

Social Networks and Academic Performance among First-Year University Students

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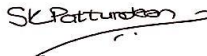
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Abstract

Numerous first-year university students struggle with the adjustment from matric to university. This is partly due to social and academic changes. This study aimed to assess the nature and amount of social support received by 216 first-year Psychology students at the University of Cape Town, and its association with academic performance. Participants were required to complete an online survey, which asked questions about the individuals with whom they had interacted over the previous three weeks, and the amount of social support received. Predictor variables included social network type (i.e., family-focused, friend-focused, or lone-wolf), support functions provided, amount of social support received, frequency of interaction, level of intimacy, similarity of attitudes, extent of support received during interactions and amount of conflict experienced. Characteristics of participants such as age, gender, residence, and matric mark were recorded. Academic performance was measured using participants' first semester Psychology marks. Bivariate analyses showed that similarity of attitudes, location of interaction, gender, residence and matric mark were significantly associated with higher Psychology marks. Linear regression analyses indicated that a model including matric mark, gender and residence explained the most variance in Psychology marks. Higher Psychology marks were associated with higher matric marks ($p < .001$), being female ($p < .01$) and residing off-campus ($p = .05$). A mediation analysis showed that the amount of social support received did not mediate the relationship between selected characteristics of social networks and Psychology marks (academic performance). These findings can inform interventions designed to support first-year students' academic adjustment and performance.

Keywords: social support, academic performance, university students, matric mark, gender, residence

Emerging adulthood is classified as the period from late adolescence to the mid-twenties, specifically focusing on individuals from the ages of 18 to 25 (Arnett, 2000). One of the most profound new experiences during this time for many individuals is the start of university. The transition from high school to university is accompanied by a number of changes, both personal and academic (Eggens, Van der Werf, & Bosker, 2007). These include adjusting to a new social environment and new academic requirements (including time constraints and demands), and forming new relationships and networks (Eggens et al., 2007). Many students struggle with these new demands, as evidenced by the fact that university drop-out rates are increasing worldwide (Scott, Yeld, & Hendry, 2007).

When starting university, well-established relationships from high school and one's hometown often change or fade (Lee & Goldstein, 2016). These relationships may have been a source of social support throughout the individual's life. University signals the formation of new relationships with friends, classmates and even roommates (Eggens et al., 2007). The degree to which an individual successfully integrates into their new and unfamiliar environment, and the extent of social support that they receive from those in their social network, are possible predictors of their academic failure or success (Bond, Chykina, & Jones, 2017; Eggens et al., 2007).

The Transition to University

For those young individuals who enter university, transitions into early adulthood and university occur simultaneously (Tinajero, Martínez-López, Rodríguez, Guisande, & Páramo, 2015). Adaptations required for a first-year university student include: navigating a new environment, being apart from family and friends, taking on new responsibilities, and academic adjustments. A student's academic performance plays a major role in their success at university (Li, Han, Wang, Sun, & Cheng, 2018). A number of studies have established that the best predictor of academic achievement is general intelligence (Gut, Reimann, & Grob, 2013). Naidoo, Motala, and Joubert (2013) found that graduates with low matric marks took a longer period of time to complete their degrees, compared to students who had obtained higher matric marks. Additionally, those who had higher matric marks graduated with a higher grade point average (GPA) (Naidoo et al., 2013). However, there are a large number of factors that contribute to one's academic performance, as it is not just about learning and being examined. According to Petersen, Louw, and Dumont (2009), higher levels of overall adjustment to university have been found to lead to better academic performance.

Until recently, the models that were used to explain academic performance in university students addressed context-related factors, such as the characteristics of the curriculum and types of assessments; and student-associated factors that include motivation, gender and learning style (Eggens et al., 2007; Levitt, 2012). These models were largely based on Spady's interaction model (1971), and most recently researched and further elaborated on by Tinto (1975). These models do not mention an individual's social environment. This provides a limitation, given the fact that one's environment and the people in it play a significant role in how a person functions in society (Levitt, 2012). Very low levels of family and friend support have been linked with behavioural and adjustment problems, delinquency and a number of psychological issues (Demaray & Malecki, 2002); and this complex interaction of factors can ultimately have a negative effect on academic performance.

Social Networks and Social Support

Social networks can be defined as intricate systems through which humans relate to one another in a basic environment (Levitt, 2012; Stadtfeld, Vörös, Elmer, Boda, & Raabe, 2018). These networks are essential for human development. There are certain characteristics of social networks that need to be considered when studying them, including: size of the network, degree of connectivity, age, gender and the specific roles of each individual (Levitt, 2012). Demaray and Malecki (2002) emphasise that a number of positive attributes are associated with students that have larger social networks. The most prominent of these attributes is better mental health. It is, however, important to distinguish between “social networks” and “social support”, as the latter refers to resources that are accessible to an individual, which fulfil certain social functions (e.g., emotional support, providing advice, fun or relaxation etc.) and provide protection in adverse situations (Levitt, 2012). Ultimately, providing social support is a “function” of social networks. However, Levitt (2012) notes that it is necessary to acknowledge that while networks comprise individuals, these individuals may or may not provide support.

According to Lee and Goldstein (2016), family, friends and romantic partners are typically primary sources of social support for an individual. Lee and Goldstein (2016) also found that there is a relationship between social support, stress and loneliness. A lack of social support is associated with more stress and loneliness – and this can predispose individuals to physical and psychological health issues. Although the nature of the sources of social support evolve from childhood to adulthood, social support is essential for the well-being of an individual at any age (Lee & Goldstein, 2016). Support from friends is more

effective than support received from family during emerging adulthood, although support from family also plays a critical role and should not be discounted. Lee, Goldstein, Dik, and Rodas (2019) note that during emerging adulthood, perceived levels of social support are higher amongst women than men, and that women find more benefit from parental and friend support than their male counterparts. However, many additional studies on gender differences, stress and social support have yielded inconsistent results (Lee et al., 2019).

The stress-buffering model (Cohen & Wills, 1985; Uchino, 2004) states that social support assists people in maintaining their strength and emotional well-being, when stressed or faced with stressful life events, such as the transition to university (Lee & Goldstein, 2016). In support of this model, a substantial amount of research has found that social support can decrease the amount of stress that is caused by periods of transition (Lee & Goldstein, 2016).

