Supplemental Information for:

The Friend Number Paradox

Supplementary results of Study 1b

Thirteen participants reported that they did not have a Facebook account, and therefore did not provide their actual number of friends on Facebook. The actual number of friends on Facebook reported by the remaining participants (N = 187) ranged from 5 to 4200, with a mean of 327.90 (SD = 468.54) and a median of 212.

We took the natural logarithm of the numbers to correct for skewness of the data. The results of an analysis of variance with this measure as the dependent variable revealed no significant effect of the experimental conditions (main effects: ps > .250; interaction effect: p = .211). Furthermore, the results of regression analyses indicated that participants' actual number of friends on Facebook (log-transformed) was unlikely to moderate the effect of number of friends on their ratings in either the prediction condition or the preference condition (ps > .250).

Supplementary results of Study 5

In the prediction condition, we averaged the reported pleasantness of all interactions within each participant. The reported pleasantness of the interactions by participants in the small number condition (M = 6.00, SD = 0.82) did not significantly differ from that by participants in the large number condition (M = 5.81, SD = 0.91), F(1, 118) = 1.51, p = .222. In the preference condition, participants' reported pleasantness of interacting with a target person with a small number of friends (M = 5.55, SD = 1.34) did not significantly differ from that of interacting with a target person with a large number of friends (M = 5.85, SD = 1.10), F(1, 79) = 1.24, p = .268. Further, participants' reported pleasantness of interacting with the target person did not differ from the average pleasantness of interacting with the non-target persons in both the small

number condition ($M_{\text{target}} = 5.53$, $SD_{\text{target}} = 1.39$ versus $M_{\text{non-target}} = 5.80$, $SD_{\text{non-target}} = 0.93$), paired-t(34) = 1.23, p = .229, and the large number condition ($M_{\text{target}} = 5.81$, $SD_{\text{target}} = 1.14$ versus $M_{\text{non-target}} = 5.87$, $SD_{\text{non-target}} = 0.97$), paired-t(34) = 0.43, p = .672.

Furthermore, we divided the number of contacts that were exchanged by the number of interactions that occurred for each participant to get a measure of their exchange success rate. We used Mann-Whitney U tests to examine whether there was any difference in the average exchange success rate among participants in different conditions. The average success rate in the prediction condition (0.83) did not differ from that in the preference condition (0.76), U = 6489, p = .219. Further, our manipulation of number of friends (small versus large) had no significant effect on participants' exchange success rate in either the prediction condition (0.831 vs. 0.825), U = 1785, p = .921, or the preference condition (0.75 vs. 0.78), U = 1628, p = .593.

Supplementary results of Study 6

(1) There were 14 sessions in which two of the participants reported having the same number of friends and there was no session in which all three participants reported having the same number of friends. Two participants indicated their prediction of only one of the other two persons in the session and two other participants did not indicate their predictions at all. Therefore, 193 (207 – 14) participants made a choice between two persons with different numbers of friends and all participants (N = 207) made 408 (207 × 2 – 6) predictions, of which 380 (408 – 14 × 2) were about a target who chose between two persons with different numbers of friends.

(2) We used the McNemar tests to examine whether there was a difference between participants' own choices and their predicted choices of *the first other* and *the second other* respectively. The results (shown in Table S1) confirmed that participants' choices differed significantly from their predicted choices of both the first other and the second other (ps < .05). In addition, there was no significant difference between their predicted choices of the two others, p = .815.

(3) We examined participants' choices as a function of their positions in the session in terms of the number of friends they had relative to others. The results (shown in Table S2) showed that the choices of participants in different positions differed, $\chi^2(4) = 13.53$, p = .009. Specifically, the participants with the largest number of friends in the session were less likely to choose the person with fewer friends than others, $\chi^2(1) = 11.98$, p = .001, while the choices of those in the other positions did not differ, $\chi^2(3) = 1.65$, p = .648.

