Why Facebook Won’t Get You Any More Friends

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The Global Village?

- The Internet was based on the promise of enlarging your social world beyond the limits of the local village.

But does it actually work?
Does Technology Really Widen Your Horizons?

- The answer from Facebook’s own data seems to be: No
- Modal number of friends = 120-130
- You may list 100s of friends, but you only talk to a few

Cameron Marlow web-blog
Active communication on Facebook

Network size

Emotional closeness

Veldkamp, Roberts, Dunbar & Pollet (under review).
Just How Good is the Digital World?

- For both perceived happiness AND laughter rates, F2F and Skype are better than all other media
- Laughter influences happiness
So …Why Doesn’t It Work?

- The Social Brain Hypothesis
  ....an explanation for why primates have unusually large brains

- Predicted group size for humans is ~150
  “Dunbar’s Number”
Human Social Groups

These all have mean sizes of 100-200

Neolithic villages 6500 BC 150-200
Modern armies (company) 180
Hutterite communities 107
‘Nebraska’ Amish parishes 113
business organisation <200
ideal church congregations <200
Doomsday Book villages 150
C18th English villages 160
GoreTex Inc’s structure 150
Research sub-disciplines 100-200

Small world experiments 134
Hunter-Gatherer communities 148
Xmas card networks 154

Hunter-Gatherer Societies
Dunbar (1993)

Xmas Card Networks
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Maximum Network Size

- 350-374: 10
- 325-349: 9
- 300-324: 8
- 275-299: 7
- 250-274: 6
- 225-249: 5
- 200-224: 4
- 175-199: 3
- 150-174: 2
- 125-149: 1
- 100-124: 0

Number of Cases

Luckily, it’s a hoax….
It was an advertising stunt!

Her 152 friends recorded for posterity…..?
BUT....our friends are NOT all the same!

Our social world is less like this

.....and more like this
Intimacy, Frequency and Trust

- Relationship between frequency of contact and intimacy
- Trust and obligation seem to be important
The Fractal Periodicity of Human Group Sizes

Sizes of Hunter-Gatherer Groupings

Social Groupings Database [N=60]

Hamilton et al (2007)

Xmas Card Database


Scaling ratio = \( \exp(2\pi/\omega) \) = 3.2 and 3.3

Xmas Card Database

The Expanding Circles

- Our relationships form a hierarchically inclusive series of circles of increasing size but decreasing intensity. [i.e., quality of relationship]
- 150 = limit on personalised, reciprocated relationships
- These circles continue at 500 and 1500
- 1500 = limit on memory for faces?
The Expanding Circles

- Social networks are layered
- Emotional closeness AND rate of contact decline with layer
Stable Family, Fragile Friends

Change over Time

Change in Network Layer

Stay

Move

Mean (+/- 1 SE) emotional closeness change

Kin

Friends

Stayed in inner layer
Moved from inner to outer layer

KIN

Friends
How to Prevent Relationships Decaying

Change in Emotional Closeness months 0-9

Ego Gender
- Male
- Female

Activity score change
- Decrease in activity score
- No change in activity score
- Increase in activity score

Mean (+/- 1 SE) emotional closeness change
- 1.5
- 1.0
- 0.5
- 0.0
- -0.5
- -1.0
- -1.5

Roberts & Dunbar (2010)

by change in activity score

by change in contact frequency
Best Friends: A cellphone dataset

- 2 million subscribers
  2 billion calls + 0.5 billion texts

- Marked sex differences in:
  - Age at onset [18+ vs 23+]
  - Age at peak
    [22-25 vs 32]
  - Duration of peak
    [14 yrs vs 7 yrs]
  - Sex reversal in females @ age 55
    …converging with males at a female-bias in older age
Age Changes by Gender

- All show bimodal patterns with an age-difference of ~25 years
- BUT note very focussed partner bias at 25 AND women’s stronger focus on partner
- Clearer bimodal peaks at 50, with women having a more balanced split with a daughter focus
How Costly is Romance?

