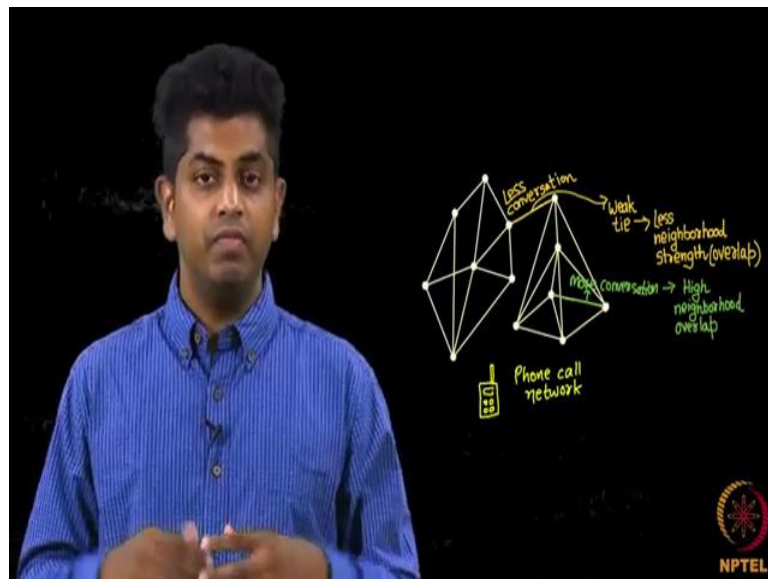


**Social Networks**  
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**Lecture - 38**  
**Strong and Weak Relationships (Continued) and Homophily**  
**Tie Strength, Social Media and Passive Engagement**

We observed that Granovetter indeed had guessed it right. The data set that is available today tells us the following.

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Given an edge, given a link you observe that in the phone call network they take the phone call network and they see that are given link between two people you have an edge if they have had a phone call. If they have had less conversation across a period this experiment said that it is mostly a weak tie and it is topologically also a weak tie which means its neighborhood strength is less. What do I mean by this? It just means in a network if you look at all the links, links denote two people are have had conversation on phone and you see how much conversation they have had and you observe that more the conversation more is the neighborhood overlap, lesser the conversation less is the neighborhood overlap. We saw this in detail, we made are inferences, we saw the plot as well.

Now the world has been there done that they were phone conversations, how do conversations happened today, it is mainly through Facebook, Whatsapp, different social media, right.

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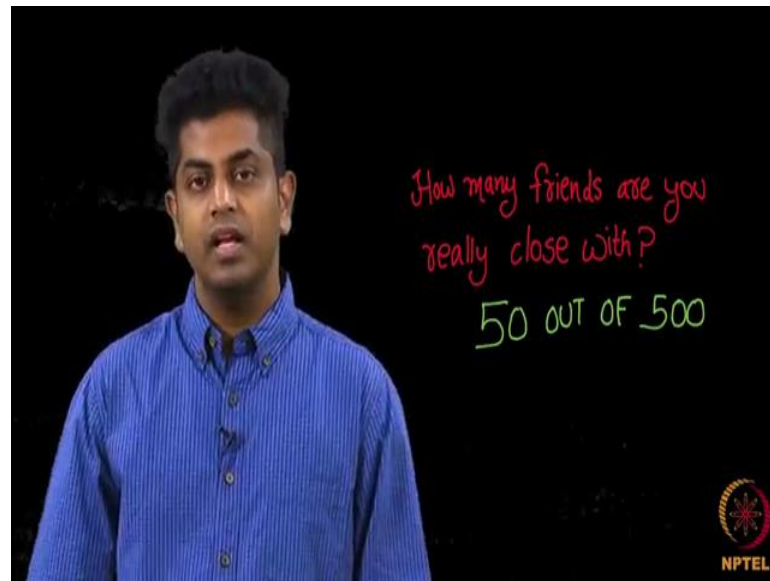


So, let us now shift gears and ask a nice question. So, we have seen Granovetter strength of weak ties and we saw its validation on the cell phone, phone usage network. Now we will slightly take move, will drift slightly away from Granovetter strength of weak ties theory and ask an entirely different seemingly different, but related question. The question is the following.

We all use Facebook, imagine when was the last time you met your old friend and this person comes and says hey dude how are you, I saw your updates on Facebook, very interesting you seem to have, you seem to doing this, you seem to doing, that I see that you got married recently, did you invite me, you had a kid, oh videos are very cute. Now you are wondering this friend of mine which I have lost touch for a fairly long time, since to be in touch with me he is following what is happening with my life, this is what we call passive engagement we may not be in touch with our friends, but we know what is happening with their lives.

