Annenberg School for Communication

Departmental Papers (ASC)

University of Pennsylvania *Year* 1962

Notes on The Unit of Adoption in Diffusion Research

Elihu Katz
University of Pennsylvania, ekatz@asc.upenn.edu

This paper is posted at ScholarlyCommons.
http://repository.upenn.edu/asc_papers/264

Notes on The Unit of Adoption in Diffusion Research[1]

ELIHU KATZ
University of Chicago

In thinking about the diffusion of innovation, one tends to overlook the obvious fact that not all innovations are adopted by, or are intended to be adopted by, individuals. In the first place, different sorts of innovations may "require" different units of adoption- for example, "it takes two to tango." In the second place, different cultural or situational norms may "prescribe" different units of adoption for an innovation.

Most empirical research on diffusion has focused exclusively on the individual as the unit of adoption. This is because the innovations that have attracted modern sociologists have tended to be appropriate for individual adopters. Still, it is altogether obvious that certain recommended contraceptive practices, for example, "require" joint adoption by husband and wife or that middle-class culture "prescribes" a family decision concerning the purchase of a new car. Focusing only on the individual in such cases is misleading if one is to understand the diffusion process completely. Here there is something to be learned from anthropological students of diffusion who often treat the tribe or the group as the unit of adoption even for such ostensibly (to us) individualistic innovations as Christianity in cases where the decision of the chief or the elders is binding upon all. Moreover, many of the innovations in our society are adopted not by individuals or even by families but by organizations. The city-manager idea and the kindergarten were adopted by cities and by school boards respectively; automation is adopted by factories.[2]

This paper proceeds on the assumption that it is worth exploring the process of innovation front the point of view of the social units which adopt them. As a beginning, let us assume that there are three distinguishable units: individuals, informal groups or collectivities, and formal organizations of all kinds. Innovations can then be classified in terms of the extent to which they "require" one or another type of unit. Culture and subcultures can be classified in terms of their preference among the types of unit for given kinds of innovation.

1 These are preliminary thoughts on a subject which, hopefully, will soon be part of a book dealing with research on the diffusion of innovation. The discussion here owes thanks to Martin L. Levin, in association with whom some of these ideas emerged, and to Herbert Hamilton. The project as a whole has received the support of the Foundation for Research on Human Behavior and the Social Science Research Committee of the University of Chicago.

2 F. S. Chapin, in a pioneering diffusion study, plotted the spread of the commission form of city government across the United States. See his *Cultural Change,* New York: Century Co., 1928. Paul R. Mort and Frances G. Cornell, *American Schools in Transition,* New York: Teachers College, Columbia University, 1941 have studied educational innovations with the local school system as unit of adoption. Currently, Edwin Mansfield of Carnegie Institute of Technology is dealing with the industrial firm as a unit of adoption and Robert Crain of the Department of Sociology, University of Chicago, is tracing the diffusion of fluoridation from city to city.

"REQUIRED" UNITS OF ADOPTION

Individual farmers have to make up their minds about whether or not to adopt a recommended farm practice and, once their minds are made up, they can go ahead and use it. Similarly, individual doctors have to decide on the merits of a new drug and individual consumers have to weigh the advantages of new products and new fashions. These decisions may be characterized generically as "consumer" decisions. This does not mean, of course, that the individual is a completely free agent. He may be subject to all kinds of pressures to adopt or not to adopt: family, friends, salesmen, advertising may all bombard him. But, in the last analysis, the decision is "his" in the specific sense that it takes only one person to "implement" the decision to adopt.

