

All in the Mind (ABC RN)

The Hard Data of Soft Emotions

Lynne Malcolm: Hi, Lynne Malcolm here for *All in the Mind*. Today, big data and how it can help our emotional selves.

Ehon Chan: We are seeing a lot more people leaving digital data, and now we have learned to mine this digital data. So how do you use this digital data to inform people and empower them to take the steps that they need towards a better or a healthier life and future?

Helen Christensen: At the moment we don't really know the extent to which Twitter is able to reveal deep emotions. But we are using a number of different paradigms to test the idea that Twitter, Facebook, LiveJournal and other blogs do provide real data. And once we are able to validate that we will be in a position to say the extent to which something like Twitter reveals things about people and their mental health.

Lynne Malcolm: Helen Christensen, director of the Black Dog Institute, speaking about the Twitter tool, just launched, which maps the emotions of the word. And before that, Ehon Chan, whose passion for connecting people with technology led to his campaign to prevent male suicide.

In this digital age we unwittingly leave information about ourselves as part of whatever we do, from our mobile phones, credit cards, and through social media. The power of this big data in the wrong hands may fill you with fear, but there's a growing movement to harness this wealth of information and to use the power of the collective to create a better society.

Alex Pentland, better known as Sandy, is a data scientist who's helped create and direct MIT's Media Lab. And he's also a pioneer of Google Glass. He uses big data in a new field of science.

Alex Pentland: Well, social physics is actually a name that's two centuries old. The guy that started sociology originally called it *social physics* because he was inspired by Newton and all that, but he soon realised he didn't have enough data or enough maths to do justice to the term and went to the name *sociology*. But I think now

we have a lot better maths, and with the coming of big data we can actually take social science and turn it into something that is a predictive science.

Lynne Malcolm: Sandy Pentland on social physics, which is the title of his latest book. This new science is dependent on the information that we may or may not choose to share.

Alex Pentland: Yeah, the things on Facebook are sort of what you choose to reveal as your social face, and in contrast, the things which you actually do are much more revealing of the way you live your life. Cell phones, for instance, know where they are at all times, know the people you call. Credit cards know what you buy. So if you can take a look at that stuff, you can really get a good picture of who the person is. That's obviously really spooky from a privacy point of view, but from a social science point of view, a scientist for the very first time gives you a sense of how people really live and not just how they say they live.

Lynne Malcolm: In their study of people and their social interactions, Sandy Pentland and his researchers get their information from a variety of sources, including a sociometer. It's like a name badge which they ask people to wear for a month. It keeps track of their movements and who they're talking to, but not the content of their conversations. It provides a map of social interactions which are then connected to their feelings about those interactions. One of the most important things they've noticed is what they call idea flow.

Alex Pentland: It's basically how an idea starts in my head, and through learning and example it ends up in your head and changing your behaviour. So it's this propagation of behaviour throughout a community, what is sometimes called a tipping point phenomenon, where new things spread. And what we discovered is that if you look at groups you don't have to know anything about the content; you just have to look at the pattern of communication to be able to figure out how things spread. And that affects all sorts of things, that affects how good decisions are, which things people adopt and so forth.

Let me give you an example. We grabbed hundreds of people off the street and put them into little groups (we paid them to do this, don't worry) and we had them solve all sorts of problems. And what we discovered is the group's ability to solve a problem was much more a function of *how* they talk to each other than what they said or how smart they were individually. If everybody was engaged with each

other and contributed lots and lots of ideas and acknowledged the ideas of the others, then that group did really well, even if the people in it weren't necessarily the brightest or the content was not necessarily something that they were the most familiar with.

So there's a sort of collective intelligence that comes from the pattern of how we interact with...and when you come to innovation and creative output, it has to do with a good group that's very engaged with each other also exploring and talking to people outside the group. And the more they harvest ideas from outside the group, the more innovative the ideas and behaviours they have will become. I like to refer to groups of humans as idea machines that pitch ideas and sort of process them to pull out the good ones.

Lynne Malcolm: And there are some interesting things about how groups operate socially.

Alex Pentland: Well we did a really interesting thing with a social network called eToro. And it's a financial social network, so people are buying and selling dollars and euros and gold and silver. And because it's a social network you can see what other people are doing. You can learn from each other. And what we discovered in eToro is when there was a lot of very diverse social learning, so you're paying attention to very different sorts of people, then people would make more money. A lot more money, 30% more money.

But when you got into an echo chamber where there was sort of too much social interaction, you got the same ideas banging around like cascades or panics or fads or something, and people made progressively more poor decisions and got more poor; they made less and less money.

So it seems like the thing that's happening in social networks is not so much that there's too many ideas, but it's more the same ideas coming around again and again, faster and faster, a condition I like to call echo chambers. If we can sort of be a little more diverse about it, pay attention to different things and try to filter out things that are much the same, we can do an awful lot better.

