Article

From Misperception to Social Connection: Correlates and Consequences of Overestimating Others' Social Connectedness

Personality and Social Psychology Bulletin
2017, Vol. 43(12) 1696–1711

DOI: 10.1177/0146167217727496
journals.sagepub.com/home/pspb
SAGE

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Abstract

Two studies document the existence and correlates of a widespread social belief, wherein individuals who have recently moved to a new social environment see their peers as more socially connected than they themselves are. In Study 1, the prevalence of this belief was documented in a large sample of first-year students (N = 1,099). In Study 2, the prevalence of this social belief was replicated in a targeted sample of university students (N = 389). Study 2 also documented both positive and negative implications of this belief. Specifically, at any given time, students who believed that their peers were more socially connected reported lower well-being and belonging. Over time, however, the belief that one's peers are moderately more socially connected than oneself was associated with more friendship formation.

Keywords

social comparison, interpersonal relationships, well-being

Received March 20, 2017; revision accepted July 31, 2017

Imagine that you are a new first-year student who has just arrived on a large university campus. At your dorm, you see students animatedly chatting with each other as they move into their rooms and as they meet up for meals in the cafeteria. In the lecture hall before your first class starts, you wonder whether the groups of students who are sitting together already know each other. In a quieter moment, you reflect on your own developing social life at the university, and consider how it compares with the social life of your new peers.

Social comparison—the process by which we evaluate our own traits and abilities by using other people as reference points—is a fundamental human tendency. We compare ourselves with others to evaluate and understand our abilities, our social standing, and even our happiness (Alicke, Klotz, Breitenbecher, Yurak, & Vredenburg, 1995; Taylor & Armor, 1996). As Festinger (1954) proposed, and empirical research later confirmed, people regularly engage in social comparisons (Thornton & Arrowood, 1966; Wills, 1981), especially when external or objective standards for evaluation do not exist (Butzer & Kuiper, 2006; S. Y. Lee, 2014).

When comparing themselves with their peers, people generally have a bias to self-enhance (e.g., to hold unrealistically positive beliefs about themselves; Brown, 1986; Colvin & Block, 1994; Taylor & Brown, 1988, 1994) and to perceive themselves as "better than average" (Alicke & Govorun, 2005; Aspinwall & Taylor, 1993; Taylor & Armor, 1996). For example, in one study, the large majority of people rated themselves as above average on both leadership abilities and their ability to get along well with other people (Alicke & Govorun, 2005). Indeed, a "better than average" effect characterizes people's self-assessments across numerous domains ranging from physical attractiveness to intelligence (e.g., Hoorens, 1993; Taylor & Armor, 1996).

Misperceptions About Others' Emotional and Social Lives

Based on past literature on social comparison processes, one might expect that people would gauge their own social connectedness—a domain in which clear objective standards are not usually available—in large part by engaging in social

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comparisons with their peers. Consistent with research on the "better than average" effect, we might assume that after engaging in these social comparison processes, most people would conclude that they are doing better socially than their peers. However, recent research suggests that in certain domains, people are systematically biased to see themselves as *worse off* than their peers. For example, people see themselves as worse off than their peers in their emotional lives: They overestimate the prevalence of their peers' positive emotions and they underestimate the prevalence of their peers' negative emotions (Jordan et al., 2011). These misperceptions occur in part because people tend to feel happier when they are in public versus when they are alone and because people often suppress whatever negative emotions they do feel when in public (Fay, Jordan, & Ehrlinger, 2012; Jordan et al., 2011). Because we generally observe other people around us expressing more happiness than sadness, we tend to underestimate the extent to which other people experience negative emotions relative to ourselves (Jordan et al., 2011).

Building on this work, we hypothesized that people would overestimate others' social connectedness (Hypothesis 1). Specifically, we investigated whether people overestimate the number of friends their peers have and the amount of time their peers spend socializing. We also examined whether these overestimations might be driven primarily by assumptions about strangers' and acquaintances' social activities. Specifically, we examined whether these misperceptions would be attenuated in close friends who, in spending more time with each other, observe each other in a broader range of contexts than is typical between strangers or acquaintances (Hypothesis 2).

Social Beliefs, Well-Being, and Belonging

The quality and quantity of a person's social relationships play a critical role in mental and physical health (House, Landis, & Umberson, 1988; Uchino, Cacioppo, & Kiecolt-Glaser, 1996). Indeed, the effects of being socially integrated into a community and receiving adequate social support on mortality risk are comparable with or greater than the effects of exercising or quitting smoking (for recent meta-analyses, see Holt-Lunstad, Smith, Baker, Harris, & Stephenson, 2015; Holt-Lunstad, Smith, & Layton, 2010). Furthermore, people's social comparisons can trigger a range of emotions and cognitions with significant downstream implications for well-being. For example, social comparisons can be associated with feelings of inferiority, envy, anxiety, and depression (Tandoc, Ferrucci, & Duffy, 2015; Tesser, 1988) and changes in personal motivation (Ehrlinger & Dunning, 2003; Shore & Tashchian, 2002).

In the current work, we also sought to examine whether a person's beliefs about his or her *peers*' friendships are linked to well-being and feelings of belonging—above and beyond his or her *own* social connectedness. Based on previous research suggesting that feeling worse off than others in personally relevant domains is associated with depressed mood and anxiety (e.g., Salovey & Rodin, 1984), we predicted that believing one's peers were more socially connected would be associated with decreased well-being and a poorer sense of belonging (Hypothesis 3).

Social Beliefs and Friendship Formation

Although feeling worse off than one's peers may have negative implications for affect and self-esteem in the short term, it could also motivate remediation and self-improvement (Collins, 1996). Prior research on social comparison processes suggests that people are generally motivated to reduce perceived deficiencies in their own performance, abilities, and standing relative to that of their peers (e.g., Butzer & Kuiper, 2006; S. Y. Lee, 2014).

Moreover, laboratory and field studies indicate that when people make upward social comparisons, they tend to choose comparison targets who are doing slightly better than themselves (Hakmiller, 1966; Ybema & Buunk, 1993). These comparison targets can increase people's confidence in their own potential (Buunk, Collins, Taylor, VanYperen, & Dakof, 1990; Crocker, Voelkl, Testa, & Major, 1991; Lockwood & Kunda, 1997), motivate people to set higher personal standards, and work toward more challenging goals (Seta, 1982). Research has also shown that professional sports teams who are slightly behind at half-time are more likely to win than teams that are slightly ahead, perhaps because envisioning one's performance as a loss promotes additional effort (Berger & Pope, 2011). Berger and Pope further posit that this effect should be likely to occur when people are only slightly behind their goal because people exhibit diminishing sensitivity to losses, such that being far behind is less motivating than being slightly behind (Heath, Larrick, & Wu, 1999; Kahneman & Tversky, 1979; Kivetz, Urminsky, & Zheng, 2006).

