondents actually used the privacy calculus in both sets of instances. However, the way in which respondents used the calculus may not always have been entirely informed, conscious (Kehr et al., 2015), or rational (Barth & de Jong, 2017), and when it was at least reasonably so, respondents still chose to put themselves at perceived privacy-related risk because the fulfilment of their social needs was more important to them than their privacy concerns.

In *Chapter 1* I proposed that, due to several factors, Facebook users' decision whether or not, when, and how to use Facebook is not made 'on a level playing field'. First, there is the issue of information asymmetry. In relation to user-corporate privacy issues, many Facebook (and internet) users do not understand the complex workings of big data (Hull, 2015; Nissenbaum, 2011) and may not know how to protect themselves from corporations online. Also, constant change in Facebook's privacy practices acts to confuse users (Watson et al., 2015; Hull, 2015), and its faux-friendly, "broadly phrased" (Meyer, 2018, para. 6) privacy policy may lull them into a false sense of security. Second, Facebook users labour under the twin burdens of "bounded rationality" (limited rationality due to limited information, time, and cognitive capacity [BusinessDictionary, 2019; Barth & de Jong, 2017, pp. 1055-1056]) and "systematic psychological deviations from rationality" (such as "hyperbolic discounting" and "optimism bias") (Acquisti & Grossklags, 2005, pp. 26-27) when making privacy-related decisions on Facebook. Third, Facebook's interface is designed to encourage 'sharing' and to discourage use of the privacy settings (Jones, 2010; Light & McGrath, 2010; Waldman, 2016). Facebook does provide users with options to tailor the visibility of their content to other users, but it hides most of the privacy settings and presents them in such a way as to maximise effort (Stern & Kumar, 2014; Watson et al., 2015; Hull, 2015, p. 98). In contrast, sharing is quick, easy, and very inviting (Light & McGrath, 2010; Waldman, 2016). Fourth, Facebook has been deliberately made to be, and has been found to be, addictive (Parker, as cited in Allen, 2017; Marino et al., 2018), and last, Facebook is an intrinsic part of users' daily lives, in terms of both habit and social necessity (Debatin et al., 2009; Blank et al., 2014). These factors could help to explain why respondents prioritised their social

needs over their privacy concerns on Facebook.

## 7.7 Limitations

There are some limitations to the data. First, I invited people who had deactivated or deleted their Facebook account, or who had never had a Facebook account, to complete the survey along with those who had an active account, but there were only 13 completed responses of this nature, and therefore not enough to compare to the group with an active account. Second, gender and age groups were unevenly sized. There were only three respondents (two with an active account) who selected *Another identity* for gender, so these responses could not, unfortunately, be included in gender analyses. Also, there was an uneven number of male and female respondents (77 and 312 respectively), and age groups were, likewise, unevenly sized, the largest with 165 respondents (18-24 years old) and the smallest with 14 respondents (55-64 years old). Third, because the survey was advertised predominantly through ECU, there was a disproportionately large number of respondents with an undergraduate or postgraduate background, and the sample was therefore not representative of the Australian population as a whole. Fourth, the survey was very long with a high attrition rate, and the survey length could have been the reason why some respondents who completed it had ticked the same response for every item in one or more of the longer multiple item Likert scale questions. There were 10 completed surveys in which this had been done for two or more of the longer questions, and I did not include these surveys in the analysis. However, I still included 46 completed surveys in which respondents had ticked the same response for every item in only one of the longer questions. However, one cannot be sure that these responses are genuine. Finally, the data for this study were collected five years ago, in August to November 2014. The nature and/or degree of users' Facebook-related privacy concerns may have changed in the interim, particularly given the Cambridge Analytica data scandal (Herhold, 2019). Also, Facebook usage patterns are reportedly changing, particularly among younger users (Hutchinson, 2019; Adorjan & Ricciardelli, 2019),<sup>39</sup> although, as recent studies have shown, Facebook still remains relevant for satisfying users' social needs (Ferris & Hollenbaugh, 2018 [developing new relationships with others, exhibitionism, relationship maintenance, passing time]; Stiff, 2019 [surveillance]; Brailovskaia, Rohmann, Bierhoff, Schillack, & Margraf, 2019 [social support]; High & Buehler, 2019 [social support]).

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39 Adorjan and Ricciardelli (2019) conducted a study centred on teenagers aged 13-19 and found that: "A prominent theme among our participants is the gravitation away from Facebook, in preference for newer SNS platforms [predominantly Snapchat, Twitter, and Instagram], although Facebook did still remain central in the online lives of...participants" (p. 17). The authors found that the move to Snapchat and other platforms was largely motivated by user-user privacy concerns and "online impression management" (p. 17).

## 7.8 Suggestions for further research

Two gaps in the social media-related research are as follows. First, there is a dearth of studies comparing Australian Facebook users with Facebook users from other countries, and second, most research concerning Facebook use (including this research) is focussed on university students and is thus not representative of the general population, either in age or educational level. Therefore, there is a need for research centred on Australian SNS users that is reflective of different sectors of the Australian population, and that compares Australian SNS users to those from other countries.

Another topic for further research is the concept of *strategic yet authentic self-presentation* on SNS. This concept resulted from a factor analysis of respondents' reasons for using Facebook, but there is, at present, little research dealing directly with the topic.

## 8. CONCLUSION

This research has explored how privacy concerns and social needs combined to influence Facebook use. The findings demonstrated that there was a privacy paradox in relation to Facebook in that increased social activity on the site was associated, in some instances, with increased privacy concern. However, the findings also indicated the existence of the privacy calculus in that increased privacy concern was associated, in some instances, with increased use of privacy-protective strategies. When discussing these findings, I suggested that the privacy paradox can be explained by the fact that, in every instance, respondents balanced their social needs against their privacy concerns and made the best decision they could in the circumstances. Sometimes that decision led to the denial of social needs in favour of privacy-protective strategies, but at other times it led to the curbing of privacy concerns in favour of the fulfilment of social needs. I proposed that several factors, identified by other researchers, predisposed respondents to curb their privacy concerns on Facebook in favour of the fulfilment of their social needs: information asymmetry; “bounded rationality” together with “systematic psychological deviations from rationality” (Acquisti & Grossklags, 2005, p. 26); Facebook’s biased user interface, designed to promote ‘sharing’ and inhibit privacy protection; Facebook addiction; and reliance upon Facebook in everyday life.

A unique aspect of this study is that it was undertaken in an Australian context. There is little research focussed on Australian Facebook users in regard to social needs versus privacy concerns on Facebook. The results of the study, however, were largely consistent with studies from other countries. Also unique, in some respects, is the model upon which the research was based. User-user and user-corporate privacy concerns were juxtaposed against the social needs of self-portrayal (Friedlander, 2011) and belonging as motivators of Facebook use. Self-portrayal was explored in the contexts of both strategic self-presentation and expression of the true self, and belonging was explored in the contexts of both intimacy and affiliation. The results confirmed that respondents differentiated between user-user and user-corporate concerns on Facebook, although respondents further differentiated these concerns into security versus privacy concerns. The results also confirmed that respondents used Facebook for expression of the true self, intimacy, and affiliation, but instead of using Facebook for strategic self-presentation, respondents presented themselves strategically yet authentically on the site. Of the demographic factors tested (gender, age, completed education, and Australian cultural influence), gender was most strongly associated with respondents’ privacy concerns on Facebook and age was most strongly associated with their reasons for using Facebook.

This research underscores the need for a resolution to privacy concerns on Facebook. However, in reality, a complete resolution to such concerns is unlikely to occur. It has been suggested that Facebook should implement more user-friendly privacy settings, and make more transparent “the flows of information” (Hull

et al., 2011, p. 289) in a user-user context. Legal measures have also been suggested, along with greater user responsibility, and use of open-source SNS in preference to Facebook. The last approach, along with closure of one's Facebook account, would, of course, resolve Facebook-related privacy concerns most effectively, but even this would not do so entirely, because one's information can be 'shared' by others on Facebook without his or her knowledge or consent.

In terms of both user-corporate and user-user privacy issues, Facebook's privacy paradox is representative of other social media, and in terms of user-corporate privacy issues, it is representative of the internet as a whole, particularly now that the internet has branched out from our computer screens and smartphones into all aspects of our lives in the form of the Internet of Things. Therefore, the issue of internet users' needs versus their privacy concerns is bigger than Facebook, and a combination of research, governmental, watchdog, developer, and user efforts is needed to guide the future development of commercially based online activity.

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## APPENDIX A

### A.1 Respondents without an active Facebook account

#### A.1.1 Demographic profile

Of the 404 valid survey responses, 5 respondents (1.24%) used to have a Facebook account but had deleted it, 4 respondents (.99%) had a Facebook account but had deactivated it, and another 4 respondents (.99%) had never had a Facebook account, making a total of 13 respondents without an active Facebook account. The demographic profile of these 13 respondents is shown in Table A1.

*Table A1. Demographic profile (respondents without an active Facebook account)*

<i>Gender</i>	<i>Frequency</i>	<i>Percent</i>
Male	7	53.84
Female	5	38.46
Another identity	1	7.69
<b>Total</b>	<b>13</b>	<b>100.00</b>
<i>Age</i>	<i>Frequency</i>	<i>Percent</i>
25-34 years old	4	30.76
35-44 years old	4	30.76
18-24 years old	2	15.38
55-64 years old	2	15.38
45-54 years old	1	7.69
65 years old or older	-	-
<b>Total</b>	<b>13</b>	<b>100.00</b>
<i>Time lived in Australia</i>	<i>Frequency</i>	<i>Percent</i>
More than 15 years	11	84.62
Less than a year	1	7.69
6-15 years	1	7.69
<b>Total</b>	<b>13</b>	<b>100.00</b>
<i>COB, P#1 COB, P#2 COB, time lived in Australia</i>	<i>Frequency</i>	<i>Percent</i>
Aus, Aus, Aus, 15+yrs	5	38.46
UK, UK, UK, 15+yrs <sup>a</sup>	2	15.38
COB, P#1 COB, P#2 COB, time lived Aus <sup>b</sup>	6	46.16
<b>Total</b>	<b>13</b>	<b>100.00</b>
<i>Completed education *</i>	<i>Frequency</i>	<i>Percent</i>
Postgraduate	7	53.85
Undergraduate or Honours	3	23.08
Year 12	2	15.38
Post-secondary	1	7.69
<b>Total</b>	<b>13</b>	<b>100.00</b>

\* The 'highest' level of formal education completed  
a. 'UK' is comprised of England, Scotland, Wales, and Northern Ireland  
b. There were 6 unique combinations of COB, P#1 COB, P#2 COB and time lived in Australia

#### A.1.2 Reasons for not having an active account

Respondents who had deleted or deactivated their account, or who had never had an account, could select their reasons for not having an active account from the following options: *Too busy to spend time on*

*Facebook, Privacy concerns, No longer interested /Never been interested, and Other (please specify)*. For each group of respondents, all options were selected at least once, with *Privacy concerns* being selected by 3 of the 5 respondents who had deleted their account, 2 of the 4 respondents who had deactivated their account, and 3 of the 4 respondents who had never had an account (Table A2). One of the four respondents who had deactivated his or her account wrote that he or she did so because “[I d]ecided I was spending too much time caught up in others’ lives”. A similar comment was made by one of the five respondents who had deleted his or her account: “Overwhelmed by others seemingly endless pleasurable activities and friends and ridiculous comments and time wasting”. However, one of the four respondents who had never had a Facebook account wrote that he or she did so because “I don’t want people from my past to find me” – a different motive entirely.

Table A2. Reasons for deactivation or deletion of one’s account, or never having had an account

<i>Why have you deleted your Facebook account?</i>	<i>(5 respondents)</i>	<i>True</i>
Too busy to spend time on Facebook		2
Privacy concerns		3
No longer interested		3
Other (please specify)		1
<i>Why have you deactivated your Facebook account?</i>	<i>(4 respondents)</i>	<i>True</i>
Too busy to spend time on Facebook		2
Privacy concerns		2
No longer interested		3
Other (please specify)		1
<i>Why have you never had a Facebook account?</i>	<i>(4 respondents)</i>	<i>True</i>
Too busy to spend time on Facebook		2
Privacy concerns		3
Never been interested		1
Other (please specify)		1
<i>Note.</i> Respondents could select multiple options.		

### A.1.3 Privacy concerns

Respondents who had deleted or deactivated their account, or who had never had an account, were asked to rate their privacy concerns on Facebook. Twelve Facebook-related privacy concerns were listed, and respondents used a 4 point Likert scale with levels of concern ranging from 1 – *Very much* to 4 – *Not at all* (the lower the mean, the greater the level of concern). The greatest Facebook-related privacy concerns for respondents who had deleted or deactivated their account, or who had never had an account, were *Facebook knowing too much about me* ( $M = 1.23, SD = .44$ ) and *Businesses linked to Facebook finding out too much about me* ( $M = 1.54, SD = .66$ ), whereas *Bullying or harassment* ( $M = 2.85, SD = 1.14$ ) was of least concern (Table A3).