Lynne Malcolm: Given your observations about how dependent we are on each other in terms of ideas and in terms of learning, what can you say is the best

motivator for people, for example if we wanted to change people's behaviour in a more positive way?

Alex Pentland: Well, the interesting thing is that when you begin thinking about people as this social fabric, you realise that the thing we usually do, which is, you know, you give somebody extra money if they work a little harder and you penalise them if they do something you don't like, you realise that that's not a very efficient way to do things. A far more efficient way is to affect their social learning.

For instance, we've done things like go into a community and have people sign up with buddies. So you sign up with the people you interact with most, and instead of giving you a reward for better health behaviour, for being more active, I'll give your buddy a reward when you become more healthy and more active. And what that does is it causes your buddy to talk to you. Your buddy can say, 'Hey, I see that you're not getting around as much as you were last week, and incidentally I'm not getting my couple of dollars of reward off of that. What can we do to help you be a little more active?'

It becomes a conversation between people as a consequence, and people begin thinking about it, they work together about it, and it changes behaviour far more efficiently than if I had just given money to you directly to change your behaviour.

Lynne Malcolm: So it really is a reflection on how important we are to each other on a one-to-one and face-to-face level.

Alex Pentland: That's right. The key thing is that we're social animals and the most valuable exchanges we have are with each other, not necessarily with the boss or the government. And by recognising that it's those exchanges between us that make us smarter, it's those exchanges that define our culture, for instance, and then trying to address people and problems, that way we can get much better solutions than if we treat people as homo-economists and think we're all just individuals who respond only to additional cash or penalties.

[Audio: 'Soften the Fck Up' TV campaign]

Lynne Malcolm: That's from the massive campaign for suicide prevention in young men, called Soften the Fck Up. It was initiated by social entrepreneur Eon Chan. After experiencing the grief of losing his closest mate in a drowning accident at the age of sixteen, Eon resolved to create better futures for everyone around him. His

upbringing in a Malaysian village taught him the importance of sharing with the community around you. The power of the collective, if you like. He applied those values to his male suicide prevention campaign through the clever use of digital technology and social networking. I'm speaking with him on Skype.

Ehon Chan: So we want things to spread. We want things to be shared, whether it's through the death of someone or their own personal experiences with mental health or suicide, they're able to contribute back and turn their experiences around. That's the most powerful impact we can have.

So the social bit was very important for us. We used crowd-funding, crowd-sourced talent, so our developer, our designer, our consultants, our PR, they were all crowd-sourced. So the only part that I contributed was the idea, and I guess I set up the theoretical framework for how the campaign can become effective, based on social theories of breaking cultures and stereotypes and stuff like that, and just used the technology to fill in those frameworks to allow anyone in the crowd to contribute to the campaign.

Lynne Malcolm: So what are some of the principles that you've learned about why people share ideas and how they best share ideas and share personal material through the use of digital technologies? People must behave in different ways on a digital platform as opposed to face-to-face.

Ehon Chan: Absolutely. I think that one thing that people often forget is that it is still a human being behind every single digital technology, so when you design anything that's online or using digital technology, you have to remember that you are designing essentially for human beings as well.

Human beings are complex, you know, they have emotions, and because this is a very emotionally driven campaign, we wanted emotional investment right from the beginning. So everything has to be very compelling, so the first thing we did was invite everyone who wants to contribute to share a story about someone who they know, or themselves, who had been affected by suicide. And it has to be a man.

So it was that human element that for me was very important. Having said that though, because it's also designed and created and contributed by humans, there is also a risk that digital technology does give that anonymity. So you do find people who do abuse the anonymity that is given to them. A good example is before we

even launched, someone wrote an anti-feminist blog about how this group of people have come out to try to basically spread feminism to all the men in Australia. And so we had to do some risk management and damage control.

Lynne Malcolm: Yes, so I guess that's the downside of using such a public medium.

Ehon Chan: Yeah, absolutely. But what you'll find is that overwhelmingly, as long as you build a very compelling reason to be involved, pretty much people would come on board to contribute positively instead of negatively. And any negative things that pop up, everyone else would just get on it and try to resolve the problem.

Lynne Malcolm: Ehon Chan was overwhelmed by the response he's had to the campaign.

Ehon Chan: One thing that was very important was for us to be able to create a permission and a platform where people are able to share their experiences and their stories, stories of people who have been there and battled the black dog and come out of the other end feeling stronger and more empowered. It's been overwhelming. Within the first year we attracted over 60,000 people. By the second year it doubled, and the stories that came in were just...I literally sat in front of my computer and cried almost every night for the first two months.

