

A NetLogo model of question–answering

Brynn M. Evans • Mar 12, 2009

Google ✓

What are the
contraindications for
Clonazepam?

What is the local DMV's
phone number?

Google ✗

How do I export video from
[this] Canon HD camcorder
in an uncompressed format?

What are the latest
regulations for enlisting
army personnel with GED
credentials?

social search may work out better here [hard--1] because you can get targeted or personalized information from people---may even lead into a real conversation

but both types of questions are modeled in my model

Easy [0]

What are the contraindications for Clonazepam?

What is the local DMV's phone number?

Hard [1]

How do I export video from [this] Canon HD camcorder in an uncompressed format?

What are the latest regulations for enlisting army personnel with GED credentials?

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Goal

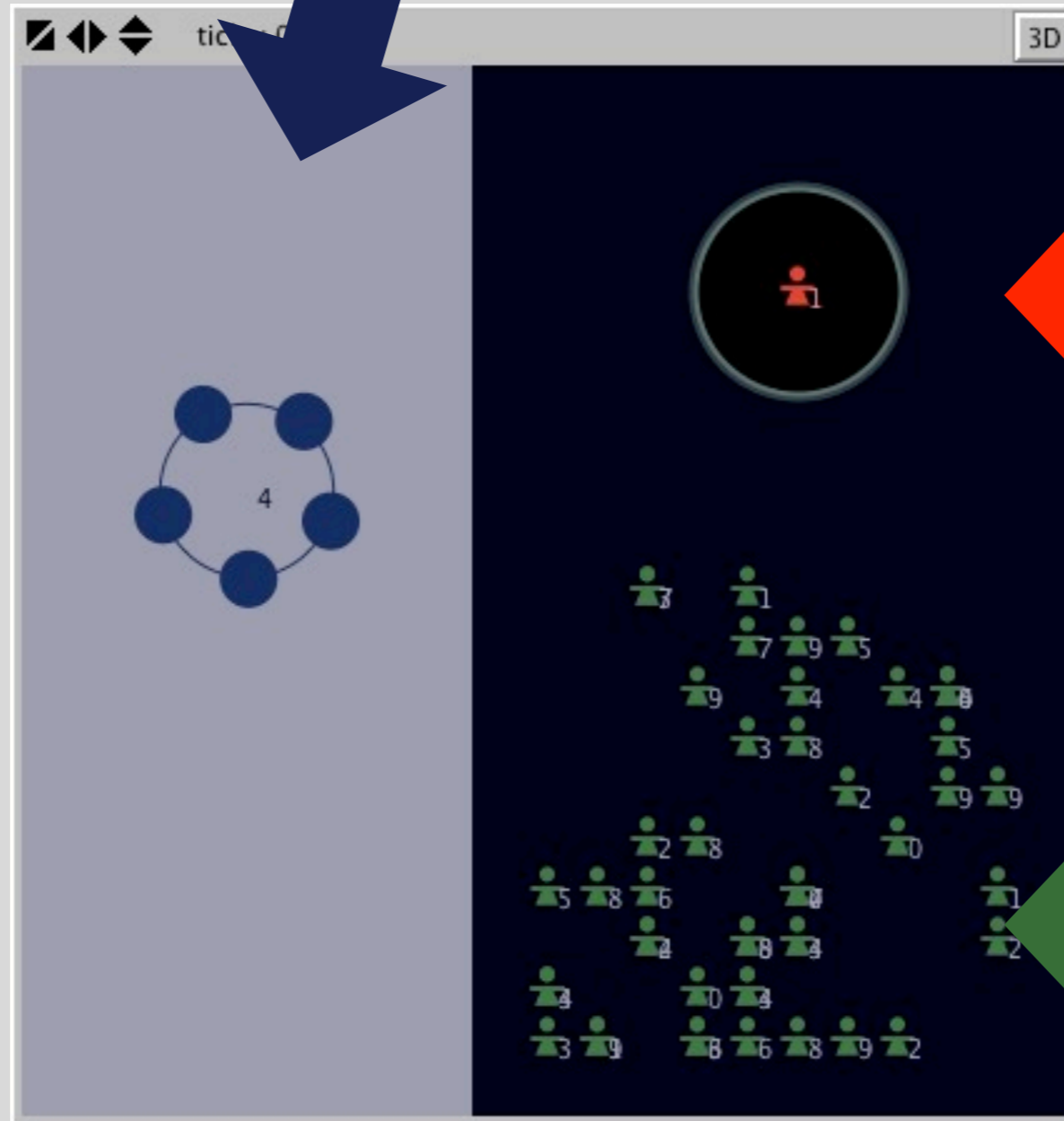
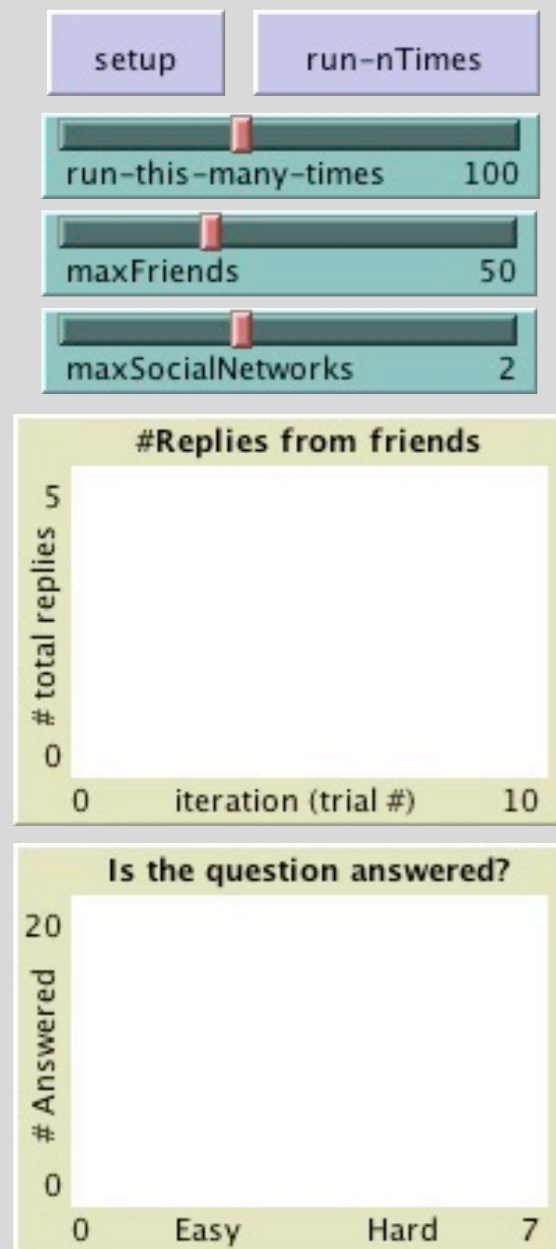
People are important information resources.

