2012 Kellogg Marketing Leadership Summit

Inventing the Future of Marketing

SPEAKER

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From Theory to Practice: How Social Networks Shape Our Lives
Connected
The Surprising Power of Our Social Networks
and How They Shape Our Lives

NICHOLAS A. CHRISTAKIS, MD, PhD
AND JAMES H. FOWLER, PhD
Who are YOUR Friends?

Who do you discuss Important Matters with?

Who do you spend your Free Time with?
One Pair
Many Pairs
Interconnected
Social Network
The Framingham Heart Study

Original Cohort
1948
N = 5,209

Offspring Cohort
1971
N = 5,124

Gen 3 Cohort
2002
N ~ 4,000
Obesity Clusters

FHS NETWORK
Three Degrees Of Association

FHS NETWORK

RELATIVE INCREASE (%) IN PROBABILITY OF EGO OBESITY IF ALTER IS OBESE

Wave 1
Wave 2
Wave 3
Wave 4
Wave 5
Wave 6
Wave 7

ALTER SOCIAL DISTANCE
Causes of Similarity and Clustering
The Spread Of Obesity FROM 1971 TO 2003
Smoking Clusters

FHS NETWORK

1971

2001
Drinking Clusters
Reading Emotions

ANGER

HAPPINESS
Happiness Clusters
Generosity Cascades

EXPERIMENTAL NETWORK

Connected

Eleni

PERIOD 1  PERIOD 2  PERIOD 3  PERIOD 4  PERIOD 5  PERIOD 6

Lucas → Lucas → Lucas → Lucas → Lucas → Lucas

Lysander  Bemy  Sebastian Nicholas

Erika → Erika → Erika → Erika

Harla  James

Jay

Brecken

DEGREES OF SEPARATION FROM ELENI

EFFECTS PERSIST OVER TIME

BEHAVIOR SPREADS 3 DEGREES OF SEPARATION
Social Networks in the Hadza

SIMILAR TO OUR OWN
How Do We Take Our Natural Social Networks Online?
That's a wrap. Seeps not wakes. Xo.

Related: The Surprising Power of Our Social Networks & How They Shape Our Lives → http://is.gd/f8nPB /via @brainpicker

Bill Plaschkke on Annie Manny's public stand → http://lat.ms/aO2Oea /via @LATimessports #dodgers

Extra! Extra! Exciting #SundaysAtTiffany's casting news → http://is.gd/fe1NV

Working. Should be wrapped by now but there are military helicopter exercises overhead. Can't shoot until it stops.

Alyssa Milano / Followanyday / @Alyssa_Milano / I love animals / @Alyssa_Milano / Makes me laugh / @Alyssa_Milano / Twitter-related / @Alyssa_Milano / Technology
Online Networks

NO EFFECT!
Online Networks

REAL FRIENDS

Online Networks

Obesity Clusters

FACEBOOK NETWORK

- Male
- Female

Overweight Cluster of Men

Overweight Cluster of Women

Source: connectedthebook.com
Intervening in Social Networks

Connection: changing the structure

Contagion: changing the flow
The Spread of the Flu

HARVARD COLLEGE - 2009
Theoretical Differences in Epidemic Curves
Network
Population

RANDOM PEOPLE
Population
Observed Differences in Epidemic Curves

**CUMULATIVE INCIDENCE OF INFLUENZA**

**DAILY INCIDENCE OF INFLUENZA**

Days since September 1: 0, 20, 40, 60, 80, 100, 120

Cumulative incidence: 0.00, 0.02, 0.06, 0.12, 0.20, 0.42, 0.80

Daily incidence: 0.0000, 0.0001, 0.0002, 0.0004, 0.0008, 0.0012

Graphs showing cumulative incidence and daily incidence with two groups compared.
Contagious Outbreaks
Contagious Outbreaks

Twitter Network

#openwebawards

users: 11513
greatest component: 6131
components: 5298

control
sensor

Nov-01
Dec-01
Viral Voting

FACEBOOK NETWORK

Informational Message

Social Message

Direct Effect of Treatment on Own Behavior (%)

Self-Reported Voting
Search for Polling Place
Validated Voting

Social Message vs Informational Message
Social Message vs Control
Viral Voting

Facebook Network
Abilene, Texas

- Voter
- Nonvoter
  - Close Friendship
Viral Voting

FACEBOOK NETWORK

Direct Effect

Indirect Effects

Close Friends

Increase in Validated Vote

0
50k
100k
150k
200k
250k
300k
350k

Direct Effect

Friends
Understanding physician network structure allows:

• Identification of influencers and influencees
• Guidance of programs to take advantage of influence patterns
• Capture of the “multiplier effect”, i.e., social influence propagates behavior change throughout a community

**The result:** Greater *efficiency and effectiveness* in implementing programs for physicians, patients, plan members, etc.
Express Scripts

Initially targeted: High influence & high receptiveness
Second wave: More receptive
Third wave: Increasing acceptance

Measuring susceptibility -- Intervention is more effective
Physician Networks
Influence Index and Optimized Targeting List

• Focus on influential high performing physicians
• Work through them to expand that behavior throughout the cluster

Focus on non-high performing physicians who are influential in the cluster to promote adoption of quality practice

Community of Practice A

Community of Practice B

High Performing Physician
Non-High Performing Physician
Email Data at Healthways

- Each node represents an employee
- Each line represents >100 emails transferred between nodes
BMI Ranks and Obesity at Healthways

Red lines show bi-directional ties

Grey lines are directed ties

Body Mass Index (BMI) > 30 is considered obese
Bikewalk Program in Vitality Cities

- Each node represents an individual
- Green nodes are predicted adopters for the Bikewalk program
Realize Your Network Power