Similarly, a person who perceives himself or herself to be slightly, but not extremely, worse off socially than his or her peers may be motivated to reduce the perceived deficiency. Thus, we also examined whether the perception of a small to moderate gap between one's own social connectedness and that of one's peers would predict greater friendship formation. We expected that perceiving a meaningful, yet surmountable, deficiency in one's own social connectedness relative to that of one's peers would be the most motivating for students' attempts at social self-improvement (Hypothesis 4). This hypothesis is consistent with a recent call from psychologists to focus on the examination of nonlinear effects (Grant & Schwartz, 2011).

Overview of the Current Research

Across two studies conducted with first-year university students, we examined the prevalence of the belief that others are more socially connected than oneself. We also examined

Table 1. Demographic Characteristics of Study 1 Sample.

Variable	%	*N*
Female	66.7	1,099
Full-time student	91.8	1,099
Direct from high school entry	97.0	1,099
International student	20.5	1,099
Domestic student	79.5	1,099
Faculty of arts students	35.8	1,099
Faculty of science students	32.4	1,099
Students from other faculties	31.8	1,099

the associations of this belief with students' well-being, belonging, and friendship formation. We chose to focus on first-year university students because of the central relevance of social connection and friendship formation to this group. Social connectedness with university peers predicts students' emotional adjustment, physical health, academic success, and graduation rates (Brooks & DuBois, 1995; Fass & Tubman, 2002; Gall, Evans, & Bellerose, 2000; Gouin, Zhou, & Fitzpatrick, 2015). Furthermore, a large proportion of young adults report adjustment difficulties (National Survey of Student Engagement, 2013) that frequently result in stress, anxiety, and depression (Ames et al., 2011; Gall et al., 2000). First-year university students therefore represent an ideal sample for studying friendship formation and social integration processes as these processes are likely to be salient and consequential for emerging adults in this phase of development. Indeed, at the University of British Columbia (UBC), where this research was conducted, almost half (46%) of 2,855 students recently surveyed reported difficulty making friends on campus (Alma Mater Society, 2015). Thus, the issues examined in our research are likely to be of high relevance in the UBC student population.

Study 1 was a cross-sectional study conducted with a broad sample of first-year UBC students ($N = 1,099$). In this study, we documented the prevalence of students' belief that their peers are more socially connected than they themselves are. Study 2 was a longitudinal study conducted with a targeted sample of first-year students at UBC ($N = 389$). In this study, we again examined the prevalence of students' belief that their peers are more socially connected than they themselves are. We also examined the short-term and long-term correlates of this belief, focusing on students' well-being and social connectedness.

To summarize, we tested four hypotheses across two studies:

Hypothesis 1 (H1): Students believe that their peers are more socially connected (i.e., have more friends and spend a greater proportion of time socializing) than they themselves are.

Hypothesis 2 (H2): This belief will be attenuated among close friends who spend more time with each other and who can observe each other in a broader range of contexts.

Hypothesis 3 (H3): In the short term, students who believe that their peers are more socially connected will report lower well-being and a reduced sense of belonging.

Hypothesis 4 (H4): In the long term (across several months), perceiving a meaningful but surmountable gap between one's own social connectedness and that of one's peers will be associated with making more friends.

Study 1

We conducted an initial study to document the prevalence of social overestimations in first-year students at UBC. We focused on examining whether students overestimated the number of close friends and social acquaintances of their peers (H1) in a large sample of first-year students.

Participants and Procedure

First-year students were recruited from UBC, a large public institution in Vancouver, Canada. Participants were recruited through a survey that was sent to every first-year student at the university by the Office of the Vice President, Students; this survey enabled us to collect data from a large sample of first-year students. As part of this survey, 1,099 students completed the key questions (66.7% female; see Table 1 for demographic characteristics). Students completed the surveys in exchange for the chance to win various prizes. Students also completed measures tangential to our hypotheses that were developed by the Office of the Vice President, Students.

Measures

Students completed the key measures of interest shortly after starting their second semester at university (in February). Students answered questions about the number of close friends and social acquaintances that they had made since starting school in September. The terms "close friend" and "social acquaintance" were distinguished from each other based on whether students confided in the person with their personal problems or did not (see Sandstrom & Dunn, 2014). Specifically, a close friend was defined as "someone who [they] would likely to confide in/talk to about [themselves] and [their] problems." An acquaintance was defined as "someone who [they] consider a friend, but would be unlikely to confide in." Students were also asked to complete the identical items about their peers, defined in the survey as "other first-year students at UBC."[1] Specifically, students were also asked to estimate the number of close friends and social acquaintances that their peers had made since starting school in September. The order in which the self and peer questions were presented was counterbalanced.[2]

Table 2. Participants' Estimates of Self Versus Peers' Close Friends and Acquaintances in Study 1.

	Self	Peers	Paired-samples *t* test	*p* value	95% confidence interval	Cohen's *d*
Close friends	3.63 (4.83)	4.15 (5.74)	$t(1095) = 2.72$	.007	[−0.89, −0.14]	0.10
Acquaintances	19.57 (22.31)	21.69 (29.92)	$t(1095) = 2.26$	.024	[−3.97, −0.28]	0.07

Table 3. Proportions of Participants Believing That Self Versus Peers Had More Close Friends and Acquaintances in Study 1.

	Peers more	Self more	Self/peer same	Binomial test	*p* value	*N*
Close friends	47.7%	31.1%	21.2%	6.16	<.001	1,096
Acquaintances	45.0%	38.5%	16.4%	2.35	.019	1,096

Results and Discussion

Consistent with our predictions (H1), students demonstrated an overall tendency to see their peers as more socially connected than they themselves were. On average, first-year students in this sample reported having 3.63 ($SD = 4.83$) close friends at UBC, yet they believed that other first-year students at UBC had 4.15 ($SD = 5.74$) close friends at UBC, $t(1095) = 2.72$, $p < .007$, $d = 0.10$. Reported differently, a significantly greater proportion of students (48%) believed that other first-year students had more close friends at UBC than they themselves did, than believed the opposite (with 31% reporting that they had more close friends at UBC than their peers did; $p < .001$ by binomial test).[3] A similar pattern of results was seen for students' beliefs about peers' versus their own social acquaintances, though the effect was less pronounced (Tables 2 and 3).[4] Thus, Study 1 provided initial evidence in support of H1 (students believe that their peers are more socially connected than they themselves are). In Study 2, we sought to replicate the findings of Study 1 in a more targeted sample, while exploring the potential associations of these beliefs with students' friendship formation, well-being, and belonging.

Study 2

In Study 2, we recruited first-year students to participate in a longitudinal study on first-year student experiences. Participants could complete the study for course credit or for pay, and most participants were recruited through the Department of Psychology's Human Subject Pool (78.7% female, $M_{age} = 18.06$, $SD = 1.86$; see Table 4 for additional participant characteristics). We recruited two cohorts of students over 2 academic years. Each cohort of students completed our key measures twice, with a 4- to 5-month interval between the assessment time points. Our final sample consisted of 389 participants with complete data from both time points.[5] Because correlations for small effects stabilize with approximately 300 participants (Schönbrodt & Perugini, 2013), we are confident that the key results reported in this article are sufficiently powered. Participant characteristics did not significantly differ between the Year 1 and Year 2 cohorts (see Supplementary Online Material [SOM] Table S2); thus, the cohorts were combined in all reported analyses.

