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A RESEARCH AGENDA FOR DIFFUSION OF INNOVATIONS SCHOLARS IN THE 21ST CENTURY: A CONVERSATION WITH EVERETT M ROGERS

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On October 26, 1996, Professor Everett M Rogers, Chair of the Department of Communication and Journalism at the University of New Mexico, gave a talk to Professor Arvind Singhal's graduate class on *Information Diffusion* at Ohio University. An edited version of Professor Rogers' remarks on "A Research Agenda for Diffusion of Innovations Scholars in the 21st Century" and the ensuing question-and-answer session is presented here, prefaced with a description of Rogers' contributions to the study of the diffusion of innovations.

Everett M Rogers and the Diffusion of Innovations

Diffusion is the process by which an innovation is communicated through certain channels over time among members of a social system (Rogers, 1995). An *innovation* is an idea, practice, or object perceived as new by an individual or other unit of adoption (Rogers and Singhal, 1996). Diffusion represents a special type of communication in that the messages are concerned with new ideas. With over 5,000 research studies to date on the topic of the diffusion of innovations, "no other field of behaviour science represents more effort by more scholars in more disciplines in more nations" (Rogers, 1995). The study of the diffusion of innovations is of interest to scholars in political science, anthropology, sociology, education, public health, communication, marketing, geography, economics, and other academic disciplines.

Professor Everett M Rogers is recognised internationally for his work on the diffusion of innovations. He is the author of *Diffusion of Innovations* (published in the 1962, 1971, 1983, and 1995 editions by Free Press, New York). This book is the second most-cited work in social science after Cook and Campbell's (1979) treatise on quasi-experimentation.

Born to a farm family in Caroll, Iowa in 1931, Rogers was intrigued in his childhood by the following question: Why did some farmers quickly adopt new agricultural technologies and methods, while other farmers, often including his father, waited for years before trying the same

innovations? For instance, a neighbouring farmer adopted hybrid seed corn, which in the 1936 Iowa drought stood tall and healthy, while the open-pollinated corn on the Rogers' farm shriveled. His curiosity led Rogers to study agriculture at Iowa State University in Ames, Iowa for his bachelors degree (1952) and rural sociology for his MA (1955) and Ph.D. (1957) degrees. Iowa State University at that time was a center for research on the diffusion of innovations. It was here that the intellectual basis for the diffusion of innovations paradigm was formulated, influenced by the earlier classic study of Ryan and Gross (1943) on the diffusion of hybrid seed corn among Iowa farmers.

In the past four decades, Rogers has taught at Ohio State University, Michigan State University, University of Michigan, Stanford University, University of Southern California, and the University of New Mexico (where he is presently based). He has traveled extensively in Africa, Asia, and Latin America, conducting research on the diffusion of innovations. His contributions to our understanding of how innovations diffuse have been recognised widely. He has received several prestigious awards, including the Paul D Converse Award of the American Marketing Association for Outstanding Contribution to the Science of Marketing (1975); the Distinguished Rural Sociologist Award of the Rural Sociological Society (1986); the Philip R May Award by the Howard R Davis Society for Knowledge Utilisation and Planned Change (1988); the Thomas Jefferson Award of the Technology Transfer Society (1995); and an Honorary Doctorate from the University of Munich in Germany (1996). His book, *Diffusion of Innovations*, was selected in 1997 by *Inc.* magazine as one of the ten most influential books for U.S. businessmen.

A Research Agenda for Diffusion of Innovations Scholars in the 21st Century

Singhal: It is a great honour for us to have you here in Athens, Ohio. Scholarly interest in the field of diffusion of innovations continues. The field has been alive and kicking for a relatively long period of time. I believe that the future of the field of diffusion of innovations is very bright, as yet newer innovations appear everyday. Tonight, we are eager to hear your opinions on where the field of diffusion is going in the future, and how innovation diffusion scholars might prepare themselves.

Rogers: Thank you very much. The trouble with my coming back to Athens, Ohio each Fall is that I can't say the same thing because some of you have heard it before. So it is a good thing to talk about the future of diffusion.

I want to concentrate on three surprises that happened to me in the past six months. Each of them have led me to think about a new kind of research on the diffusion of innovations in the future.