Table A3. Privacy concerns – Means (respondents without an active Facebook account)

<i>Privacy concerns *</i>	<i>N</i>	<i>Mean</i>	<i>Std. Devn.</i>
Facebook knowing too much about me	13	1.23	.44
Businesses linked to Facebook finding out too much about me	13	1.54	.66
The wrong person seeing my posts, photos or videos	13	1.62	.77
Other people posting sensitive information about me	13	1.69	.86
Spam/unsolicited email from businesses linked to Facebook	13	1.69	.86
Other people posting sensitive photos or videos of me	13	1.85	.90
Fraud	13	2.30	1.18
Identity theft	13	2.38	1.12
Viruses, spyware or other malware from businesses linked to Facebook	13	2.46	1.27
Stalking	13	2.54	1.05
Someone impersonating me	13	2.54	1.05
Bullying or harassment	13	2.85	1.14
* Respondents were asked:			
<ul style="list-style-type: none"> <li>• When you had a Facebook account, how much, if at all, did the following possibilities concern you? (Deleted accounts)</li> <li>• On Facebook, how much, if at all, do the following possibilities concern you? (Deactivated accounts)</li> <li>• If you were to open a Facebook account, how much, if at all, would the following possibilities concern you? (Never had an account)</li> </ul>			

## APPENDIX B

*Table B1. Gender and reasons for using Facebook – Mann-Whitney Ranks*

<i>Reasons for using Facebook</i>	<i>Gender</i>	<i>N*</i>	<i>MW Mean Rank</i>	<i>Sum of Ranks</i>
To keep in touch with friends	Male	77	216.59	16677.50
	Female	312	189.67	59177.50
	Total	389		
To keep in touch with family	Male	77	234.37	18046.50
	Female	312	185.28	57808.50
	Total	389		
To keep in touch with people from my past	Male	77	196.85	15157.50
	Female	312	194.54	60697.50
	Total	389		
To make new friends	Male	77	170.63	13138.50
	Female	312	201.01	62716.50
	Total	389		
To meet new romantic or sexual partners	Male	77	180.03	13862.00
	Female	312	198.70	61993.00
	Total	389		
To find out more about potential or new friends or partners	Male	77	168.06	12940.50
	Female	312	201.65	62914.50
	Total	389		
To be there for others (i.e., to be supportive, offer help or show an interest)	Male	77	234.64	18067.00
	Female	312	185.22	57788.00
	Total	389		
To ask for advice or help	Male	77	199.39	15353.00
	Female	312	193.92	60502.00
	Total	389		
To feel less lonely	Male	77	206.43	15895.00
	Female	312	192.18	59960.00
	Total	389		
To enhance my image	Male	77	179.01	13784.00
	Female	312	198.95	62071.00
	Total	389		
To project my best self	Male	77	193.64	14910.50
	Female	312	195.33	60944.50
	Total	389		
To express who I am	Male	77	194.14	14949.00
	Female	312	195.21	60906.00
	Total	389		
To express myself in ways that I can't offline	Male	77	189.68	14605.50
	Female	312	196.31	61249.50
	Total	389		
To share my news	Male	77	225.58	17369.50
	Female	312	187.45	58485.50
	Total	389		
To share my thoughts and feelings	Male	77	210.73	16226.50
	Female	312	191.12	59628.50
	Total	389		
To find like-minded people	Male	77	177.35	13656.00
	Female	312	199.36	62199.00
	Total	389		
To find people who share similar interests	Male	77	177.38	13658.50
	Female	312	199.35	62196.50
	Total	389		
To work with others who have similar goals	Male	77	191.55	14749.50
	Female	312	195.85	61105.50
	Total	389		
To find out about people I am curious about	Male	77	190.90	14699.00
	Female	312	196.01	61156.00
	Total	389		
To keep an eye on someone	Male	77	194.27	14958.50
	Female	312	195.18	60896.50
	Total	389		
To expand my network	Male	77	184.49	14206.00

<i>Reasons for using Facebook</i>	<i>Gender</i>	<i>N*</i>	<i>MW Mean Rank</i>	<i>Sum of Ranks</i>
	Female	312	197.59	61649.00
	Total	389		
To have fun	Male	77	203.17	15644.00
	Female	312	192.98	60211.00
	Total	389		
To put off doing my work	Male	77	220.69	16993.00
	Female	312	188.66	58862.00
	Total	389		
Because I'm bored	Male	77	203.41	15662.50
	Female	312	192.92	60192.50
	Total	389		
* My gender 'Another identity' (N = 2) excluded				

*Table B2. Age and reasons for using Facebook – Kendall's Tau-b*

<i>Reasons for using Facebook</i>	<i>Kendall's Tau-b</i>	<i>Age group</i>
To keep in touch with friends	Correlation Coefficient	.266
	Sig. (2-tailed)	.000
	N	391
To keep in touch with family	Correlation Coefficient	.048
	Sig. (2-tailed)	.265
	N	391
To keep in touch with people from my past	Correlation Coefficient	.106
	Sig. (2-tailed)	.014
	N	391
To make new friends	Correlation Coefficient	.154
	Sig. (2-tailed)	.001
	N	391
To meet new romantic or sexual partners	Correlation Coefficient	.134
	Sig. (2-tailed)	.004
	N	391
To find out more about potential or new friends or partners	Correlation Coefficient	.266
	Sig. (2-tailed)	.000
	N	391
To be there for others (i.e., to be supportive, offer help or show an interest)	Correlation Coefficient	.096
	Sig. (2-tailed)	.027
	N	391
To ask for advice or help	Correlation Coefficient	.125
	Sig. (2-tailed)	.005
	N	391
To feel less lonely	Correlation Coefficient	.142
	Sig. (2-tailed)	.001
	N	391
To enhance my image	Correlation Coefficient	.180
	Sig. (2-tailed)	.000
	N	391
To project my best self	Correlation Coefficient	.168
	Sig. (2-tailed)	.000
	N	391
To express who I am	Correlation Coefficient	.200
	Sig. (2-tailed)	.000
	N	391
To express myself in ways that I can't offline	Correlation Coefficient	.164
	Sig. (2-tailed)	.000
	N	391
To share my news	Correlation Coefficient	.057
	Sig. (2-tailed)	.189
	N	391
To share my thoughts and feelings	Correlation Coefficient	.134
	Sig. (2-tailed)	.002
	N	391
To find like-minded people	Correlation Coefficient	.139
	Sig. (2-tailed)	.002
	N	391
To find people who share similar interests	Correlation Coefficient	.121
	Sig. (2-tailed)	.007
	N	391
To work with others who have similar goals	Correlation Coefficient	.083
	Sig. (2-tailed)	.064
	N	391
To find out about people I am curious about	Correlation Coefficient	.210
	Sig. (2-tailed)	.000
	N	391
To keep an eye on someone	Correlation Coefficient	.253
	Sig. (2-tailed)	.000
	N	391
To expand my network	Correlation Coefficient	.137
	Sig. (2-tailed)	.002
	N	391
To have fun	Correlation Coefficient	.190
	Sig. (2-tailed)	.000

<i>Reasons for using Facebook</i>	<i>Kendall's Tau-b</i>	<i>Age group</i>
To put off doing my work	N	391
	Correlation Coefficient	.274
	Sig. (2-tailed)	.000
Because I'm bored	N	391
	Correlation Coefficient	.385
	Sig. (2-tailed)	.000
	N	391

Table B3. Length of time lived in Australia and reasons for using Facebook – Kendall's Tau-b

<i>Reasons for using Facebook</i>	<i>Kendall's Tau-b</i>	<i>Time lived in Australia</i>
To keep in touch with friends	Correlation Coefficient	.050
	Sig. (2-tailed)	.287
	N	391
To keep in touch with family	Correlation Coefficient	.067
	Sig. (2-tailed)	.136
	N	391
To keep in touch with people from my past	Correlation Coefficient	.124
	Sig. (2-tailed)	.006
	N	391
To make new friends	Correlation Coefficient	.144
	Sig. (2-tailed)	.002
	N	391
To meet new romantic or sexual partners	Correlation Coefficient	.007
	Sig. (2-tailed)	.877
	N	391
To find out more about potential or new friends or partners	Correlation Coefficient	.033
	Sig. (2-tailed)	.481
	N	391
To be there for others (i.e., to be supportive, offer help or show an interest)	Correlation Coefficient	-.023
	Sig. (2-tailed)	.612
	N	391
To ask for advice or help	Correlation Coefficient	.066
	Sig. (2-tailed)	.152
	N	391
To feel less lonely	Correlation Coefficient	.008
	Sig. (2-tailed)	.861
	N	391
To enhance my image	Correlation Coefficient	.035
	Sig. (2-tailed)	.462
	N	391
To project my best self	Correlation Coefficient	.066
	Sig. (2-tailed)	.156
	N	391
To express who I am	Correlation Coefficient	.015
	Sig. (2-tailed)	.743
	N	391
To express myself in ways that I can't offline	Correlation Coefficient	.057
	Sig. (2-tailed)	.221
	N	391
To share my news	Correlation Coefficient	.006
	Sig. (2-tailed)	.893
	N	391
To share my thoughts and feelings	Correlation Coefficient	.043
	Sig. (2-tailed)	.347
	N	391
To find like-minded people	Correlation Coefficient	.048
	Sig. (2-tailed)	.298
	N	391
To find people who share similar interests	Correlation Coefficient	.034
	Sig. (2-tailed)	.468
	N	391
To work with others who have similar goals	Correlation Coefficient	.003
	Sig. (2-tailed)	.954
	N	391
To find out about people I am curious about	Correlation Coefficient	.035
	Sig. (2-tailed)	.442
	N	391
To keep an eye on someone	Correlation Coefficient	-.043
	Sig. (2-tailed)	.354
	N	391
To expand my network	Correlation Coefficient	.047
	Sig. (2-tailed)	.315
	N	391
To have fun	Correlation Coefficient	.028
	Sig. (2-tailed)	.525

<i>Reasons for using Facebook</i>	<i>Kendall's Tau-b</i>	<i>Time lived in Australia</i>
To put off doing my work	N	391
	Correlation Coefficient	-.083
	Sig. (2-tailed)	.063
Because I'm bored	N	391
	Correlation Coefficient	-.042
	Sig. (2-tailed)	.347
	N	391

*Table B4. Respondents' COB and reasons for using Facebook – Mann-Whitney Ranks*

<i>Reasons for using Facebook</i>	<i>Respondents' COB</i>	<i>N</i>	<i>MW Mean Rank</i>	<i>Sum of Ranks</i>
To keep in touch with friends	Australia	244	196.15	47860.50
	not Australia	147	195.75	28775.50
	Total	391		
To keep in touch with family	Australia	244	203.60	49677.50
	not Australia	147	183.39	26958.50
	Total	391		
To keep in touch with people from my past	Australia	244	206.45	50375.00
	not Australia	147	178.65	26261.00
	Total	391		
To make new friends	Australia	244	206.75	50446.50
	not Australia	147	178.16	26189.50
	Total	391		
To meet new romantic or sexual partners	Australia	244	197.75	48250.00
	not Australia	147	193.10	28386.00
	Total	391		
To find out more about potential or new friends or partners	Australia	244	193.95	47325.00
	not Australia	147	199.39	29311.00
	Total	391		
To be there for others (i.e., to be supportive, offer help or show an interest)	Australia	244	195.90	47798.50
	not Australia	147	196.17	28837.50
	Total	391		
To ask for advice or help	Australia	244	198.01	48315.00
	not Australia	147	192.66	28321.00
	Total	391		
To feel less lonely	Australia	244	198.54	48443.50
	not Australia	147	191.79	28192.50
	Total	391		
To enhance my image	Australia	244	194.98	47574.50
	not Australia	147	197.70	29061.50
	Total	391		
To project my best self	Australia	244	198.05	48325.00
	not Australia	147	192.59	28311.00
	Total	391		
To express who I am	Australia	244	194.90	47555.00
	not Australia	147	197.83	29081.00
	Total	391		
To express myself in ways that I can't offline	Australia	244	195.68	47746.50
	not Australia	147	196.53	28889.50
	Total	391		
To share my news	Australia	244	193.58	47232.50
	not Australia	147	200.02	29403.50
	Total	391		
To share my thoughts and feelings	Australia	244	195.87	47792.00
	not Australia	147	196.22	28844.00
	Total	391		
To find like-minded people	Australia	244	197.99	48308.50
	not Australia	147	192.70	28327.50
	Total	391		
To find people who share similar interests	Australia	244	197.18	48111.00
	not Australia	147	194.05	28525.00
	Total	391		
To work with others who have similar goals	Australia	244	198.55	48446.00
	not Australia	147	191.77	28190.00
	Total	391		
To find out about people I am curious about	Australia	244	192.10	46871.50
	not Australia	147	202.48	29764.50
	Total	391		
To keep an eye on someone	Australia	244	187.03	45636.00
	not Australia	147	210.88	31000.00
	Total	391		
To expand my network	Australia	244	198.94	48540.50
	not Australia	147	191.13	28095.50
	Total	391		
To have fun	Australia	244	192.61	46998.00

<i>Reasons for using Facebook</i>	<i>Respondents' COB</i>	<i>N</i>	<i>MW Mean Rank</i>	<i>Sum of Ranks</i>
	not Australia	147	201.62	29638.00
	Total	391		
To put off doing my work	Australia	244	181.53	44294.00
	not Australia	147	220.01	32342.00
	Total	391		
Because I'm bored	Australia	244	185.64	45296.50
	not Australia	147	213.19	31339.50
	Total	391		

*Table B5. Parents' COB and reasons for using Facebook – Kendall's Tau-b*

<i>Reasons for using Facebook</i>	<i>Kendall's Tau-b</i>	<i>Parents' COB</i>
To keep in touch with friends	Correlation Coefficient	-.018
	Sig. (2-tailed)	.705
	N	391
To keep in touch with family	Correlation Coefficient	.072
	Sig. (2-tailed)	.106
	N	391
To keep in touch with people from my past	Correlation Coefficient	.086
	Sig. (2-tailed)	.055
	N	391
To make new friends	Correlation Coefficient	.069
	Sig. (2-tailed)	.136
	N	391
To meet new romantic or sexual partners	Correlation Coefficient	-.047
	Sig. (2-tailed)	.330
	N	391
To find out more about potential or new friends or partners	Correlation Coefficient	-.041
	Sig. (2-tailed)	.374
	N	391
To be there for others (i.e., to be supportive, offer help or show an interest)	Correlation Coefficient	-.036
	Sig. (2-tailed)	.424
	N	391
To ask for advice or help	Correlation Coefficient	-.026
	Sig. (2-tailed)	.568
	N	391
To feel less lonely	Correlation Coefficient	-.029
	Sig. (2-tailed)	.531
	N	391
To enhance my image	Correlation Coefficient	-.044
	Sig. (2-tailed)	.346
	N	391
To project my best self	Correlation Coefficient	-.003
	Sig. (2-tailed)	.946
	N	391
To express who I am	Correlation Coefficient	-.056
	Sig. (2-tailed)	.213
	N	391
To express myself in ways that I can't offline	Correlation Coefficient	-.054
	Sig. (2-tailed)	.242
	N	391
To share my news	Correlation Coefficient	-.047
	Sig. (2-tailed)	.292
	N	391
To share my thoughts and feelings	Correlation Coefficient	-.017
	Sig. (2-tailed)	.701
	N	391
To find like-minded people	Correlation Coefficient	-.060
	Sig. (2-tailed)	.193
	N	391
To find people who share similar interests	Correlation Coefficient	-.056
	Sig. (2-tailed)	.224
	N	391
To work with others who have similar goals	Correlation Coefficient	-.049
	Sig. (2-tailed)	.285
	N	391
To find out about people I am curious about	Correlation Coefficient	-.068
	Sig. (2-tailed)	.132
	N	391
To keep an eye on someone	Correlation Coefficient	-.120
	Sig. (2-tailed)	.008
	N	391
To expand my network	Correlation Coefficient	-.006
	Sig. (2-tailed)	.900
	N	391
To have fun	Correlation Coefficient	-.079
	Sig. (2-tailed)	.074

