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# NEW THEMES IN INNOVATION RESEARCH: IMPLICATIONS FOR CONSUMER HEALTH BEHAVIOR

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## **NEW THEMES IN INNOVATION RESEARCH: IMPLICATIONS FOR CONSUMER HEALTH BEHAVIOR**

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Whenever I am called upon to make prescriptive statements to a group which can't easily hold me accountable for the consequences, I am always reminded of the story of the chicken and the pig. For those of you who aren't familiar with the story, a chicken and a pig were walking down the street one day and came upon a restaurant that had a big sign in the window, "Special Today: Bacon and Eggs." The chicken got all excited and said, "Isn't that great, they are featuring us together." The pig looked kind of dour and said, "That's okay for you, for you it's a contribution; for me it's a total commitment."

I am very pleased to be here to contribute some ideas which are evolving in the innovation diffusion and planned change areas. These ideas have important implications for anyone concerned with introducing new information or diffusing new behaviors among some particular target group.

### *Incentives as Short Cuts*

One area in the diffusion of innovations that has received substantial attention in health contexts is the topic of incentives. Incentives involve the provision of some benefit which is not intrinsically related to the particular behavior or event that you want some target group to experience. Some of the most interesting and easily most controversial incentive plans are in the family planning area. The idea of incentives in family planning developed in part as a consequence of disappointing results of information, education and communication programs in family planning in developing societies.

I'd like to identify a number of non-mutually exclusive incentives that illustrate the basis of incentive programs and comment on them briefly. A summary of these categories is presented in Table 1.

To illustrate these, I will draw primarily from the area of family planning. However, these categories are relevant to any variety of other health service areas.

## FIGURE I

### Non-mutually Exclusive Incentives

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Adopter vs. Diffuser Incentives  
Individual vs. Group Incentives  
Graduated vs. Non-graduated Incentives  
Negative vs. Positive Incentives  
Monetary vs. Non-monetary Incentives  
Deferred vs. Immediate Incentives

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*Adopter versus diffuser incentives.* The basic distinction between the adopter versus diffuser incentive is whether you give a reward, cash or non-cash, to the woman who comes to a clinic and has a IUD inserted or whether you give the reward to the person who goes out and brings individuals to the clinic. The diffuser incentive has been used, as you may know, in vasectomy campaigns conducted in India and other Asian countries. Typically an older man who has had a vasectomy and then encourages others to come to the clinics gets a reward. He is paid on a per capita basis for every person that he, as diffuser, brings in.

Let me give you an example of how volatile this approach can be. I was once involved in working with the Ministry of Public Health on a nutrition education campaign in San Jose, Costa Rica. One purpose of this campaign was to conduct nutrition education courses in the evening for mothers of young children living in or near the city. I had been fascinated by the aggressiveness with which lottery tickets were sold and also by the eagerness with which they were purchased. Judging by their dress and general appearance, even the very poor individuals were buying lottery tickets. Later during my stay, we were talking about ways of getting more women to come to the nutrition education course and also to keep them there once they started the program. Coming from a trading economy, I made the obvious connection and suggested that we offer to every woman who comes to the sessions a reward consisting of lottery tickets. Immediately upon hearing this modest suggestion, a man got up onto his feet, pounded on the desk, and accused me of being unethical and exploiting known human frailties. The idea that I was *exploiting* known human frailties really surprised me although indeed if you consider the purchasing of a lottery ticket a frailty that is what I was suggesting. The idea of this as an incentive was extremely upsetting to this man.

*Individual versus group incentives.* Here is also an area that raises questions of ethics, especially when group pressures are used to encourage adoption. A program in which I was involved in El Salvador used retired military personnel in rural areas as diffusers of

condoms and birth control pills. The treasuries of village councils were given funds, thus creating group pressure not to resist or be critical of the dissemination efforts and perhaps to encourage diffusers. Assume that each condom sold for five centavos. The retired military person was able to keep three centavos and two centavos went to a village or community fund so that the community had a vested interest in seeing to it that this man was not interfered with and that perhaps indeed he was even encouraged by certain people in the village to work very hard. Essentially what we did by making the village benefit from this was effectively to mute possible criticism. We later had to raise the price in order to make the split more attractive to both the community and the diffuser.

*Graduate versus non-graduated incentives.* The issue here is whether people are given everything at once or whether the incentives are distributed over time. One of the criteria to use in making this choice involves the ability of people to defer gratification. As you might anticipate, such ability varies greatly from country to country and within countries between urban and rural areas.

*Negative versus positive incentives.* In Malaysia, Korea and a number of other countries, there is a negative incentive for having more than three children. In some countries, Malaysia for example, and I forget the exact cost breakdown, for the fourth child the parents have to pay something like 30 percent of the expenses involved in having a child in the hospital. If it is a fifth child, they have to pay something like 60 percent. With more children the negative penalty is greater, and they have to pay virtually all costs. This is in effect a negative reward, or a negative incentive, given that medical expenses associated with the birth of the first three children would be covered by the government.