(4) We then looked at participants' predictions of others' choices under different conditions. The results are summarized in Table S3. Panel (1) showed that participants' predictions did not differ no matter the target of prediction had fewer or more friends than the third participant (or when they had an equal number of friends), $\chi^2(2) = 2.99$, p = .225. Panel (2) showed that participants were more likely to predict that the target would choose the person with more friends when the number of friends the target had was greater than theirs, as compared to otherwise, $\chi^2(2) = 23.29$, p < .001. Panel (3) revealed that participants were more likely to predict that the target would choose the person with more friends when the number of friends the third participant had was greater than theirs, as compared to otherwise, $\chi^2(1) = 20.21$, p < .001. Alternatively, the results of Panel (3) indicated that participants were more likely to predict that the target would choose them over the third participant when the number of friends they had was greater than that of the third participant (46%; 89/192), as compared to when the number of friends they had was smaller (31%; 58/188), $\chi^2(1) = 9.63$, p = .002.

(5) We examined participants' likelihood of engaging in interactions, their likelihood of exchanging contact information, and their reported pleasantness of the interactions as a function of their positions in the session in terms of the number of friends they had relative to others. We also examined the above variables as a function of the choices participants made. The results were summarized in Table S4.

Panel (1) showed that the likelihood of engaging in interactions differed for participants in different positions, $\chi^2(4) = 14.83$, p = .005. The participants with the largest number of friends in the session were less likely to engage in interactions than others, $\chi^2(1) = 12.32$, p < .001, while the likelihood of engaging in interactions did not differ for those in the other positions, $\chi^2(3) =$ 2.72, p = .438. However, participants' likelihood of exchanging contact information and their reported pleasantness of the interactions did not differ as a function of their positions, ps > .150. Moreover, Panel (2) indicated that the above variables did not differ between participants who chose the person with fewer friends and those who chose the person with more friends, ps > .150.

(6) Finally, we examined the average numbers of matched hobbies and foods between participants and the person they chose (versus the person they did not choose), and those between the targets of prediction and the person who was predicted to be chosen (versus the person who was not predicted to be chosen). The results are shown in Table S5. Relevant discussions are provided in the manuscript.

Method and results of the supplementary study

Method. Two hundred participants from Amazon's Mechanical Turk ($M_{age} = 38.07, 99$ males; ethnicity composition: 74.5% white, 9.5% black or African American, 9% Asian, 4% Hispanic or Latino, and 3% other; 98% had attained a high school or higher degrees) took part in the study. All participants first read a brief definition of friends similar to that used in Study 5. They were then randomly assigned to either report their belief about others' time and energy in friendships or the actual amount of time and energy they have spent with their friends. Participants in the "belief" condition indicated the extent to which they believed that people who have a relatively large number of friends have relatively less time and energy to invest in an average friendship. They indicated their answer along a scale from 1 (strongly disagree) to 7 (strongly agree). Participants in the "actual" condition indicated the extent to which they felt that they have spent an adequate amount of time and energy with each of their friends along the same scale. They also reported the average number of hours that they spent with their friends each week. Finally, participants reported the number of friends they had and provided their personal information.

Results. The number of friends reported by eight participants fell out of three standard deviations from the mean. Data of these participants were excluded from our analyses. In the "belief" condition, the average rating of participants' belief was 4.57 (SD = 1.72), which was significantly greater than the mid-point of the scale, t(98) = 3.27, p = .001, d = .33, 95% CI [0.22, 0.91]. Further, participants' belief was not significantly correlated with the number of friends they had, r = -.11, p = .270.

In the "actual" condition, we divided the number of hours participants reported to have spent with their friends each week by the number of friends they had, and used this measure to indicate the average amount of time that they spent with each of their friends. This measure had a significant negative correlation with the number of friends participants had, r = -.23, p = .027. However, participants' perception of the amount of time and energy that they have spent with each of their friends was not significantly correlated with the number of friends they had, r = .16, p = .139.