Eligibility Criteria

Students were eligible to participate if they attended classes full-time, were between the ages of 17 and 24, and were generally in good health (see Table S4 in the SOM for the full list of exclusion criteria). We established these a priori inclusion criteria to ensure that participants would perceive other first-year university students as their peers and they could complete the procedures required during the yearlong study. Students who met these eligibility criteria, and who wished to participate, were invited to the lab to complete the Time 1 (T1) measures.

Procedure

Participants completed the measures during lab visits at the start of the academic year (September, T1) and near the start of the second semester of that same academic year (January-February, T2). At T1, participants provided consent and completed psychosocial measures and demographics. At T2, participants completed parallel measures as at T1 and were debriefed about the aims of the study.[6] For a correlation table of all of the key variables assessed at T1 and T2, see Tables S5a and S5b in the SOM).

Measures

Friendship formation. At T1 and T2, students completed two questions about the number of close friends and social acquaintances that they had in total at UBC. Using the identical definitions from Study 1, students in this study were also asked to estimate the number of close friends and social acquaintances that their peers had in total at UBC. We defined "peers" to the participants as "other first-year students at UBC." We counterbalanced the presentation order of the self and peer questions.[7] To encourage honest and

Table 4. Demographic Characteristics of Study 2 Sample at T1 (September).

Variable	% or average	*n*
Age	18.06 (1.86)	380
Gender (% female)	78.7%	380
Ethnicity		
Caucasian	22.6%	380
East Asian	52.6%	
Southeast Asian	6.3%	
South Asian	5.8%	
Other	12.7%	
In a long-term relationship	15.9%	380
With family at university	17.1%	380
International student	9.1%	380
Completed orientation program	1.1%	378
Born in Canada	31.6%	380
Fluent in English	98.7%	380
With a paid job	31.8%	380
Hours of paid work (excluding 0s)	2.28 (1.26)	121
Live on campus	46.8%	380
Engaged in extracurricular activities	32.9%	380
Hours of extracurricular activities per week (excluding 0s)	1.50 (1.16)	125

thoughtful responding (e.g., Camerer & Hogarth, 1999), we incentivized participants to be as accurate as possible in their estimates about their peers by offering a Can$100 cash prize to the participant whose estimates were closest to overall results obtained in our sample. Participants were also asked two additional questions about the number of close friends and social acquaintances that they had made *since starting school in September*. Key results are statistically consistent using these items. To promote readability, we present these additional results in the SOM (see Tables S15-S16d).

Percentage of time socializing. At T1 and T2, students also reported the average percentage of time (relative to total time awake) that they had spent over the past week working, in class, engaging in solitary activities (e.g., studying or exercising), socializing with old friends (students they had met before they became a student at UBC), and socializing with new friends (students that they had met *after* becoming a student at UBC). Students also completed parallel questions estimating these percentages for their peers. By asking students to differentiate between socialization with new friends versus old friends, we were able to examine the specificity of our effects in the context of first-year students' current social network.

Well-being. Participants completed three validated measures of well-being at T1 and T2. First, participants completed the 12-item Scale of Positive and Negative Experience (SPANE), where participants reported how often they experienced various feelings on a scale from 1 = *very rarely* or *never* to 5 = *very often or always* (Diener et al., 2009). Next, participants completed the Satisfaction With Life Scale (SWLS), where participants were asked to rate, on a 7-point scale, the extent to which they disagreed or agreed with five statements (e.g., "the conditions of my life are excellent"; Diener, Emmons, Larsen, & Griffin, 1985). For the final well-being measure, participants completed the Flourishing Scale (FS), where they were asked to rate, on a 7-point scale, the extent to which they disagreed or agreed with eight statements (e.g., "I am engaged and interested in my daily activities"; Diener et al., 2009). All three scales were highly correlated (rs ≥ .50, ps < .001); thus, we standardized and combined participants' responses to form a T1 composite and a T2 composite measure of well-being. Internal consistency of the well-being scales was excellent (Cronbach's αs ≥ .85) and the internal consistency of the well-being composite scales all together was also excellent (Cronbach's αs ≥ .92).

Belonging. Participants completed two measures of belonging at T1 and T2. The first scale, an 11-item version of the Revised Social Connectedness Scale, asked participants to rate the extent to which they disagreed or agreed with 11 statements (e.g., "I see myself as a loner"; R. M. Lee, Draper, & Lee, 2001; Sandstrom & Dunn, 2014). The second measure of belonging consisted of a 10-item version of the University of California, Los Angeles (UCLA) Loneliness Scale, where participants reported how often they felt a certain way (e.g., "how often do you feel left out") on a 4-point scale from 1 = *never* to 4 = *often* (Russell, 1996; Sandstrom & Dunn, 2014).[8] Both measure social connection, and the two measures were highly correlated (r = .75, p < .001); thus, we standardized and combined participants' responses to form a T1 composite and a T2 composite of belonging. Internal consistency of the belonging scales was good (Cronbach's αs ≥ .78) and the internal consistency of the belonging composite scales all together was excellent (Cronbach's αs ≥ .93).

Other measures. At baseline, participants completed the eight-item extraversion subscale from the Big Five Inventory, which asked participants to rate, on a 5-point scale, to what extent various characteristics applied to them (e.g., "I see myself as someone who is full of energy"; John, Donahue, & Kentle, 1991). To measure social anxiety, participants completed the Brief Fear of Negative Evaluation Scale (BFNE), where participants were asked to rate, on a 5-point scale ranging from 1 (*not at all characteristic of me*) to 5 (*extremely characteristic of me*), 12 statements (e.g., "I am afraid others will not approve of me"; Leary, 1983). To evaluate depressive symptomology, participants completed the Center for Epidemiologic Studies–Short Depression Scale (CES-D 10), where participants were asked to rate how often they felt a certain way on a 4-point scale ranging from 1 (*rarely or none of the time*) to 4 (*most or all of the time*; for example, "I felt depressed"; Andresen, Malmgren, Carter, & Patrick, 1994). Students also completed the CES-D 10 at T2.

Table 5. Participants' Estimates of Self Versus Peers' Close Friends and Acquaintances in Study 2.

	Self	Peers	Statistics	*p* value	95% confidence interval	Cohen's *d*
T1 close friends	2.80 (2.70)	3.73 (4.27)	$t(387) = 4.42$	<.001	[−1.36, −0.52]	0.26
T1 acquaintances	13.97 (16.51)	17.22 (25.68)	$t(388) = 3.72$	.001	[−4.98, −1.53]	0.15
T2 close friends	3.93 (3.21)	4.38 (4.68)	$t(386) = 2.06$	.041	[−2.06, −0.02]	0.11
T2 acquaintances	18.96 (21.29)	19.82 (16.93)	$t(387) = 1.20$	.233	[−1.20, 0.56]	0.06

Internal consistency for the baseline extraversion and anxiety scales was excellent (Cronbach's αs ≥ .86); internal consistency for the depression scale was acceptable (Cronbach's αs ≥ .69).