<i>Reasons for using Facebook</i>	<i>Kendall's Tau-b</i>	<i>Parents' COB</i>
To put off doing my work	N	391
	Correlation Coefficient	-.174
	Sig. (2-tailed)	.000
Because I'm bored	N	391
	Correlation Coefficient	-.143
	Sig. (2-tailed)	.001
	N	391

*Table B6. Completed education and reasons for using Facebook – Kendall’s Tau-b*

<i>Reasons for using Facebook</i>	<i>Kendall’s Tau-b</i>	<i>Completed education</i>
To keep in touch with friends	Correlation Coefficient	.185
	Sig. (2-tailed)	.000
	N	391
To keep in touch with family	Correlation Coefficient	.064
	Sig. (2-tailed)	.138
	N	391
To keep in touch with people from my past	Correlation Coefficient	.056
	Sig. (2-tailed)	.191
	N	391
To make new friends	Correlation Coefficient	.205
	Sig. (2-tailed)	.000
	N	391
To meet new romantic or sexual partners	Correlation Coefficient	.174
	Sig. (2-tailed)	.000
	N	391
To find out more about potential or new friends or partners	Correlation Coefficient	.187
	Sig. (2-tailed)	.000
	N	391
To be there for others (i.e., to be supportive, offer help or show an interest)	Correlation Coefficient	.117
	Sig. (2-tailed)	.006
	N	391
To ask for advice or help	Correlation Coefficient	.185
	Sig. (2-tailed)	.000
	N	391
To feel less lonely	Correlation Coefficient	.167
	Sig. (2-tailed)	.000
	N	391
To enhance my image	Correlation Coefficient	.056
	Sig. (2-tailed)	.213
	N	391
To project my best self	Correlation Coefficient	.036
	Sig. (2-tailed)	.411
	N	391
To express who I am	Correlation Coefficient	.130
	Sig. (2-tailed)	.003
	N	391
To express myself in ways that I can’t offline	Correlation Coefficient	.094
	Sig. (2-tailed)	.033
	N	391
To share my news	Correlation Coefficient	.075
	Sig. (2-tailed)	.079
	N	391
To share my thoughts and feelings	Correlation Coefficient	.098
	Sig. (2-tailed)	.024
	N	391
To find like-minded people	Correlation Coefficient	.187
	Sig. (2-tailed)	.000
	N	391
To find people who share similar interests	Correlation Coefficient	.178
	Sig. (2-tailed)	.000
	N	391
To work with others who have similar goals	Correlation Coefficient	.164
	Sig. (2-tailed)	.000
	N	391
To find out about people I am curious about	Correlation Coefficient	.152
	Sig. (2-tailed)	.000
	N	391
To keep an eye on someone	Correlation Coefficient	.185
	Sig. (2-tailed)	.000
	N	391
To expand my network	Correlation Coefficient	.121
	Sig. (2-tailed)	.006
	N	391
To have fun	Correlation Coefficient	.197
	Sig. (2-tailed)	.000

<i>Reasons for using Facebook</i>	<i>Kendall's Tau-b</i>	<i>Completed education</i>
To put off doing my work	N	391
	Correlation Coefficient	.142
	Sig. (2-tailed)	.001
Because I'm bored	N	391
	Correlation Coefficient	.230
	Sig. (2-tailed)	.000
	N	391

Table B7. Completed education and reasons for using Facebook controlling for age – Partial Correlation

<i>Reasons for using Facebook</i>	<i>Kendall's Tau-b</i>	<i>p (2-tailed)</i>	<i>z</i>
To keep in touch with friends	.097	.004	2.874
To keep in touch with family	.050	.143	1.463
To keep in touch with people from my past	.018	.587	0.543
To make new friends	.161	.000	4.758
To meet new romantic or sexual partners	.135	.000	3.973
To find out more about potential or new friends or partners	.099	.003	2.926
To be there for others (i.e., to be supportive, offer help or show an interest)	.088	.009	2.611
To ask for advice or help	.151	.000	4.449
To feel less lonely	.125	.000	3.682
To enhance my image	-.011	.739	-0.333
To project my best self	-.028	.417	-0.812
To express who I am	.062	.069	1.821
To express myself in ways that I can't offline	.037	.273	1.096
To share my news	.059	.084	1.730
To share my thoughts and feelings	.052	.121	1.549
To find like-minded people	.147	.000	4.344
To find people who share similar interests	.145	.000	4.268
To work with others who have similar goals	.144	.000	4.258
To find out about people I am curious about	.082	.016	2.415
To keep an eye on someone	.102	.003	3.007
To expand my network	.077	.023	2.268
To have fun	.139	.000	4.106
To put off doing my work	.046	.170	1.371
Because I'm bored	.103	.002	3.028

*Note.* Computed using the *ppcor* package in R (v 4.0.2).

Table B8. Privacy perceptions (Q1) and privacy concerns – Kruskal-Wallis Mean Ranks

Privacy concerns		Q1.1		Q1.2		Q1.3		Q1.4		Q1.5	
		N	KW Mean Rank								
Bullying or harassment	True	240	191.838	277	192.809	261	191.211	307	195.897	287	192.073
	False	112	201.549	38	180.105	86	198.715	43	186.733	19	187.395
	Don't know	39	205.679	76	215.579	44	219.102	41	206.488	85	211.182
	Total	391		391		391		391		391	
Other people posting sensitive information about me	True	240	193.500	277	187.305	261	193.674	307	192.818	287	190.505
	False	112	194.308	38	205.803	86	192.413	43	197.349	19	201.342
	Don't know	39	216.244	76	222.789	44	216.807	41	218.415	85	213.359
	Total	391		391		391		391		391	
Other people posting sensitive photos or videos of me	True	240	193.790	277	187.778	261	192.123	307	193.754	287	191.765
	False	112	192.982	38	218.934	86	190.930	43	200.558	19	213.789
	Don't know	39	218.269	76	214.500	44	228.909	41	208.037	85	206.324
	Total	391		391		391		391		391	
The wrong person seeing my posts, photos or videos	True	240	194.742	277	195.088	261	192.822	307	192.715	287	190.909
	False	112	195.893	38	201.053	86	198.587	43	199.547	19	215.868
	Don't know	39	204.051	76	196.796	44	209.795	41	216.878	85	208.747
	Total	391		391		391		391		391	
Stalking	True	240	187.444	277	195.574	261	190.820	307	192.783	287	192.573
	False	112	208.196	38	213.382	86	195.703	43	197.291	19	203.184
	Don't know	39	213.628	76	188.862	44	227.307	41	218.732	85	205.965
	Total	391		391		391		391		391	
Identity theft	True	240	190.879	277	191.495	261	194.130	307	190.249	287	191.990
	False	112	200.357	38	206.395	86	195.843	43	206.651	19	206.474
	Don't know	39	215.000	76	207.224	44	207.398	41	227.890	85	207.200
	Total	391		391		391		391		391	
Fraud	True	240	191.302	277	191.478	261	192.205	307	189.907	287	192.172
	False	112	198.438	38	209.803	86	197.337	43	213.291	19	215.053
	Don't know	39	217.910	76	205.579	44	215.898	41	223.488	85	204.665
	Total	391		391		391		391		391	
Someone impersonating me	True	240	187.206	277	194.029	261	188.918	307	191.668	287	193.918
	False	112	205.455	38	197.342	86	206.453	43	205.907	19	196.263
	Don't know	39	222.962	76	202.513	44	217.580	41	218.049	85	202.971
	Total	391		391		391		391		391	
Facebook knowing too much about me	True	240	199.863	277	190.056	261	194.331	307	190.676	287	188.256
	False	112	180.134	38	206.105	86	188.645	43	232.988	19	219.737
	Don't know	39	217.795	76	212.612	44	220.273	41	197.073	85	216.841
	Total	391		391		391		391		391	
Businesses linked to Facebook finding out too much about me	True	240	199.51	277	190.747	261	195.335	307	190.959	287	188.566
	False	112	180.531	38	196.079	86	187.494	43	213.709	19	231.184
	Don't know	39	218.821	76	215.105	44	216.568	41	215.171	85	213.235
	Total	391		391		391		391		391	
Spam/unsolicited email from businesses linked to Facebook	True	240	189.071	277	188.964	261	194.600	307	191.533	287	186.045
	False	112	199.763	38	198.132	86	188.110	43	225.674	19	242.237
	Don't know	39	227.833	76	220.579	44	219.727	41	198.329	85	219.276
	Total	391		391		391		391		391	
Viruses, spyware or other malware from businesses linked to Facebook	True	240	195.267	277	188.383	261	196.699	307	192.914	287	184.700
	False	112	188.402	38	216.526	86	185.262	43	222.767	19	261.632
	Don't know	39	222.333	76	213.500	44	212.841	41	191.037	85	219.482
	Total	391		391		391		391		391	

Table B9. Privacy perceptions (Q2) and privacy concerns – Kruskal-Wallis Mean Ranks

Privacy concerns		Q2.1		Q2.2		Q2.3		Q2.4		Q2.5	
		N	KW Mean Rank								
Bullying or harassment	True	354	194.828	43	175.570	348	192.247	337	192.285	370	193.918
	False	22	212.591	152	194.859	4	320.000	37	212.946	18	234.000
	Don't know	15	199.333	196	201.367	39	216.769	17	232.765	3	224.833
	Total	391		391		391		391		391	
Other people posting sensitive information about me	True	354	195.716	43	200.337	348	192.665	337	189.855	370	194.526
	False	22	199.386	152	200.793	4	261.375	37	225.108	18	216.167
	Don't know	15	197.733	196	191.332	39	219.051	17	254.471	3	256.833
	Total	391		391		391		391		391	
Other people posting sensitive photos or videos of me	True	354	196.117	43	189.872	348	191.740	337	190.766	370	194.995
	False	22	201.909	152	199.595	4	326.750	37	221.946	18	212.389
	Don't know	15	184.567	196	194.556	39	220.603	17	243.294	3	221.667
	Total	391		391		391		391		391	
The wrong person seeing my posts, photos or videos	True	354	192.944	43	206.186	348	193.803	337	189.807	370	195.155
	False	22	222.386	152	192.365	4	334.125	37	222.716	18	203.222
	Don't know	15	229.433	196	196.584	39	201.436	17	260.618	3	256.833
	Total	391		391		391		391		391	
Stalking	True	354	194.936	43	161.674	348	194.257	337	195.108	370	194.930
	False	22	220.273	152	188.553	4	334.000	37	182.014	18	201.306
	Don't know	15	185.500	196	209.306	39	197.397	17	244.118	3	296.167
	Total	391		391		391		391		391	
Identity theft	True	354	195.583	43	186.733	348	193.083	337	195.295	370	195.212
	False	22	194.682	152	196.941	4	341.500	37	184.432	18	198.667
	Don't know	15	207.767	196	197.304	39	207.103	17	235.147	3	277.167
	Total	391		391		391		391		391	
Fraud	True	354	196.021	43	184.128	348	193.055	337	194.935	370	196.095
	False	22	183.477	152	191.839	4	337.000	37	190.649	18	186.833
	Don't know	15	213.867	196	201.832	39	207.821	17	228.765	3	239.333
	Total	391		391		391		391		391	
Someone impersonating me	True	354	196.545	43	179.035	348	192.629	337	196.509	370	195.624
	False	22	186.295	152	188.826	4	328.500	37	193.743	18	198.694
	Don't know	15	197.367	196	205.286	39	212.487	17	190.824	3	226.167
	Total	391		391		391		391		391	
Facebook knowing too much about me	True	354	193.835	43	205.453	348	190.770	337	193.852	370	193.993
	False	22	220.659	152	201.941	4	275.250	37	203.135	18	210.083
	Don't know	15	210.933	196	189.319	39	234.538	17	223.059	3	359.000
	Total	391		391		391		391		391	
Businesses linked to Facebook finding out too much about me	True	354	193.958	43	199.500	348	191.330	337	194.337	370	193.582
	False	22	201.341	152	203.783	4	343.125	37	197.649	18	226.972
	Don't know	15	236.367	196	189.196	39	222.577	17	225.382	3	308.333
	Total	391		391		391		391		391	
Spam/unsolicited email from businesses linked to Facebook	True	354	196.335	43	198.616	348	191.645	337	191.674	370	194.043
	False	22	180.318	152	200.970	4	322.750	37	197.365	18	217.250
	Don't know	15	211.100	196	191.571	39	221.859	17	278.794	3	309.833
	Total	391		391		391		391		391	
Viruses, spyware or other malware from businesses linked to Facebook	True	354	196.558	43	206.767	348	192.829	337	192.378	370	193.314
	False	22	189.636	152	198.599	4	344.000	37	200.919	18	233.056
	Don't know	15	192.167	196	191.622	39	209.115	17	257.088	3	305.000
	Total	391		391		391		391		391	