(1) Number of participants choosing the person with fewer versus more friends in their own						
choices and their pre	choices and their predicted choices of the other two persons in the session					
	Pre	edicted of	choice of the	Predicted cl	noice of the	
		first	other	second	lother	
	F	ewer	More	Fewer	More	
Own choice	Fewer	35	54	38	51	
Own choice	More	30	43	30	43	
Predicted choice of t	he Fewer			30	35	
first other	More			38	59	
(2) Test statistics						
	Own choice vs.	0	wn choice vs.	Predicte	d choice of	
	predicted choice of the	predic	cted choice of the	the first of	other vs. that	
	first other	5	second other	of the se	cond other	
Chi-square	6.30		4.94		.06	
<i>p</i> -value	.012		.026	•	815	

Descrip	ptive	and	test	statistic	es for	the	$Mc\Lambda$	lemar	tests,	Study	v 6.
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Note. The other two persons in the session are here referred to as *the first other* and *the second other* according to alphabetical order of their participant IDs. The number of participants who were included in the tests was 162.

Participants' choices as a function of their positions in the session in terms of the number of friends they had, Study 6.

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Position	S-O-O	SO-O	O-S-O	O-SO	O-O-S
Proportion (%) of participants choosing the person with <i>fewer</i> friends	20/55 (36%)	8/16 (50%)	35/55 (64%)	8/12 (67%)	37/55 (67%)

Note. S denotes self and O denotes other. S-O-O denotes the condition in which the participants had the largest number of friends in the session. SO-O denotes the condition in which the number of friends the participants had was the same as that of another participant in the session and both were larger than that of the third participant. O-S-O denotes the condition in which the number of friends the participants had was the second largest in the session. O-SO denotes the condition in which the number of friends the number of friends the participants had was the second largest in the session. O-SO denotes the condition in which the number of friends the participants had was the same as that of another participant in the session and both were smaller than that of the third participant. O-O-S denotes the condition in which the participants had the smallest number of friends in the session. Conditions in which the other two persons in the session had the same number of friends (S-OO and OO-S) are not applicable and are thus not shown in this table.

	(1)		(2)		(3)
T > X	110/178 (62%)	T > S	125/177 (71%)	X > S	130/188 (69%)
T < X	92/174 (53%)	T < S	83/176 (47%)	X < S	89/192 (46%)
T = X	17/28 (61%)	T = S	11/27 (41%)		

Participants' predictions of others' choices under different conditions, Study 6.

Note. The table shows the proportions (%) of participants choosing the person with *more* friends. S denotes self, T denotes the target of prediction, and X denotes the third participant in the session. Panel (1) compares conditions in which the number of friends the target had was greater than, smaller than, or equal to that of the third participant. Panel (2) compares conditions in which the number of friends the target had was greater than, smaller than, or equal to that of the target had was greater than, smaller than, or equal to that of the participants. Panel (3) compares conditions in which the number of friends the target had was greater than that of the participants. The condition in which the third participant had an equal number of friends with the participants is not applicable and is thus not shown in Panel (3).

Participants' likelihood of engaging in interactions, their likelihood of exchanging contact information, and their reported pleasantness of the interactions as a function of their positions in the session in terms of the number of friends they had (Panel 1) and as a function of their choices (Panel 2), Study 6.

