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Diffusion of Innovations

How NCOA is Developing a Better Way to Disseminate Evidence-Based Health Programs

BY JOHN BEILENSON

In 1867, an English physician named Joseph Lister demonstrated that if doctors simply kept conditions sterile and used carbolic acid to clean wounds during surgery, far fewer patients would die from post-operative infections. Despite the procedures' life-saving potential, 10 years passed before the doctors of England and America accepted his simple innovation. As much as we might like to think that Lister's case was extraordinary, we often see the same thing happen to innovations today, particularly in the social services sector.

The traditional strategies we use to disseminate innovations—publications, conferences, training, technical assistance, and grants programs—often produce disappointing results.

“As a country, we've done a much better job of developing innovative pilot projects than we have of getting organizations to adopt proven innovations” said James P. Firman, President and CEO of The National Council on the Aging (NCOA). “Our vision is to combine 21st century technologies with the latest science about diffusion of innovations to create new expert systems and strategies for taking proven innovations to scale nationwide.”

In the first application of these concepts, NCOA, in partnership with the Seattle-based Senior Wellness Project, which develops cutting-edge, health promotion programs for older adults, is testing a new “diffusion of innovation” expert system, designed to speed the adoption of new ideas and programs into senior centers around the country.

Diffusion Theory 101

During the last 50 years, Everett M. Rogers, former professor and chair of the Department

of Communications & Journalism at the University of New Mexico, made diffusion of innovations the focus of a lifelong study. Rogers, who died in October of last year, developed theories about how new ideas could be disseminated more efficiently and less expensively.

Rogers defined *diffusion* as “the process by which an *innovation* is communicated through certain *channels* over *time* among the members of a *social system*.” In his book, *Diffusions of Innovations*, now in its fifth edition, he listed five attributes of innovations:

- **Relative advantage**—whether an innovation is perceived as better than the idea it replaces;
- **Compatability**—the degree to which an innovation is perceived as congruous with the values, experiences, and needs of potential adopters;
- **Complexity**—whether an innovation is perceived as difficult to understand and use;
- **Trialability**—the degree to which an innovation may be experimentally tested; and
- **Observability**—whether the results of an innovation are visible to others.

Knowing the way an individual perceives these attributes can help predict an innovation's rate of adoption. Earlier researchers Bryce Ryan and Neal Gross divided adopters into five categories, based on how slowly or quickly they adopted innovations: innovators, early adopters, early majority, late majority, and laggards. Rogers described character attributes for each of these categories, so that adopters could be scored on the likelihood that they would adopt any particular innovation.

Rogers' theory posits that researchers and disseminators can use these categories to target the individuals or groups most likely to adopt an innovation at a particular time. Obviously, this sort of information is interesting to marketers and advertisers, but it also has important uses for non-commercial disseminators, including those of us interested in strengthening the aging services network by moving evidence-based program models into the field more effectively.

Combining Theory with Emerging Technologies

The invention of the printing press is widely credited with helping to spur the period of innovation known as the Industrial Revolution by increasing the rate at which information flows. Firman believes that, so far, the Internet has been primarily used as a 21st century printing press to more efficiently distribute billions of pages of static information.

"The next great use of the Internet is to provide expert systems, that is, interactive individualized expert analysis and decision-support, to large numbers of people at a very low-marginal cost," Firman said. "While expert systems are becoming more common in the commercial sector, they also have great potential to help solve social problems. A particularly promising application of expert systems technologies is to increase the rate of diffusion of innovations."

Grounding the Theory

Although combining Rogers' ideas with the power of the Internet makes intuitive sense, there had been relatively little prospective "real world" testing. An opportunity to prove the applicability of this approach in the social services sector arose when the U.S. Administration on Aging (AoA) expressed interest in helping senior centers strengthen services and the Senior Wellness Project (SWP) of Senior Services of Seattle/King County in Washington to disseminate two award-winning, evidence-based health and wellness programs that it had developed.

The first, the Lifetime Fitness Program (LFP), is an exercise program for older adults, which

offers low-cost fitness classes taught by certified fitness instructors. The other, the Health Enhancement Program (HEP), is a participant-centered, health behavior change program designed to give older adults the tools they need to achieve their desired health goals. Today, SWP has already established one or both of its programs at 80 sites around the country, but it would like to see them flourish in many more locations. Their work is part of a broader movement that is seeking to disseminate evidence-based health programs to senior centers and other aging services providers around the country.

