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Diffusion of Innovations Theory and Effective Targeting of HIV/AIDS Programmes in Thailand

This article investigates the applicability of diffusion of innovations theory in targeting unique populations at high-risk for HIV/AIDS in Bangkok, Thailand. The diffusion of innovations theoretical framework, especially as it applies to targeting unique population groups, is discussed. An overview of the research site, Bangkok, is provided, followed by a discussion of the data collection procedures employed. As part of the site description, a history of HIV and AIDS in Thailand is presented, which examines the sociocultural context of targeting information to unique populations in Bangkok. Following the study findings, the implications of employing diffusion of innovations theory to effectively target unique populations at high-risk for HIV/AIDS are discussed.

HIV/AIDS is one of the leading public health problems of the 1990s. Some 8500 new HIV infections occur every day, one every twelve seconds. In 1997, an estimated 27 million people were infected with HIV (World Health Organization, 1997). By the year 2000, this number will rise to 40 million, and the AIDS death toll will reach 25 million worldwide (AIDSCAP, 1994a; 1994b; O'Haire, 1995). Without HIV/AIDS, life expectancy in Africa in the year 2000 would have been 62 years. Instead, it is likely to be 47 years (United Nations Development Fund, 1996). Human losses from HIV/AIDS continue to increase rapidly worldwide. Asian countries such as India and Thailand are

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especially badly hit. Since no vaccine or cure for HIV/AIDS is expected soon, prevention and control programmes remain the only recourse to combating this public health menace.

Unique populations are at the forefront of audiences to be targeted with HIV/AIDS prevention programmes. An example of a unique population group at high risk for HIV/AIDS would be teenage rural girls in Thailand, who belong to a minority ethnic community, engage in commercial sex work, and are also intravenous drug users. *Population uniqueness* is the degree to which an audience of relatively similar individuals is different from the larger social system of which they are a part (Dearing & Rogers, 1995). Unique populations consist of a set of (1) extremely homophilous (or similar) individuals who are (2) interconnected in order to cope with the ostracism they receive from the larger society about their beliefs. Unique populations have often been found to act as powerful agents for, or against, social change; they either amplify or attenuate communication messages (Renn, 1981).

Members of unique populations often do not trust outreach workers that HIV/AIDS prevention organizations employ to reach a target audience. They often mistrust the information they receive, believing that they are being purposefully deceived because they are outside of the mainstream of society (Meyer & Dearing, 1993). Members of unique populations are often more selective in complying with new information that comes from outside, choosing innovations that are most consistent with their own values, past experiences, and needs (Dearing et al., 1996; Dearing et al., 1994).

Unique populations bond through closely-knit interpersonal relationships. Examples include recent immigrants, members of minority groups, and members of a reference group of intravenous drug-users or homosexuals. These populations are 'often found to pay more attention to specialty media, interpersonal peer networks, one-on-one counseling... They do not consider traditional 'role-models' to be credible information sources' (Dearing, 1993, 19-20). Members may shun opportunities to act as opinion leaders or change agents for outside organizations, since they may risk losing status within their own population (Dearing et al., 1996). Further, many unique populations may not have access to, or be users of, various media and services offered by many HIV/AIDS prevention programmes. For example, public service announcements on TV or radio, HIV/AIDS hot-lines, or school-based educational programmes

(Casey, 1995).

The characteristics of unique populations have implications for the information targeting strategies used to target these populations. Three main reasons exist for carefully choosing information dissemination strategies to target unique populations: (1) To achieve greater communication effectiveness by identifying relatively more homogeneous audience segments within the total audience; specifically-tailored messages for each audience segment are likely to be more effective than are untargeted messages; (2) to reach particularly high-priority segments such as individuals at high-risk for HIV/AIDS on a cost-effective basis; and (3) to concentrate campaign efforts upon a particularly influential subaudience so as to influence general opinions about needed change (Dearing et al., 1996).

■ Conceptual Framework and Purpose

Theories of communication and social change are useful to the extent that they are able to lead to the solution of social problems (Brown, 1989; Rice & Atkin, 1989; Papa et al., 1997). The diffusion of innovations theoretical framework has been extensively applied to design public health outreach efforts in developing countries (Dearing et al., 1994; Rogers, 1995; Rogers & Singhal, 1996; Singhal & Law, 1997). The purpose of the present article is to investigate the applicability of diffusion of innovations theory in targeting unique populations at high-risk for HIV/AIDS in Bangkok, Thailand. The present study was designed to increase knowledge concerning the usefulness of concepts from diffusion of innovations theory in more effectively reaching unique populations.