The Willow Creek Association: Overcoming resistances to adoption

The first surprise was when I got a phone call some months ago, from the President of the Willow Creek Association. I had not previously heard of the Willow Creek Church which is located in Barrington, Illinois, a Chicago suburb. The individual who leads Willow Creek is a former businessman Bill Hybells. He started the church 12 years ago, and in this time, it has grown to be the largest church, in terms of membership, in the U.S., with about 20,000 members. When his staff contacted me, I said "Well, I'm not very much into any religion." Then I learned that they had read the *Diffusion of Innovations* book and put it into use at the Willow Creek Church. So I said "Okay. I'm interested." Church leaders used diffusion theory both to spread membership in the Church, and also to diffuse Willow Creek innovations to some thousands of other churches in the U.S. and abroad. Willow Creek has become rather famed. They recently were featured on television programmes like "20/20" and "60 minutes", and in various newspaper and magazine articles, such as "The Next Church" in *The Atlantic Monthly* (Trueheart, 1996).

The Willow Creek Church is somewhat controversial to some individuals, because when any religious organisations grows so rapidly, people tend to say it is a cult. Not so. This Church has spread so rapidly because it uses sound marketing and diffusion strategies. The president of Willow Creek Association (to which 1,700 local churches belong) has an MBA from the Harvard Business School. Willow Creek has attracted many other church leaders to site-visit Willow Creek in order to see how they do it. They have become a diffusion center. The Willow Creek type churches are commonly called "mega-churches" because many are very large. I am sure there are many such churches in Ohio. There are eight Willow Creek-type churches in Albuquerque, NM, all rather large in membership.

When I visited the Willow Creek Association headquarters near Chicago, to my surprise, they showed me their Church database. Of course, they have an Internet web page, and also an e-mail system (called Willownet). I selected Albuquerque on their database, and found eight churches in Albuquerque that follow the Willow Creek system. My wife and I drive by one of these Churches everyday on our way to the University of New Mexico campus. This Church always seemed to be building new additions. Also, we noticed there are no crosses on this Church. When religious leaders attend conferences in Barrington, Illinois, where the Willow Creek Association headquarters is located, they learn their methods of diffusion and come home and try them out in their church.

There are some strong *resistances* to the new idea promoted by the Willow Creek Association. Their basic innovation is that a Church is not just for those people who already belong to it.

That does not seem very extreme until you put it into action. Instead of just having the traditional Sunday morning services, they have religious services on Saturday night, and/or Wednesday night. The Willow Creek Association found through market research that many people do not want to get up on Sunday morning. Research also told them that most people do not want to go to religious services and hear someone, usually a man, tell them that they are not leading the "right" life. Willow Creek Church asks members to invite their friends to the 'seeker services' which are targeted to non-members. There is soft rock music with guitars and drums, and religious words. Videotaped melodramas motivate people and catch their interest. These videos are usually five to seven minutes in length. The videos leave you uncertain of what will happen next. They do not represent closure of the problem. So they involve the audience individuals. People are encouraged to apply Biblical lessons to understand what has happened and what is going to happen next. Most Church members are organised in small groups of about eight to ten people who meet once a week in their homes, and discuss the dramas. People like being in these small groups. People living in cities want to have a sense of community. Again, Willow Creek learned that through market research. So this is a religious organisation whose services are planned, organised, and designed by market research, and whose strategies for reaching new members are based on diffusion theory.

Imagine someone coming to your church and saying, "Okay, we're going to do a focus group here with your members, and find out what they like and do not like". The Willow Creek Church uses focus groups to learn about people who are not coming to their Church, and what they want by way of religious services. Some Willow Creek-type churches have attracted a few drug-users and commercial sex-workers. All are welcome. You can imagine what some middle-class Church members think of this! Why are we letting these people into our Church! But the idea of this Church is that anyone who wants to come should be welcome.

What I learned from Willow Creek is the importance of studying *resistances* to new ideas. Until now, I thought that resistances were not important to study. I studied innovations and how they spread; how people become convinced to adopt innovations. These are the positive aspects of new ideas. I seldom looked at resistances to innovations. But my contact with Willow Creek convinced me that understanding resistances to innovations can be very important. The Willow Creek religious innovations are being introduced in organisations (churches) that do not expect to change. So there are resistances, and when the Willow Creek innovations like market research, seeker services, soft rock music, the dramas, etc. are introduced in some churches, conflict results.

Willow Creek studied resistances of people to attending church, and developed various

ways to overcome these resistances. Innovations are introduced and rejected in many institutions. Until we study resistances, they cannot successfully be overcome. So diffusion scholars should devote more attention to studying resistances to innovations.