Results

Overview

We first report analyses documenting the existence and prevalence of students' misperceptions of their peers' social networks (H1). We then report analyses documenting the existence of these beliefs within close friend and social acquaintance dyads (H2) and provide an interim summary of these results. Finally, we report analyses that document whether students' perceptions of their peers' social relationships predict well-being, belonging (H3), and friendship formation (H4).

Beliefs About Peers' Social Connectedness (H1)

Friends and acquaintances. At T1 and T2, students on average saw their peers as more socially connected than they themselves were. At T1, first-year students reported having 2.80 (SD = 2.70) close friends in total at UBC and 13.97 (SD = 16.51) social acquaintances in total at UBC, yet they believed that other first-year students at UBC had 3.73 (SD = 4.27) close friends and 17.22 (SD = 25.68) social acquaintances in total at UBC, $t(387) = 4.42$, $p < .001$, $d = 0.26$, for close friends and $t(388) = 3.72$, $p < .001$, $d = 0.15$, for social acquaintances; Table 5. Stated differently, at T1, more than twice as many students (55%) believed that other first-year students had more close friends than they did, than believed the opposite (with 26% reporting that they had more close friends than their peers did; $p < .001$ by binomial test).

Similar patterns were found with respect to both close friends and social acquaintances; these patterns were also relatively stable across time (albeit somewhat attenuated at T2; see additional analyses on Page 17 of the SOM).[9] These results confirm the typical direction of students' social comparisons and establish the prevalence of overestimations of peers' social connectedness. These results were also consistent when the sample was matched to the demographic characteristics of the first-year population at UBC using post-stratification weighting with a manual iterative solution (e.g., Holt & Smith, 1979). These additional analyses suggest that our results were not driven by the idiosyncratic demographic characteristics of the first-year sample recruited in Study 2.

Percentage of time spent socializing. Consistent with the results of the friendship measures, students estimated that their peers spent significantly more time than they themselves did socializing with students whom they had met after becoming a student at UBC (Table 6). Interestingly, students did *not* believe that their peers spent more time socializing with friends whom they had met *before* coming to UBC. These results support the idea that the perception is specific to students' current social network. It is also worth noting that these social misperceptions occurred even though students also believed that their peers spent significantly more time in class than they themselves did, attesting to the robustness of these results. A similar pattern of results was observed at T2, once again suggesting that students' social misperceptions were relatively stable (see Table 7).

Individual differences. We tested whether these overestimations were driven by the responses of students in our sample who were more socially sensitive, that is, students who scored higher on the Brief Fear of Negative Evaluation measure. However, fear of negative evaluation did not predict students' perceptions of their peers' close friends or social acquaintances (T1: rs ≤ .04, ps ≥ .387, T2: rs ≤ .005, ps ≥ .942) or the percentage of time that students reported that their peers spent socializing with other students they had met since starting university (T1: $r = –.005$, $p = .949$; T2: $r = –.017$, $p = .682$). These analyses suggest that social overestimations are not driven solely by students high in fear of negative evaluation, but rather represent a more general perceptual tendency of students in this sample.

Social network knowledge (H2). We also collected additional data to (a) rule out the possibility that our results were driven by a methodological artifact—namely, that asking students about the "other first-year students," in the abstract, influenced their responses and (b) examine whether increased knowledge about another person's social life attenuates the tendency to see him or her as more social than oneself. To examine these questions, in Year 2 of the study, we invited a randomly selected subsample of

Table 6. Participants' Estimates of How Time Is Spent by Self Versus Peers at T1.

Variable	Self (% time)	Peer (% time)	Statistics	*p* value	95% confidence interval	Cohen's *d*
In class	24.16 (15.89)	25.39 (13.62)	$t(379) = 2.03$	.043	[−2.42, −0.04]	0.11
Working	4.02 (9.51)	8.66 (7.25)	$t(379) = 8.50$	<.001	[−5.71, −3.57]	0.44
Socializing with new UBC peers	19.87 (18.40)	24.03 (15.10)	$t(379) = 4.83$	<.001	[−5.85, −2.47]	0.25
Socializing with old friends	20.68 (16.50)	20.05 (11.72)	$t(379) = 0.74$	.462	[−1.05, 2.31]	0.04
Alone	31.28 (19.11)	21.88 (11.93)	$t(379) = 10.81$	<.001	[7.69, 11.11]	0.60

Note. UBC = University of British Columbia.

Table 7. Participants' Estimates of How Time Is Spent by Self Versus Peers at T2.

Variable	Self (% time)	Peer (% time)	Statistics	*p* value	95% confidence interval	Cohen's *d*
In class	27.43 (13.12)	27.05 (11.79)	$t(387) = 0.75$	.453	[−0.60, 1.35]	0.04
Working	5.32 (9.49)	10.70 (7.11)	$t(387) = 10.10$	<.001	[−6.42, −4.33]	0.52
Socializing with new UBC peers	13.41 (12.72)	20.33 (11.45)	$t(387) = 8.00$	<.001	[−8.62, −5.22]	0.44
Socializing with old friends	19.33 (16.11)	18.37 (10.72)	$t(387) = 1.05$	.294	[−0.84, 2.76]	0.05
Alone	34.51 (17.89)	23.55 (11.16)	$t(387) = 13.02$	<.001	[9.31, 12.62]	0.70

Note. UBC = University of British Columbia.

Table 8. Participants' Estimates of Self Versus Specific Close Friend's Number of Close Friends and Acquaintances.

	Self	Specific close friend	Statistics	*p* value	95% confidence interval	Cohen's *d*
Close friends	4.05 (2.70)	5.54 (7.51)	$t(73) = 2.29$	.025	[−2.78, −0.19]	0.47
Acquaintance	18.39 (17.75)	31.11 (45.44)	$t(73) = 3.08$	.003	[−20.95, −4.48]	0.51

Table 9. Participants' Estimates of Self Versus Specific Acquaintances' Number of Close Friends and Acquaintances.

	Self	Specific acquaintance	Statistics	*p* value	95% confidence interval	Cohen's *d*
Close friends	4.05 (2.70)	6.01 (11.67)	$t(73) = 1.65$	.104	[−4.33, 0.41]	0.31
Acquaintance	18.39 (17.75)	24.26 (23.61)	$t(73) = 2.32$	.007	[−10.05, −1.68]	0.34

participants from the main study to complete an additional questionnaire. This subsample of students ($n = 75$) was also asked to recruit two "specific social ties" to complete a brief survey. These students recruited one close friend and one social acquaintance to participate; these participants received a Can$5 gift card.

We asked students to report on the number of friends they believed that their "specific social ties" (one specific close friend and one specific acquaintance) had made since starting school in September and to report on the percentage of time that they believed their specific social ties had spent socializing with new friends. Consistent with the results in our overall sample, students estimated that their specific close friend and specific acquaintance had more close friends and social acquaintances at UBC than they themselves did (Tables 8 and 9). Students also believed that their specific social ties spent more time than they themselves did socializing with new friends (i.e., students whom they had met since starting school at UBC; Tables 10 and 11).[10] Collectively, these findings provide additional evidence about the robustness of our original effect: It appears not only when students think about other students in the abstract but also when they are asked to think about a specific friend or social acquaintance.