- Internet sample of 540
- For the inner circle of 5 intimates:
  - Being in a romantic relationship costs you two friendships
  - Typically, you sacrifice one Friend and one Family member
- The problem seems to be the time cost
Birds of a Feather…

- The more traits we share with someone, the closer we feel to them emotionally.

    …AND the more likely we are to act altruistically towards them on two measures of altruism:

    - Give £5000
    - Donate a kidney
The Importance of Humour...

- The more we share a sense of humour, the more we feel engaged with someone

- 100 jokes from 100 best jokes compendium
- 18 jokes most disagreed about
- Ss rate jokes [yes/no]
- Two weeks later, Ss presented with joke profiles of another person varying their own preferences
What Makes Relationships Work?

Primate social bonds seem to involve two distinct components:

- An emotionally intense component [=grooming]
- A cognitive component [=brain size + cognition]
The Limits to Intentionality...

A natural limit at 5\textsuperscript{th} order intentionality:

“I intend that you believe that Fred understands that we want him to be willing to [do something]…” [level 5]
Cognitive Limits to Sociality?

- Achievable intentionality level indexed from stories
- 5th order seems to be the limit

- Intentionality correlates with size of support clique
  
  [clique size = no. of core intimate relationships]
In a stereological analysis of gross volume: best predictor of BOTH intentional competence and network size is orbitofrontal PFC volume.

In a fine-grained VBM (voxel) analysis: overlap of network size and intentional competence in the ventromedial PFC.
Why Time is Important

- Grooming as the bonding agent in primates
- Grooming time is determined by group size
- ...with an upper limit at about 20% of total daytime
How Grooming Works

- endorphins are relaxing
- They create a psycho-pharmacological environment for building trust?

An experimental study with monkeys
Opiates block social drive;
Opiate-blockers enhance social drive
Grooming Time in Humans?

- If we bonded our groups using the standard primate mechanism, we would have to spend ~43% of the day grooming.
Grooming Time in Humans?

- In fact, we spend only 20% of our time in social interaction
  …from a sample of 7 societies from Dundee to New Guinea

- How do we bond our super-large communities?
Language to the Rescue.....?

- Language allows:
  - exchange of information about state of network
  - larger broadcast group
  - multitasking [talk and walk]
  - reinforcing group membership
  - reputation management

Natural Social Groupings

BUT where’s the endorphin surge?

….at Dartington’s Ways With Words
The Three Ways We’ve Bridged the Gap

Millions Years BP

3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0.5

Predicted Grooming Time (%)

50 40 30 20 10

Laughter
a cross-cultural trait shared with chimpanzees

Music and dance

Religion and its rituals

Australopiths

H. erectus

Archaic humans

Modern humans

The Bonding Gap

0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5

Millions Years BP
Procedure:
• pain test
• video/activity
• pain re-test

Singing vs prayer
Drumming vs listening vs video

Dunbar et al (submitted A)

Music

Edinburgh Fringe
Neutral
Comedy
Edinburgh Fringe

Factual vs Comedy Videos

Music and Laughter Trigger Endorphin Uptake
Laughter
The Best Medicine?

Laughter turns strangers into friends

A human universal
Virtual Touch – the Ultimate Solution?

- Primate social bonds depend on the endorphin effect generated by physical contact

- Can we ever replicate that virtually?

- The Hug [from Carnegie Melon]
  - An interactive heat + vibration cushion
So….why not just get your kicks on your own?

Plenty of people do…. 

…BUT doing it together seems to ramp up the effects
Synchrony Ramps up the Endorphins?

Change in pain threshold before and after 45 mins rowing work-out on ergometers in the gym:

Alone vs in a virtual boat

The Big Problem for the Future?

The world has become global and increasingly urbanized...resulting in increasing disengagement and dissatisfaction.

So, how do we create a more integrated, cohesive society?
Thanks ....!