Table B10. Information provided on respondents' profile – Key pieces

<i>Do you provide the following information on your Facebook profile? (key pieces)</i>		
<i>Your high school</i>		
	<i>Frequency</i>	<i>Percent</i>
Yes	289	73.91
No	102	26.09
Total	391	100.00
<i>Your post-secondary education</i>		
	<i>Frequency</i>	<i>Percent</i>
Yes	302	77.24
No	89	22.76
Total	391	100.00
<i>Your job(s)</i>		
	<i>Frequency</i>	<i>Percent</i>
Yes	214	54.73
No	177	45.27
Total	391	100.00
<i>Your hometown</i>		
	<i>Frequency</i>	<i>Percent</i>
Yes	276	70.59
No	115	29.41
Total	391	100.00
<i>Your current city</i>		
	<i>Frequency</i>	<i>Percent</i>
Yes	290	74.17
No	101	25.83
Total	391	100.00
<i>Your relationship status</i>		
	<i>Frequency</i>	<i>Percent</i>
Yes	243	62.15
No	148	37.85
Total	391	100.00
<i>Whether you are 'interested in' women or men</i>		
	<i>Frequency</i>	<i>Percent</i>
Yes	152	38.87
No	239	61.13
Total	391	100.00
<i>A list of family members/relatives</i>		
	<i>Frequency</i>	<i>Percent</i>
Yes	209	53.45
No	182	46.55
Total	391	100.00
<i>Something 'About You'</i>		
	<i>Frequency</i>	<i>Percent</i>
Yes	147	37.60
No	244	62.40
Total	391	100.00
<i>Your favourite quote(s)</i>		
	<i>Frequency</i>	<i>Percent</i>
Yes	132	33.76
No	259	66.24
Total	391	100.00
<i>Your religious views</i>		
	<i>Frequency</i>	<i>Percent</i>
Yes	108	27.62
No	283	72.38
Total	391	100.00
<i>Your political views</i>		
	<i>Frequency</i>	<i>Percent</i>
Yes	74	18.93
No	317	81.07
Total	391	100.00
<i>Your phone number(s)</i>		
	<i>Frequency</i>	<i>Percent</i>
Yes	59	15.09
No	332	84.91
Total	391	100.00
<i>Your address</i>		
	<i>Frequency</i>	<i>Percent</i>
Yes	12	3.07

<i>Do you provide the following information on your Facebook profile? (key pieces)</i>		
No	379	96.93
Total	391	100.00

Table B11. Visibility of information on respondents' profile – Key pieces

<i>Who can see this information on your profile? (key pieces)</i>				
<i>Your high school</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cum Percent</i>
Public	59	15.09	20.42	20.42
Friends	194	49.62	67.13	87.54
Only me	4	1.02	1.38	88.93
Custom	10	2.56	3.46	92.39
Don't know	22	5.63	7.61	100.00
	102	26.09	Missing	
Total	391	100.00		
<i>Your post-secondary education</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cum Percent</i>
Public	63	16.11	20.86	20.86
Friends	208	53.20	68.87	89.74
Only me	1	.26	.33	90.07
Custom	9	2.30	2.98	93.05
Don't know	21	5.37	6.95	100.00
	89	22.76	Missing	
Total	391	100.00		
<i>Your job(s)</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cum Percent</i>
Public	42	10.74	19.63	19.63
Friends	143	36.57	66.82	86.45
Only me	5	1.28	2.34	88.79
Custom	6	1.53	2.80	91.59
Don't know	18	4.60	8.41	100.00
	177	45.27	Missing	
Total	391	100.00		
<i>Your hometown</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cum Percent</i>
Public	55	14.07	19.93	19.93
Friends	184	47.06	66.67	86.59
Only me	2	.51	.72	87.32
Custom	8	2.05	2.90	90.22
Don't know	27	6.91	9.78	100.00
	115	29.41	Missing	
Total	391	100.00		
<i>Your current city</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cum Percent</i>
Public	71	18.16	24.48	24.48
Friends	187	47.83	64.48	88.97
Only me	1	.26	.34	89.31
Custom	8	2.05	2.76	92.07
Don't know	23	5.88	7.93	100.00
	101	25.83	Missing	
Total	391	100.00		
<i>Your relationship status</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cum Percent</i>
Public	46	11.76	18.93	18.93
Friends	162	41.43	66.67	85.60
Only me	7	1.79	2.88	88.48
Custom	9	2.30	3.70	92.18
Don't know	19	4.86	7.82	100.00
	148	37.85	Missing	
Total	391	100.00		
<i>Whether you are 'interested in' women or men</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cum Percent</i>
Public	29	7.42	19.08	19.08
Friends	106	27.11	69.74	88.82
Only me	4	1.02	2.63	91.45
Custom	2	.51	1.32	92.76
Don't know	11	2.81	7.24	100.00

<i>Who can see this information on your profile? (key pieces)</i>				
		239	61.13	Missing
Total		391	100.00	
<i>A list of family members/relatives</i>				
	<i>Frequency</i>		<i>Percent</i>	<i>Valid Percent</i>
Public		20	5.12	9.57
Friends		159	40.66	76.08
Only me		4	1.02	1.91
Custom		9	2.30	4.31
Don't know		17	4.35	8.13
		182	46.55	Missing
Total		391	100.00	
<i>Something 'About You'</i>				
	<i>Frequency</i>		<i>Percent</i>	<i>Valid Percent</i>
Public		25	6.39	17.01
Friends		106	27.11	72.11
Only me		3	.77	2.04
Custom		4	1.02	2.72
Don't know		9	2.30	6.12
		244	62.40	Missing
Total		391	100.00	
<i>Your favourite quote(s)</i>				
	<i>Frequency</i>		<i>Percent</i>	<i>Valid Percent</i>
Public		20	5.12	15.15
Friends		99	25.32	75.00
Only me		1	.26	.76
Custom		3	.77	2.27
Don't know		9	2.30	6.82
		259	66.24	Missing
Total		391	100.00	
<i>Your religious views</i>				
	<i>Frequency</i>		<i>Percent</i>	<i>Valid Percent</i>
Public		17	4.35	15.74
Friends		81	20.72	75.00
Only me		2	.51	1.85
Custom		2	.51	1.85
Don't know		6	1.53	5.56
		283	72.38	Missing
Total		391	100.00	
<i>Your political views</i>				
	<i>Frequency</i>		<i>Percent</i>	<i>Valid Percent</i>
Public		14	3.58	18.92
Friends		53	13.55	71.62
Only me		1	.26	1.35
Custom		1	.26	1.35
Don't know		5	1.28	6.76
		317	81.07	Missing
Total		391	100.00	
<i>Your phone number(s)</i>				
	<i>Frequency</i>		<i>Percent</i>	<i>Valid Percent</i>
Public		5	1.28	8.47
Friends		33	8.44	55.93
Only me		14	3.58	23.73
Custom		3	.77	5.08
Don't know		4	1.02	6.78
		332	84.91	Missing
Total		391	100.00	
<i>Your address</i>				
	<i>Frequency</i>		<i>Percent</i>	<i>Valid Percent</i>
Public		1	.26	8.33
Friends		8	2.05	66.67
Only me		2	.51	16.67
Custom		1	.26	8.33
Don't know		-	-	-

<i>Who can see this information on your profile? (key pieces)</i>			
	379	96.93	Missing
<b>Total</b>	<b>391</b>	<b>100.00</b>	

Table B12. Information provided on respondents' profile – Likes

<i>Have you added the following information to your profile? (likes)</i>		
<i>Movies watched, wanting to watch, or liked</i>	<i>Frequency</i>	<i>Percent</i>
Yes	212	54.22
No	179	45.78
Total	391	100.00
<i>TV shows, watched, wanting to watch, or liked</i>	<i>Frequency</i>	<i>Percent</i>
Yes	209	53.45
No	182	46.55
Total	391	100.00
<i>Music liked, or wanting to listen to</i>	<i>Frequency</i>	<i>Percent</i>
Yes	224	57.29
No	167	42.71
Total	391	100.00
<i>Books read, wanting to read, or liked</i>	<i>Frequency</i>	<i>Percent</i>
Yes	197	50.38
No	194	49.62
Total	391	100.00
<i>Sports teams or athletes liked</i>	<i>Frequency</i>	<i>Percent</i>
Yes	150	38.36
No	241	61.64
Total	391	100.00
<i>Likes</i>	<i>Frequency</i>	<i>Percent</i>
Yes	295	75.45
No	96	24.55
Total	391	100.00

Table B13. Visibility of information on respondents' profile – Likes

<i>Who can see this information on your profile? (likes)</i>				
<i>Movies watched, wanting to watch, or liked</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cum Percent</i>
Public	38	9.72	17.92	17.92
Friends	139	35.55	65.57	83.49
Only me	3	.77	1.42	84.91
Custom	6	1.53	2.83	87.74
Don't know	26	6.65	12.26	100.00
	179	45.78	Missing	
Total	391	100.00		
<i>TV shows, watched, wanting to watch, or liked</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cum Percent</i>
Public	40	10.23	19.14	19.14
Friends	136	34.78	65.07	84.21
Only me	3	.77	1.44	85.65
Custom	5	1.28	2.39	88.04
Don't know	25	6.39	11.96	100.00
	182	46.55	Missing	
Total	391	100.00		
<i>Music liked, or wanting to listen to</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cum Percent</i>
Public	42	10.74	18.75	18.75
Friends	146	37.34	65.18	83.93
Only me	3	.77	1.34	85.27
Custom	5	1.28	2.23	87.50
Don't know	28	7.16	12.50	100.00
	167	42.71	Missing	
Total	391	100.00		
<i>Books read, wanting to read, or liked</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cum Percent</i>
Public	39	9.97	19.80	19.80
Friends	123	31.46	62.44	82.23
Only me	6	1.53	3.05	85.28
Custom	4	1.02	2.03	87.31
Don't know	25	6.39	12.69	100.00
	194	49.62	Missing	
Total	391	100.00		
<i>Sports teams or athletes liked</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cum Percent</i>
Public	30	7.67	20.00	20.00
Friends	96	24.55	64.00	84.00
Only me	1	.26	.67	84.67
Custom	4	1.02	2.67	87.33
Don't know	19	4.86	12.67	100.00
	241	61.64	Missing	
Total	391	100.00		
<i>Likes</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cum Percent</i>
Public	52	13.30	17.63	17.63
Friends	194	49.62	65.76	83.39
Only me	3	.77	1.02	84.41
Custom	12	3.07	4.07	88.47
Don't know	34	8.70	11.53	100.00
	96	24.55	Missing	
Total	391	100.00		