What would a model of social information seeking look like?

Will certain network configurations yield better question–answering results?

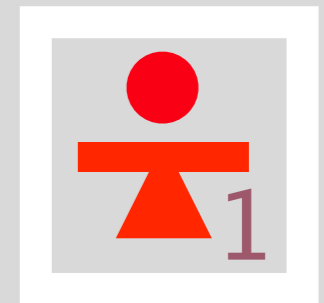
The model

social networks with a diversity (~size) measure



user

with a hard [1] question



friends

with a knowledge attribute

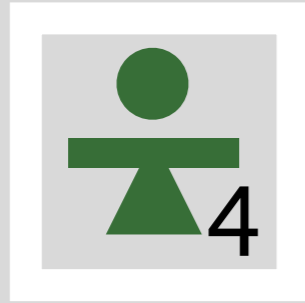


online

real life

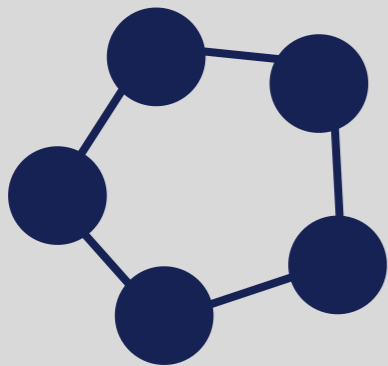
user (with a question 1 == hard)
has friend in real life (each with a knowledge score)
has access to online social networks (with a diversity score)