The Role of Social Networks and Social Support in the Transition to University

In addition to forming new relationships at the start of university, existing ones evolve too. Changes in patterns of social support are likely to be significant for adjustment during this uneasy time (Levitt et al., 2005). More specifically, most people have various sources of social support, but the degree to which they draw from these alters over time (Lee et al., 2019; Levitt et al., 2005). Levitt et al. (2005) stated that when one is younger, one primarily receives social support from immediate family. However, as one gets older, this shifts to accommodate peers and extended family. Further studies have identified that there is an increased reliance on friends for social support during adolescence. Although most literature investigating social support has considered it to be a global construct, rather than a source from specific relationships (e.g., friends, family or romantic partners; Lee et al., 2019), three well-defined types of social networks have been established: family-focused, friend-focused and 'lone-wolf' (Takahashi & Majima, 1994; Takahashi & Sakamoto, 2000). In general, family-focused and friend-focused individuals have been found to be better adjusted than 'lone-wolf' types, for whom social relationships fulfil few functions (Takahashi & Majima, 1994; Takahashi & Sakamoto, 2000). However, the transition to university appears to be easiest for individuals with friend-focused networks and romantic partners, as students tend to benefit more from this type of support (Lee & Goldstein, 2016).

Hays and Oxley (1986) conducted a 12-week longitudinal study, on the development of social support networks among first-year university students. Their results showed that the properties of social networks, such as network members and network size, were significantly associated with successful adaptation of first-year students. Interestingly, they also found that

networks comprising primarily family members or neighbourhood and work friends, were negatively correlated with adaptation to university. However, larger networks may assist in adaptation, as there is an availability of greater support resources (Hays & Oxley, 1986).

The overall amount of social support received is also a good predictor of adjustment to university (Tinajero et al., 2015), and plays a significant role in providing students with the correct tools and stability (which assists them in facing tasks and challenges with confidence) (Sarason, Sarason, & Pierce, 1990). Numerous studies have found that students with more perceived social support show increased attendance at university (Rosenfeld & Richman, 1999) and better adjustment to university (Rueger, Malecki, & Demaray, 2008).

A study by Stadtfeld et al. (2018) may assist in explaining how peer support can also lead to better academic performance in university students. This study explored the development of friendships amongst a large sample of engineering students. Results showed that these friendships ultimately developed into academically beneficial relations, as these students would study together throughout the year. These relationships proved to be essential in academic success, as those who were isolated and did not integrate well into social groups, tended to be unsuccessful in their academics and were more likely to drop out. Face-to-face interactions are more effective than perceived support through distance-like platforms (Lee & Goldstein, 2016).

On the other hand, a study conducted by Bond et al. (2017) found that being associated with a peer group of high achievers does not necessarily lead to improvement in one's own academic performance. However, being associated with a peer group of low achievers does result in a decline in one's own academic performance. This is partly due to the general influence that peers have on one another (Grayson, 2004). The contradictory findings of Bond et al. (2017) and Stadtfeld et al. (2018) suggest that the influence of peer-related social networks may vary, depending on the value that the peer group places on academic achievement.

Limitations and directions for future research

A large number of the studies that have been conducted on social networks focus on adults, thus there is a lack of research pertaining to adolescents and young adults transitioning from high school to university. Numerous studies have been conducted on perceived social support and social networks among adolescents below the age of eighteen years, and a significant amount of research has solely focused on high school students. However, studies on the transition to university have typically failed to incorporate a student's social environment (Levitt et al., 2005). Another limitation of previous research is that it is difficult

to take the multidimensional nature of social relations into consideration (Stadtfeld et al., 2018). In addition to this, researchers have struggled to explain the development of relationships and how students become socially integrated; and are also not able to account for all confounding variables, and socioeconomic and demographic differences.

The National Plan for Higher Education highlighted the importance of taking the South African context into consideration when considering factors that are integral to retention of students and the production of graduates (Fraser & Killen, 2005). It further emphasises the urgency for universities to re-evaluate the factors that determine students' academic success and failure (Fraser & Killen, 2005). Studying university students' social networks therefore provides an opportunity to enhance our understanding of the factors that influence students' academic performance, and the amount and type of support required by South African students to ensure a successful university career.

Research Aim and Questions

The aim of this study was to determine the nature of the primary social networks of first-year university students, and their association with students' academic performance. This study assessed the structure, composition and function of social networks in the lives of first-year students.

The main research question was as follows: Is there a significant relationship between primary social networks and academic performance in first-year university students?

The following additional specific sub-questions were addressed:

A. The nature of students' social networks:

1. What is the composition (i.e., size, number of friends or family members) of students' social networks?
2. Is one particular type of social network (i.e., friend-focused, family-focused or lone-wolf) more dominant?

B. Association with students' academic performance:

1. Which participant demographic characteristics (age; gender; matric mark; place of residence) and social network characteristics (network size; network type; intimacy; similarity of attitudes; frequency of interaction; location of interaction; support function; extent of support; conflict) are significantly associated with academic performance?
2. Is the total amount of social support received (Inventory of Socially Supportive Behaviours [ISSB] score) significantly associated with academic performance?

3. Is one particular type of social network (i.e., friend-focused, family-focused or lone-wolf networks) more associated with academic success?
4. Does the total amount of social support received (ISSB score) mediate the relationship between social network characteristics and academic performance?

Method

Design and setting

This study employed a correlational research design. Survey data was collected from a sample of first-year university students at the University of Cape Town via an online platform. The link to the consent form (Appendix A) and a Google questionnaire (Appendix B) were attached to an email, which respondents were able to access from any location (i.e., on-campus or off-campus) through a device.

Participants

Sampling strategy. Participants comprised 216 first-year Psychology students, all of whom attended the University of Cape Town in 2019. In addition to this, 15 students were recruited for a pilot study that was designed to test and develop the research measures.

Convenience sampling was used to recruit the participants, through a research advertisement (Appendix C), that was administered electronically via the Student Research Participation Program (SRPP) at UCT. Participation was voluntary; however, as an incentive, participants were awarded with 1 SRPP point for their Psychology course. Participants were required to be between the ages of 18-25 years old, as this study focused specifically on social networks in emerging adulthood (Arnett, 2000). An additional eligibility criterion was that participants were required to have written the final PSY1004F exam in 2019. All students who met these eligibility criteria were invited to participate. Characteristics of the participants are described in the Results section.