**Table B14. Activities on Facebook and privacy concerns – Kendall’s Tau-b**

<i>Activities on Fb</i>	<i>Kendall's Tau-b</i>	<i>PC1</i>	<i>PC2</i>	<i>PC3</i>	<i>PC4</i>	<i>PC5</i>	<i>PC6</i>	<i>PC7</i>	<i>PC8</i>	<i>PC9</i>	<i>P10</i>	<i>PC11</i>	<i>PC12</i>
Post a 'status update' or 'life event' with just words on your timeline	Correlation Coefficient	0.092	0.041	0.052	0.045	0.103	0.024	0.013	0.046	-0.029	-0.044	-0.011	0.019
	Sig. (2-tailed)	0.036	0.351	0.235	0.303	0.018	0.582	0.768	0.294	0.501	0.316	0.801	0.671
	N	391	391	391	391	391	391	391	391	391	391	391	391
Post a photo on your timeline	Correlation Coefficient	0.136	0.050	0.078	0.048	0.113	0.023	0.014	0.053	-0.031	-0.056	0.043	0.001
	Sig. (2-tailed)	0.002	0.261	0.075	0.271	0.010	0.598	0.746	0.230	0.479	0.209	0.330	0.982
	N	391	391	391	391	391	391	391	391	391	391	391	391
Create a photo album	Correlation Coefficient	0.083	0.032	0.044	0.040	0.113	0.045	0.069	0.103	-0.049	-0.057	0.012	0.008
	Sig. (2-tailed)	0.064	0.468	0.322	0.375	0.012	0.318	0.124	0.021	0.273	0.205	0.792	0.851
	N	391	391	391	391	391	391	391	391	391	391	391	391
Post a video on your timeline	Correlation Coefficient	0.078	0.011	0.023	0.119	0.101	0.031	0.045	0.056	-0.055	0.016	0.075	0.071
	Sig. (2-tailed)	0.087	0.816	0.608	0.008	0.025	0.489	0.322	0.216	0.224	0.724	0.100	0.118
	N	391	391	391	391	391	391	391	391	391	391	391	391
Post on a friend's timeline	Correlation Coefficient	0.105	0.045	0.071	0.042	0.114	0.038	0.037	0.030	0.059	0.065	0.056	0.065
	Sig. (2-tailed)	0.018	0.310	0.108	0.344	0.010	0.383	0.401	0.493	0.182	0.140	0.202	0.139
	N	391	391	391	391	391	391	391	391	391	391	391	391
Comment on or reply to a friend's post	Correlation Coefficient	0.136	0.105	0.146	0.089	0.098	0.070	0.065	0.078	0.061	0.025	0.034	0.015
	Sig. (2-tailed)	0.002	0.016	0.001	0.042	0.025	0.107	0.137	0.073	0.162	0.571	0.436	0.731
	N	391	391	391	391	391	391	391	391	391	391	391	391
Post on a group's page	Correlation Coefficient	0.083	-0.015	0.024	0.015	0.066	0.002	0.015	0.027	-0.062	-0.050	0.010	0.013
	Sig. (2-tailed)	0.054	0.727	0.580	0.724	0.124	0.971	0.733	0.522	0.149	0.247	0.818	0.759
	N	391	391	391	391	391	391	391	391	391	391	391	391
Read group posts	Correlation Coefficient	0.141	-0.008	0.029	0.025	0.064	0.026	0.027	0.050	-0.016	-0.045	-0.024	-0.039
	Sig. (2-tailed)	0.001	0.845	0.495	0.567	0.135	0.537	0.522	0.241	0.709	0.292	0.573	0.363
	N	391	391	391	391	391	391	391	391	391	391	391	391
Tag people in something you post	Correlation Coefficient	0.136	0.096	0.135	0.136	0.177	0.100	0.118	0.132	0.051	0.027	0.039	0.048
	Sig. (2-tailed)	0.002	0.027	0.002	0.002	0.000	0.020	0.006	0.002	0.240	0.538	0.368	0.266
	N	391	391	391	391	391	391	391	391	391	391	391	391
Add a location to something you post	Correlation Coefficient	0.134	0.043	0.055	0.051	0.128	0.054	0.080	0.077	-0.035	-0.020	0.024	0.022
	Sig. (2-tailed)	0.002	0.327	0.211	0.245	0.003	0.212	0.065	0.076	0.424	0.649	0.577	0.623
	N	391	391	391	391	391	391	391	391	391	391	391	391
Tag people in a photo or video you didn't post	Correlation Coefficient	0.129	-0.018	0.009	0.054	0.109	0.062	0.085	0.075	-0.034	0.031	0.062	0.018
	Sig. (2-tailed)	0.004	0.682	0.840	0.218	0.014	0.158	0.055	0.088	0.437	0.483	0.162	0.690
	N	391	391	391	391	391	391	391	391	391	391	391	391
'Like' a friend's photo, video or post	Correlation Coefficient	0.112	0.070	0.125	0.087	0.124	0.040	0.012	0.020	0.080	0.056	0.021	-0.006
	Sig. (2-tailed)	0.010	0.107	0.004	0.046	0.005	0.360	0.778	0.652	0.069	0.199	0.630	0.887
	N	391	391	391	391	391	391	391	391	391	391	391	391
Share a friend's photo or video	Correlation Coefficient	0.082	0.040	0.071	0.089	0.109	0.051	0.054	0.061	0.019	0.063	0.092	0.092
	Sig. (2-tailed)	0.061	0.363	0.102	0.040	0.012	0.238	0.215	0.159	0.657	0.147	0.035	0.036
	N	391	391	391	391	391	391	391	391	391	391	391	391
Search for someone you want to find out more about	Correlation Coefficient	0.075	0.039	0.041	0.031	0.103	0.020	0.032	0.058	-0.012	0.015	-0.053	-0.051
	Sig. (2-tailed)	0.083	0.359	0.340	0.464	0.017	0.642	0.462	0.180	0.781	0.722	0.219	0.234
	N	391	391	391	391	391	391	391	391	391	391	391	391
Write a note	Correlation Coefficient	0.064	-0.013	-0.027	0.012	0.027	0.050	0.070	0.097	0.005	0.030	0.077	0.025
	Sig. (2-tailed)	0.157	0.771	0.545	0.799	0.552	0.265	0.121	0.032	0.915	0.515	0.089	0.582
	N	391	391	391	391	391	391	391	391	391	391	391	391
Send a message	Correlation Coefficient	0.089	0.054	0.070	0.060	0.126	0.067	0.071	0.090	-0.034	-0.034	-0.034	0.010
	Sig. (2-tailed)	0.041	0.218	0.106	0.169	0.004	0.122	0.103	0.038	0.438	0.439	0.436	0.811
	N	391	391	391	391	391	391	391	391	391	391	391	391
Use Facebook Chat	Correlation Coefficient	0.099	0.024	0.035	0.037	0.118	0.039	0.052	0.074	-0.073	-0.053	-0.085	-0.033
	Sig. (2-tailed)	0.020	0.564	0.405	0.388	0.005	0.360	0.217	0.081	0.084	0.213	0.044	0.439
	N	391	391	391	391	391	391	391	391	391	391	391	391
Organise an event for friends or family	Correlation Coefficient	0.075	0.044	0.082	0.060	0.106	-0.004	0.021	0.017	-0.042	-0.034	0.031	0.027
	Sig. (2-tailed)	0.087	0.315	0.059	0.170	0.014	0.924	0.632	0.690	0.331	0.434	0.478	0.530
	N	391	391	391	391	391	391	391	391	391	391	391	391
Organise a group event	Correlation Coefficient	0.046	0.030	0.063	0.058	0.088	-0.035	-0.020	0.013	-0.046	-0.057	0.003	-0.012
	Sig. (2-tailed)	0.294	0.491	0.147	0.184	0.043	0.427	0.640	0.771	0.290	0.193	0.947	0.791
	N	391	391	391	391	391	391	391	391	391	391	391	391
RSVP to an event	Correlation Coefficient	0.066	0.059	0.104	0.060	0.074	0.012	0.004	0.028	-0.020	0.003	0.008	0.023
	Sig. (2-tailed)	0.127	0.173	0.016	0.165	0.086	0.774	0.935	0.511	0.638	0.954	0.851	0.601
	N	391	391	391	391	391	391	391	391	391	391	391	391
Play games with your friends	Correlation Coefficient	0.111	0.020	0.039	0.008	0.093	0.080	0.095	0.102	-0.029	-0.018	0.010	0.030
	Sig. (2-tailed)	0.015	0.664	0.392	0.855	0.042	0.078	0.037	0.025	0.524	0.695	0.829	0.506

<i>Activities on Fb</i>	<i>Kendall's Tau-b</i>	<i>PC1</i>	<i>PC2</i>	<i>PC3</i>	<i>PC4</i>	<i>PC5</i>	<i>PC6</i>	<i>PC7</i>	<i>PC8</i>	<i>PC9</i>	<i>P10</i>	<i>PC11</i>	<i>PC12</i>
	N	391	391	391	391	391	391	391	391	391	391	391	391
Play games by yourself	Correlation Coefficient	0.135	0.071	0.108	0.037	0.129	0.125	0.140	0.167	0.064	0.049	0.054	0.101
	Sig. (2-tailed)	0.003	0.110	0.015	0.411	0.004	0.005	0.002	0.000	0.153	0.278	0.226	0.024
	N	391	391	391	391	391	391	391	391	391	391	391	391
Use other apps	Correlation Coefficient	0.106	0.071	0.122	0.056	0.128	0.084	0.092	0.117	0.034	0.011	0.078	0.121
	Sig. (2-tailed)	0.018	0.117	0.007	0.212	0.004	0.061	0.040	0.009	0.450	0.814	0.083	0.007
	N	391	391	391	391	391	391	391	391	391	391	391	391
PC1. Bullying or harassment PC2. Other people posting sensitive information about me PC3. Other people posting sensitive photos or videos of me PC4. The wrong person seeing my posts, photos or videos PC5. Stalking PC6. Identity theft					PC7. Fraud PC8. Someone impersonating me PC9. Facebook knowing too much about me PC10. Businesses linked to Facebook finding out too much about me PC11. Spam/unsolicited email from businesses linked to Facebook PC12. Viruses, spyware or other malware from businesses linked to Facebook								

Table B15 – Part 1. Activities on Facebook and reasons for using Facebook – Kendall’s Tau-b

Activities on Fb	Kendall’s Tau-b	Part 1											
		R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12
Post a ‘status update’ or ‘life event’ with just words on your timeline	Correlation Coefficient	0.280	0.177	0.148	0.111	0.124	0.055	0.175	0.279	0.219	0.210	0.219	0.356
	Sig. (2-tailed)	0.000	0.000	0.001	0.015	0.009	0.229	0.000	0.000	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Post a photo on your timeline	Correlation Coefficient	0.281	0.271	0.190	0.149	0.128	0.130	0.178	0.256	0.206	0.250	0.277	0.350
	Sig. (2-tailed)	0.000	0.000	0.000	0.001	0.008	0.005	0.000	0.000	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Create a photo album	Correlation Coefficient	0.258	0.214	0.188	0.131	0.015	0.101	0.177	0.199	0.084	0.115	0.119	0.150
	Sig. (2-tailed)	0.000	0.000	0.000	0.005	0.760	0.029	0.000	0.000	0.069	0.015	0.011	0.001
	N	391	391	391	391	391	391	391	391	391	391	391	391
Post a video on your timeline	Correlation Coefficient	0.206	0.207	0.105	0.126	0.163	0.155	0.116	0.239	0.126	0.085	0.117	0.206
	Sig. (2-tailed)	0.000	0.000	0.022	0.008	0.001	0.001	0.011	0.000	0.007	0.074	0.013	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Post on a friend’s timeline	Correlation Coefficient	0.316	0.239	0.179	0.155	0.104	0.126	0.205	0.173	0.176	0.135	0.131	0.215
	Sig. (2-tailed)	0.000	0.000	0.000	0.001	0.029	0.006	0.000	0.000	0.000	0.004	0.004	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Comment on or reply to a friend’s post	Correlation Coefficient	0.349	0.283	0.246	0.112	0.045	0.011	0.241	0.258	0.162	0.141	0.121	0.229
	Sig. (2-tailed)	0.000	0.000	0.000	0.014	0.339	0.811	0.000	0.000	0.000	0.002	0.008	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Post on a group’s page	Correlation Coefficient	0.254	0.140	0.102	0.185	0.102	0.128	0.216	0.307	0.184	0.110	0.113	0.129
	Sig. (2-tailed)	0.000	0.001	0.019	0.000	0.029	0.004	0.000	0.000	0.000	0.016	0.012	0.004
	N	391	391	391	391	391	391	391	391	391	391	391	391
Read group posts	Correlation Coefficient	0.279	0.149	0.134	0.127	0.042	0.155	0.204	0.256	0.178	0.080	0.073	0.144
	Sig. (2-tailed)	0.000	0.001	0.002	0.005	0.362	0.001	0.000	0.000	0.000	0.078	0.103	0.001
	N	391	391	391	391	391	391	391	391	391	391	391	391
Tag people in something you post	Correlation Coefficient	0.336	0.252	0.228	0.118	0.116	0.154	0.203	0.235	0.222	0.280	0.264	0.340
	Sig. (2-tailed)	0.000	0.000	0.000	0.009	0.013	0.001	0.000	0.000	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Add a location to something you post	Correlation Coefficient	0.232	0.226	0.197	0.146	0.076	0.111	0.127	0.222	0.161	0.201	0.213	0.225
	Sig. (2-tailed)	0.000	0.000	0.000	0.001	0.110	0.015	0.004	0.000	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Tag people in a photo or video you didn’t post	Correlation Coefficient	0.196	0.160	0.150	0.198	0.208	0.232	0.162	0.214	0.165	0.222	0.219	0.227
	Sig. (2-tailed)	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
‘Like’ a friend’s photo, video or post	Correlation Coefficient	0.342	0.242	0.215	0.116	0.053	0.143	0.243	0.200	0.199	0.199	0.199	0.247
	Sig. (2-tailed)	0.000	0.000	0.000	0.011	0.264	0.002	0.000	0.000	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Share a friend’s photo or video	Correlation Coefficient	0.140	0.179	0.137	0.112	0.051	0.107	0.122	0.184	0.088	0.101	0.131	0.187
	Sig. (2-tailed)	0.002	0.000	0.002	0.014	0.279	0.017	0.005	0.000	0.050	0.028	0.004	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Search for someone you want to find out more about	Correlation Coefficient	0.249	0.169	0.268	0.247	0.097	0.357	0.193	0.154	0.132	0.248	0.223	0.175
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.037	0.000	0.000	0.001	0.003	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Write a note	Correlation Coefficient	-0.064	0.031	0.096	0.155	0.081	0.009	-0.026	0.073	-0.014	0.067	0.057	0.085
	Sig. (2-tailed)	0.178	0.499	0.036	0.001	0.099	0.848	0.571	0.119	0.758	0.164	0.233	0.068
	N	391	391	391	391	391	391	391	391	391	391	391	391
Send a message	Correlation Coefficient	0.464	0.269	0.289	0.195	0.096	0.221	0.282	0.277	0.218	0.194	0.182	0.237
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.041	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Use Facebook Chat	Correlation Coefficient	0.376	0.210	0.277	0.218	0.148	0.226	0.210	0.312	0.227	0.216	0.214	0.247
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Organise an event for friends or family	Correlation Coefficient	0.253	0.109	0.160	0.145	0.152	0.188	0.171	0.261	0.157	0.211	0.182	0.180
	Sig. (2-tailed)	0.000	0.013	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Organise a group event	Correlation Coefficient	0.254	0.058	0.164	0.150	0.247	0.197	0.141	0.288	0.154	0.208	0.196	0.194
	Sig. (2-tailed)	0.000	0.186	0.000	0.001	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
RSVP to an event	Correlation Coefficient	0.288	0.082	0.146	0.102	0.115	0.220	0.233	0.219	0.200	0.233	0.221	0.242
	Sig. (2-tailed)	0.000	0.062	0.001	0.024	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Play games with your friends	Correlation Coefficient	0.076	0.088	0.128	0.129	0.020	0.001	0.096	0.095	0.092	0.002	0.002	0.083
	Sig. (2-tailed)	0.109	0.058	0.006	0.007	0.691	0.976	0.036	0.044	0.051	0.972	0.969	0.074
	N	391	391	391	391	391	391	391	391	391	391	391	391
Play games by	Correlation Coefficient	0.048	0.095	0.042	0.130	-0.037	-0.038	0.084	0.182	0.134	-0.020	-0.003	0.129
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391

		Part 1											
Activities on Fb	Kendall's Tau-b	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12
yourself	Sig. (2-tailed)	0.301	0.035	0.351	0.005	0.443	0.410	0.062	0.000	0.004	0.668	0.941	0.005
	N	391	391	391	391	391	391	391	391	391	391	391	391
Use other apps	Correlation Coefficient	0.131	0.128	0.087	0.190	0.027	0.042	0.141	0.193	0.157	0.046	0.066	0.141
	Sig. (2-tailed)	0.005	0.005	0.056	0.000	0.576	0.369	0.002	0.000	0.001	0.329	0.157	0.002
	N	391	391	391	391	391	391	391	391	391	391	391	391
R1. To keep in touch with friends					R7. To be there for others								
R2. To keep in touch with family					(i.e., to be supportive, offer help or show an interest)								
R3. To keep in touch with people from my past					R8. To ask for advice or help								
R4. To make new friends					R9. To feel less lonely								
R5. To meet new romantic or sexual partners					R10. To enhance my image								
R6. To find out more about potential or new friends or partners					R11. To project my best self								
					R12. To express who I am								

Table B15 – Part 2. Activities on Facebook and reasons for using Facebook – Kendall’s Tau-b