Position/Choice	Ν	Number (%) of	Number (%) of	Participants' re	eported
		participants	participants who	pleasantness	of the
		who engaged	exchanged contact	interactio	ns
		in interactions	information	Mean (SD)	Ν
		(1)			
S-O-O/S-OO	61	24 (39%)	14 (23%)	5.50 (1.07)	24
SO-O	16	12 (75%)	5 (31%)	5.08 (1.33)	12
O-S-O	55	38 (69%)	19 (35%)	5.31 (0.91)	37
O-SO	12	9 (75%)	7 (58%)	5.72 (0.87)	9
O-O-S/OO-S	63	37 (59%)	21 (33%)	5.19 (0.69)	36
		(2)			
Choose the person	108	68 (63%)	AD (37%)	5 27 (0.92)	66
with fewer friends	108	08 (05%)	40 (37%)	5.27(0.72)	00
Choose the person	85	45 (53%)	24 (28%)	5 33 (0 98)	45
with more friends	05	ч <i>3 (337</i> 0)	27 (2070)	5.55 (0.90)	10

Note. S denotes self and O denotes other. S-O-O/S-OO denotes conditions in which the participants had the largest number of friends in the session, with the two others having different numbers of friends in the S-O-O condition and having the same number of friends in the S-OO condition. SO-O denotes the condition in which the number of friends the participants had was the same as that of another participant in the session and both were larger than that of the third participant. O-S-O denotes the condition in which the number of friends the participants had was the second largest in the session. O-SO denotes the condition in which the number of friends the participants had was the same as that of another participant. O-SO denotes the condition in which the number of friends the participants had was the same as that of another participant. O-SO denotes the condition in which the number of friends the participants had was the same as that of another participant. O-O-S/OO-S denotes conditions in which the participants had the smallest number of friends in the session, with the two others having different numbers of friends in the O-O-S condition and having the same number of friends in the OO-S condition. Two participants did not fill their interaction records and thus data of their reported pleasantness of the interactions were missing.

Average numbers of matched hobbies and foods, Study 6.

	Average number of matched hobbies	Average number of matched foods
Between participants and the person they chose	2.96 (1.12)	3.51 (1.01)
Between participants and the person they did not choose	2.50 (1.10)	3.11 (1.15)
<i>p</i> -value from paired <i>t</i> -test	< .001	< .001
N	207	207
Between targets of prediction and the person who was predicted to be chosen	2.89 (1.15)	3.42 (1.03)
Between targets of prediction and the person who was not predicted to be chosen	2.58 (1.10)	3.21 (1.16)
<i>p</i> -value from paired <i>t</i> -test	<.001	.001
N	408	408

Note. Numbers in parentheses indicate the standard deviations of the respective means. Number of matches was calculated by adding the number of matched selections and the number of matched non-selections of the listed options by two people.

Appendix A: Summary of all the reasons provided by participants in Study 1a. (A reason could fall into more than one category)

Category	Reasons provided by the participants
Concerns about	• 50 seems more genuine and that you're closer connected to the people
relationship quality	on social media. 500 seems too much and that you don't care who
	you've accepted as a friend.
	• A person with 500 friends would be on her phone all the time and not
	have time for me. I rather have a few good friends than know a lot of
	people.
	• Because nobody really has 500 friends. They are acquaintances only
	and some of them, or most of them, are very distant if not almost non-
	existent.
	• Because the person would think I'd have more time for another friend.
	• Because they think I will pay more attention to them because I have
	fewer friends.
	• By displaying 50 friends will show I am not someone who seeks to be
	popular but wants a friendship from people I can trust.
	• I believe this would become a deeper friendship connection, 500
	friends is way too many for me.
	• I feel like this would be more meaningful.
	• I feel people with a lot of friends just random accept people and are
	much too busy and self-involved in themselves.
	• I prefer to the person with 50 friends because I feel more trust toward
	them and we are likely to engage in meaningful conversations.
	• I think having less means you want quality not quantity.
	• I think this person picks and chooses his/her friends closely and
	maintains high quality friendships. I think a friendship with a person
	like this would be more rewarding than a friendship with someone who
	had many friends.
	• I would choose the person with less friends because I think they are
	more likely to have quality friends and people that they actually care
	about. They probably invest more time in having quality relationships
	and not just tons of friends.
	• I would likely befriend the individual with less friends because they
	appear to use social media in a similar manner as myself. I would
	doubt that the person with 500 friends knows each of their friends
	intimately or even appreciates their contribution to their social network
	to any significant extent. However, the individual with 50 friends may
	not know each one intimately either, but likely has so few because each
	triend contributes something the individual appreciates to their social
	media experience.
	• I would probably go for the person who know most of their friends on
	Facebook, and doesn't appear to use it as a marketing tool.
	• I would wonder if the 500 friends are really friends. Is the person a
	TRUE friend or just going for a popularity contest.