Select University Technology Incorporated (SUTI): Predicting an innovation's future

A second surprise came to me from a high-tech company, located in Newport Beach, California, whose President is named Fred Rogers. He is a Canadian, from Edmonton. Some years ago, he started a computer software company, was successful, made a modest fortune, sold his company and become bored. He was in his 40s, and searched for what to do with the rest of his life. For about two years he read books in the University of Alberta library, trying to decide what he should do next. You can imagine that he read the *Diffusion of Innovations*. He decided to use diffusion theory to select promising innovations for commercialisation. He relocated to Newport Beach in Orange County, a wealthy suburb of Los Angeles, where many high-tech companies are located.

His company is Select University Technology Incorporated (SUTI). They identify some thousands or so technological innovations each year, mainly generated by university professors. The professors typically do not want to launch a new company around their technology. But they want somebody to do so with their new idea. SUTI selects a handful of innovations each year, and then starts a company to commercialise each of them. If the company is successful, SUTI benefits accordingly. The technological innovations are mainly in computer software, new materials, environmental protection, and so forth.

How does SUTI use diffusion theory? To select the innovations to pursue, out of the thousands of candidate innovations, SUTI developed an instrument to measure the qualities of innovations that will predict the success of a company that, once started, will take the new product to market. In essence, SUTI predicts the future rate of adoption of new products.

The heart of the prediction instrument is built around the five perceived attributes of an innovation: relative advantage; compatibility; complexity; trialability; and observability. They specify numerous sub-dimensions for each of these five attributes. A dozen or so people with expertise rate each technological innovation on these dimensions. Unless an innovation gets a very high score from all of the expert raters, SUTI drops it.

The SUTI experience caused me to give much greater attention to the prediction of the rate of adoption. It is one thing to study an innovation that has diffused, *after* it has done so. It is much more difficult to predict its diffusion. Future diffusion scholarship should focus more attention on the means

of predicting the diffusion of innovations.

General Motors: Tracking the spread of an innovation

My third example is as close to you as the local Cadillac dealership. This year new Cadillacs come equipped with an on-board computer system that includes a GPS (Global Positioning System). Think of three satellites with each of them sending a radio signal to your car. Such triangulation can tell you exactly where your car is situated. A new Cadillac has a small TV-like screen, on the dashboard, which the driver can easily see.

Say you want to go to Nelsonville, Ohio. You will need to enter "Nelsonville" in the on-board computer, and it will show you the most direct route. Imagine you want to find Josep Rota's house. If you put in the address or his name, the on-board system will display a map showing where you are and where you want to go. It will also tell you to turn right on Ohio Street, and then turn left on State Street.

Say you are going to be late for an appointment because of heavy traffic. There is a mobile telephone in your on-board system, so that you can call ahead. Your on-board computer system can also re-route you so as to avoid traffic problems. This "On-Star" system is basically a navigation system for vehicles.

General Motors (GM) wants to put this system on all GM cars in future years. Most people want to buy it for security purposes (the same reasons that some people buy cellular phones). If you run into some difficulty, you can press a button that flashes a warning to a central switchboard, and help is sent exactly to where you are. A future generation of On-Star systems will also have computer games. So when you go on long trips and your children become bored, they can play games in the car. If the On-Star innovation diffuses, it may usher in a new generation of car-based services.

GM is also marketing an Electric Vehicle, the EV-1. The state of California mandated that 2 per cent of all new cars sold in California must be non-polluting, and Arizona has enacted a similar policy. GM announced the launch of the EV-1 , its electric vehicle, in late 1996.

The EV-1s will be sold by GM's Saturn dealers in California ad Arizona. The car is very streamlined, and it is almost silent. There is no gasoline engine, so there is no motor noise. The EV-1 runs on batteries, and costs more than the usual car. So those who buy (or lease) tend to be very environmentally-conscious and well-to-do.

The campaign to sell the On-Star computer system and the EV-1 by GM was planned around diffusion theory. For example, in each city in which the EV-1 was introduced, ads in local newspaper provided a toll-free 800 number to call if an individual wanted to test-drive this new vehichle. Thousands of people called, mainly car buffs. Interested persons drove the EV-1 for about 20 minutes, with

a GM auto engineer in the passenger seat. At the end of the test drive, they could discuss the EV-1 for upto 30 minutes with the GM engineer. Why is the EV-1 so streamlined? How many miles can I drives before recharging the batteries?

Each test driver was given a packet of baseball-type cards with a color picture of the EV-1 containing a telephone number (the 800 number) to call for a test-drive, and an identification number. Perhaps one's friend test-drove an EV-1. They gave you a card, and encouraged you to call the telephone number to test-drive the new vehicle yourself. Your identification number on the card provided a way of tracing the interpersonal networks through which information about the EV-1 spread. So GM was able to trace how information about the EV-1 spread from person to person. GM's diffusion strategy reaffirms the importance of interpersonal peer networks through which a new idea spreads. We seldom have been able to trace this important, but largely invisible, process in the past. GM's experience suggests one means to do so.