LOGIC: friends and social networks give replies



friends

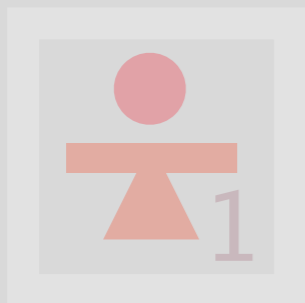
with knowledge = 8, correct reply 70% of the time
with knowledge = 9, correct reply 85% of the time



social networks

give different replies depending on network size
e.g. 1 reply when size > 150
e.g. 3 replies when size > 648

LOGIC: total replies determines if question is answered



user

for hard questions [1]:
need 3 replies if user is knowledgeable (8 or 9)
need 5 replies if user is not knowledgeable

for easy questions [0]:
need 2 corroborating replies to answer question

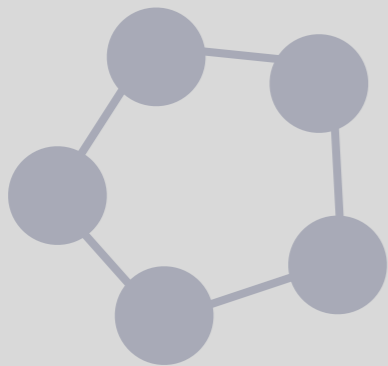
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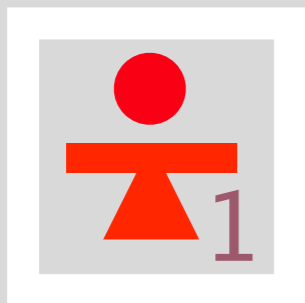
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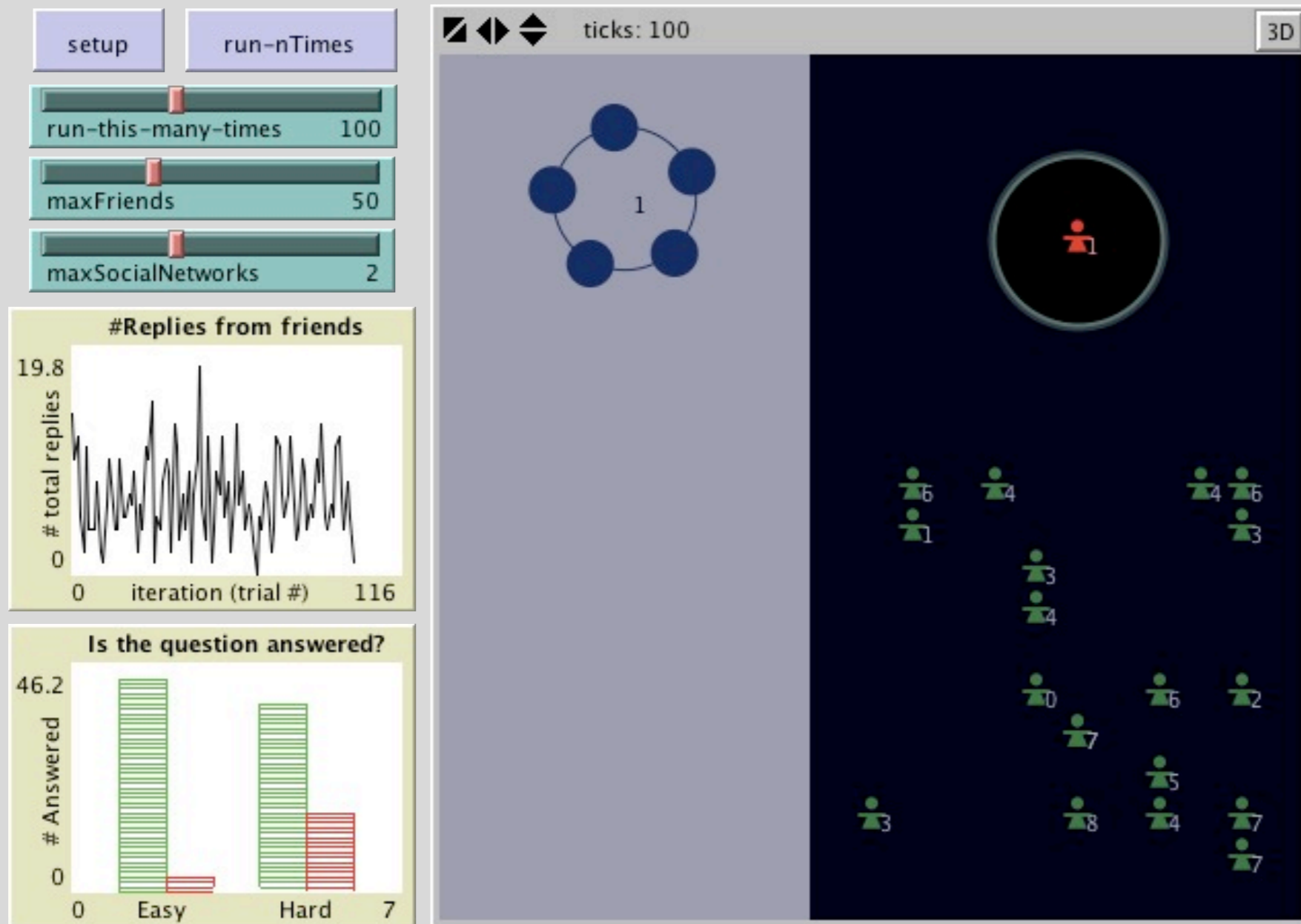
user (with a question 1 == hard)