	• If someone knows 500 FB friends, I know they would have less time
	for me.
	• It is my opinion that hardly anyone actually knows that many people.
	500 friends are not likely "friends" at all. Even 50 is pushing it.
	• Less friends on Facebook would show I value friendship.
	• More personal friends.
	• People will want to get to know me more if I had 50 friends because
	this shows I am someone who engages with close friends.
	• Shows I don't just randomly add people and have a better chance to
	know and learn about me.
	• Some people collect friends on social media. Sometimes fewer
	friends means more quality friendships
	• Someone who has 50 friends is more likely to be looking for
	true/actual friends as opposed to someone who has 500 and who most
	likely just adds everyone as a friend
	• Sometimes people with a hunch of friends just accent anyone. I've
	some needle who have in the 1000s and there is no way they know all
	seen people who have in the 1000s and there is no way they know an
	those people well.
	• The other person is stretching themselves too far. Tlike someone with
	just a few friends who will give each of them some attention.
	• The person who had 500 "friends" is probably lucky to have a
	handful of real ones. I believe the person who has 50 friends is more
	personable and are respectful of their friends and what the title entails.
	• The person with 50 friends makes me think he or she is more
	concerned about forming close relationships with a few people rather
	than distant relationships with 500. I believe in quality over quantity.
	• The person with 500 friends probably has superficial relationships.
	• They are more interested in "real" friendship not popularity.
	• They have few friends like I do, so it is likely that the friends they do
	have are actually genuine close friends.
	• They have less friends so would more likely notice things that are
	posted by you on Facebook
	• They seem less narcissistic and more likely to be available to actually
	do things
	• To me, the one has 50 friends is more serious, good morals, and can
	be long term friend
Informação hout	500 Easthook friends means you are a social media where they are
interences about	• 500 Facebook mends means you are a social media whore, mey are
personality traits	not friends, you are shallow and barely know any of them.
	• 500 means that you're either outgoing or not too selective in making
	friends. 50 could appear that you don't like (or are not interested in)
	making friends, or very selective.
	• A person with 500 friends is more popular and would have more
	interesting posts.
	• Although it's not guarantee that the more friends in social media the
	better person they are. But for me it is one factor to consider, knowing
	that they are friendly and really looking to have friend.

• Because that means they are not as likely to be attention whores on
Pacebook.
• By displaying 50 menus will show 1 am not someone who seeks to be
popular but wants a friendsnip from people I can trust.
• Having more friends snows that you're popular.
• I figure that in social media the more friends you have marks you as
more appealing to another person that's considering betriending you.
• I have an easier time making friends with friendly people even though
I'm an introvert myself.
• I like popular people.
• I think he is a good person because he has more friends.
• I think that if I have 500 friends it would show that I am more
sociable and open.
• I think they would be intimidated if I only listed 50 friends because it
means I'm really selective.
• I would be drawn to a person who is more selective with their
"friends".
• If you had 50 friends people might think you're anti-social, or you're
cautious about who you share your life with.
• It is natural that people would be more likely to be friends with a
popular person.
• It shows that I am more friendly and social. However having less
friends might just mean that you are more careful in selecting friends.
• It shows they go out and socialize.
• It was not an easy decision, but I think it may be more likely that
people will see me as someone who is more friendly if they see that I
have more friends.
• It would indicate I'm a social person.
• Means you are a nice person.
• Means you could be more friendly, and not off-putting.
• More people like you.
• More people probably like him.
• People are now thinking how well or know the person is just by
looking at their profile. If the person has lots of friends, one will think
that the person is friendly or just famous.
• People seem to perceive Facebook friends as real friends, ultimately
making people trust you more. Thus they want to know you because of
who you know
• People tend to want to be friends with the popular person so the more
friend in Facebook the more popular you appear
• People usually want to be associated with a popular person. It sort of
boosts their self-esteem to know someone so popular is their friend
• Person with only 50 friends indicates that the person choose to add
their close friends only
• Popular
• Popularity is power