Activities on Fb	Kendall's Tau-b	Part 2											
		R13	R14	R15	R16	R17	R18	R19	R20	R21	R22	R23	R24
Post a 'status update' or 'life event' with just words on your timeline	Correlation Coefficient	0.287	0.457	0.486	0.200	0.200	0.164	0.097	0.070	0.176	0.323	0.191	0.161
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.030	0.123	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Post a photo on your timeline	Correlation Coefficient	0.274	0.460	0.376	0.166	0.193	0.184	0.138	0.129	0.245	0.281	0.223	0.203
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.005	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Create a photo album	Correlation Coefficient	0.169	0.289	0.233	0.066	0.092	0.118	0.129	0.090	0.167	0.238	0.146	0.100
	Sig. (2-tailed)	0.000	0.000	0.000	0.157	0.049	0.012	0.005	0.051	0.000	0.000	0.001	0.026
	N	391	391	391	391	391	391	391	391	391	391	391	391
Post a video on your timeline	Correlation Coefficient	0.207	0.298	0.294	0.148	0.169	0.138	0.074	0.112	0.191	0.211	0.101	0.107
	Sig. (2-tailed)	0.000	0.000	0.000	0.002	0.000	0.003	0.107	0.016	0.000	0.000	0.025	0.018
	N	391	391	391	391	391	391	391	391	391	391	391	391
Post on a friend's timeline	Correlation Coefficient	0.144	0.297	0.303	0.232	0.227	0.205	0.137	0.135	0.239	0.351	0.299	0.279
	Sig. (2-tailed)	0.002	0.000	0.000	0.000	0.000	0.000	0.002	0.003	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Comment on or reply to a friend's post	Correlation Coefficient	0.133	0.388	0.293	0.185	0.180	0.218	0.111	0.083	0.169	0.315	0.262	0.227
	Sig. (2-tailed)	0.003	0.000	0.000	0.000	0.000	0.000	0.012	0.066	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Post on a group's page	Correlation Coefficient	0.140	0.200	0.194	0.170	0.220	0.297	0.129	0.096	0.247	0.253	0.174	0.164
	Sig. (2-tailed)	0.002	0.000	0.000	0.000	0.000	0.000	0.003	0.030	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Read group posts	Correlation Coefficient	0.103	0.181	0.178	0.193	0.191	0.283	0.173	0.107	0.197	0.198	0.189	0.222
	Sig. (2-tailed)	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.016	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Tag people in something you post	Correlation Coefficient	0.259	0.414	0.338	0.154	0.172	0.193	0.175	0.226	0.271	0.311	0.295	0.266
	Sig. (2-tailed)	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Add a location to something you post	Correlation Coefficient	0.181	0.311	0.238	0.123	0.138	0.177	0.178	0.167	0.285	0.279	0.146	0.149
	Sig. (2-tailed)	0.000	0.000	0.000	0.007	0.002	0.000	0.000	0.000	0.000	0.000	0.001	0.001
	N	391	391	391	391	391	391	391	391	391	391	391	391
Tag people in a photo or video you didn't post	Correlation Coefficient	0.261	0.203	0.193	0.225	0.221	0.233	0.137	0.120	0.169	0.278	0.184	0.240
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.009	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
'Like' a friend's photo, video or post	Correlation Coefficient	0.197	0.429	0.280	0.209	0.210	0.188	0.219	0.168	0.200	0.365	0.393	0.367
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Share a friend's photo or video	Correlation Coefficient	0.146	0.282	0.237	0.147	0.205	0.194	0.121	0.080	0.230	0.248	0.152	0.130
	Sig. (2-tailed)	0.001	0.000	0.000	0.001	0.000	0.000	0.006	0.077	0.000	0.000	0.000	0.003
	N	391	391	391	391	391	391	391	391	391	391	391	391
Search for someone you want to find out more about	Correlation Coefficient	0.166	0.152	0.190	0.217	0.206	0.154	0.406	0.342	0.269	0.272	0.239	0.250
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Write a note	Correlation Coefficient	0.112	0.070	0.184	0.120	0.125	0.136	-0.013	-0.079	0.086	0.019	-0.092	-0.200
	Sig. (2-tailed)	0.018	0.126	0.000	0.012	0.008	0.004	0.787	0.094	0.069	0.674	0.042	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Send a message	Correlation Coefficient	0.227	0.293	0.265	0.227	0.255	0.240	0.230	0.211	0.253	0.374	0.327	0.321
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Use Facebook Chat	Correlation Coefficient	0.265	0.232	0.255	0.227	0.240	0.232	0.237	0.214	0.257	0.347	0.263	0.293
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Organise an event for friends or family	Correlation Coefficient	0.226	0.262	0.198	0.148	0.185	0.222	0.188	0.156	0.265	0.249	0.242	0.216
	Sig. (2-tailed)	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Organise a group event	Correlation Coefficient	0.232	0.234	0.189	0.173	0.175	0.227	0.140	0.148	0.243	0.230	0.232	0.208
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
RSVP to an event	Correlation Coefficient	0.204	0.200	0.210	0.158	0.173	0.206	0.187	0.210	0.241	0.286	0.319	0.313
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391
Play games with your friends	Correlation Coefficient	0.118	0.102	0.157	0.121	0.153	0.140	0.029	0.119	0.137	0.183	0.101	0.102
	Sig. (2-tailed)	0.013	0.027	0.001	0.011	0.001	0.003	0.528	0.012	0.004	0.000	0.027	0.025
	N	391	391	391	391	391	391	391	391	391	391	391	391
Play games by	Correlation Coefficient	0.131	0.129	0.176	0.198	0.188	0.136	0.041	0.088	0.127	0.216	0.127	0.120

		Part 2											
Activities on Fb	Kendall's Tau-b	R13	R14	R15	R16	R17	R18	R19	R20	R21	R22	R23	R24
yourself	Sig. (2-tailed)	0.005	0.004	0.000	0.000	0.000	0.003	0.370	0.057	0.007	0.000	0.004	0.007
	N	391	391	391	391	391	391	391	391	391	391	391	391
Use other apps	Correlation Coefficient	0.160	0.150	0.185	0.175	0.210	0.109	0.106	0.100	0.171	0.184	0.107	0.110
	Sig. (2-tailed)	0.001	0.001	0.000	0.000	0.000	0.020	0.021	0.032	0.000	0.000	0.017	0.015
	N	391	391	391	391	391	391	391	391	391	391	391	391
R13. To express myself in ways that I can't offline					R19. To find out about people I am curious about								
R14. To share my news					R20. To keep an eye on someone								
R15. To share my thoughts and feelings					R21. To expand my network								
R16. To find like-minded people					R22. To have fun								
R17. To find people who share similar interests					R23. To put off doing my work								
R18. To work with others who have similar goals					R24. Because I'm bored								

Table B16. Privacy concerns, Facebook friends, groups, networks, 'Find Friends', and posts – Kendall's Tau-b

Privacy concerns	Kendall's Tau-b	# of Facebook friends	# of groups	# of networks	Used 'Find Friends' function (Y/N)	How often used 'Audience selector' <sup>a</sup>	How often deleted post <sup>b</sup>	How often decided not to post <sup>c</sup>
Bullying or harassment	Correlation Coefficient	-0.126	-0.121	-0.092	0.143	0.144	0.194	0.183
	Sig. (2-tailed)	0.002	0.004	0.033	0.002	0.001	0.000	0.000
	N	391	391	391	391	391	391	391
Other people posting sensitive information about me	Correlation Coefficient	0.010	0.024	-0.026	0.064	0.124	0.162	0.187
	Sig. (2-tailed)	0.806	0.571	0.545	0.164	0.005	0.000	0.000
	N	391	391	391	391	391	391	391
Other people posting sensitive photos or videos of me	Correlation Coefficient	-0.073	-0.026	-0.056	0.044	0.136	0.207	0.240
	Sig. (2-tailed)	0.072	0.542	0.189	0.344	0.002	0.000	0.000
	N	391	391	391	391	391	391	391
The wrong person seeing my posts, photos or videos	Correlation Coefficient	-0.072	-0.070	-0.056	0.059	0.147	0.286	0.275
	Sig. (2-tailed)	0.073	0.094	0.194	0.204	0.001	0.000	0.000
	N	391	391	391	391	391	391	391
Stalking	Correlation Coefficient	-0.167	-0.092	-0.155	0.135	0.161	0.282	0.208
	Sig. (2-tailed)	0.000	0.029	0.000	0.004	0.000	0.000	0.000
	N	391	391	391	391	391	391	391
Identity theft	Correlation Coefficient	-0.052	-0.056	-0.092	0.119	0.140	0.188	0.162
	Sig. (2-tailed)	0.195	0.177	0.031	0.010	0.001	0.000	0.000
	N	391	391	391	391	391	391	391
Fraud	Correlation Coefficient	-0.071	-0.047	-0.110	0.119	0.163	0.207	0.175
	Sig. (2-tailed)	0.078	0.264	0.011	0.010	0.000	0.000	0.000
	N	391	391	391	391	391	391	391
Someone impersonating me	Correlation Coefficient	-0.097	-0.074	-0.108	0.136	0.166	0.207	0.189
	Sig. (2-tailed)	0.017	0.075	0.012	0.003	0.000	0.000	0.000
	N	391	391	391	391	391	391	391
Facebook knowing too much about me	Correlation Coefficient	0.006	0.044	-0.022	0.041	-0.015	0.189	0.187
	Sig. (2-tailed)	0.873	0.292	0.618	0.382	0.739	0.000	0.000
	N	391	391	391	391	391	391	391
Businesses linked to Facebook finding out too much about me	Correlation Coefficient	0.053	0.068	-0.023	0.035	0.028	0.151	0.183
	Sig. (2-tailed)	0.193	0.104	0.600	0.450	0.533	0.001	0.000
	N	391	391	391	391	391	391	391
Spam/unsolicited email from businesses linked to Facebook	Correlation Coefficient	-0.015	-0.017	-0.063	0.103	0.017	0.140	0.139
	Sig. (2-tailed)	0.718	0.683	0.145	0.026	0.693	0.002	0.001
	N	391	391	391	391	391	391	391
Viruses, spyware or other malware from businesses linked to Facebook	Correlation Coefficient	-0.025	-0.045	-0.058	0.069	0.031	0.116	0.172
	Sig. (2-tailed)	0.533	0.283	0.179	0.137	0.481	0.009	0.000
	N	391	391	391	391	391	391	391

Note. Respondents were asked:  
a. How often do you change the audience for something you post using the 'audience selector' for that post?  
b. How often, if ever, have you deleted a post for privacy reasons?  
c. How often, if ever, have you decided not to post something because the wrong person might see it?

*Table B17. Reasons for using Facebook, Facebook friends, groups, networks, 'Find Friends', and posts – Kendall's Tau-b*

<i>Reasons for using Facebook</i>	<i>Kendall's Tau-b</i>	<i># of Facebook friends</i>	<i># of groups</i>	<i># of networks</i>	<i>Used 'Find Friends' function (Y/N)</i>	<i>How often used 'Audience selector' <sup>a</sup>.</i>	<i>How often deleted post <sup>b</sup>.</i>	<i>How often decided not to post <sup>c</sup>.</i>
To keep in touch with friends	Correlation Coefficient	-0.201	-0.141	-0.099	0.060	0.188	0.057	0.050
	Sig. (2-tailed)	0.000	0.001	0.028	0.214	0.000	0.217	0.267
	N	391	391	391	391	391	391	391
To keep in touch with family	Correlation Coefficient	-0.149	-0.127	-0.075	0.046	0.100	0.066	0.112
	Sig. (2-tailed)	0.000	0.003	0.085	0.331	0.026	0.140	0.010
	N	391	391	391	391	391	391	391
To keep in touch with people from my past	Correlation Coefficient	-0.205	-0.156	-0.158	0.108	-0.012	0.081	0.001
	Sig. (2-tailed)	0.000	0.000	0.000	0.021	0.797	0.068	0.973
	N	391	391	391	391	391	391	391
To make new friends	Correlation Coefficient	-0.197	-0.146	-0.149	0.048	0.092	0.117	0.024
	Sig. (2-tailed)	0.000	0.001	0.001	0.318	0.047	0.011	0.599
	N	391	391	391	391	391	391	391
To meet new romantic or sexual partners	Correlation Coefficient	-0.203	-0.139	-0.122	-0.013	0.059	0.079	0.007
	Sig. (2-tailed)	0.000	0.002	0.009	0.795	0.217	0.101	0.876
	N	391	391	391	391	391	391	391
To find out more about potential or new friends or partners	Correlation Coefficient	-0.262	-0.144	-0.114	0.081	0.117	0.141	0.175
	Sig. (2-tailed)	0.000	0.001	0.011	0.091	0.011	0.002	0.000
	N	391	391	391	391	391	391	391
To be there for others (i.e., to be supportive, offer help or show an interest)	Correlation Coefficient	-0.147	-0.183	-0.165	0.127	0.125	0.082	0.109
	Sig. (2-tailed)	0.000	0.000	0.000	0.007	0.005	0.065	0.012
	N	391	391	391	391	391	391	391
To ask for advice or help	Correlation Coefficient	-0.157	-0.271	-0.203	0.065	0.112	0.093	0.051
	Sig. (2-tailed)	0.000	0.000	0.000	0.174	0.014	0.042	0.255
	N	391	391	391	391	391	391	391
To feel less lonely	Correlation Coefficient	-0.090	-0.228	-0.121	0.115	0.078	0.096	0.080
	Sig. (2-tailed)	0.031	0.000	0.007	0.016	0.088	0.036	0.071
	N	391	391	391	391	391	391	391
To enhance my image	Correlation Coefficient	-0.204	-0.083	-0.191	0.072	0.053	0.057	0.048
	Sig. (2-tailed)	0.000	0.060	0.000	0.144	0.261	0.224	0.291
	N	391	391	391	391	391	391	391
To project my best self	Correlation Coefficient	-0.181	-0.097	-0.175	0.089	0.064	0.066	0.085
	Sig. (2-tailed)	0.000	0.027	0.000	0.067	0.168	0.151	0.059
	N	391	391	391	391	391	391	391
To express who I am	Correlation Coefficient	-0.172	-0.153	-0.169	0.101	0.121	0.095	0.053
	Sig. (2-tailed)	0.000	0.000	0.000	0.033	0.008	0.037	0.234
	N	391	391	391	391	391	391	391
To express myself in ways that I can't offline	Correlation Coefficient	-0.183	-0.150	-0.196	0.118	0.152	0.102	0.077
	Sig. (2-tailed)	0.000	0.001	0.000	0.015	0.001	0.027	0.085
	N	391	391	391	391	391	391	391
To share my news	Correlation Coefficient	-0.126	-0.168	-0.074	0.051	0.106	0.061	0.063
	Sig. (2-tailed)	0.002	0.000	0.087	0.279	0.018	0.174	0.146
	N	391	391	391	391	391	391	391
To share my thoughts and feelings	Correlation Coefficient	-0.095	-0.159	-0.050	0.050	0.158	0.054	0.024
	Sig. (2-tailed)	0.021	0.000	0.252	0.293	0.000	0.233	0.591
	N	391	391	391	391	391	391	391
To find like-minded people	Correlation Coefficient	-0.164	-0.196	-0.143	0.043	0.135	0.089	0.081
	Sig. (2-tailed)	0.000	0.000	0.002	0.375	0.003	0.053	0.072
	N	391	391	391	391	391	391	391
To find people who share similar interests	Correlation Coefficient	-0.155	-0.202	-0.145	0.088	0.165	0.085	0.033
	Sig. (2-tailed)	0.000	0.000	0.001	0.068	0.000	0.065	0.456
	N	391	391	391	391	391	391	391
To work with others who have similar goals	Correlation Coefficient	-0.169	-0.232	-0.194	0.065	0.132	0.133	0.046
	Sig. (2-tailed)	0.000	0.000	0.000	0.179	0.004	0.004	0.305
	N	391	391	391	391	391	391	391
To find out about people I am curious about	Correlation Coefficient	-0.197	-0.163	-0.183	0.094	0.131	0.137	0.085
	Sig. (2-tailed)	0.000	0.000	0.000	0.046	0.004	0.002	0.053
	N	391	391	391	391	391	391	391
To keep an eye on someone	Correlation Coefficient	-0.207	-0.126	-0.151	0.063	0.084	0.143	0.125
	Sig. (2-tailed)	0.000	0.004	0.001	0.190	0.067	0.002	0.005
	N	391	391	391	391	391	391	391