We first discuss the diffusion of innovations theoretical framework as it relates to targeting information dissemination efforts to unique populations. We then describe the site selected for the present study—Bangkok, Thailand—and our data-collection procedures. We provide a history of HIV/AIDS in Thailand and examine the unique sociocultural context of targeting information to unique populations in Bangkok. Finally, we discuss the implications of our study's findings in using the concepts of diffusion of innovations theory to effectively target unique populations at high-risk for HIV/AIDS.

■ Diffusion of Innovations Framework

Diffusion is the process by which an innovation is communicated through certain channels over time among members of a social system (Rogers, 1995: 35). The diffusion of innovations model emphasizes the role of social networks among potential adopters, and it incorporates certain concepts that are intended to maximize the model's ability to describe, explain, and predict the behaviour of a particular group. The six main concepts in the diffusion model are communication channels, the innovation-decision process, homophily, innovation attributes, adopter categories, and opinion leadership. Each of these concepts have emerged as salient to the design of public health programmes (Rogers, 1995; Dearing et al., 1996; Rogers & Singhal, 1996).

1. *Communication channels* are the means by which a message is transmitted from one person to another. Interpersonal channels can involve face-to-face or electronically facilitated interaction (e.g. telephone, computer mediated interaction). Mass media channels typically involve print, radio, television, or film-based transmission. The channel most appropriate to disseminate information about an innovation will vary depending on the characteristics of the intervention, and the target population to be reached. So strategic decisions need to be made about which communication channel would be most appropriate to access and persuade members of a target audience. For example, some researchers have found that the mass media are highly limited in reaching minority subgroups who are at high risk for HIV/AIDS (Dearing et al., 1996; Svenkerud, 1995).
2. When messages concerning a specific innovation are transmitted from a source to a target member, the *innovation-decision process* is initiated (Rogers, 1995). This process is a sequence of decision points through which a target member passes. The sequence starts with *knowledge* or awareness of a potential innovation. The target member is then *persuaded* by information from a source and forms a favourable or unfavourable attitude toward the innovation. The next step is the *decision* to adopt or reject the innovation. If an adoption decision is made, the target member then *implements* the innovation. Finally, *confirmation* occurs when the individual seeks reinforcement for the innovation-decision that he or she has made.
Awareness of where target members are along this

innovation-decision continuum is an important element of an effective information dissemination strategy. If, for example, target members are ready to adopt an HIV/AIDS prevention behaviour, their time should not be wasted with information concerning the prevention strategy. Depending on where a person is located on the innovation-decision continuum, certain channels and message appeals will be more appropriate.

3. *Homophily* refers to the extent to which two or more people who communicate are similar to one another in certain attributes. When a target member focuses on the degree to which he or she is similar to an outreach worker, he or she may focus on such characteristics as age, gender, health, intelligence, education, personal beliefs, and/or socioeconomic status. Perceived homophily can be an important part of the innovation-decision process, because more effective communication occurs when individuals are homophilous (Rogers, 1995). For example, members targeted for HIV/AIDS prevention strategies may trust and respect an outreach worker more if that person is perceived as similar in key attributes (e.g. socioeconomic status). Also, if the outreach worker is empathic to the concerns of the target member, the information presented by that worker may be more readily accepted.

Although homophily helps in the more effective dissemination of information about a new idea or practice, a certain level of heterophily (dissimilarity) between an outreach worker and a target member is helpful as well (Dearing et al., 1996; Rogers, 1995). Specifically, a certain amount of 'expertise' heterophily concerning how to practice HIV/AIDS prevention behaviours is bound to be present between an outreach worker and a member of the target audience. In fact, this heterophily, in terms of expertise, is essential to the persuasive process of diffusing new behaviours with respect to HIV/AIDS prevention (Rogers, 1995).

4. Five perceptual innovation *attributes* are relevant to the innovation-decision process: (a) relative advantage, (b) compatibility, (c) complexity, (d) trialability, and (e) observability (Rogers, 1995). Relative advantage refers to the economic and noneconomic benefits a target member associates with an innovation. Compatibility is concerned with the degree to which the innovation is perceived as consistent with the values, past experiences, and needs of the target member. Complexity refers to the degree to which an innovation is

perceived as being difficult to understand and use. Trialability refers to the degree to which the innovation can be experimented with before adoption, and observability refers to the degree to which the results of an innovation can be observed by target members. Except for complexity, which is negatively associated with innovation adoption, the other four attributes are positively associated.