This becomes clear as soon as one contrasts this sort of innovation with innovations which "require" more than one person for their implementation. Consider the telephone, for example. There is no use having a telephone if nobody else you know happens to have one. A telephone makes sense, that is, only if you have somebody else to talk to. In other words, a telephone is the kind of innovation which "requires" a collectivity, the members of which are aware of each other's actions. A similar problem confronts the would-be adopters of fallout shelters, a currently fashionable innovation. The problem, of course, is that there is little sense having a fallout shelter if one's neighbors do not have them (unless one is prepared to keep them. away by force). Another example of an innovation of this sort would be the sundance or the peyote cult of certain groups of American Indians.[3] It is impossible- or at least it is not the "same" innovation- for an individual to accept these items unless some other members of his tribe go along with him.

Now, both of these adopting units differ from the third of the three units being discussed. This is the organizational unit of adoption. The primary difference between the "collectivity" and the "organization" as adopting units is that the former, but not the latter, consists of individuals each of whom has to make a decision whether to join with the others or not. Those who so desire, in other words, may opt out. Thus, while it takes at least two to telephone, a third member of the same community may elect not to have a phone. Or, while it takes at least two to sundance (probably more), any Indian who wants to may elect to be a wallflower. Not so with fluoridation, for example. When the question of fluoridation of the water supply presents itself, of necessity it "requires" a group decision which is then binding upon all. The community-acting through whatever channels are provided- has to make a corporate decision. And while each individual may have a vote- and some may be for and others against- the corporate decision commits everybody. If the community decides in favor of fluoridation, even those who voted "nay" become "adopters." They are adopters despite themselves: this is the characteristic of the organization as the unit of adoption. And what is true of communities is also true of nations or factories as units of adoption or, at the other ~ extreme, of families whenever the item "requires" a family decision. For example, if a family decides to buy a house all

3 See David F. Aberle and Omer C. Stewart, "Navaho and Ute Peyotism: A Chronological and Distributional Study: " *University of California Studies,* Series in Anthropology, No. 6, 1957, and Fred Vogt, "Individual Motivation in the Diffusion of the Wind River Shoshone Sundance to the Crow," *American Anthropologist,* 50 (1948), pp. 634-646.

of the members of the family are "adopters" regardless of whether one of the members decided for the others or whether the family had a meeting and took a vote. Of course, by the same token the entire family may become nonadopters. The basic point is only that the item is intended for use by a group-both because it "requires" a group for implementation and because it tends to preclude alternative choices for group members.

"PRESCRIBED" UNITS OF ADOPTION

While the unit of adoption may vary according to the requirements of an innovation, it may also vary- for a given innovation- from one social system to another. The norms of a group, in other words, may favor one type of adopting unit over another.

Consider polio vaccine for example. Recently there appeared a potential improvement over the Salk polio injections; this is the Sabine oral vaccine. When asked why United States' health authorities were not immediately planning to recommend the new vaccine for adoption, the Surgeon General explained that, among other things, he was concerned about the high potential for transmission of certain strains of the disease from those who had received the vaccine to those who had not.[4] He went on to point out that, in the United States, vaccination was voluntary whereas in Russia- where the new vaccine had been widely adopted- whole towns and communities are vaccinated almost at one time. In our terms, the Surgeon General was saying that the favored unit of adoption in the United States is the individual, while in Russia, it is the community. Actually, two things are involved: (1) The two vaccines "require" different adoption units, in the sense that the Sabin vaccine, apparently, is more dangerous if it is adopted "individually"; and (2) one kind of adoption unit is characteristic of the one society and a different kind is characteristic of the other.

In this connection, it is interesting to cite a recent article in which a corporate adoption unit "vas implied in the explanation of how it happened that Negroes were earlier to adopt the Salk vaccine in the rural south- at least in some communities- than were whites. For other innovations that have been studied in the same setting, the opposite result is usually obtained. The explanation, it appears, has to do with the fact that in the Negro community the school or the public health clinic tended to take the lead in organizing a program of mass innoculation in which only those who explicitly opted out were excluded. The white community, on the other hand, simply left it to the individual to contact his private physician.[5]

4 See the interview with the Surgeon General, Dr. Leroy E. Burney, in the *Parade* magazine supplement to the St. Louis Post-Dispatch for Sunday, August 24, 1960, pp. 10-11. "It is possible," said Dr. Burney, "that live vaccine viruses in time may become virulent (infectious) as they pass from persons who have had vaccine to those who haven't .... In Russia, the hulk of the susceptible population in several cities was given vaccine in a short period of time." In approving the Sabin vaccine for use in the United States, the chairman of the Public Health Service committee on live polio virus vaccine suggested that "use of live virus vaccine should be on a community-wide rather than individual basis." See *The New York Times,* August 25, 1960, p. 1.