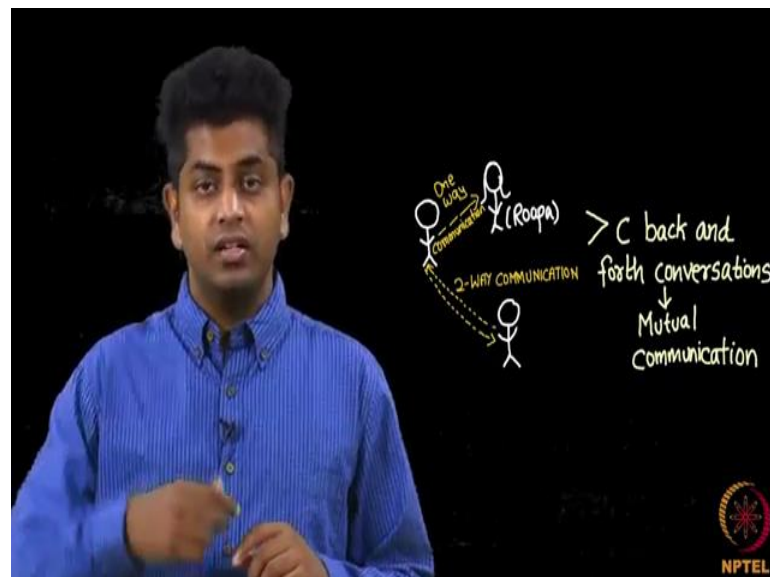
Now, we have thousands of friends on Facebook, if not thousands at least hundreds. Each one on an average, let us say each one of you have around 500 friends.

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But if you ask this question with how many people are you really close? The answer probably will be very less if you have let say 500 friends you hardly will be close to let us say 50 friends or even less correct, let us do this experiment. Let me take you your Facebook profile and let me try to see with how many people you had a conversation.

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So, let us say you say hi Roopa how are you it is been long since we spoke and Roopa does not reply back. I would call this one-way communication; you have spoken to Roopa and Roopa has not replied back. Two-way communication, whether mutual

communication is when you say something that person also say something you say something, she says something so on and so forth right.

There has been some amount of conversation. I keep a threshold and say if it has caused this many back and forth conversations then I call them as people who are in mutual communication. So, one-way communication is just a few messages, mutual communication means a lot of messages is a third type.

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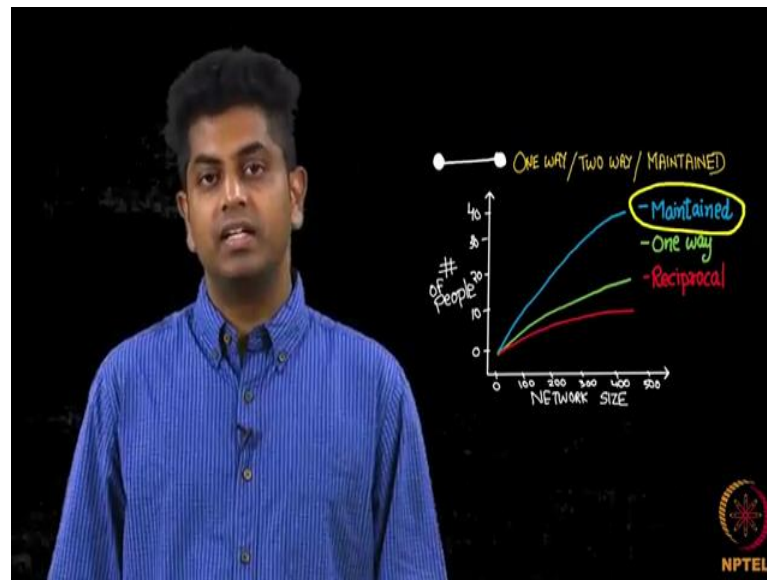


People observed there first-time one-way communication is a lot in number, we just add people we just say hi and then we forget on Facebook, we do not care. They also add us, but they were not respond back to our replies, I mean our messages, one-way communication. Mutual communication is you have a very close we keep talking, mutual communication is very less one-way communication is lot more. This is a third type as I was telling you.

The third type is if a person is following you, on your timeline on whatever is happening with you whatever news you keep posting he comes and clicks on like or comments there and things like that right I call it the third type. So, what is so interesting about this third type thing about it, is it, is the third type better than one-way communication or is it less than mutual communication, let us think about it for a minute. So, this third type is called the maintained relationships. Let me ask what happens on Facebook, given a friendship what how do you classify this, is it one way communication or two way communication

or is it a maintained relationship. You probably will say some of the there could be overlap between reciprocal communication, which is two way communication and maintained relationships, two people were talking to each other, might even follow each other.