has friend in real life (each with a knowledge score)

has access to online social networks (with a diversity score)

After running the model

100 times



 answered
 unanswered

after running 100 times
 you can see the proportion of easy and hard questions that get answered
 --but whether question gets answered depends on #answers received & expertise of searcher

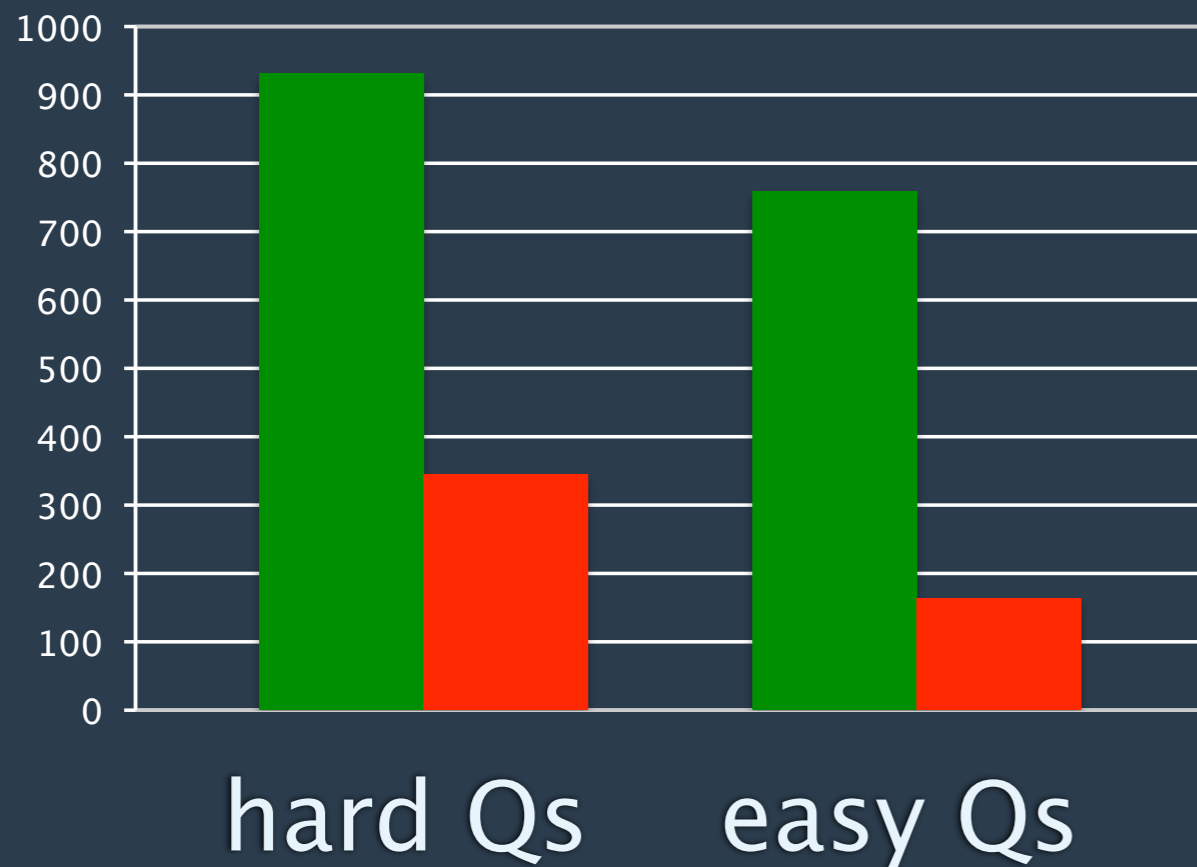
Observations

1. Almost all Easy Qs get answered (96%)
2. Majority of all questions get answered (86%)
3. Probably because average # replies = 7.3
4. Most replies come from friends (avg = 5.2)
5. Many fewer replies come from SNs (avg = 2.2)