Sample size calculation. A power analysis was computed using G*Power (Version 3.1.9.2.). The analysis suggested a priori for a multiple regression analysis, that the sample size required for the analysis was a minimum of $N = 170$. The parameters outlined were: a medium effect size (0.50), a power of 0.80, assuming $\alpha = .05$ and 11 predictors.

Measures

This study employed an online questionnaire which consisted of three parts. The first part of the questionnaire required basic demographic details about the respondent, as well as the place of residence of the respondent (i.e., UCT residence, off-campus residence, or with family). The second part of the questionnaire administered to respondents assessed social networks through 9 measures: (1) network size, (2) network type, (3) intimacy, (4) similarity

of attitudes, (5) frequency of interaction, (6) location of interaction, (7) support function, (8) extent of support, (9) conflict. The items for the questionnaire were derived from a previous study conducted by Hays and Oxley (1986). Finally, the third part of the questionnaire comprised the short form of the Inventory of Socially Supportive Behaviours (Hays & Oxley, 1986). The measures were piloted with a sample of 15 participants to ensure their clarity and suitability of the measures for the population under study.

Demographic characteristics. The age, gender, matric mark (overall aggregate), year of study, and place of residence of participants were recorded.

Assessment of Social Networks.

Network size. Respondents were initially asked to list up to ten individuals with whom they had interacted in the previous three weeks (on- and off-campus). The respondent's network size was determined by the number of individuals listed.

Network type. Following this, respondents were asked to list the characteristics of each network member i.e., age, gender, relation to the respondent and duration of the relationship with the respondent. Network composition was determined based on the number and calculated percentage of network members who were family members, friends, fellow students, etc. Based on this, the type of social network of each individual was established. Participants who had interacted with fewer than two individuals in the previous three weeks were classified as "lone-wolves." Social networks comprising at least three individuals were classified as "friend-focused" or "family-focused" depending on whether the majority of individuals in the network were friends or family members.

Intimacy. Respondents were asked to rate their intimacy with each network member on a 7-point scale, where 1 = acquaintance and 7 = best friend. Responses were totalled to produce a single *intimacy score* for each participant.

Similarity of attitudes. Respondents were asked to rate the similarity of attitudes shared with each network member on a 5-point scale, where 1 = not at all similar and 5 = very similar. Responses were totalled to produce a single *similarity of attitudes score* for each participant.

Frequency of interaction. The frequency of interaction with each network member in the previous three weeks was assessed on a 5-point scale, where 1 = not at all and 5 = about every day.

Location of Interaction. Respondents were required to specify the location(s) at which they interacted with each network member i.e., on-campus, off-campus, or neutral locations.

Support function. The function of each network member was assessed through four categories of support: task assistance, information/advice, emotional support and fun/relaxation. Respondents were required to indicate the type of support provided by each network member, as well as the extent to which this type of support was provided in a given interaction. This was achieved using a 5-point scale, where 1 = not at all and 5 = quite a bit.

Extent of support. Respondents were asked to indicate the extent of support received from each network member during an interaction on a 5-point scale, where 1 = not at all similar and 5 = quite a bit. Responses were totalled to produce a single *extent of support score* for each participant.

Conflict. Respondents were asked to indicate the level of conflict experienced with each network member in the past three weeks on a 5-point scale, where 1 = not at all and 5 = quite a bit. Responses were totalled to produce a single *conflict score* for each participant.

Hays and Oxley (1986) did not provide any information on the reliability and validity of this questionnaire. However, they found several significant correlations between social network characteristics and adaptation to university.

Inventory of Socially Supportive Behaviours.

The third part of the questionnaire consisted of the short form of the Inventory of Socially Supportive Behaviours. This questionnaire, developed by Barrera, Sandler, and Ramsay (1981), measured the occurrence of certain supportive instances and scenarios experienced by an individual. Essentially, it measured the total amount of social support that was received by an individual in the three weeks prior to participating in the study. These included instances such as, how often did someone “tell you that he/she feels close to you” or “expressed interest and concern in your well-being”? Respondents were required to indicate how often they experienced each scenario on a scale from A to E, where A = not at all and E = about every day. Responses were coded on a scale from 1 to 5 (representing A to E respectively), and totalled to produce a single *ISSB score* for each participant. The maximum score that participants could achieve was 85.

Reliability evidence for scores attained from this measure include high test-retest reliability ($r = .88$) and internal consistency (Cronbach’s alpha = .93 and .94, for the first and second testing respectively; Barrera et al., 1981). Evidence for the measure’s construct validity was provided by an adequate correlation ($r = .32$ to $.40$) with social network size (Barrera et al., 1981). Furthermore, the Inventory of Socially Supportive Behaviours produced similar results to the Arizona Social Support Interview Schedule (Barrera et al., 1981).

Procedure

A pilot study was initially conducted to ensure that the questionnaire was suitable to implement in the main study. Fifteen first-year Psychology students completed the entire questionnaire and provided feedback to the researchers. Minor changes were then made to the formatting and wording of the questionnaire for ease of understanding.

At the beginning of the second semester, Psychology students were made aware of the study and the eligibility criteria through an SRPP Vula announcement. Those who met the criteria were able to access the questionnaire via a link. They were able to complete it at any point during the data collection period. Online consent (Appendix A) was obtained from the respondents, as well as consent to access their first semester Psychology marks. Once the data collection was completed, respondents were sent an email (Appendix D) that contained debriefing information.

Ethical Considerations

Prior to conducting the study, ethical approval was obtained from the Research Ethics Committee of the University of Cape Town Department of Psychology (Reference number: PSY2019-044) (Appendix E). Once ethical approval was confirmed various steps were taken to ensure that the researchers followed the University of Cape Town's ethical guidelines for carrying out research involving human participants.

Consent and Voluntary Participation

Participants were made aware that participation was voluntary. They were informed of the procedures that would follow, and were invited to participate. If they chose to participate, an electronic informed consent was made available to them. Additional consent was required in order to access the first semester Psychology course marks of each respondent.