<i>Reasons for using Facebook</i>	<i>Kendall's Tau-b</i>	<i># of Facebook friends</i>	<i># of groups</i>	<i># of networks</i>	<i>Used 'Find Friends' function (Y/N)</i>	<i>How often used 'Audience selector' <sup>a</sup>.</i>	<i>How often deleted post <sup>b</sup>.</i>	<i>How often decided not to post <sup>c</sup>.</i>
To expand my network	Correlation Coefficient	-0.210	-0.204	-0.285	0.132	0.168	0.126	0.090
	Sig. (2-tailed)	0.000	0.000	0.000	0.006	0.000	0.006	0.045
	N	391	391	391	391	391	391	391
To have fun	Correlation Coefficient	-0.229	-0.220	-0.077	0.102	0.130	0.056	0.084
	Sig. (2-tailed)	0.000	0.000	0.076	0.029	0.003	0.209	0.051
	N	391	391	391	391	391	391	391
To put off doing my work	Correlation Coefficient	-0.220	-0.171	-0.055	-0.001	0.152	0.062	0.077
	Sig. (2-tailed)	0.000	0.000	0.200	0.983	0.001	0.162	0.071
	N	391	391	391	391	391	391	391
Because I'm bored	Correlation Coefficient	-0.245	-0.151	-0.048	-0.006	0.108	0.091	0.045
	Sig. (2-tailed)	0.000	0.000	0.263	0.898	0.015	0.039	0.293
	N	391	391	391	391	391	391	391

*Note.* Respondents were asked:

- a. How often do you change the audience for something you post using the 'audience selector' for that post?
- b. How often, if ever, have you deleted a post for privacy reasons?
- c. How often, if ever, have you decided not to post something because the wrong person might see it?

Table B18. Privacy concerns and profile information provided (key pieces) – Kendall’s Tau-b

Privacy concerns	Kendall's Tau-b	Do you provide the following information on your Facebook profile?													
		Your high school	Your post-secondary education	Your job(s)	Your hometown	Your current city	Your relationship status	A list of family members/relatives	Something 'About You'	Your favourite quote(s)	Your religious views	Your political views	Your phone number(s)	Your address	Whether you are 'interested in' women or men
PC1	Correlation Coefficient	0.062	0.010	0.042	0.006	0.093	0.058	0.087	0.073	0.094	0.068	0.087	0.099	0.061	0.063
	Sig. (2-tailed)	0.185	0.833	0.367	0.902	0.046	0.211	0.060	0.115	0.043	0.144	0.062	0.032	0.189	0.174
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
PC2	Correlation Coefficient	-0.041	-0.034	-0.041	-0.071	-0.024	-0.028	0.033	0.037	0.003	0.003	0.038	0.013	0.032	-0.017
	Sig. (2-tailed)	0.375	0.469	0.377	0.128	0.607	0.540	0.479	0.429	0.949	0.954	0.410	0.786	0.486	0.714
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
PC3	Correlation Coefficient	-0.032	-0.059	-0.064	-0.049	-0.040	-0.009	0.041	0.007	-0.024	-0.041	-0.004	0.019	0.000	-0.017
	Sig. (2-tailed)	0.483	0.200	0.167	0.290	0.391	0.851	0.378	0.884	0.611	0.375	0.932	0.684	0.993	0.709
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
PC4	Correlation Coefficient	-0.035	-0.029	-0.030	0.003	0.013	0.009	0.088	0.010	0.043	0.015	0.049	0.076	0.015	-0.033
	Sig. (2-tailed)	0.453	0.538	0.522	0.942	0.780	0.851	0.057	0.824	0.350	0.745	0.289	0.101	0.744	0.483
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
PC5	Correlation Coefficient	-0.015	0.020	0.002	0.029	0.025	0.017	0.106	0.013	0.068	0.106	0.104	0.048	0.040	0.021
	Sig. (2-tailed)	0.749	0.665	0.973	0.532	0.583	0.708	0.022	0.774	0.144	0.022	0.025	0.305	0.382	0.653
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
PC6	Correlation Coefficient	-0.073	-0.013	-0.074	-0.071	-0.011	-0.006	-0.005	-0.032	0.022	0.000	0.057	0.124	0.031	-0.064
	Sig. (2-tailed)	0.114	0.774	0.109	0.124	0.805	0.900	0.907	0.484	0.632	0.999	0.222	0.007	0.504	0.163
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
PC7	Correlation Coefficient	-0.045	-0.007	-0.083	-0.061	0.000	-0.036	-0.013	-0.042	0.016	-0.011	0.038	0.093	0.017	-0.065
	Sig. (2-tailed)	0.327	0.882	0.071	0.185	0.993	0.431	0.782	0.364	0.722	0.814	0.414	0.045	0.705	0.159
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
PC8	Correlation Coefficient	-0.028	0.000	-0.068	-0.063	-0.001	0.021	0.002	-0.029	0.037	0.056	0.086	0.092	0.044	-0.019
	Sig. (2-tailed)	0.544	1.000	0.139	0.171	0.979	0.655	0.958	0.536	0.426	0.227	0.065	0.047	0.339	0.675
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
PC9	Correlation Coefficient	-0.108	-0.072	-0.142	-0.128	-0.109	-0.085	-0.081	-0.037	0.000	-0.007	0.010	0.014	0.035	-0.086
	Sig. (2-tailed)	0.020	0.123	0.002	0.006	0.019	0.067	0.080	0.429	0.994	0.881	0.828	0.755	0.446	0.063
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
PC10	Correlation Coefficient	-0.127	-0.057	-0.159	-0.101	-0.113	-0.114	-0.060	-0.031	-0.009	-0.027	0.011	0.011	0.032	-0.094
	Sig. (2-tailed)	0.006	0.219	0.001	0.030	0.015	0.014	0.199	0.504	0.846	0.564	0.817	0.813	0.485	0.043
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
PC11	Correlation Coefficient	-0.034	0.007	-0.053	-0.082	-0.056	-0.061	-0.038	-0.031	-0.044	0.001	0.049	0.013	-0.022	-0.076
	Sig. (2-tailed)	0.463	0.887	0.256	0.076	0.228	0.191	0.413	0.508	0.344	0.988	0.292	0.781	0.631	0.100
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
PC12	Correlation Coefficient	-0.020	0.000	-0.057	-0.068	-0.049	-0.013	-0.005	0.022	0.015	0.019	0.042	0.059	-0.041	-0.057
	Sig. (2-tailed)	0.665	0.999	0.218	0.142	0.289	0.787	0.910	0.637	0.739	0.684	0.367	0.206	0.375	0.222
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
PC1. Bullying or harassment PC2. Other people posting sensitive information about me PC3. Other people posting sensitive photos or videos of me PC4. The wrong person seeing my posts, photos or videos PC5. Stalking PC6. Identity theft							PC7. Fraud PC8. Someone impersonating me PC9. Facebook knowing too much about me PC10. Businesses linked to Facebook finding out too much about me PC11. Spam/unsolicited email from businesses linked to Facebook PC12. Viruses, spyware or other malware from businesses linked to Facebook								

Table B19. Privacy concerns and profile information provided (likes) – Kendall’s Tau-b

Privacy concerns	Kendall's Tau-b	Have you added the following information to your profile?					
		Movies watched, wanting to watch, or liked	TV shows watched, wanting to watch, or liked	Books read, wanting to read, or liked	Music liked, or wanting to listen to	Likes	Sports teams or athletes liked
Bullying or harassment	Correlation Coefficient	0.108	0.103	0.111	0.116	0.116	0.077
	Sig. (2-tailed)	0.021	0.027	0.017	0.012	0.012	0.098
	N	391	391	391	391	391	391
Other people posting sensitive information about me	Correlation Coefficient	0.021	0.020	0.027	0.000	0.017	-0.062
	Sig. (2-tailed)	0.652	0.661	0.554	0.996	0.707	0.181
	N	391	391	391	391	391	391
Other people posting sensitive photos or videos of me	Correlation Coefficient	0.047	0.029	0.039	0.015	0.031	-0.027
	Sig. (2-tailed)	0.313	0.530	0.401	0.750	0.505	0.564
	N	391	391	391	391	391	391
The wrong person seeing my posts, photos or videos	Correlation Coefficient	0.045	0.046	0.061	0.057	0.040	-0.023
	Sig. (2-tailed)	0.328	0.316	0.185	0.220	0.383	0.626
	N	391	391	391	391	391	391
Stalking	Correlation Coefficient	0.095	0.111	0.119	0.115	0.049	0.034
	Sig. (2-tailed)	0.041	0.017	0.010	0.013	0.290	0.457
	N	391	391	391	391	391	391
Identity theft	Correlation Coefficient	0.048	0.063	0.044	0.080	0.024	-0.013
	Sig. (2-tailed)	0.297	0.175	0.342	0.085	0.609	0.773
	N	391	391	391	391	391	391
Fraud	Correlation Coefficient	0.055	0.060	0.058	0.086	0.032	0.009
	Sig. (2-tailed)	0.232	0.197	0.214	0.064	0.493	0.843
	N	391	391	391	391	391	391
Someone impersonating me	Correlation Coefficient	0.057	0.074	0.049	0.094	0.044	0.030
	Sig. (2-tailed)	0.222	0.109	0.292	0.042	0.341	0.512
	N	391	391	391	391	391	391
Facebook knowing too much about me	Correlation Coefficient	-0.019	-0.023	0.002	-0.009	-0.006	-0.084
	Sig. (2-tailed)	0.675	0.622	0.965	0.850	0.892	0.072
	N	391	391	391	391	391	391
Businesses linked to Facebook finding out too much about me	Correlation Coefficient	-0.028	-0.044	-0.001	-0.016	-0.075	-0.048
	Sig. (2-tailed)	0.552	0.343	0.976	0.726	0.109	0.297
	N	391	391	391	391	391	391
Spam/unsolicited email from businesses linked to Facebook	Correlation Coefficient	-0.027	-0.018	-0.028	-0.014	-0.014	-0.041
	Sig. (2-tailed)	0.563	0.693	0.540	0.764	0.759	0.377
	N	391	391	391	391	391	391
Viruses, spyware or other malware from businesses linked to Facebook	Correlation Coefficient	0.041	0.033	0.047	0.048	-0.014	0.011
	Sig. (2-tailed)	0.379	0.481	0.315	0.303	0.760	0.815
	N	391	391	391	391	391	391

Table B20. Reasons for using Facebook and profile information provided (key pieces) – Kendall's Tau-b