Summary

I proposed three research agendas for diffusion of innovations scholars. First, we need to look at *resistances* to adoption much more carefully than we have in the past. Second, I think we need to learn much more about *predicting* which innovations will successfully diffuse. Finally, we need to devise better ways to *track* how an innovation spread through a system via social networks. Then we could better understand the critical mass point at which the S-shaped curve takes off in the rate of adoption of an innovation.

Questions and Answers

Question: Dr Rogers, you said that studying resistances might be especially important for certain kinds of innovations. What kinds of innovations? Could you elaborate?

Rogers: I think some innovations do not face much resistance. They spread very quickly. The Internet is one example. But in some areas, for instance, education or religion, there is often strong resistance to innovations. Maybe the resistance is because the innovation is not very advantageous. Maybe there is resistance because these institutions do not expect to change. Some people were horrified when Willow Creek did market research on religious behaviour.

Maybe "resistance" is a loaded word. Perhaps it implies that if an individual does not adopt, the person is unwise. Maybe we need a more neutral word than "resistance". Many people are actively opposed to certain innovations. I think we need to give this opposition more research attention than we have in the past.

Question: For nearly two decades, you have been a proponent of analysing communication networks to understand how a new idea spreads. Could you elaborate what

future diffusion scholars need to do differently than what they have been doing in the past with respect to communication networks?

Rogers: Communication networks are important in the diffusion process, yet they are invisible - we often cannot see them. We need new methods of obtaining communication network data so that we can better understand how innovations diffuse. The importance of communication networks in behaviour change comes from the Tanzania entertainment-education radio soap opera project that I direct at the University of New Mexico. We found, to our surprise, that those people who are only exposed to the popular radio soap-opera *"Twende na Wakati"* ("Let's Go With The Times"), but who did not talk with other people about the episodes, did not adopt the family planning or HIV/AIDS prevention messages. If people were exposed to *"Twende Na Wakati"* and talked to other people, especially to their spouse as a result of listening to the radio episodes, then they adopted the innovations. Just exposure to the radio programmes did not lead to adoption unless people talked to their spouse or friends or to other people. The nature of our radio soap opera encouraged listeners to talk. People talked about what would happen next in the soap opera. The nature of entertainment-education programmes seems to encourage people to talk and act. We need to know who talks to whom, and what they say to each other about the innovation of study. We need more accurate ways of tracing communication networks (like the use of the EV-1 picture cards).

Question: Do you worry about privacy issues when it comes to the On-Star system on GM's Cadillacs. Gosh! I would not want the whole world to know where I am!

Rogers: GM tells its customers they have control over the On-Star system. You can shut off the switch in situations when you do not want to be traced.

Question: Will there ever be a fifth edition of your book the *Diffusion of Innovations*?

Rogers: I have never revised the diffusion book willingly. Every few years, the editor of Free Press calls me and persuades me by asking if I feel guilty in selling a book that is 10 years old, in terms of the research it reports. But I do not think there will be a fifth edition. Perhaps one of you here should write it.

References

Cook, T. D. and D. T. Campbell. (1979). *Quasi-experimentation: Design and Analysis Issues for Field Settings*. Boston: Houghton Mifflin.

Rogers, E. M. (1962). *Diffusion of Innovations*. First Edition. New York: Free Press.

Rogers, E. M. and F. F. Shoemaker. (1971). *Communication of Innovations: A Cross-cultural Approach*. Second Edition. New York: Free Press.

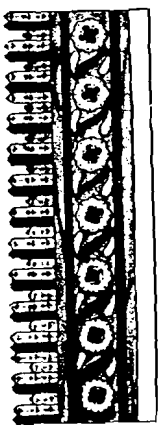
Rogers, E. M. (1983). *Diffusion of Innovations*. Third Edition. New York: Free Press.

Rogers, E. M. (1995). *Diffusion of Innovations*. Fourth Editions. New York: Free Press.

Rogers, E. M. and A. Singhal. (1996). Diffusion of Innovations. In M. B. Salwen and D. W. Stacks (Eds.), *An Integrated Approach to Communication Theory and Research*, 409-420. NJ: Lawrence Erlbaum Associates Publishers.

Ryan, B. and N. C. Gross. (1943). The Diffusion of Hybrid Seed Corn in Two Iowa Communities. *Rural Sociology*, 8 : 15-24.

Trueheart, C. (1996). The Next Church. *The Atlantic Monthly*, 37-58.



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