Risks and Benefits

Participation in the study involved minimal risk (no more risk than what participants would face in their daily lives). Participants benefited by being compensated with 1 SRPP point for their respective Psychology course.

Anonymity and Confidentiality

The participants' student numbers and course information was recorded separately, in order to allocate SRPP points. The raw data was stored securely on a password-protected device, that could only be accessed by the researchers. The names and student numbers of each participant were replaced with a code on the raw data sheet. This ensured that personally

identifiable information was not available or included in the study or in any publications related to the study.

Debriefing

Upon completion of the questionnaire, participants were emailed a comprehensive debriefing form. This form provided further details surrounding the nature of the study that was conducted. The contact details of the principal investigators, their research supervisor and the Research Ethics Committee were included. Respondents were also provided with the details for Student Wellness at UCT and for the South African Depression and Anxiety Group helpline. They were advised to contact these services if they required any assistance.

Statistical Analysis

Data were analysed using the statistical software programme SPSS. The data were examined for outliers that were ± 3 standard deviations from the mean and to ensure that the assumptions of the appropriate statistical tests were not violated. No outliers were found and all the assumptions were upheld.

Descriptive statistics were used to determine participant characteristics (i.e., age; gender; matric mark; place of residence [on-campus or off-campus]), dominant social network type (i.e., lone-wolf, friend-focused, family-focused, or both friend- and family-focused), the primary function of students' social networks (i.e., task assistance, information/advice, emotional support, or fun/relaxation), as well as to describe the outcome variables.

Pearson's correlations were used to determine whether participants' demographic characteristics (age; gender; matric mark; place of residence [on-campus or off-campus]), social network characteristics (network size; similarity of attitudes; frequency of interaction; extent of support; conflict) and the total amount of social support received (ISSB score) were significantly correlated with Psychology marks. Three one-way Analyses of Variance (ANOVAs) were then run to determine whether mean Psychology marks differed according to the following variables: (1) location of interaction, (2) type of social network (friend-focused, family-focused or lone-wolf) and (3) support function.

A regression analysis predicting Psychology marks was then run using the significant predictors determined in the above bivariate analyses: gender, matric mark, similarity of attitudes, place of residence [on-campus or off-campus], and location of interaction.

Finally, a mediation analysis was run to determine if the total amount of social support received (as measured by ISSB scores) mediated the relationship between social

networks (characterized by the significant variables: similarity of attitudes and location of interaction) and Psychology marks (academic performance).

Results

Descriptive statistics

Table 1 presents the descriptive statistics for the outcome variables in the study. On average, participants reported interacting with seven people over the past three weeks. The achieved Psychology marks of participants differed considerably ($M = 62.19$, $SD = 8.58$), as did their Matric marks ($M = 75.05$, $SD = 9.88$). The variables measuring characteristics of social networks such as intimacy, similarity of attitudes, frequency of interaction, extent of interaction, extent of support received and conflict experienced varied slightly amongst the sample. In addition, ISSB scores (representing the total amount of social support received by participants) varied substantially.

Table 1
Descriptive Statistics of Variables

Variable	<i>M</i>	<i>SD</i>
Age	19.05	.99
Matric mark	75.05	9.88
Psychology mark	62.19	8.58
Network size ^a	6.88	2.76
Intimacy ^b	5.53	.95
Similarity of attitudes	3.74	.71
Frequency of interaction ^c	3.71	.83
Extent of support ^d	3.99	.76
Conflict ^e	1.57	.59
ISSB scores	51.63	11.56

Note: ^aThe number of individuals that participants had seen in the previous three weeks. ^bThe level of intimacy with each network member. ^cThe frequency of interaction over the three-week period. ^dThe extent of support received during interactions. ^eAmount of conflict experienced with the network members.

Sample characteristics

Table 2 represents the demographic characteristics of the sample. The majority of the sample were female (82%), between the ages of 18 to 20 (94%) and resided off campus (70.4%). Almost half the participants achieved a matric mark of 75% and approximately one-fifth achieved a mark of 90%. The bulk of participants had friend-focused networks (64%), and reported fun/relaxation as the most common support function (66%) of their networks.

Table 2
Sample Characteristics (N = 216)

Characteristic	<i>n</i> (%)
Gender	
Male	37 (17)
Female	177 (82)
Prefer not to say	2 (1)
Age	
18 – 20	202 (94)
21 – 23	14 (6)
Place of residence	
On-campus	64 (29.6)
Off-campus	152 (70.4)
Matric mark^a	
55	8 (3.7)
65	61 (28.2)
75	95 (44)
90	52 (21.1)
Social network type	
Family-focused	35 (16.2)
Friend-focused	138 (63.9)
Lone-wolf	28 (13)
Both	15 (6.9)
Support function^b	
Task assistance	4 (2.2)
Information/Advice	15 (8.2)
Emotional support	44 (23.9)
Fun/Relaxation	121 (65.8)

Note: ^aThe midpoints of the mark categories were used in the data analysis. ^bParticipants who did not have a predominant support function were removed, resulting in a sample size of *n* = 184.

Bivariate statistical analyses

Correlations. Pearson's correlations were used to determine whether participants' demographic characteristics (age; gender; matric mark; place of residence), social network characteristics (network size; intimacy; similarity of attitudes; frequency of interaction; extent of support; conflict), and total amount of social support (ISSB score) were significantly correlated with Psychology marks. The correlation co-efficients are provided in Table 3. Results showed that higher matric marks were significantly associated with higher Psychology marks. In addition, females performed significantly better than males, participants who resided off-campus performed significantly better than those who resided on-campus, and a greater similarity of attitudes shared with social network members was associated with higher Psychology marks.

Table 3

Correlation Matrix of Variables and Psychology Marks

	Psychology marks	
	<i>r</i>	<i>p</i>
Age	-.21	.68
Gender	-.16*	.02
Matric mark	.51**	< 0.001
Place of residence	.22**	.001
Network size	.09	.19
Intimacy	-.03	.71
Similarity of attitudes	.16*	.02
Frequency of interaction	-.04	.60
Extent of support	.10	.14
Conflict	-.11	.11
ISSB	-.10	.13

*Note:** $p < .05$.** $p < .001$.