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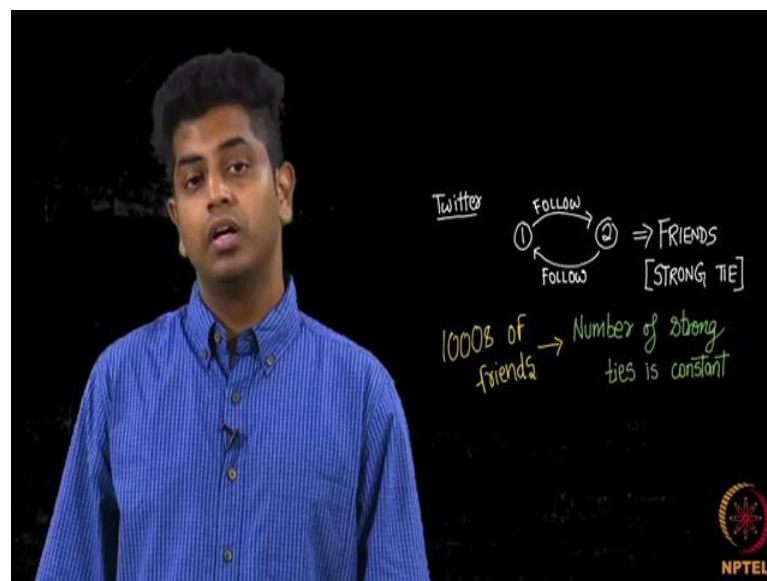
Now, what I will do is I will see which one is more and classify and link as either one way or two way or the third one maintains relationship. And what I will do is I will plot with x axis being the network size, actually the neighborhood size, but took keep it simple on your minds I will call it the network size and then on y axis I will plot three things - one is one way communications, second one is mutual communications reciprocal communications or two way communications whatever recall it that is a second plot, the third one is the maintained relationships. You see what is happening here lets at any point on x axis, let me say network of some 100 people when I see the total number of friends that a person has is basically this these many people are one way relationships, these many are two way relationships and these many are maintained relationships right.

What do you see from the plot? The maintained one also called the passive relationships is the highest, why is that, why does that happen, is it that obvious Facebook keeps you glued by showing you some interesting stories about my life, but we seldom talk there. More often on Facebook what happens is you checking my news feed, me checking your

recent photograph that you uploaded, me click clicking a like on it, me seeing your status message commenting on it etcetera right. There is not much of talking that happens would me and you and that is what happens on Facebook, there is a whole lot of mutual engagement, but very less of first and the second type. So, the plot clearly says most the friendships on Facebook is basically about two people just checking there Facebook profiles clicking on like, commenting and stuff like that.

So, what we mean by this? What is the inference? The inference is that on social media the most important thing that sells that keeps people engaged is the third type, if you let them just talk to each other probably that particular media will not be very popular. You should make them indirectly be updated about each other's life by not talking to each other, but by just seeing each others Facebook profile, that is what the plot says.

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So, a similar question was also asked on twitter what the question was asked on twitter. Let me classify friends as strong friends and weak friends on twitter, you know in twitter you basically follow a person and that person may also follow you, only if a person follows can you send that person and direct message which will personally go to that persons twitter inbox let us say, they observed the following.

They saw if two people are friends and if they have exchanged personal messages then it is a strong tie otherwise it is a weak tie: so what. They saw something very expected. People may have 1000s of friends, if you see Obama or Donald Trump or Narendra

Modi you will see that they have millions and millions and millions of followers, but you will observe something very startling about all the celebrities. The amount of direct messages that they would have exchanged and hence the strong ties that I define. I repeat a link is a strong tie if they have exchanged direct messages with each other, more than let us say 3 4 direct messages, they observed that this seems to be a constant. No matter how many people you are following or being followed this does not seem to go beyond some 50 or 60.

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Look at the plot the x axis is the number of friends and the y axis signifies the number of strong ties, you see that it sort of converges, converges to a value which is a lot less than 100 which means converge may the number of people to whom you can be closed cannot go beyond a particular number. Now is not this obvious, why is this obvious? This obvious because we all have limited time, we cannot endlessly keep communicating with people, but we can follow some 1000-2000 people I know what is happening with their life. But we will not be able to talk to them regularly that is probably because the limited cognitive budget that we have, limited time that we have correct. So, we can only do this much and that is what the plot says.

Very eye-opening plot in the sense that we think many people who have a lot of; few people have a lot of friends and probably they know a lot of people that is not very true

even. If they have a lot of followers or if they have following so many people those people that they are close to or let us say strong tie is way too less.