"It is critical to work from the evidence gathered by the scientific community as SWP has done, rather than develop ad hoc solutions," said Nancy Whitelaw, PhD, Director of NCOA's Center for Healthy Aging. "We can depend on these research-based programs to get measurable health benefits for older adults. The challenge ahead is to get these tested, high-quality programs out there and widely used."

To that end, NCOA partnered with Everett Rogers and Carolyn Holmes, PhD, of Holmes Research & Consulting, LLC, in Phoenix, AZ, to develop a theoretically sound strategy for promoting more broadly the adoption of high-quality, research-based programs. Once the model was developed, NCOA collaborated with the Seattle Wellness Project to demonstrate its feasibility and to measure its usefulness.

With the help of Holmes, NCOA grounded Rogers' diffusion of innovation theory in a practical, Web-based survey that helped identify which senior centers were most "ready to innovate," that is, adopt the SWP programs. The survey also served as an educational tool, providing senior centers with pertinent information about the programs and what it would take to adopt them. Finally, the expert system calculated how many new dollars would be needed by each center to make adoption possible. In the aggregate, this would allow outside funders to understand the resources required to get the programs widely adopted.

The survey addresses two tangible aspects of readiness—organizational capacity and

stated willingness or interest in the innovation. This data enabled Holmes to rank centers by their likelihood of implementing the innovations, collect data for calculating the gap between needed and available resources and test the reliability of the measurements they were using to quantify the Rogers model.

For help in developing key elements of this “Diffusion of Innovation” (DOI) expert system, Firman and Holmes went to Rogers himself (see box, page 9). Together, they designed survey questions to mirror the individual precepts in Rogers’ model, representing one of the first attempts to quantify it in the social services arena.

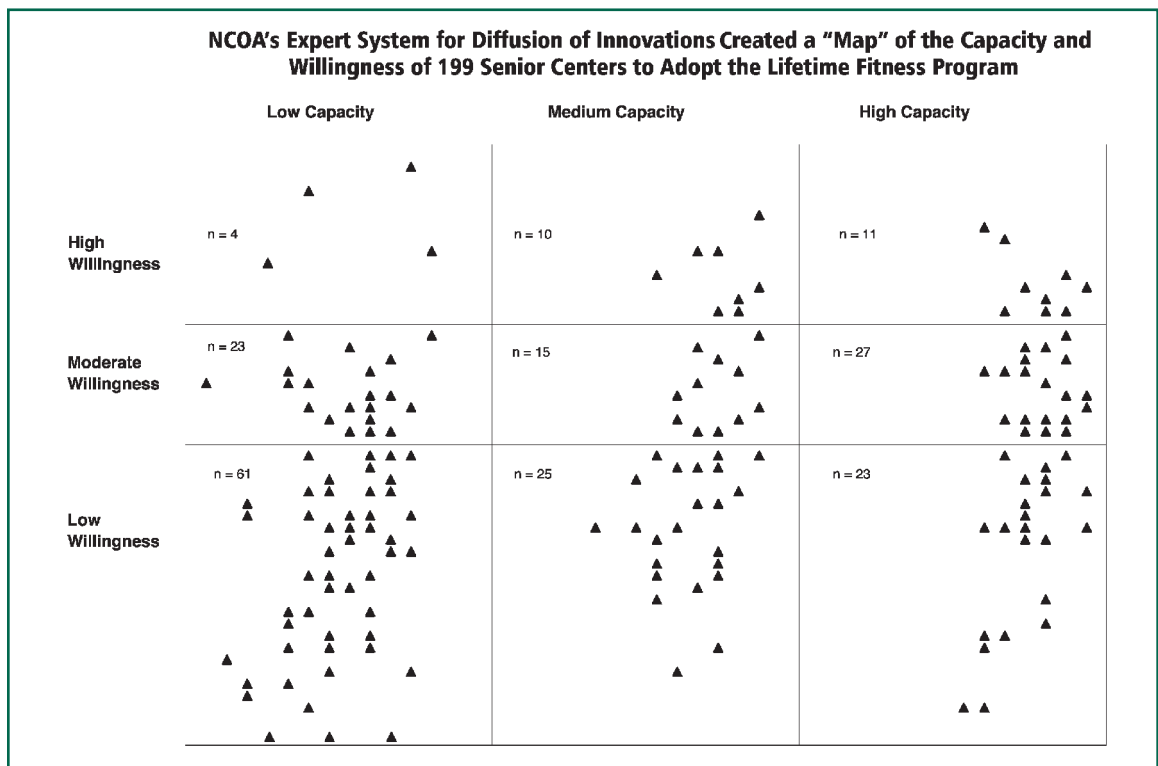
What They Learned

The survey was conducted in 2004 among 199 senior centers in four states, as well as the National Institute of Senior Centers (NISC) delegate council. It ranked all of the centers on their readiness to innovate and enabled SWP and NCOA to determine that 26 centers were ready to adopt the Health Enhancement Program (HEP), and 63 had the capacity and willingness to implement the Lifetime Fitness Pro-