Analysis of Variance (ANOVA). Three one-way ANOVA tests were run to determine whether mean Psychology marks differed according to the following variables: (1) location of interaction (on-campus, off-campus or neutral locations), (2) type of social networks (friend-focused, family-focused, or lone-wolf), and (3) support function (task

assistance, information/advice, emotional, fun/relaxation. Results of these analyses are presented in Table 4. Results of the ANOVA for location of interaction showed that there was a significant difference in Psychology marks between the groups $F(2, 213) = 3.28, p = .04$. Post-hoc Bonferroni comparisons indicated a significant difference in marks ($p = .04$) between the on-campus ($M = 60.66, SD = 8.24$) and off-campus ($M = 62.71, SD = 8.94$) groups. However, no differences were found with between the neutral group ($M = 61.37, SD = 6.91$) and either of the other two groups.

Results of the ANOVA for type of social network showed no significant differences in Psychology marks between the groups, $F(3, 212) = 1.46, p = .23$. Similarly, the ANOVA conducted with the four main support functions (task assistance, emotional, fun/relaxation information/advice) showed no significant differences in Psychology marks between the groups ($F(3, 180) = .85, p = .47$).

Table 4

Results of One-way ANOVAs for Location of Interaction, Social Network Type and Support Function

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Location				3.28	.040
Neutral	37	61.37	6.91		
On-campus	177	60.66	8.24		
Off-campus	104	63.71	8.94		
Social network type				1.46	.227
Both	15	63.53	7.03		
Family	138	62.86	8.99		
Friend	35	61.21	6.91		
Lone wolf	28	62.19	8.58		
Function				0.85	.467
Task assistance	4	61.50	5.07		
Information/Advice	15	64.27	7.94		
Emotional support	44	60.45	7.42		
Fun/Relaxation	121	61.98	8.67		

Multivariate Analyses

Regression analysis. A multiple regression analysis was run using the significant predictors of Psychology marks determined in the above bivariate analyses: gender, matric mark, place of residence, similarity of attitudes, and location of interaction. The neutral group of location of interaction was removed for this analysis, as the Psychology marks of those who interacted in the neutral locations did not differ significantly from those whose interactions were located on- or off-campus. A linear regression analysis, using the backward elimination method, generated three models. Model 1 significantly predicted Psychology marks ($Adj R^2 = .249, p < .001$) when all predictors were included, and explained 24.9% of the variance in Psychology marks. Model 2, which excluded location of interaction, was also significant ($Adj R^2 = .253, p < .001$) and explained an additional 0.4% of the variance in Psychology marks. Finally, model 3, which also excluded attitudes, was also significant ($Adj R^2 = .256, p < .001$), and explained an additional 0.3% of the variance in Psychology marks. This model containing gender, place of residence and matric mark, was the best predictor of academic performance.

Table 5

Model Summary of Regression Analysis

Model	<i>R</i>	<i>SE</i>	<i>F</i>	<i>p</i>
1	.521	7.36	11.93	.000
2	.520	7.35	14.95	.000
3	.519	8.21	19.94	.000

Note: Model 1 predictors: location of interaction, gender, matric mark, similarity of attitudes, place of residence. Model 2 predictors: gender, matric mark, similarity of attitudes, place of residence. Model 3 predictors: gender, matric mark, place of residence.

The coefficients of model 3 indicated that matric mark explained the most variance in Psychology marks, followed by gender, and finally place of residence (see Table 6). These results suggested that within the sample, for every additional 1% in a students' matric mark, their Psychology mark was 0.4% higher. In terms of gender, the model predicted that males would achieve 3.7% lower than females in Psychology. With regards to place of residence, those who lived off-campus were expected to achieve 2.5% more than those who lived on-campus, although this association fell just below the level of statistical significance.

Table 6
Coefficients of Predictors in Model 3

Model 3	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>
Matric mark	.39	.059	.449	6.598	.000
Gender	-3.756	1.410	-.179	-2.664	.008
Place of residence	2.484	1.272	.133	1.952	.053

Mediation Analysis

An additional analysis was run to determine if the amount of social support received (as measured by ISSB scores) mediated the relationship between social networks (characterized by the significant variables: similarity of attitudes and location of interaction) and Psychology marks (academic performance). Figure 1 depicts the mediational model that was tested.

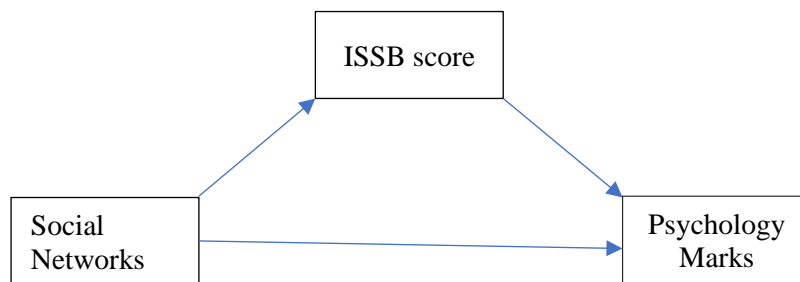


Figure 1. Diagram of mediation analysis

*Social Networks in this model denotes the characteristics: similarity of attitudes and location of interaction. Mediational models for each of these variables were run separately.

A linear regression analysis was conducted for similarity of attitudes as a predictor of Psychology marks. The results are presented in Table 7, and were significant ($R = .156$, $p = .02$). Similarly, an analysis was conducted for similarity of attitudes as a predictor of ISSB scores, and the results were also significant ($R = .162$, $p = .017$). Finally, both similarity of attitudes and ISSB scores were used as a predictor of Psychology marks. The results showed an increased β value of attitudes from $\beta = .16$ ($p = .02$) to $\beta = .18$ ($p = .01$), thus indicating that ISSB scores did not mediate the relationship between attitudes and academic performance. A non-significant Sobel test results of $p = .10$ confirmed that there was no mediation effect.

Table 7

Results of Analysis for ISSB Scores as a Mediator for Similarity of Attitudes and Psychology Marks

Model	<i>R</i>	<i>Adj R</i> ²	<i>SE</i>	<i>F</i>	<i>p</i>
1	.156	.020	8.50	5.31	.022
2	.162	.022	11.43	5.80	.017
3	.203	.032	8.44	4.58	.011

Note: Model 1: Similarity of attitudes (IV) → Psychology marks (DV). Model 2: Similarity of attitudes (IV) → ISSB (DV). Model 3: Similarity of attitudes, ISSB (IV) → Psychology marks (DV).