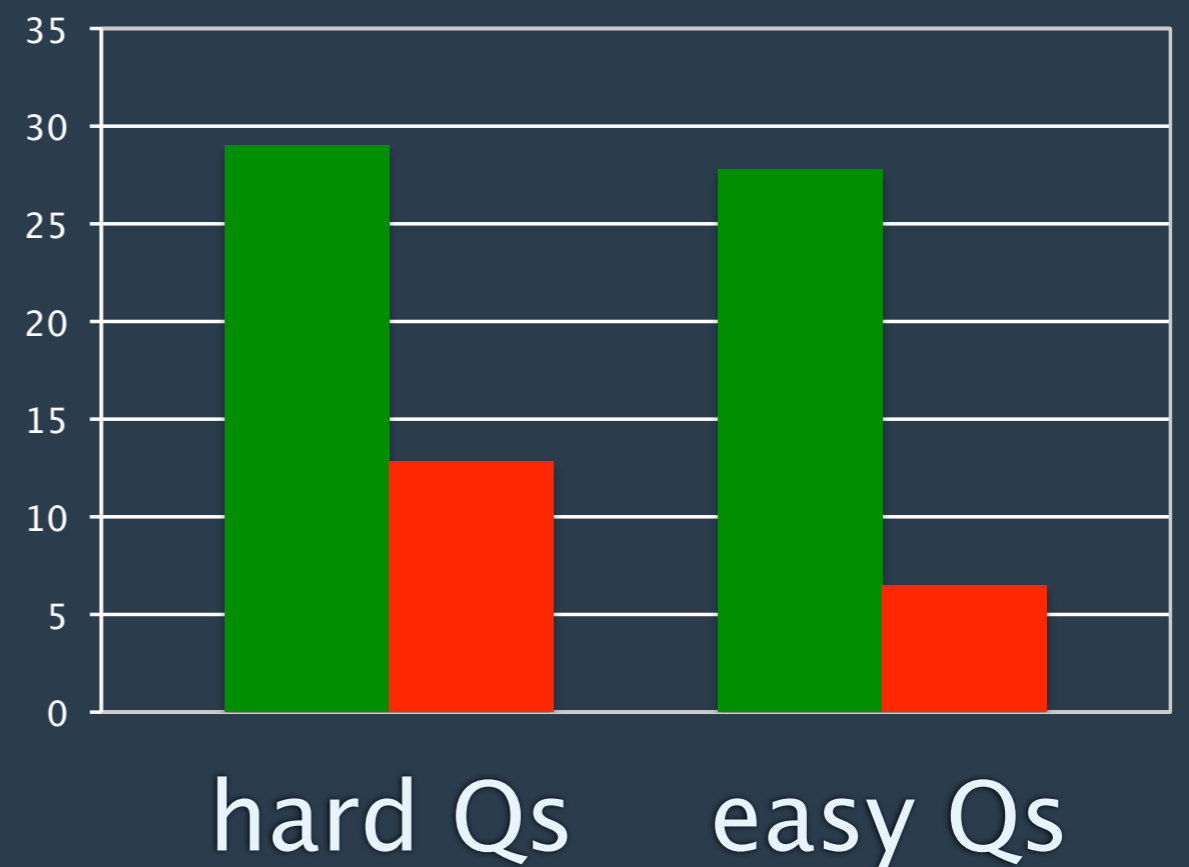
surprised that more replies from friends than SNs

Network differences

AVG. SOCIAL NETWORK SIZE



AVG. NUMBER OF FRIENDS



● answered

● unanswered

nothing really jumping out at me
no substantial differences

Extensions to the Model

1. Relationships with friends
2. Time since last interaction (with friends)
3. Availability
4. Personalizing the question
5. Other barriers to communicating