Table 10. Participants' Estimates of How Time Is Spent by Self Versus Specific Close Friend.

	Self (% time)	Specific close friend (% time)	Statistics	*p* value	95% confidence interval	Cohen's *d*
In class	37.67 (21.65)	33.65 (20.57)	$t(73) = 2.18$	.032	[0.31, 6.90]	0.28
Socializing with old friends	22.54 (14.47)	24.15 (12.93)	$t(74) = 1.15$	.379	[−5.23, 2.01]	0.10
Socializing with new UBC peers	11.35 (10.57)	16.09 (11.10)	$t(74) = 3.15$	<.001	[−7.03, −2.51]	0.39
Alone	24.19 (19.02)	25.12 (15.71)	$t(74) = 1.77$	.704	[−3.93, 5.80]	0.05

Note. UBC = University of British Columbia.

Table 11. Participants' Estimates of How Time Is Spent by Self Versus Specific Acquaintance.

	Self (% time)	Specific acquaintance (% time)	Statistics	*p* value	95% confidence interval	Cohen's *d*
In class	37.27 (21.65)	33.65 (20.57)	$t(74) = 2.18$	.032	[0.31, 6.90]	0.26
Socializing with old friends	22.54 (14.47)	24.15 (12.93)	$t(74) = 0.82$	.379	[−5.23, 2.01]	0.10
Socializing with new UBC peers	16.09 (11.10)	18.11 (10.92)	$t(74) = 4.56$	.028	[−0.43, −3.93]	0.16
Alone	25.12 (15.71)	24.19 (19.02)	$t(74) = 1.82$	.704	[−3.93, 5.80]	0.05

Note. UBC = University of British Columbia.

We also used these data to explore whether observability might mitigate social misperceptions. Specifically, we explored whether overestimations about specific social ties' social connectedness were attenuated among students who had spent time with each other in the last 7 days. First, we examined participants and their specific close friend. We directly compared participants who reported that they had spent time with their close friend over the past 7 days with participants who reported that they had not. Participants who spent time with their close friend over the past 7 days perceived a smaller gap between the number of close friends that their friends had at UBC and their own number of close friends at UBC ($M = -0.79$, $SD = 2.53$) as compared with participants who did not spend any time with their close friend over the past 7 days ($M = -2.82$, $SD = 4.44$), $t(72) = 2.16$, $p = .034$, $d = 0.56$. Descriptively, participants who spent time with their close friend in the past 7 days also reported a smaller gap between the amount of time their friends had spent socializing with UBC friends in the past 7 days and the amount of time that they had spent socializing with UBC friends in the past 7 days ($M = -2.00$, $SD = 11.01$) as compared with participants who had not spent any time with their close friend in the past 7 days ($M = -9.98$, $SD = 22.47$), $t(72) = 1.15$, $p = .254$, $d = 0.45$, although these results were not statistically significant.

Next, we examined participants and their specific social acquaintance. Again, we directly compared participants who reported that they had spent time with their social acquaintance over the past 7 days with participants who did not. Participants who spent time with their acquaintance in the past 7 days perceived a smaller gap between their acquaintance's versus their own number of friends at UBC ($M = -0.25$, $SD = 2.05$) as compared with participants who had not spent any time with their social acquaintance in the past 7 days ($M = -2.13$, $SD = 5.14$), $t(72) = 2.19$, $p = .032$, $d = 0.48$. Students who spent time with their social acquaintance in the past 7 days also reported a smaller gap between the amount of time that their acquaintance had spent time socializing with UBC friends in the past 7 days ($M = -2.18$, $SD = 13.22$) as compared with students who had not spent time with their acquaintance in the past 7 days ($M = -11.07$, $SD = 21.61$); $t(72) = 2.19$, $p = .051$, $d = 0.50$. Collectively, these findings provide initial evidence that people may rely less on general information from their social environments (wherein others' social activity is disproportionately salient) when they have more concrete information available about a close friend or acquaintance's daily life, and that this information minimizes people's tendencies to overestimate their peers' social connectedness in relation to their own. Given the smaller sample used for these analyses, however, these findings should be interpreted as preliminary.

Interim Summary of Study 2

In a longitudinal study of 389 first-year university students, we found evidence that students perceived their peers to be more socially connected than they themselves were. Consistent with H1, students believed that their peers had made more close friends and social acquaintances than they had, and spent more time socializing with new university friends than they themselves did. These overestimations

Table 12. Regression Models Predicting T1 Well-Being and Belonging Composites From Peer and Self—Close Friends.

Predictor variable	Model 1 (well-being)	Model 2 (belonging)	Model 3 (well-being)	Model 4 (belonging)
T1 close friends (self)	0.28**	0.33**	0.25**	0.29**
T1 close friends (peers)	−0.13*	−0.15**	−0.09†	−0.10*
T1 brief fear of negative evaluation			−0.29**	−0.27**
T1 extraversion			0.13**	0.23**
$\Delta R^2_{adjusted}$	0.06	0.09	0.15	0.20
ΔF	14.17**	20.27**	17.84	24.92
Observations	385	385	376	376
df	383	383	372	372

Note. This table presents the standardized beta coefficients. In Models 1 and 2, we enter the peer and self-variable simultaneously to predict well-being and belonging at T1. In Models 3 and 4, we enter the peer and self-variable simultaneously to predict well-being and belonging at T1 with the following covariates: fear of negative evaluation and extraversion.
†$p < .10$. *$p < .05$. **$p < .01$.

Table 13. Regression Models Predicting T1 Well-Being and Belonging Composites From Peer and Self—Acquaintances.

Predictor variable	Model 1 (well-being)	Model 2 (belonging)	Model 3 (well-being)	Model 4 (belonging)
T1 acquaintances (self)	0.23**	0.22**	0.20**	0.18*
T1 acquaintances (peers)	−0.23**	−0.22**	−0.17*	−0.15*
T1 brief fear of negative evaluation			−0.29**	−0.28**
T1 extraversion			0.15*	0.25**
$\Delta R^2_{adjusted}$	0.02	0.02	0.11	0.15
ΔF	5.39**	4.94**	13.22**	17.03**
Observations	388	388	379	379
df	386	386	375	375

Note. This table presents the standardized beta coefficients. In Models 1 and 2, we enter the peer and self-variable simultaneously to predict well-being and belonging at T1. In Models 3 and 4, we enter the peer and self-variable simultaneously to predict well-being and belonging at T1 with the following covariates: fear of negative evaluation and extraversion.
†$p < .10$. *$p < .05$. **$p < .01$.

were evident both when students were asked to estimate the social connectedness of the other first-year UBC students in general, and when they were asked to estimate the social connectedness of a specific friend or acquaintance. Consistent with H2, when students reported spending time with friends and acquaintances, the tendency to see these people as more socially connected than themselves was attenuated.

Social Beliefs, Well-Being, and Friendship Formation

Next, we examined the short-term correlates and long-term consequences of students' social beliefs on their well-being, belonging, and friendship formation over the course of the academic year (H3 and H4).