A second linear regression analysis was conducted for location of interaction as a predictor of Psychology marks. The results are presented in Table 8, and were significant ($R = .146, p = .03$). Similarly, an analysis was conducted for location of interaction as a predictor of ISSB scores, and the results were also significant ($R = .188, p = .006$). Finally, both location of interaction and ISSB scores were used as predictors of Psychology marks. The results showed an increased β value of location of interaction from $\beta = .146 (p = .03)$ to $\beta = .172 (p = .01)$, thus indicating that ISSB scores did not mediate the relationship between location of interaction and academic performance. A non-significant Sobel test result of $p = .09$, confirmed that there was no mediation effect.

Table 8

Results of Analysis for ISSB Scores as a Mediator for Location of Interaction and Psychology Marks

Model	<i>R</i>	<i>Adj R</i> ²	<i>SE</i>	<i>F</i>	<i>p</i>
1	.146	.017	8.51	4.67	.032
2	.188	.031	11.38	7.83	.006
3	.198	.030	8.45	4.33	.014

Note: Model 1: Location of interaction (IV) → Psychology marks (DV). Model 2: Location of interaction (IV) → ISSB (DV). Model 3: Location of interaction, ISSB (IV) → Psychology marks (DV).

Discussion

The main aim of the study was to determine the nature of primary social networks and their association with academic performance, in a sample of first-year university students. Initially, the nature of students' social networks was explored. The mean social network size was seven individuals. Social network type was determined based on the network size and composition (number of friends or family members) listed by respondents. The most dominant type of social network was friend-focused (63.9%). This supports previous research, which has shown that the social networks of emerging adults primarily consist of friends (Lee & Goldstein, 2016). In addition, most individuals received the fun/relaxation type of support (65.8%) from the members of their social networks. Hays and Oxley (1986) found that the fun/relaxation type of support was a possible indicator of engaging in high levels of fun, which suggests the positive adjustment of the student. Alternative direct types of support (i.e., task assistance, emotional, or information/advice) were not strongly correlated with adaptation to college (Hays & Oxley, 1986).

In addition, the association between participant demographic characteristics, network characteristics, and their academic performance was investigated. Pearson's correlations and multiple regression analyses showed that matric marks were the strongest predictor of Psychology marks, with higher matric marks being positively associated with higher Psychology marks. This finding is consistent with a previous study conducted by Naidoo et al. (2013), which found matric results to be a significant predictor of academic success at university. High marks indicate that students are able to cope with the various challenges of their new environments (e.g., stress, time management and anxiety associated with tests and examinations), as well as with academic demands (Eggens et al., 2007). Incoming students with lower matric marks should therefore be provided with additional academic support by the university, to ensure that they are able to reach their full academic potential.

The results of the present study also showed that females achieved higher marks than males. Previous research on gender differences in students' adjustment to university have produced mixed results. For example, Páramo, Tinajero, and Rodríguez (2015) observed that gender had no significant effect on first-year academic success. However, the results of the present study are consistent with the findings of Lawrence, Ashford, and Dent (2006), who also found that female students perform better academically than males. A possible explanation for this is higher motivation and academic self-discipline exhibited in female students (Jorgensen, Ferraro, Fichten, & Havel, 2009). Typically, females are more motivated

to achieve academic success. Males, in contrast, tend to devote more time to social aspects of their lives, thus devoting less time to their academics (Jorgensen et al., 2009).

It was also observed that students who resided off-campus performed slightly better academically than those who resided on-campus. This contrasts with the findings of Astin (1984), who found that students who resided on-campus yielded more positive academic outcomes and better adjustment, than students who resided off-campus. A possible explanation for this is that there are numerous events and social gatherings that occur at university residences. Due to this, students who live on-campus are more likely to spend more time socializing and subsequently devote less time to their academics (Grayson, 2004).

Bivariate analyses indicated that those who primarily interacted with others off campus and who shared similar attitudes with members of their social networks, also tended to achieve higher Psychology marks. However, these variables did not make a significant independent contribution to predicting Psychology marks in the regression analysis. Following this, the association between a particular type of social network (i.e., friend-focused, family-focused, or lone-wolf) and academic performance was investigated. However, the results indicated that no particular social network type was associated with higher Psychology marks. Furthermore, the amount of social support received did not mediate the relationship between selected social network characteristics, (1) similarity of attitudes and (2) location of interaction, and Psychology marks. Perhaps social network characteristics and functions are more important predictors of emotional well-being than academic performance (Uchino, 2004). Alternatively, it may be that social networks work in different ways for different individuals (e.g., providing study groups for some, but provide an encouragement for others to participate in social activities) (Stadtfeld et al., 2018). As a result, these differences may cancel each other out in statistical analyses.

Limitations and Future Recommendations

The present study has several limitations that need to be taken into account for future research. Firstly, the sample size was drawn exclusively from one undergraduate Psychology course at one particular South African university. As a result, the findings of this study cannot be generalised to the diverse population of first-year university students in South Africa. Future studies should aim to recruit a larger and more representative sample (which is not limited to one specific course or degree stream) from various universities in South Africa.

Secondly, due to time constraints, only a select group of possible predictor variables could be included in the survey and measured. Given that social support as an area of

research is multifaceted, a more comprehensive study could allow for the consideration of a number of additional predictor variables.

A third limitation is that this study would have been better suited to a longitudinal design. This would have allowed the researchers to observe academic performance and changes in social networks and other relevant characteristics over a period of time.

In addition, the majority of the data was collected via a self-report questionnaire. This type of questionnaire has various weaknesses. These include respondents choosing the option in the middle of the scale in an attempt to appear less extreme, answering in a socially desirable manner (e.g., exaggerating the size of their social networks), or responding in a certain manner (e.g., agreeing rather than disagreeing, regardless of the content of the question) (Demetriou, Ozer, & Essau, 2015). In addition, given that participants were provided with an incentive (1 SRPP point) for completing the questionnaire, some may have rushed their responses and not answered accurately. This may have affected the reliability and validity of the data.