gram (LFP). HEP’s smaller numbers resulted, at least in part, from the relatively greater staffing expense of implementing the program, which requires the services of licensed professionals, including registered nurses and social workers. Researchers also were able to calculate which centers would need no additional money to put the programs in place, and how much the remaining centers would need to operate either or both programs for the first year.

In addition, the expert system helped pinpoint what leaders at the centers perceived as the main benefits of adopting the SWP programs, namely that the programs attract new people to their centers and are adaptable to clients with a broad range of abilities. For Lifetime Fitness, another critical benefit was that it exerted a minimal impact on staffing and facilities. Survey respondents perceived the main challenge for both programs, not surprisingly, to be finding funds to start and run the programs.

Beyond identifying a core set of target centers, the research findings also led to several related recommendations, such as conducting a mail campaign aimed at tertiary markets, revising marketing materials and strategies to



emphasize perceived benefits of the programs, and providing feedback to senior centers that participated in the survey on their readiness, capacity, and willingness scores.

The Broader Implications

This attempt to “operationalize” Rogers’ theories has proven extremely helpful for SWP and implies that other “agents of diffusion” could enjoy similar results. To anyone seeking better ways of disseminating innovation, the NCOA DOI expert system may enable them to:

- Identify a clearly described group of attractive potential adopters for a particular innovation;
- Define the cost/opportunity of reaching those adopters (helpful for program planners and funders);
- Build awareness and understanding about the innovation through a Web-based tool;
- Provide critically needed information to a marketing/dissemination effort; and
- Make a nonprofit diffusion effort more time- and cost-efficient.

The final question, of course, is whether this expert system will in fact make a real impact on the dissemination of innovations, in this case, the implementation of two health programs. SWP’s goals are ambitious. They include implementing the Lifetime Fitness Program and Health Enhancement Program at hundreds of additional senior centers across the country.

Specifically, NCOA and SWP will assess whether the DOI expert system helped increase diffusion of their programs faster at less marketing cost and facilitated understanding and decision-making by potential adopters. Although the overall impact of the DOI system on diffusion is still not fully understood, NCOA hopes that this development marks the beginning of a new era in the dissemination of innovative ideas and programs.

“NCOA remains committed to its leadership role in the dissemination of effective programs that benefit seniors and communities across the country,” said Firman. “We hope that this new expert system will speed up the diffusion process and make it more rational and effective than ever before.” ♦

WORKING WITH THE MASTER OF DIFFUSION

When James Firman, President and CEO of NCOA and consultant Carolyn Holmes, PhD, first began thinking about developing better strategies for diffusing innovations, Firman made a simple, but startling suggestion: “Why don’t we try to find Everett Rogers and see if he will work with us to use his theories to create a Web-based expert system?” It was an exciting idea for Holmes and Firman, who were familiar with Rogers’ work from their graduate school days.

As it turned out, the master wasn’t difficult to find. He held the position of professor emeritus and was a former chair of the Department of Communication & Journalism at the University of New Mexico in Albuquerque. When Firman and Holmes met the 73-year-old diffusion guru, they found him sharper and more alert than most people half his age, and very interested in working on the project. Over the next several months, Holmes got to work closely with the professor and found his input and advice invaluable.

“On my first visit, we talked through the general concept of the survey,” she said; “and then I went

away and wrote five or six specific questions for each key concept in his model of diffusion and innovation. When we met again, he reviewed each, selecting the questions that most closely reflected his meaning; or, in some cases, suggested better wording. So he had a big influence on the survey. Because of his help, we were able to get statistically sound replication of his model using data from the survey right out of the gate.”

Unfortunately, Rogers never got to see those results. After a brief illness, Rogers passed away on October 21, 2004, leaving his long research legacy to the world and fond memories to Holmes. “He was really a giant among men,” said Holmes for whom the collaboration was a career-marking event. “Yet, he was humble, gracious, and giving.”

“I am thrilled that NCOA was able to collaborate with Ev Rogers and that we are carrying on his work,” said Firman. “By combining Ev Rogers theories with 21st century technologies, I think we will make an important contribution to the science and practice of diffusion of innovations.” ♦