	Probably more outgoing.
	• Someone with just 50 friends is looked down on by idiots.
	• Someone with more friends is likely to be more friendly and outgoing
	than someone with a few small number of friends.
	• That means you are accepted by others which should make you an ok
	person.
	• The person with 500 friends is likely to be friends with just about
	anybody
	• They do not friend every random person that asks them to be friends
	• They might see me as a more interesting person if I have more friends.
	then forwar friends. They also might recognize some of my friends and
	than rewel menus. They also might recognize some of my menus and
	we might have a higher chance of having mutual friends so they would
	want to get to know me.
	• They seem less narcissistic and more likely to be available to actually
	do things.
	• They would think I was more friendly.
	• To me, the one has 50 friends is more serious, good morals, and can
	be long term friend.
	• Ultimately I wouldn't factor that into my decision at all, but I would
	assume that 500 friends means the person is more social.
	• While I think I'd prefer the person who only has 50 friends, since
	they're more closely guarded, someone would have an easier time
	making friends with someone more sociable, which is the 500 friends
	nerson
Others trivial or	• Lam new to Eacebook and trying to build up my profile at this very
unclear	moment It's for business purposes. I would take the person with 500
uncical	friends because it would give me more access to connecting with more
	noople and gaining new followers/fans
	people and gaming new followers/fails.
	• I may be more interested in getting to know the people they are
	irriends with.
	• Most people on social media are egoistic and self-serving. They
	would assume that they can benefit more with association with person
	with more friends.
	• People are all about increasing their web and being popular, you
	make a friend with a more popular person and that person friends may
	see you and also friend you.
	• There is a better chance that I know someone or someone I know
	knows someone out of the 500 vs the 50.
	• They might see me as a more interesting person if I have more friends
	than fewer friends. They also might recognize some of my friends and
	we might have a higher chance of having mutual friends so they would
	want to get to know me.
	• As I am having around 200 friends in my Facebook account. I will
	prefer the person with 50 friends in order to make him/her more
	popular than the other one
	• Because it would be more likely that I know that person in real life
	because it would be more intery that I know that person in fear fife.

• Because they won't think I am a fake profile.
 Facebook friends don't really matter to me.
• Generally very low amounts of friends on Facebook means they are a
scam.
• I actually don't think it makes a difference but, I had to choose one of
the two options.
• I chose this answer randomly, because I wouldn't want to make
friends with stranger I do not know on Facebook, period.
• I could care less about how many friends they have on social media.
• I do not like people because of their friends and I also do not like a lot
of people.
• I don't know.
• I don't know.
• I don't know.
• I don't like being in crowds much.
• I don't use Facebook.
• I hate when people add everyone they know to Facebook. It ruins the
point of it for me.
• I would tend to believe that more friends indicate it is a legit account.
• It is the obvious option.
• It really doesn't matter. I make friends based on personality, not
popularity.
Less friends less drama.
• More friends on FB means more likely to make friends in real life.
• To be honest it would not matter to me how many friends they have.
Only the fact that I met them or I knew them from high school.
• Well for one, I don't do Facebook. I think it's stupid. Therefore I
would choose the Facebook person who had less friends just because I
think the whole Facebook thing is stupid.

Appendix B: Samples of the profile preview page used in the prediction condition (left) and in the preference condition (right), Study 5.