An additional limitation of this study was that it did not take any socioeconomic factors into account. For instance, a student could have a large social network, but might not be adjusting to university well due to other constraints, such as financial problems or difficult living situations.

Lastly, this study was open to all students that had taken the PSY1004F exam in 2019. It was not limited to South African nationals only. However, international students are faced with an entirely different set of challenges, compared to South African students. For example, an international student that lives on-campus, does not just live away from home, they also live in another country. Future studies should therefore consider conducting a study that looks at the social networks, adjustment and subsequent academic performance of international students.

Conclusion

The first year of university is a very stressful time, as students are faced with numerous social adjustment problems that can affect their academic achievements. This study aimed to further the limited research that has previously been conducted on social networks and social support as predictors of academic success. Overall, this study found that the majority of social networks in emerging adulthood were friend-focused. However, social network characteristics and social support showed little relationship with students' academic performance. Students who resided off-campus performed slightly better than those who resided on-campus, and females tended to achieve higher marks than their male counterparts.

However, matric marks were the most significant predictor of academic success. Thus, universities should continue to use high school matric marks as a benchmark for acceptance into university. Matric marks, gender and place of residence could also be used by universities as possible benchmarks to identify students who may require additional academic support, and to inform interventions that seek to improve the adjustment of students in their first year of university.

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Appendix A

Consent form

We are honours students conducting a study through the Department of Psychology. This form will provide you with information about the study that we are conducting among university students. It will also request permission to access your final PSY1004F coursework mark from the Psychology department. Before you decide whether or not to take part, read the information below as it is important for you to understand why this research is being done and what it will involve. Your participation is entirely voluntary. If you choose not to participate in this study you will not be penalized or lose any benefits.

What is the purpose of this research? This purpose of this study is to better understand students' adjustment to university.

What procedures will occur if you decide to participate in this study? Upon providing your consent, you will be directed to the questionnaire which will consist of 2 sections. Section 1 will require demographic information. Section 2 will comprise questions regarding your social networks and members, social support and academic performance. After completing the questionnaire, you will be sent a debriefing email.

The possible risks and discomforts. There is minimal risk involved. There is no foreseeable harm that will come to you as a result of participating in this study.

Possible benefits of participating. You will be compensated with 1 SRPP point for your Psychology course. You will only receive the SRPP point if you complete the questionnaire.

What happens if you do not wish to participate in the study or withdraw? Participation is completely voluntary. You are welcome to withdraw from the study at any point, with no consequences. However, should you withdraw from the study before completing the questionnaire, you will not get the SRPP point. You may also request for your data to be removed from the dataset.

How will data be stored and kept confidential? Each respondent will be assigned a specific number, which will appear with the raw data. All data will be stored on a password encrypted laptop. Only the principal researchers will have access to this laptop. Please note that your

student number will only be used to assign your SRPP point: it will be separated from your data and stored separately.

I have read and understood the above and would like to participate. Yes/No

Accessing PY1004F exam marks. Do you give the researchers permission to access your PSY1004F marks only? Yes/ No

If you have any further questions about this study or questions regarding your participation, please feel free to email us.

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Should you have any concerns about your participation on the study or about your rights as a research participant, please contact:

Psychology department: Rosalind Adams
Rosalind.adams@uct.ac.za
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Appendix B

Online Questionnaire

Consent Form

We are honours students conducting a study through the Department of Psychology. This form will provide you with information about the study that we are conducting among university students. It will also request permission to access your final PSY1004F course mark from the Psychology department. Before you decide whether or not to take part, read the information below as it is important for you to understand why this research is being done and what it will involve. Your participation is entirely voluntary. If you choose not to participate in this study you will not be penalised or lose any benefits.

What is the purpose of this research?

This purpose of this study is to better understand students adjustment to university.

What procedures will occur if you decide to participate in this study?

Upon providing your consent, you will be directed to the questionnaire which will consist of 2 sections. Section 1 will require demographic information. Section 2 will comprise questions regarding your social networks and members, social support and academic performance. After completing the questionnaire, you will be sent a debriefing email.

The possible risks and discomforts. There is minimal risk involved. There is no foreseeable harm that will come to you as a result of participating in this study.

Possible benefits of participating. You will be compensated with 1 SRPP point for your Psychology course. You will only receive the SRPP point if you complete the questionnaire.

What happens if you do not wish to participate in the study or withdraw? Participation is completely voluntary. You are welcome to withdraw from the study at any point, with no consequences. However, should you withdraw from the study before completing the questionnaire, you will not get the SRPP point. You may also request for your data to be removed from the dataset.

How will data be stored and kept confidential? Each respondent will be assigned a specific number, which will appear on the raw data. All data will be stored on a password encrypted laptop. Only the principal researchers will have access to this laptop. Please note that your student number will only be used to assign your SRPP point, it will be separated from your data.

Accessing PY1004F course marks. Do you give the researchers permission to access your PSY1004F marks only? (Please indicate your answer below)

If you have any further questions about this study or questions regarding your participation, please feel free to email us.

Principal Researchers: Kereshnie Naganna; Srishti Kiran Pattundeen:

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Should you have any concerns about your participation on the study or about your rights as a research participant, please contact:

Rosalind Adams (Department of Psychology)

Rosalind.adams@uct.ac.za

+27 0216503417

1. **Email address ***

2. **I have read and understood the above and would like to participate ***

Mark only one oval.

Yes

No

3. **Do you give the researchers permission to access your PSY1004F marks only. ***

Mark only one oval.

Yes

No

Part 1: Demographics

4. **Full Name ***

5. **Student Number ***

6. **Email address ***

7. **Course Code for SRPP Points ***

8. **Age ***

9. **Gender ***

Mark only one oval.

Male

Female

Prefer not to say

10. I am in ___ year of university *

Mark only one oval.

- 1st
 2nd
 3rd
 4th
 5th

11. Where do you live? *

Mark only one oval.

- UCT residence
 At home, with family
 Off-campus accommodation

12. What was your matric or matric equivalent aggregate?

Mark only one oval.