Well-being and belonging (short term). At T1, when entering both self and peer perceptions of friendships into a regression model to predict well-being, students who believed that their peers had more close friends and acquaintances reported lower levels of well-being—Peers' Close Friends, $\beta = -.13$, $t(385) = 2.46$, $p = .014$; Peers' Social Acquaintances, $\beta = -.23$, $t(388) = 3.08$, $p = .002$. These results were identical when we entered both self and peer perceptions of friendships into a regression model to predict belonging: Students who believed that their peers had more close friends and acquaintances reported lower levels of belonging—Peers' Close Friends, $\beta = -.15$, $t(385) = 2.85$, $p < .001$, Peers' Social Acquaintances, $\beta = -.22$, $t(388) = 2.91$, $p = .004$. See Tables 12 and 13. In other words, mere *beliefs* about peers' social lives have effects on students' well-being and belonging, above and beyond the size of their own social networks.

These results were also statistically similar at T2, and these results held controlling for personality variables that might otherwise explain these results including students' self-reported fear of negative evaluation and extraversion (Tables 12 to 15). These findings suggest that the associations between social estimations, belonging, and well-being

Table 14. Regression Models Predicting T2 Well-Being and Belonging Composites From Peer and Self—Close Friends.

Predictor variable	Model 1 (well-being)	Model 2 (belonging)	Model 3 (well-being)	Model 4 (belonging)
T2 close friends (self)	0.33**	0.47**	0.25**	0.40**
T2 close friends (peers)	−0.26**	−0.20**	−0.17**	−0.13*
T1 brief fear of negative evaluation			−0.34**	−0.20**
T1 extraversion			0.08†	0.14**
$\Delta R^2_{adjusted}$	0.08	0.16	0.18	0.20
ΔF	18.52**	32.39**	21.16**	20.79**
Observations	384	331	377	324
df	382	329	373	320

Note. This table presents the standardized beta coefficients. In Models 1 and 2, we enter the peer and self-variable simultaneously to predict well-being and belonging at T1. In Models 3 and 4, we enter the peer and self-variable simultaneously to predict well-being and belonging at T1 with the following covariates: fear of negative evaluation and extraversion.
†$p < .10$. *$p < .05$. **$p < .01$.

Table 15. Regression Models Predicting T2 Well-Being and Belonging Composites From Peer and Self—Acquaintances.

Predictor variable	Model 1 (well-being)	Model 2 (belonging)	Model 3 (well-being)	Model 4 (belonging)
T2 acquaintances (self)	0.27**	0.28**	0.21**	0.23**
T2 acquaintances (peers)	−0.11	−0.11	−0.07	−0.07
T1 brief fear of negative evaluation			−0.34**	−0.21**
T1 extraversion			0.10*	0.18**
$\Delta R^2_{adjusted}$	0.04	0.04	0.15	0.10
ΔF	8.52**	7.70**	17.98	8.24
Observations	387	334	378	325
df	385	332	374	321

Note. This table presents the standardized beta coefficients. In Models 1 and 2, we enter the peer and self-variable simultaneously to predict well-being and belonging at T1. In Models 3 and 4, we enter the peer and self-variable simultaneously to predict well-being and belonging at T1 with the following covariates: fear of negative evaluation and extraversion.
†$p < .10$. *$p < .05$. **$p < .01$.

reflect a broader tendency that holds across relevant motivations (i.e., fear of negative social evaluation from peers).

Consistent with related research assessing the relationship between students' overestimations of their peers' positive emotions and well-being (Jordan et al., 2011), students' beliefs about their peers' close friends and social acquaintances did not predict students' self-reported depressive symptomologies at T1 or at T2, as reported on the CES-D (SOM Table S9).

Friendship formation (long-term consequences). Do students' perceptions of peers' social connectedness predict social outcomes over time? To answer this question, we assessed the consequences of believing that one's peers are more socially connected, on students' friendship formation. In these analyses, we included the number of friends that students reported having themselves at T1, in addition to students' beliefs about the number of friends their peers had at T1. By including both variables, we could identify the unique effect of students' *beliefs* about their peers' connectedness (above and beyond their own connectedness) on the number of friends that they have made during the school year.

Finally, because we hypothesized that this surmountable gap between one's own social network size and the perceived size of peers' social networks would be the most likely to predict friendship formation, we assessed whether there were linear as well as nonlinear effects. Including a squared term in our subsequent regression equations allowed us to test whether moderate perceived self-peer differences would predict better friendship formation outcomes compared with extreme or minor perceived self-peer differences (H4).

Friendship formation: Close friends. We entered students' self-reported number of close friends at T1 (*Predictor 1*), a centered variable representing students' estimates of the number of close friends of other UBC first years at T1 (*Predictor 2*), and finally—as *Predictor 3*—the squared term of the centered variable *Predictor 2*, into a regression model to predict the change in number of close friends at UBC between T1 and T2. In this analysis, there was a significant linear effect

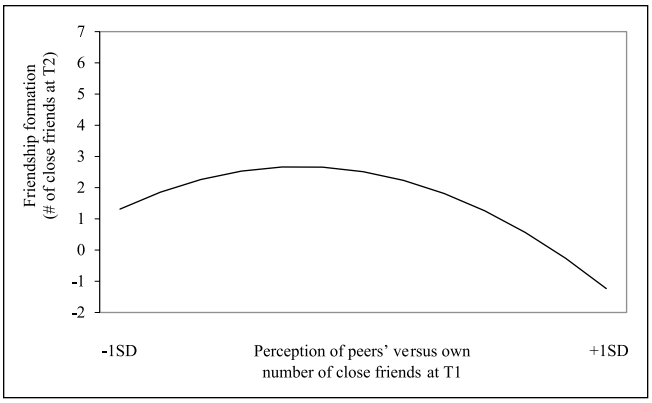

Figure 1. Quadratic relationship between perceptions of peers' versus own number of close friends at T1 and students' own new close friendship formation over time.
Note. The midpoint corresponds to students thinking that their peers have approximately 0.93 more close friends than they do. The endpoints depict ±1 *SD* = 4.28 close friends.

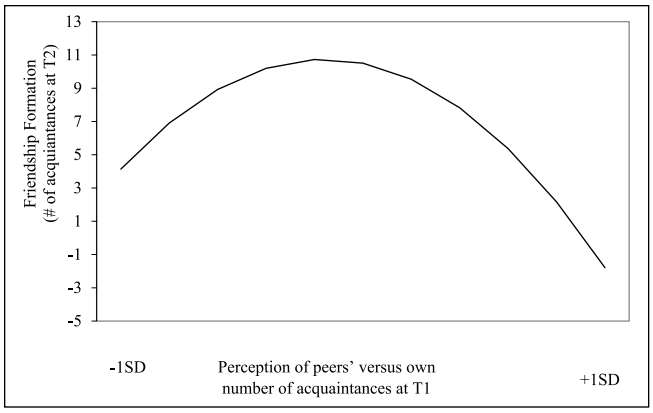

Figure 2. Quadratic relationship between perceptions of peers' versus own number of acquaintances at T1 and students' own new acquaintance formation over time.
Note. The midpoint corresponds to students thinking that their peers have approximately 3.25 more acquaintances than they do. The endpoints depict ±1 *SD* = 16.77 acquaintances.

of *Predictor 2* (students' beliefs about their peers' number of close friends at T1), β = .28, $t(385) = 2.87$, $p = .004$. This linear effect was qualified by *Predictor 3*, indicating a significant nonlinear effect corresponding to students' perceptions of their peers' social network size at T1, β = –.35, $t(385) = 3.77$, $p < .001$. Examining a plot of these results (Figure 1) reveals that students who perceived that their peers had moderately more friends than they themselves did at T1 reported making more close friends over the year as compared with students who believed that their peers had many more friends than they themselves did. These findings provide evidence that believing that other people have more friends than you do—in moderation—may have positive implications for friendship formation.