*Monetary versus non-monetary incentives.* Evidence suggests that a non-monetary reward is at least as effective and possibly more effective in some cases than a monetary reward. People seem to prefer cloth or cooking utensils to cash. This mode of reward is also very attractive from the standpoint of the agencies involved because they are typically able to give something of great value to the user but acquire it themselves at a cost which is below that which the user would have to pay.

*Deferred versus immediate incentives.* Rather than giving people working on tea estates, for example, extra income each month, or bonuses each year during which they do not become pregnant, rewards are placed in retirement bonds. This involves a little bit of the negative incentive in that if they *do* have a child after five years of being involved in this plan, some portion of their accumulated reward is withdrawn from the retirement fund.

There are many, many different combinations of incentives as you can see. I think this is going to be one of the major, in fact it has

already become one of the major ethical issues in programs to modify health behavior.

Incentives in general appear to attract people who would normally come and use whatever is offered, and incentives attract them earlier than they might normally have been but they also attract those who otherwise would have not used the services.

### *Resistance to Change*

There is in diffusion research a rather overwhelming concern with successful change. Successful efforts get published and discussed. People do not like to report failures. I think we should be looking at successes; there are important messages there. But success is the exception, not the rule. Resistance to change is the much more common phenomena, and yet we find very little about how we can overcome resistance or cope with it when it does occur. More importantly, we find virtually nothing on how agents of change create resistance to that change. Not all innovations are good, and it might be a very appropriate strategy to diffuse resistance to a proposed change or innovation. Such diffusion has obvious applications in a commercial marketing study, but it also has several implications in areas where health workers are competing with a large variety of forces working against them.

### *Redefining the Early Adopter*

The first idea I would like to talk about is a simple but very significant one. In virtually all areas that I monitor with regard to innovation and change, and this includes the health area, the idea of the early adopter is always measured in terms of how quickly people adopt an innovation after it has become available, rather than when they first become aware of the innovation. We might back up just a little bit and ask why is it that people in social change and diffusion are so concerned with identifying early adopters. As you can readily imagine, early adopters are very important people both in the dissemination of information and in terms of role models for subsequent adopters. Hence, virtually any social change program, whether concerned with disseminating health information on preventive medicine, or simply marketing a kitchen appliance, is very much concerned with the key early adopter. The problem that develops is that when one starts studying any market of consumers, there usually appear some systematic differences in particular contexts as to who adopts early, who adopts later and who fails to adopt at all. The problem is that while there are differences, the differences have never been shown to be very dramatic or very consistent. It occurred to me and a colleague, Philip Kotler, that maybe there has been a mistake made in how we define this key person, the early adopter. For various reasons, it occurred to us that we should define

early adopters on the basis of how quickly they adopt an innovation relative to the time of their awareness rather than how quickly they adopt from the time it becomes available. Analyzing available data this way, we found that we ended up with a somewhat different mix of people defined as early adopters. Indeed, we had included in the new category of early adopters, people who were previously referred to as laggards, the last individuals to adopt an idea. Interestingly, this new way of looking at early adopters, based on time of awareness rather than the availability of the service or goods, resulted in much cleaner categories. The differences among categories were much more significant. We also came up with a somewhat different diffusion curve.

The implication here is fairly straightforward in terms of strategies of change. A change agent should go after early adopters who are early knowers while at the same time determining who the late knowers are and develop campaigns to make them early knowers. To be sure, there are important differences between those who adopt early on the basis of time of awareness and those who adopt early judging from the basis of when the product was available. The same appeals don't work equally effectively with both. This is a very simple idea and yet it is a very important one.

Phil Kotler from Northwestern University and I have developed what we call the theory of the best prospect. This theory defines the most rational way of determining the target group. It is described in Figure II.

## FIGURE II

### Theory of the Best Prospect

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$$\text{Best Potential Adopter} = \text{Early-Adoption Propensity (Volume Propensity + Influence Propensity)} - \text{Cost of Effective Exposure}$$


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*Early-Adoption Propensity.* Early-adoption propensity is defined as the probability that a person would be an early purchaser of the product upon an effective communication exposure. Early-adoption propensity is a function of the following subfactors:

1. the extent to which the product has strong need-fulfillment potential for the person (call this  $F$  = need-fulfillment potential);
2. the extent to which the person has a new-product orientation (call this  $N$  = innovative disposition);
3. the extent to which the product is highly accessible to the individual (call this  $D$  = accessibility);
4. the extent to which the individual's income makes the price less important (call this  $Y$  = income sufficiency).

*Heavy-Volume Propensity.* Heavy-volume propensity is the amount of the new product that the person is likely to buy per period if he tries it. This propensity depends on the following subfactors:

1. the probability that this type of person will be sufficiently satisfied with the new product upon trial to buy it again (call this  $T$  = trial-satisfaction probability);
2. the number of times per year that the person makes a purchase in this product class (call this  $R$  = product-class re-purchase frequently);
3. the average amount purchased by this person per purchase occasion (call this  $K$  = average amount purchased per purchase occasion);
4. the likely share that the new product will enjoy of this person's purchases within the product class (call this  $S$  = new product's share of total purchases in the product class).