- Below 50%
 50-60%
 60-70%
 70-80%
 80-100%

Part 2: Assessment of Social Networks

Please read the instructions carefully:

1. Think of all the people with whom you have had contact over the last 3 weeks (on or off-campus). Select those with whom you share a particularly enjoyable and worthwhile relationship with - you may list up to 10 individuals, but are not required to list all 10.

2. The following questions will ask characteristic information about each individual that you have listed. The numbers 1 to 10 horizontally pertain to each individual that you have listed. Please keep the same order of the individuals when answering each question.

13. List individuals who you have seen in the last 3 weeks: Individual 1 *

14. List individuals who you have seen in the last 3 weeks: Individual 2

15. List individuals who you have seen in the last 3 weeks: Individual 3

32. To what extent did your interaction involve the above type of support *

Mark only one oval per row.

	1	2	3	4	5	6	7	8	9	10
1 (not at all)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5 (quite a bit)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

33. Indicate the level of conflict that you experienced with each individual in the last 3 weeks *

Mark only one oval per row.

	1	2	3	4	5	6	7	8	9	10
1 (not at all)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5 (quite a bit)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part 3: Inventory of Socially Supportive Behaviours

We are interested in learning about some of the ways that you feel people have helped you or tried to make life more pleasant for you. Below you will find a list of activities that other people might have done for you, to you, or with you. Please read each item carefully and indicate how often these activities happened to you during the past 3 weeks.

Use the following scale to make your ratings:

- A. Not at all
- B. Once or twice
- C. About once a week
- D. Several times a week
- E. About every day

34. Gave you some information on how to do something. *

Mark only one oval.

- A
- B
- C
- D
- E

35. **Helped you understand why you didn't do something well. ***

Mark only one oval.

- A
- B
- C
- D
- E

36. **Suggested some action you should take. ***

Mark only one oval.

- A
- B
- C
- D
- E

37. **Gave you feedback on how you were doing without saying it was good or bad. ***

Mark only one oval.

- A
- B
- C
- D
- E

38. **Made it clear what was expected of you. ***

Mark only one oval.

- A
- B
- C
- D
- E

39. Told you what he/she did in a situation that was similar to yours. *

Mark only one oval.

- A
- B
- C
- D
- E

40. Told you that he/she feels close to you. *

Mark only one oval.

- A
- B
- C
- D
- E

41. Let you know that he/she will always be around if you need help. *

Mark only one oval.

- A
- B
- C
- D
- E

42. Told you that you are OK just the way you are *

Mark only one oval.

- A
- B
- C
- D
- E

43. **Expressed interest and concern in your well-being. ***

Mark only one oval.

- A
- B
- C
- D
- E

44. **Comforted you by showing you some physical affection. ***

Mark only one oval.

- A
- B
- C
- D
- E

45. **Told you that he/she would keep the things you talk about private. ***

Mark only one oval.

- A
- B
- C
- D
- E

46. **Agreed that what you wanted to do was the right thing. ***

Mark only one oval.

- A
- B
- C
- D
- E

47. Did some activity together to help you get your mind off things. *

Mark only one oval.

- A
 B
 C
 D
 E

48. Gave or loaned you over R200. *

Mark only one oval.

- A
 B
 C
 D
 E

49. Provided you with a place to stay. *

Mark only one oval.

- A
 B
 C
 D
 E

50. Loaned you or gave you something (a physical object) that you needed. *

Mark only one oval.

- A
 B
 C
 D
 E

Send me a copy of my responses.

<https://docs.google.com/forms/d/e/1FAIpQLSforBwY2P7ph6RxdvTr80VkpZhJbuZpfY9OiVYgMoMyqo9TOQ/viewform?vc=0&c=0&w=1>

Appendix C

SRPP Advertisement

Hi Everyone,

We are Honours students running a research study through the Department of Psychology. This study is of great importance and attempts to better understand students' adjustment to university.

To participate in this study, you need to be a first year Psychology student, have taken the PSY1004F final exam this year, and be between the ages of 18 and 25 years.

If you meet the above criteria and decide to participate in this study, you will be requested to complete an online questionnaire. This questionnaire will collect demographic information (e.g., age, gender, etc.), along with information about your social relationships, social support and academic performance.

This questionnaire should take approximately 25 - 30 minutes to complete.

Upon completion, you will receive **1 SRPP point**.

The questionnaire can be found at:

<https://docs.google.com/forms/d/e/1FAIpQLSforBwY2P7ph6RxdvTr80VkpZhJbuZpfY9OiVYgMoMyqo9TOQ/viewform?vc=0&c=0&w=1>

If you have any questions, please do not hesitate to email us:

nagannakereshnie@gmail.com / srishpattundeen@gmail.com

Best wishes

Kereshnie & Srishti

Appendix D

Debriefing email

Dear (Participant name)

Thank you for participating in our study on social networks and academic performance among first year university students. This email aims to provide background information about our research, and to help you learn more about the aim and purpose of this study.

The purpose of this study is to understand the nature of primary social networks of first year university students, and their association with students' academic performance. Social networks are complex systems through which humans relate to one another in their everyday lives. This study looked at the composition (size of the network, level of closeness, age, gender, specific roles of each individual, and length of relationship with each member) and function of social networks in the lives of first year students. We hope that by investigating this link it will contribute towards new avenues for universities to understand the factors that are related to students' adjustment and associated academic success or failure.

If you find that you are struggling with the adjustment to university, please make use of UCT's Student Wellness Service.,

UCT Student Wellness Service: 28 Rhodes Ave, Mowbray, 7700

Tel: 021 650 1017 / 1020

Student Wellness Online Booking: <http://www.dsa.uct.ac.za/student-wellness/counseling-services/overview>

UCT SADAG Helpline: 0800 24 25 26 free from a Telkom line or SMS 31393 for a call-me-back

If you have any further questions about this study or questions regarding your participation, please feel free to email us.

Principal Researchers: Kereshnie Naganna; Srishti Kiran Pattundeen:

nagannakereshnie@gmail.com ; srishpattundeen@gmail.com

Supervisor: Dr Lauren Wild

lauren.wild@uct.ac.za

+27 21 650 4607

Should you have any complaints about the study or questions about your rights as a research participant, please contact:

Psychology department: Rosalind Adams

Rosalind.adams@uct.ac.za

+27 0216503417

Appendix E

Ethical Approval