Friendship formation: Acquaintances. We then conducted parallel analyses on our acquaintances data. We entered students' self-reported number of acquaintances at T1 (*Predictor 1*), a centered variable representing students' estimates of the number of acquaintances of other UBC first years at T1 (*Predictor 2*), and finally—as *Predictor 3*—the squared term of the centered variable *Predictor 2*, into a regression model to predict the change in the number of acquaintances students reported having at UBC between T1 and T2. Once again, there was a significant linear effect of *Predictor 2*, β = .39, $t(388) = 3.78$, $p < .001$, that was qualified by a significant nonlinear effect of *Predictor 3*, β = –.56, $t(388) = 6.48$, $p < .001$. Examining a plot of these results (Figure 2) revealed that students who perceived that their peers had moderately more acquaintances than they themselves did at T1 reported making more acquaintances at T2 as compared with students who believed that their peers had many more acquaintances than they themselves did. The similarity of the "acquaintances" and "friends" results speaks to the robustness of this effect.

Study 2 Discussion

In Study 2, using a more targeted sample of first-year university students, we replicated the results of Study 1 by showing that students commonly believe that their peers are more socially connected than they are. Study 2 also suggests both a short-term cost and a long-term benefit of this common social belief. On average, students who believed that other students had more friends than they did, reported lower belonging and well-being. As expected, these associations were stronger for social belonging than they were for well-being. However, over the course of the academic year, students who believed that other students had moderately more friends than they did reported making more close friends and social acquaintances during the year. These results provide evidence for the existence of social misperceptions and document possible mechanisms and key correlates of students' tendency to overestimate the social connectedness of their peers.

General Discussion

Two studies revealed that students consistently thought their peers had more friends and spent more time socializing than they themselves did. This misperception emerged regardless of whether students were thinking of an "average" peer or a specific individual friend or acquaintance. However, students were more likely to overestimate the connectedness of their individual close friends and acquaintances if they had not interacted with them in the past 7 days, suggesting that the generally limited observability of peers' actual lives may contribute to students' social overestimations of their peers' social connectedness.

Additional evidence from our lab also suggests that the public, observable nature of peers' social activities can enhance social misperceptions. Specifically, we documented a general tendency for common social activities (e.g., eating

or studying with others) to occur in public and be observable by others, whereas solitary activities (e.g., eating or studying alone) tended to occur in locations that are not visible to others (see also Jordan et al., 2011). This could make it difficult for students to imagine the prevalence of their peers' solitary activities and therefore to over-rely on peers' publicly visible social activities to estimate their peers' social connectedness. Consistent with this idea, we found preliminary evidence that students' beliefs about the amount of time that their peers spent socializing in public was a positive and robust predictor of students' overestimations of their peers' friendships and social interactions (see Tables S11 to S12c and the overview of the results on pp. 12 and 13 of the SOM).

Taken together, these results suggest that information from the environment plays an important role in predicting whether students believe that their peers have more close friends and social acquaintances than they themselves do. Indeed, these perceptual influences must be quite powerful, given that these factors are militating against a general motivational influence that, for the typical person with positive self-regard and a self-enhancing tendency, presumably pushes in the opposite direction. The motivation to see oneself as better than average might help to explain why we observed relatively small effects regarding overestimations of peers' social connectedness compared with one's own. Future research should include measures of general or dispositional self-enhancing tendencies to begin to disentangle motivational and environmental-perceptual influences on students' estimates of peers' social connectedness.

At any given time, overestimating the social connectedness of one's peers was linked to lower levels of well-being and belonging. Our findings provide novel evidence that well-being among first-year students is influenced not only by students' own social connectedness but also by their beliefs about their peers' social connectedness. These findings suggest that the robust links between social exclusion and well-being might be explained, in part, by individuals' beliefs that they do not have as many friends *as their peers*—thereby providing a novel explanation for a robust social-psychological effect. However, in the longer term, moderate overestimations of peers' social connectedness predicted greater friendship formation over the year. These findings dovetail with research suggesting that social self-effacement may be adaptive in the context of integrating into a new social environment (Srivastava & Beer, 2005).

When we conducted additional analyses to predict changes in students' belonging or well-being over the course of the year (entering as predictors: belonging and well-being at T1, students' own number of friends at T1, and students' beliefs about their peers' number of friends at T1), we observed a weak but nonsignificant quadratic effect of students' beliefs about their peers' number of friends at T1 on the change in their well-being over the school year. This pattern of results does not allow us to draw definitive conclusions regarding the role of students' beliefs about their peers' social connectedness on students' own long-term belonging or well-being outcomes. However, a potentially productive avenue for future research may be to focus specifically on the question of whether and how moderate (as opposed to minor or extreme) overestimations of peers' social connectedness affect well-being and belonging across time. Although we did not directly measure feelings of social exclusion, future research might productively examine this construct, as even a single instance of exclusion or ostracism can have powerful effects on feelings of belonging and well-being (Walton & Cohen, 2011; Zadro, Williams, & Richardson, 2004).

Our finding that students' social misperceptions were reduced when students had spent more time with their friends over the past week is consistent with research suggesting that contextual factors such as group proximity can play a critical role in shaping social comparison processes (see Garcia, Tor, & Schiff, 2013, for a review). Future research should use experimental designs to clarify the causal relationships between the variables studied here. For example, manipulating the visibility of others' social versus solitary behaviors could help us to assess the causal influence of information from the environment on students' beliefs about their peers' social lives.

Future research could also productively examine additional mechanisms through which inaccurate beliefs about peers' social connectedness may arise. Previous research has found evidence of a "friendship paradox"—the phenomenon that one's *friends*, on average, tend to have more friends than oneself (Feld, 1991). Because students in our study were asked to make aggregate estimations about the "*average first year student*" rather than the average among their *own friends*, the friendship paradox does not directly account for our results. It is, however, possible that first-year students' overestimations of their peers' friendships were driven in part by the tendency to retrieve available examples from their own friends, or stereotypes about the "typical" college student. Additional research is needed to examine these possibilities.