*Influence Propensity.* Influence propensity is the amount of additional purchasing per year that the prospect is likely to stimulate in others through interpersonal influence. This propensity depends on the following factors:

1. the number of persons the individual interacts with on a conversational basis (call this  $M$  = the number of acquaintances);
2. the percentage of persons he influences during the year to try the product who would have not tried it otherwise (call this  $L$  = influence ratio);
3. the average volume an influenced person buys per year of the new brand (call this  $W$  = the influenced person's volume).

*Cost of Effective Exposure.* Cost of effective exposure is the cost of delivering an effective message with a given media vehicle to a given prospect. We can define this cost as some function of the following subfactors:

- $E_1$  = the probability that the individual will be exposed to the message with the media;
  - $E_2$  = the probability that the individual will see the message;
  - $E_3$  = the probability that the individual will comprehend the message;
  - $E_4$  = the probability that the individual will be favorably impressed by the message;
  - $O$  = the actual cost of getting the given message exposed to the given individual.
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The concepts described above make important differences in both how change agents would get people to change behaviors and how change agents should disseminate information. Simply put, the best adopter would be identified by considering first his or her *adoption propensity*: How likely is the person to adopt upon awareness of an innovation? The next consideration is *volume propensity* and

what we call *influence propensity* minus whatever the cost is for any effective exposure to this particular group. We add together volume propensity and influence propensity and multiply that times adoption propensity.

*Adoption propensity* would be measured by at least three sets of questions or indices. One is the potential of the innovation to satisfy a key need. Another is the innovativeness of potential adopters. Finally, there is the ease with which an innovation can be adopted. This "ease" is what some of you are probably used to hearing described as enabling conditions or facilitating conditions.

Volume propensity is very straightforward. It involves initial satisfaction, the frequency of normal use, and the average amounts of use.

Influence propensity is determined by three items. One is the degree of social interaction that occurs. This would involve the number of people known plus the frequency of interaction. One problem in most dissemination studies that I am familiar with is that influence measures are a little irrelevant because the people influenced would very likely have adopted quickly anyway. Also important is who the influencee is. Is that person worth influencing? In other words, how effective will they be as relayers of health information? Lastly, we are concerned with the effective cost of exposure: What funds and other resources are required to inform people?

### *Significant Social Roles*

Most studies of social change focus on three important social roles. First is the role of opinion leader. This is a person who relays information, often assessing or evaluating it for the person who receives the information. Second is the key role of the gatekeeper. A gatekeeper is simply an individual who controls enough of a channel of information to determine what does or what does not get passed on to the rest of a particular group. Third, we are interested in the role of early adopters. Early adopters are important because, as discussed earlier, they serve as role models for others.

There is yet a fourth group which has been largely ignored and yet may be the most important of all. This group consists of people who occupy many social roles. They are sometimes referred to as *role accumulators*.

The high role accumulator is a person who is engaged in a large number of formal and informal relationships with individuals who are not likely to be in contact with one another. There are two literatures that relate to role accumulation. The literature on the social structure of large and small social systems suggests that role accumulators are becoming very common in metropolitan areas. In such areas many people know many other people, but few of their

acquaintances are held in common. Another literature focuses on the strength of weak ties. The strength of weak ties sounds a little contradictory. It simply says that your best bet, if you want to disseminate information quickly in an organization or in a social system and if you have limited resources, is to go to individuals who have a lot of relationships, none of which is very important or very enduring. Thus their social ties are weak. Such people who accumulate many relationships of this type are the most likely to disseminate information most quickly to many different and non-overlapping groups. Hence the importance of the strength of the tie from an information dissemination standpoint.

The high role accumulators, as it turns out, would seem to have a large number of weak ties. The high role accumulators are likely to be early knowers of innovations. There is a wide array of information giving logical support to this. As early knowers of innovation they are likely to also be early adopters and in addition, they are likely to be individuals who are pro-active in the communication process. That is, they are individuals who seek out others to tell things to.

In addition, the high role accumulator is also likely to be a person who is sought out by others as a source of information. Now if all of this is true, and it is yet to be validated empirically, it means that we have not been looking at the most appropriate person in our past diffusion efforts. Let me add an important qualification. I suspect that in your minds is the question, "Well, aren't high role accumulators the same people as opinion leaders or gatekeepers?" It appears that there will be some overlap but not a great deal, so that we would be identifying some individuals who would not be identified by using only the three conventional or traditional social roles mentioned a few moments ago.

Again the basic message is: the single most important type of person to whom to direct your early influence efforts is the person who accumulates many social roles.

One last comment on the state of diffusion research. Many of our studies are based on work done in rural societies in the U.S. and abroad, and as one student recently pointed out to me, all studies are built upon earlier studies. What I strongly suspect is that current diffusion research is based upon assumptions that were relevant, accurate, and correct two or more decades ago. However, some of these assumptions are no longer tenable, or at least we ought not to accept them: we ought to test them. There have been many major changes in the social structure in the U.S., and I think it is time we re-examined the two-decade-old assumptions or even those one decade old. The need for re-examination is one of the serious problems with diffusion research today and may explain why the number of breakthroughs and really significant new findings have not materialized as quickly as they did earlier.