There was a story of actually a journalist from the ABC. He wrote to us saying that, you know, the day that he found out about the campaign he was actually writing his suicide note. And someone posted the campaign on his Facebook and he was scrolling through his Facebook feed when he saw the campaign and went on to read all the content on the site, and decided that he was going to delay his suicide. And a few days later he checked himself in to the mental health clinic and got the help that he needed.

So I then flew over to visit him in the hospital and it was one of those moments where you know, you sit in front of someone and you realise that we all have the power to create change in someone else's life. It's just a matter of us taking the active steps to try to create change in the world that we need to see, and watching him take the active steps to become better because we had inspired him to take that step is extremely moving. It's an experience that I cannot explain, and one that definitely has a profound impact on my life and the lives of my team. So those

stories really inspire us to do more and find new ways to create more conversations and bring that tough conversation out of all the men in Australia.

Lynne Malcolm: Ehon Chan, who'll be appearing at the Happiness and its Causes conference in Sydney shortly.

You're with *All in the Mind* on RN, on air, online and on your ABC radio mobile app. I'm Lynne Malcolm and we're exploring the potential of the digital data that surrounds us, how it influences the way we interact and what it could offer to our emotional wellbeing.

Do you Tweet? If so, you may be contributing to an emotional map of the world as we speak. A new Twitter tool, the result of a partnership between Amazon, the CSIRO and the Black Dog Institute has just been released. It's called We Feel, and it monitors all English-language Tweets, searching for words describing emotion, and then tracks how they ebb and flow. And just for the record, they've found that joy is the most prevalent emotion for Australia. But there are also quite high levels of fear. Because it monitors in real time it can track emotions in response to particular events. When the Australian federal budget was delivered recently, noticeable changes in mood were detected. There was a lot of anger, and it took a while for that emotional response to dissipate.

The executive director of the Black Dog Institute, Helen Christensen, is optimistic that this application could help us understand mental illness.

Helen Christensen: Our first task is to validate, that is to try and work out what these Tweets mean. There's certainly evidence from other research showing that Twitter can reveal things like suicide risk. And what we're doing is exactly the same thing. We're trying to see if the emotions that we're identifying map on well to what we already know epidemiologically about how depression is dispersed in our communities.

But once we've validated it, it becomes a very powerful tool in real time to identify areas of distress and sort of hot-spots of despair, if you like. And they can be used and be identified to health authorities who might be able to step in and do things, or to think about from the policy-makers' point of view how they're going to change those communities to make them healthier.

We also like the idea that communities themselves can go in and have a look and see how we feel. So it's giving people access, really, to information about how people are feeling all over the world. And finally I think researchers are just very excited by the fact that we might be able to model risk factors.

Lynne Malcolm: But in the area of mental health, how do you get over a possible gap between what people are choosing to share and what they're really feeling, those deep emotions that we're talking about which do become disturbed when mental health is not so great?

Helen Christensen: That's a very good question. At the moment we don't really know the extent to which Twitter is able to reveal deep emotions, the feelings that people have at an individual level. But we are using a number of different paradigms to test the idea that Twitter, Facebook, Tumblr, LiveJournal and other blogs do provide real data. And once we are able to validate that, we will be in a position to say the extent to which something like Twitter as opposed to other technologies reveals things about people and their mental health.

Lynne Malcolm: Yes, because people choose to share particular things, and not everybody chooses to use social media, so what, in light of that, are the limitations of a tool like this?

Helen Christensen: Well, the limitations are that we're not getting a representative sample, but that would be impossible. However, there are so many amazing things about social media that I don't think we've even realised. So even though people might intend to not speak about a particular emotion they have and they might hold things back, one the things social media really shows us is their social networks; who they're connected with, how they're connected. And that is powerful. Social connectedness is very powerful because it will allow us to understand within certain sorts of communities how we can get out messages for people to seek help, whether they are right messages are being said, and also who in that social network should be giving out the messages, and whether it can indeed be automated.

So although social media is limited in the extent that it's not a valid interview of a representative sample of the community, it has so much more power that really hasn't been recognised, I don't think.

Lynne Malcolm: And another aspect of this project is that it actually assesses people's emotions in real time. So what is the potential of it, say, in terms of suicide prevention, when people are sending out desperate messages?

Helen Christensen: Well, I think it has a great deal of potential, but I'd also like to emphasise that we really need to do the research first. So one of our projects at the moment is looking at the context in which suicide Tweets are made. So we look at suicide Tweets at the moment and think about what happened before that Tweet and what happened after that Tweet in order to be able to find a way of working out what's a genuine, real intent, and what just might be a reaction to, you know, a football match.

So that's the first step, and once we've done that and we think we have some validity in being able to identify those things, we will look at working out from a science point of view what sort of messages should be sent to those people. Because I don't think it's a kneejerk thing; well, we must really intervene straight away. We actually have to understand what is the best method to intervene and to make sure it's going to be effective and do no harm.