Other potential mechanisms driving our results include conversational norms and self-presentation concerns. For example, people may discuss their social activities disproportionately more often than their solitary activities, and the activities they selectively portray through social media may also inflate others' estimates of their social connectedness (comparable effects have been documented in the domains of emotion and well-being; see Chou & Edge, 2011; Jordan et al., 2011). These propositions are consistent with the idea of pluralistic ignorance, whereby people are blind to the fact that other people's behaviors in public are guided by social norms as much as their own behaviors are (Miller & McFarland, 1987). These potential mechanisms could be a worthwhile focus of future work in this area.

Indeed, our ongoing research with undergraduates provides initial evidence that first-year students—perhaps because they are new to the social network of the

university—are particularly attentive to information about the social behavior of their peers. For example, first-year students showed more change in feelings of belonging after viewing Facebook information regarding the social lives of their peers, than students who had been at university for a longer period (Whillans & Chen, 2017). First-year students in this study were also more likely to think that other UBC students had more friends than they did (Whillans & Chen, 2017).

We observed the largest overestimation of peers' social connectedness early in the school year (Study 2, T1). In contrast, we observed relatively smaller social overestimations effects when we asked students about the number of friends that their peers had several months after starting school (Study 1: February, 6 months after starting school in September; Study 2 T2: January or February, 5 to 6 months after starting school in September). These results suggest that the effect of social overestimations may decline over the course of the year. It would be worthwhile to examine the temporal trajectories of these misperceptions.

Building upon this work, additional research will be necessary to determine the generalizability of our findings beyond first-year students by examining whether similar effects are prevalent in students who have already been at the university for more than a year. Studying recent immigrants to a city would help to determine whether the effects we document extend beyond the university setting and are relevant at other stages of life. Research will also be necessary to determine if this effect extends to people in general or is particularly characteristic of those new to a social environment. The pattern of data in the current study (e.g., comparing the magnitude of the effect from the beginning [T1] to the end [T2] of the year) suggests that the effect may diminish as people become more familiar with the social environment.

It is worth noting that our sample was ethnically and culturally quite diverse, and our analyses did not reveal any moderation of effects by ethnicity, or whether students were classified as international students. Most critically, our results held when we conducted our analyses separately within the two major ethnic subgroups in our sample (East Asian and Caucasian; Tables S13a to S14). Yet past work has suggested that cultural differences exist in social comparison processes—both in the general tendency to engage in upward versus downward social comparisons and in the effect of these comparisons on well-being (Chung & Mallery, 1999; White & Lehman, 2005). Thus, a potentially productive avenue for future research may be to more systematically examine the prevalence, correlates, and consequences of the tendency to overestimate others' social connectedness in other countries or cultures.

The quadratic effects that we found are consistent with the idea that the perception of a moderate gap—relative to either a minor or extreme gap—between one's own and others' social connectedness may be adaptive in terms of predicting friendship formation over time. Follow-up research will be necessary to confirm our speculation that this result is due to students perceiving a moderate gap between their own and their peers' social success as being motivating. Additional research will be needed to understand the exact pathways by which this motivation translates into greater friendship formation, such as by exploring whether social overestimations prompt individuals to seek out more new opportunities to socialize with others in daily life. Broadly, more in-depth research on students' satisfaction with their social lives, motivations to make more friends, and the perceived quality of their relationships may help to shed light on these issues.

Our findings have broader implications that may help inform university policy and initiatives led by student services personnel to enhance a sense of community and support students' ability to transition to university life. These findings could be used to promote positive relationship formation among students transferring into a new social environment (e.g., by providing preemptive support for students who perceive extreme gaps between their own and their peers' social connectedness). To the extent that these beliefs extend to other groups, our findings may also have applications in other domains (e.g., for community initiatives intended to support newcomers in a city, and company programs to encourage new employees' adjustment).

Because the effects of social misperceptions on friendship formation were nonlinear, the practical implications of this line of work may be complex. For students with the most extreme social overestimations, an intervention to correct inaccurate social perceptions may provide an easy-to-implement and low-cost means of increasing students' well-being and promoting friendship formation. Such an intervention would be aligned with other successful brief psychological interventions suggesting that increasing students' awareness about their peers' adjustment experiences can improve academic and health outcomes (Walton, 2014; Walton & Cohen, 2011). On the contrary, it is possible that such an intervention might undermine the motivation to make more friends for students who only moderately overestimate their peers' social connectedness. Additional research is needed to further test this conjecture.

In sum, these findings fit within, and draw new connections between, the theoretically rich bodies of literature on social evaluation and social comparison processes, self-perception, and judgment and decision-making biases. These findings provide an example of how a pervasive belief about others' social lives can arise, and demonstrate how this belief is closely linked to people's well-being, their feelings of belonging, and their social integration processes.

Acknowledgements

The authors would like to thank Ben Pollard, Grace Lau, and the UBC Office of the Vice President, Students for their assistance with the data collection for Study 1.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) declared receipt of the following financial support for the research, authorship, and/or publication of this article: This research was funded by a SSHRC Insight Development Grant (430-2015-00412) awarded to F.S.C, a SSHRC doctoral fellowship awarded to A.W., a UBC Alma Mater Society Impact Grant awarded to A.W., an APA 38 Graduate Student Award awarded to A.W., and a Psi Chi Graduate Research Grant awarded to A.W.

Supplemental Material

Supplementary material is available online with this article.

Notes

1. Participants also completed exploratory measures that did not interact with the key measures and are thus not considered further (see Supplementary Online Material Table S1 for the list of measures from Study 1).
2. Preliminary analyses showed that presentation order did not affect any of our variables of interest; thus, order was not included as a covariate in our subsequent analyses.
3. Students who report having the same number of friends as their peers are excluded as ties by the binomial test.
4. Responses more than 3 *SD* from the mean were treated as outliers throughout this article and were winsorized. Retaining outliers in our analyses does not substantively change the effects.
5. Our retention rate from T1 to T2 was 65%, which is comparable with rates reported in other longitudinal studies of university students (Roberts & DelVecchio, 2000, for a review). The only demographic difference that we observed between students who were retained versus students who dropped out of the study is that males were significantly more likely to drop out (Table S3).
6. At T1 and T2 (and at T2 only in Year 1), participants completed blood pressure, weight, height, hip, and waist measures. These measures are outside of the scope of the current article and are not discussed further. See Table S6 for the full list of measures assessed at Year 1 and 2.
7. Preliminary analyses showed that presentation order did not affect any of our variables of interest; thus, order was not included as a covariate in our subsequent analyses.
8. Participants completed these measures in the order described and they completed the well-being and belonging measures prior to completing the peer self and other friendship measures. To promote readability, we first describe and report results on the friendship measures.
9. To confirm these patterns and to explore possible interactions between factors, we conducted a 2 × 2 × 2 repeated-measures ANOVA with time (T1 vs. T2), friendship (close friend vs. acquaintance), and estimation target (self vs. peer) as within-subject factors. Results of this ANOVA analyses were consistent with our main analyses: Students thought their peers had more friends and acquaintances than they themselves did at both T1 and T2; however, the effects were smaller at T2 as compared with T1; see p. 18 in the SOM.
10. Interestingly, and further confirming the robustness of our effects, these misperceptions went both ways: The specific social ties in our study *also* overestimated the social connectedness of the focal participants in our study (see Tables S7a to S8b in the SOM).

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