5 John C. Belcher, "Acceptance of the Salk Polio Vaccine," *Rural Sociology,* 23 (1958). pp. 158-170.

As soon as one begins to think in these terms, other examples suggest themselves. The kibbutz, for example, resists adopting consumer innovations until such time as it has a program for equitable distribution of the innovation- radios, for example, or refrigerators- to all its members. In this case what would ordinarily be an individual decision becomes a corporate one. More interesting, perhaps, is the attempt in the kibbutz to resist adopting "consumer" items precisely because they "require" only individual adopters. In the kibbutz studied by Spiro, for example, the leadership did its best to thwart a decision to adopt and distribute electric teapots and coffeemakers for use in members' apartments for fear that these might lead in the direction of greater individuation and cliquishness and a consequent movement away from the togetherness of snack-time in the communal dining hall.[6]

If the kibbutz is an example of a society whose preferred unit of adoption is inhospitable to "consumer" decisions, the case of resistance to fluoridation in the United States might be an example of the same process in reverse. A major reason given by opponents of fluoridation is that it violates minority rights by imposing adoption on an unwilling adopter. This seems to be a case where the preference for the individual as the unit of adoption makes for resistance to an innovation that “requires" a corporate decision.

On a more informal basis, there are certain subcultures and certain situations where a marked preference for joint action- even though an innovation does not "require" it- is implied in the behavior of individuals. When the innovation seems to go against group norms; when there is an element of risk; when conformity is an important value- such as in fashion or in middle-class housing developments or in juvenile gangs- there is a tendency to prefer to adopt in the company of others. Behaviorally, it almost appears as if the actions of individuals were the product of joint consultation and decision. But here, of course, we are getting in to the everyday realm of diffusion research, which is concerned with the role of social influences, simultaneity of adoptions among sociometrically-related individuals, and the like. The relevant point for the present purpose is that there may be certain societies and situations in which the preferred unit of adoption is the informal collectivity and where individuals-even more than usual- are reluctant to proceed unilaterally.

DECISION-MAKING IN THE UNIT OF ADOPTION

Obviously, one of the interesting differences among the several types of adoption units is the manner of arriving at the decision to adopt. Most of the attention of researchers has been focused on the process of individual decision-making and, recently, some interesting advances have been made in the direction of spelling out the various psychological stages of decision, on the one hand, and the sources of information and influence appropriate to each stage, on the other.[7] But, clearly, the process of decision-making in the informal collectivity

6 Melford E. Spiro, *Kibbutz: Venture in Utopia*, Cambridge, Mass.: Harvard University Press, 1956.

7 See, for example, James H. Copp, Maurice L. Sill and Emory J. Brown, "The Function of Information Sources in the Fam. Practice Adoption Process," *Rural Sociology,* 23 (1958), pp. 140-157; Everett M. Rogers and George M. Beal, "The Importance of Personal Influence in the Adoption of Technological Changes," *Social Forces,* 36 (1958), pp. 329-335.

or the formal organization is quite different: it is a social process which may take a very large variety of different forms. Still, if one posits, for the individual level, a system of stages such as "awareness," "interest," "evaluation," "trial," "adoption," it is interesting to seek the counterparts of these stages in the social units. 'There seems good reason to believe that these stages are functional requisites for any kind of decision and, therefore, that they appear in the social decision as well. This suggests that an interesting problem would be the nature of the division of labor in the collectivity or the organization: do some people serve as agents of initial information while others serve as stimulators of interest or evaluation-givers? This whole problem makes a connection with the study of the functional differentiation of roles in the study of small groups.