Lynne Malcolm: Executive director of the Black Dog Institute, Helen Christensen. And you can check out the We Feel Twitter application by going to www.wefeel.csiro.au. We'll put that on the *All in the Mind* website as well.

So many possibilities are opening up to us as a result of the digital breadcrumbs we're leaving. I asked Sandy Pentland, from MIT's Media Lab, whether we should be nervous.

It's such a rich source of data, and in the wrong hands could be disastrous. How can we ensure that it's going to be used for good?

Alex Pentland: Well, that's a key question. You're absolutely right, because suddenly there's all this data, and it could be very dangerous but it could also be very good. It could help us with public health, it could help us with more sensible government, and on and on and on. And the question really comes down to who controls the data. There's two things we have to do, we have to be able to use this data to build better social structures, and we have to protect individuals. And it seems like the only way to go forward with that is to give individuals much more control over data that is about them.

A way to describe this is we're sort of in an era where we're all digital serfs. All this data about us is being created but we don't own it. We don't even know that it's there most of the time. So it's a little bit like in the middle ages where the local lord owned everything. What we need to do is make people aware of it and put them more in control of it. So sort of a digital democracy, if you would, over this type of data.

And that sounds a little bit quixotic, and oh, that'll never happen. But over the last six years I've run a discussion at the World Economic Forum with chief regulators from the US, from the EU, from even China, and the heads of major corporations, and there's a lot of consensus about this, because even the heads of the corporations don't want to see things getting really bad, that's not good for business either, and of course the regulators, it's their business to make sure that we have a more stable society, and that's resulted in things like in the US the Consumer Privacy Bill of Rights, and in the EU the Data Protection Act.

So those are actually pretty good laws, pretty good regulations for giving people much more control over their data. Now the devil's always in the details, but it seems like we're making good steps and now it's up to the citizens to demand those sorts of protections and to see that they're carried through so that we don't end up in some of the nightmares that people have had.

Lynne Malcolm: So as you say, many industries are regulated, or becoming more and more regulated. But what about Facebook and Google? There are still question marks around how much information they have and how they use it.

Alex Pentland: Absolutely, yes. Google, Facebook and many of others grew up in this sort of wild west and now we have this problem that they've grown up as sort of a thorny bush that steals our privacy, and what are we going to do?

Well, first they're going to deal with the regulated industries where they have some real clout—so those are banks, hospitals, telcos, things like that—and see if they can generate a much higher standard of privacy protection there. And then if that all works well, which we should know in the next couple of years, then they can go in after these other guys, and say, well look, you know the regulated industries are working with even more private data—things like your medical records, extremely private—and they're doing a good job of it, so now you have to go up to their standard. The first step I think is to create examples of people doing it the right

way, using the regulated industries, and then go after the ones that grew up in the wild west.

Lynne Malcolm: So what does a data-driven future look like for MIT professor Sandy Pentland?

Alex Pentland: If you look at what it could be, it could be something where first of all there's data democracy, so people are much more in control of data about them. And as they contribute data to the civil society in order to have a better society, some of the results could be really transparent government. Today you have the politicians tell us, oh, here's a policy, it's going to do something. But you know, we don't really know if it works or not because the only sources of data we have come from the government. So they're telling their own stories. Can you imagine something where you can really see what's going on, and hold a government's feet to the fire? It would be transformative.

Also you can imagine something where if people felt safe about sharing information, about how they spend money, about health outcomes, you could begin to know what sort of medical procedures work. Today it's crazy, you go to the hospital, you talk to this guy, your doctor, you may have just met him, he tells you, 'We should do this thing.' You have no idea if it's good or not, and the scary thing is usually he doesn't either. And the reason is all those data are kept so private that we can't figure out which doctors are good, which hospitals are the right ones, what procedures work and what medicines are effective. You can imagine, if it's safe to share that stuff, we could figure out what works in this area of medicine. That would be pretty amazing. The same thing in education and other parts of life.

Having greater transparency is a good thing, generally, and the thing that keeps us from it at the moment is that it's just not safe to share a lot of data and you have to keep it locked down. So we need better ways of doing that, and I think we've come up with ways to do that, and the sort of regulations proposed by the Consumer Privacy Bill of Rights in the States, and the Data Protection Act, give us that to a large degree, and we've got to push to make those things real.

Lynne Malcolm: Professor Alex Pentland from MIT's Media Lab, and author of *Social Physics: How Good Ideas Spread—The Lessons from a New Science*, and it's published by Scribe.

Go to the *All in the Mind* website for information and links from today. Leave your comments there and catch up on previous episodes too. Thanks to the production team today: Diane Dean and Russell Stapleton. I'm Lynne Malcolm.