Reasons for using Facebook	Kendall's Tau-b	Do you provide the following information on your Facebook profile?													
		Your high school	Your post-secondary education	Your job(s)	Your hometown	Your current city	Your relationship status	A list of family members/relatives	Something 'About You'	Your favourite quote(s)	Your religious views	Your political views	Your phone number(s)	Your address	Whether you are 'interested in' women or men
R1	Correlation Coefficient	0.172	0.178	0.096	0.134	0.189	0.158	0.206	0.084	0.083	0.068	0.082	0.063	0.003	0.153
	Sig. (2-tailed)	0.000	0.000	0.048	0.006	0.000	0.001	0.000	0.085	0.088	0.161	0.090	0.192	0.945	0.002
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R2	Correlation Coefficient	0.087	0.134	0.075	0.070	0.094	0.084	0.245	0.100	0.070	0.093	0.091	0.003	0.010	0.023
	Sig. (2-tailed)	0.065	0.004	0.113	0.137	0.046	0.074	0.000	0.033	0.137	0.047	0.053	0.941	0.838	0.626
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R3	Correlation Coefficient	0.186	0.197	0.079	0.139	0.139	0.141	0.106	0.097	0.073	0.072	0.089	0.121	0.052	0.145
	Sig. (2-tailed)	0.000	0.000	0.094	0.003	0.003	0.003	0.024	0.038	0.121	0.124	0.059	0.010	0.269	0.002
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R4	Correlation Coefficient	0.101	0.076	0.052	0.099	0.166	0.077	0.123	0.142	0.139	0.073	0.084	0.193	0.163	0.141
	Sig. (2-tailed)	0.037	0.118	0.281	0.042	0.001	0.113	0.011	0.003	0.004	0.130	0.083	0.000	0.001	0.004
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R5	Correlation Coefficient	-0.007	0.006	0.046	0.037	0.012	0.072	-0.011	0.092	0.102	0.074	0.155	0.014	0.046	0.173
	Sig. (2-tailed)	0.886	0.909	0.363	0.464	0.810	0.154	0.822	0.068	0.043	0.143	0.002	0.781	0.359	0.001
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R6	Correlation Coefficient	0.078	0.059	0.101	0.057	0.088	0.012	0.090	0.108	0.116	0.100	0.085	0.083	0.035	0.094
	Sig. (2-tailed)	0.106	0.217	0.035	0.233	0.067	0.796	0.061	0.025	0.016	0.038	0.077	0.083	0.464	0.050
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R7	Correlation Coefficient	0.095	0.112	0.044	0.059	0.083	0.071	0.193	0.101	0.106	0.057	0.088	0.093	0.074	0.100
	Sig. (2-tailed)	0.043	0.016	0.350	0.207	0.074	0.127	0.000	0.031	0.024	0.220	0.061	0.046	0.114	0.033
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R8	Correlation Coefficient	0.059	0.135	0.024	0.106	0.157	0.143	0.177	0.191	0.190	0.152	0.195	0.194	0.104	0.173
	Sig. (2-tailed)	0.217	0.005	0.612	0.027	0.001	0.003	0.000	0.000	0.000	0.002	0.000	0.000	0.029	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R9	Correlation Coefficient	0.117	0.100	0.064	0.147	0.131	0.065	0.131	0.168	0.099	0.053	0.040	0.124	0.055	0.185
	Sig. (2-tailed)	0.015	0.038	0.184	0.002	0.006	0.173	0.006	0.000	0.040	0.273	0.406	0.010	0.248	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R10	Correlation Coefficient	0.103	0.133	0.117	0.137	0.085	0.092	0.048	0.073	0.090	0.125	0.113	0.144	0.021	0.136
	Sig. (2-tailed)	0.036	0.007	0.017	0.005	0.084	0.061	0.326	0.138	0.067	0.011	0.021	0.003	0.663	0.006
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R11	Correlation Coefficient	0.083	0.104	0.132	0.112	0.089	0.106	0.092	0.065	0.049	0.110	0.096	0.142	0.033	0.089
	Sig. (2-tailed)	0.087	0.032	0.006	0.021	0.067	0.029	0.058	0.180	0.308	0.023	0.046	0.003	0.497	0.066
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R12	Correlation Coefficient	0.085	0.178	0.122	0.127	0.089	0.142	0.154	0.193	0.154	0.188	0.212	0.121	0.053	0.151
	Sig. (2-tailed)	0.074	0.000	0.010	0.008	0.062	0.003	0.001	0.000	0.001	0.000	0.000	0.011	0.270	0.002
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R13	Correlation Coefficient	0.054	0.085	0.099	0.138	0.103	0.102	0.169	0.195	0.163	0.187	0.186	0.154	0.114	0.129
	Sig. (2-tailed)	0.268	0.080	0.040	0.004	0.033	0.036	0.000	0.000	0.001	0.000	0.000	0.001	0.018	0.008
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R14	Correlation Coefficient	0.139	0.192	0.127	0.177	0.157	0.230	0.124	0.165	0.076	0.133	0.187	0.131	0.058	0.200
	Sig. (2-tailed)	0.003	0.000	0.007	0.000	0.001	0.000	0.008	0.000	0.105	0.004	0.000	0.005	0.218	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R15	Correlation Coefficient	0.088	0.185	0.149	0.139	0.135	0.194	0.138	0.216	0.136	0.154	0.190	0.135	0.096	0.216
	Sig. (2-tailed)	0.062	0.000	0.002	0.003	0.004	0.000	0.003	0.000	0.004	0.001	0.000	0.004	0.043	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R16	Correlation Coefficient	0.063	0.132	0.078	0.119	0.134	0.154	0.116	0.186	0.196	0.152	0.163	0.188	0.156	0.209
	Sig. (2-tailed)	0.195	0.007	0.109	0.014	0.006	0.002	0.017	0.000	0.000	0.002	0.001	0.000	0.001	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R17	Correlation Coefficient	0.061	0.101	0.059	0.095	0.162	0.121	0.115	0.200	0.191	0.159	0.169	0.159	0.132	0.222
	Sig. (2-tailed)	0.205	0.037	0.220	0.047	0.001	0.012	0.017	0.000	0.000	0.001	0.000	0.001	0.006	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R18	Correlation Coefficient	0.054	0.124	0.083	-0.008	0.073	0.083	0.104	0.133	0.144	0.118	0.105	0.141	0.159	0.152
	Sig. (2-tailed)	0.266	0.010	0.084	0.868	0.132	0.086	0.031	0.006	0.003	0.014	0.030	0.003	0.001	0.002
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R19	Correlation Coefficient	0.185	0.156	0.073	0.082	0.160	0.031	0.181	0.168	0.089	0.052	0.057	0.079	0.059	0.110

Reasons for using Facebook	Kendall's Tau-b	Do you provide the following information on your Facebook profile?													
		Your high school	Your post-secondary education	Your job(s)	Your hometown	Your current city	Your relationship status	A list of family members/relatives	Something 'About You'	Your favourite quote(s)	Your religious views	Your political views	Your phone number(s)	Your address	Whether you are 'interested in' women or men
R1	Correlation Coefficient	0.172	0.178	0.096	0.134	0.189	0.158	0.206	0.084	0.083	0.068	0.082	0.063	0.003	0.153
	Sig. (2-tailed)	0.000	0.001	0.121	0.082	0.001	0.508	0.000	0.000	0.061	0.274	0.225	0.095	0.210	0.020
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R20	Correlation Coefficient	0.148	0.094	0.077	0.127	0.150	0.064	0.179	0.157	0.109	0.103	0.136	0.081	0.042	0.180
	Sig. (2-tailed)	0.002	0.049	0.107	0.008	0.002	0.180	0.000	0.001	0.023	0.031	0.005	0.093	0.385	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R21	Correlation Coefficient	0.133	0.120	0.111	0.133	0.177	0.078	0.116	0.162	0.106	0.138	0.107	0.160	0.111	0.155
	Sig. (2-tailed)	0.006	0.013	0.022	0.006	0.000	0.106	0.017	0.001	0.029	0.004	0.027	0.001	0.022	0.001
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R22	Correlation Coefficient	0.169	0.222	0.127	0.145	0.153	0.143	0.213	0.197	0.154	0.133	0.153	0.128	0.098	0.170
	Sig. (2-tailed)	0.000	0.000	0.006	0.002	0.001	0.002	0.000	0.000	0.001	0.004	0.001	0.006	0.035	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R23	Correlation Coefficient	0.138	0.108	0.103	0.091	0.067	0.078	0.149	0.087	0.026	0.076	0.081	0.038	-0.029	0.117
	Sig. (2-tailed)	0.003	0.020	0.027	0.050	0.146	0.092	0.001	0.060	0.582	0.101	0.080	0.412	0.539	0.011
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R24	Correlation Coefficient	0.163	0.141	0.142	0.125	0.089	0.066	0.118	0.110	0.064	0.080	0.080	0.066	-0.032	0.173
	Sig. (2-tailed)	0.000	0.002	0.002	0.007	0.055	0.154	0.011	0.018	0.166	0.086	0.086	0.156	0.485	0.000
	N	391	391	391	391	391	391	391	391	391	391	391	391	391	391
R1. To keep in touch with friends R2. To keep in touch with family R3. To keep in touch with people from my past R4. To make new friends R5. To meet new romantic or sexual partners R6. To find out more about potential or new friends or partners R7. To be there for others (i.e., to be supportive, offer help or show an interest) R8. To ask for advice or help R9. To feel less lonely R10. To enhance my image R11. To project my best self R12. To express who I am							R13. To express myself in ways that I can't offline R14. To share my news R15. To share my thoughts and feelings R16. To find like-minded people R17. To find people who share similar interests R18. To work with others who have similar goals R19. To find out about people I am curious about R20. To keep an eye on someone R21. To expand my network R22. To have fun R23. To put off doing my work R24. Because I'm bored								

Table B21. Reasons for using Facebook and profile information provided (likes) – Kendall's Tau-b

Reasons for using Facebook	Kendall's Tau-b	Have you added the following information to your profile?					
		Movies watched, wanting to watch, or liked	TV shows watched, wanting to watch, or liked	Books read, wanting to read, or liked	Music liked, or wanting to listen to	Likes	Sports teams or athletes liked
To keep in touch with friends	Correlation Coefficient	0.123	0.086	0.178	0.082	0.104	0.096
	Sig. (2-tailed)	0.011	0.075	0.000	0.089	0.032	0.048
	N	391	391	391	391	391	391
To keep in touch with family	Correlation Coefficient	0.067	0.054	0.073	0.041	0.029	0.067
	Sig. (2-tailed)	0.156	0.252	0.118	0.383	0.541	0.154
	N	391	391	391	391	391	391
To keep in touch with people from my past	Correlation Coefficient	0.094	0.094	0.133	0.079	0.127	0.145
	Sig. (2-tailed)	0.046	0.045	0.005	0.093	0.007	0.002
	N	391	391	391	391	391	391
To make new friends	Correlation Coefficient	0.187	0.194	0.083	0.150	0.207	0.159
	Sig. (2-tailed)	0.000	0.000	0.088	0.002	0.000	0.001
	N	391	391	391	391	391	391
To meet new romantic or sexual partners	Correlation Coefficient	0.105	0.076	0.111	0.069	0.082	0.142
	Sig. (2-tailed)	0.037	0.133	0.028	0.173	0.103	0.005
	N	391	391	391	391	391	391
To find out more about potential or new friends or partners	Correlation Coefficient	0.170	0.187	0.154	0.179	0.127	0.211
	Sig. (2-tailed)	0.000	0.000	0.001	0.000	0.008	0.000
	N	391	391	391	391	391	391
To be there for others (i.e., to be supportive, offer help or show an interest)	Correlation Coefficient	0.138	0.130	0.197	0.142	0.201	0.103
	Sig. (2-tailed)	0.003	0.005	0.000	0.002	0.000	0.027
	N	391	391	391	391	391	391
To ask for advice or help	Correlation Coefficient	0.150	0.188	0.188	0.185	0.210	0.189
	Sig. (2-tailed)	0.002	0.000	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391
To feel less lonely	Correlation Coefficient	0.132	0.156	0.124	0.101	0.186	0.099
	Sig. (2-tailed)	0.006	0.001	0.010	0.035	0.000	0.039
	N	391	391	391	391	391	391
To enhance my image	Correlation Coefficient	0.111	0.124	0.168	0.132	0.090	0.136
	Sig. (2-tailed)	0.023	0.011	0.001	0.007	0.067	0.005
	N	391	391	391	391	391	391
To project my best self	Correlation Coefficient	0.125	0.133	0.184	0.140	0.126	0.110
	Sig. (2-tailed)	0.010	0.006	0.000	0.004	0.009	0.023
	N	391	391	391	391	391	391
To express who I am	Correlation Coefficient	0.209	0.244	0.278	0.221	0.184	0.221
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391
To express myself in ways that I can't offline	Correlation Coefficient	0.210	0.224	0.254	0.185	0.165	0.186
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.001	0.000
	N	391	391	391	391	391	391
To share my news	Correlation Coefficient	0.093	0.118	0.136	0.048	0.078	0.073
	Sig. (2-tailed)	0.048	0.012	0.004	0.310	0.094	0.121
	N	391	391	391	391	391	391
To share my thoughts and feelings	Correlation Coefficient	0.179	0.219	0.225	0.159	0.149	0.145
	Sig. (2-tailed)	0.000	0.000	0.000	0.001	0.002	0.002
	N	391	391	391	391	391	391
To find like-minded people	Correlation Coefficient	0.257	0.278	0.243	0.223	0.230	0.164
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.001
	N	391	391	391	391	391	391
To find people who share similar interests	Correlation Coefficient	0.244	0.255	0.218	0.196	0.245	0.134
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.005
	N	391	391	391	391	391	391
To work with others who have similar goals	Correlation Coefficient	0.160	0.179	0.190	0.146	0.215	0.104
	Sig. (2-tailed)	0.001	0.000	0.000	0.002	0.000	0.031
	N	391	391	391	391	391	391
To find out about people I am curious about	Correlation Coefficient	0.206	0.215	0.203	0.178	0.220	0.114

Reasons for using Facebook	Kendall's Tau-b	Have you added the following information to your profile?					
		Movies watched, wanting to watch, or liked	TV shows watched, wanting to watch, or liked	Books read, wanting to read, or liked	Music liked, or wanting to listen to	Likes	Sports teams or athletes liked
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.016
	N	391	391	391	391	391	391
To keep an eye on someone	Correlation Coefficient	0.159	0.137	0.135	0.100	0.179	0.110
	Sig. (2-tailed)	0.001	0.004	0.005	0.036	0.000	0.022
	N	391	391	391	391	391	391
To expand my network	Correlation Coefficient	0.171	0.203	0.114	0.162	0.185	0.110
	Sig. (2-tailed)	0.000	0.000	0.018	0.001	0.000	0.023
	N	391	391	391	391	391	391
To have fun	Correlation Coefficient	0.224	0.238	0.226	0.182	0.168	0.217
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000
	N	391	391	391	391	391	391
To put off doing my work	Correlation Coefficient	0.111	0.109	0.111	0.054	0.108	0.026
	Sig. (2-tailed)	0.017	0.019	0.017	0.246	0.019	0.573
	N	391	391	391	391	391	391
Because I'm bored	Correlation Coefficient	0.158	0.126	0.138	0.112	0.112	0.107
	Sig. (2-tailed)	0.001	0.007	0.003	0.016	0.016	0.021
	N	391	391	391	391	391	391