Similarly, it would be interesting to compare the various patterns of distribution of power and influence in the collectivity or organization as adopting unit. The decision to accept or reject fluoridation can be made by a town meeting or a city manager.

All this is relevant, however, not so much for its own sake but for its possible consequences for the diffusion process. One would like to know, first of all, whether the diffusion of an item that requires a corporate decision (fluoridation, automation, urban renewal, residential mobility, etc.) has a different character than the diffusion of a "consumer" item. Are the diffusion curves similar? Are the processes of mutual influence discernable" when the units are corporations or schools as much as when they are individuals? And (if the problem could be formulated for study) are the chances for adoption or rejection of proposed innovations more or less likely?

These represent one set of implications that follow from making the distinction among adoption units.

THE TARGET UNIT AND THE UNIT OF ADOPTION

Another implication, which seems to fall into place here, concerns the possible disparity between the target unit to which a "campaign" (to gain acceptance for some innovation) is directed and the unit which is "required" or "prescribed" For example, if the appeal to accept a given method of birth-control is directed at wives whereas the item "requires" the assent of both husband and wife, there would presumably be less chance of its success.[8] On the other hand, even when a group is "required," some individuals, rather than others, may be more appropriate targets at various stages of decision-making. This is rather analogous to Kurt Lewin's emphasis on the importance of making contact with the "gatekeeper" of a corporate unit- his example dealt with the individual who purchases the family groceries- as a way of gaining acceptance for certain kinds of innovation.[9] Especially where "prescription" is involved, it is an empirical problem to determine the division of labor and the differential distribution of influence in a corporate decision whether the organization involved is a family, a school or a municipality, and to address the various individuals involved in terms of their

8 See the discussion in Reuben Hill, J. Mayone Stycos, and Kurt W. Back, *The Family and Population Control,* Chapel Hill: University of North Carolina Press, 1959.

9 Kurt Lewin, "Group Decisions and Social Change," in Maccoby, Newcomb and Hartley, eds., *Readings in Social Psychology.* New York: Holt, Rinehart, and Winston. 1959.

several interests, frames-of-reference and relative power. One might sell the same car, or the same life-insurance policy quite differently to different family members. Salesmen know this, of course; the problem is to take systematic account of it in diffusion research.

THE UNIT OF ANALYSIS

All this implies that the researcher must carefully choose his unit of analysis in conducting diffusion research. On the one hand, he must be sensitive to the unit which is the target of the campaign; on the other hand, he must be sensitive to the units which are "required" by the innovation and/or "prescribed" by the culture. These observations should then lead to a decision concerning the unit of analysis to be incorporated into the study design. Even when the individual is the unit of adoption, there is often good reason to take explicit account of the networks of social relations among potential adopters; this case has been argued elsewhere.[10] The point of the present discussion is well-illustrated, perhaps, with the response of a sophisticated housewife to a questionnaire item concerning the likelihood of her adopting a visual-telephone when and if such an instrument appears on the market. Instead of checking one of the pre-coded categories she queried in the margin, "How can I answer until I know who else is going to have one?"

CONCLUSION

This paper is a tentative one. It offers some preliminary thinking concerning variations in the unit of adoption of innovations. It distinguishes the individual as an adopter from informal groups or collectivities and distinguishes both of these from corporate units. It proposes a classification of innovations according to the units for which they are intended ("required" units) and according to the units deemed appropriate by the culture or subcultures ("prescribed" units). It attempts to spell out some of the implications for diffusion research of taking account of the unit of adoption.

10 Elihu Katz, "The Two-Step Flow of Communication," *Public Opinion Quarterly,* 21 (1957). pp. 61-78.