A central part of persuading people to adopt an innovation is to focus on the perceived attributes of that innovation from the perspective of the potential adopters. Innovations that are perceived by the potential adopters as advantageous, compatible, noncomplex, trialable, and observable are more likely to be adopted than innovations with the opposite attributes (Auwal & Singhal, 1992; Papa & Papa, 1990; Rogers, 1995). So, outreach workers must gain an understanding of how their innovations are perceived by potential adopters, so that they know what types of messages are most needed, and which will have the greatest persuasive impact.

5. *Adopter categories* describe the degree to which an adopter is relatively early or late in adopting new ideas relative to other members in a social system. Innovators are individuals who actively seek out new ideas or products, and are among the first to adopt them. They are followed, respectively, by early adopters, early majority, late majority and laggards (Rogers, 1995). Consistent with the arguments presented with respect to the innovation decision continuum, outreach workers need information regarding how early or late a potential adopter is likely to make an innovation decision. Once this information is gathered, choices can be made about which messages will be most effective given the particular adopter category into which a target member fits.

6. The final salient concept of the diffusion framework is *opinion leadership*. Opinion leaders are people within a given social system who are able to influence other individuals' attitudes or behaviours in a desired way with relative frequency (Rogers, 1995). When an innovation is diffused throughout a social system, opinion leaders can play a key role in stimulating innovation adoption decisions. If outreach workers can identify influential opinion leaders within a targeted community, then their social networks can be activated which increases the likelihood that the innovation will spread rapidly and be adopted more widely.

■ Research Questions

Using the diffusion of innovations framework, we examined the highly targeted HIV/AIDS prevention programmes in Bangkok directed at unique population groups. More specifically, our study addressed three research questions:

1. *To what extent do HIV/AIDS prevention programmes in Bangkok target unique population groups?*
2. *Which concepts from the diffusion of innovations framework are used consistently by the highly-targeted HIV/AIDS programmes directed at unique populations?*
3. *Which concepts from the diffusion of innovations framework are used by the more effective highly-targeted HIV/AIDS programmes directed at unique populations, relative to the less effective ones?*

■ Site Selection and Data-Collection Procedures

The city of Bangkok represents an appropriate site for the present research for several reasons. The HIV/AIDS epidemic is spreading rapidly among the Thai population. By 1994, it was estimated that 825,000 HIV cases existed in Thailand, with 1.9 out of every 100 people in Bangkok afflicted with HIV (Brown, 1995; Bhatiasavi, *Bangkok Post*, 14 January 1995). Bangkok is home to a flourishing commercial sex industry, employing over 200,000 commercial sex workers. Many unique populations at high risk for HIV/AIDS exist in Bangkok: For instance, migrant teenage girls from Isan (an impoverished area in the Northeast of Thailand) who work in the low-end commercial sex industry, young male motorcycle taxi drivers who visit commercial and sex workers, and various other groups. Several governmental and nongovernmental organizations in Bangkok administer HIV/AIDS prevention and control programmes.

Various logistical factors aided the conduct of our study in Bangkok. The first and second author of the present article spent a semester at Bangkok University in 1995; the third author spent a semester there in 1996. We thus had an institutional base to conduct the present research in Bangkok, and were able to involve several Thai students at Bangkok University in our data-collection activities.

■ HIV/AIDS in Thailand

As was the case in the US and Europe, the first several AIDS cases in Thailand were identified among gay men in the mid-1980s (Phanaphak et al., 1985; Wangroonsarb, 1985). During these years, HIV infection among commercial sex workers (CSWs) in Bangkok was low. The thirst for tourism dollars and the relatively low number of AIDS cases, slowed the response of the Thai government to combat HIV/AIDS (Sittitrai et al., 1992; Thailand Ministry of Public Health, 1990). In late 1987, HIV seroprevalence dramatically rose among intravenous drug-users in Bangkok (Havanon et al., 1992).

In the next two years (1988-90), the number of HIV cases grew rapidly (Sittitrai et al., 1994). By 1990, the demographics of the epidemic had changed in Thailand. AIDS infections among intravenous drug-users and homosexual males had either dropped or stabilized, while the rate of HIV infection among heterosexual female CSWs had risen to an alarming 16 percent nationwide (Brown & Xenos, 1994; Wangroonsarb et al., 1994). The percentage of HIV positive cases nationwide for heterosexual males also grew steeply; many of them frequented female CSWs (Brown & Xenos, 1994; Limanonda, 1993; Havanon et al., 1993; 1992). The most dangerous wave of HIV transmission is presently occurring among the sexual partners of infected Thai men (AIDSCAP, 1994a; AIDSCAP, 1994b; Sittitrai & Brown, 1994; Celentano et al., 1993; Pramualratana & Podhista, 1994; Puthikanon, 1990; Rojanapithyakorn & Poonpirat, 1991). If present trends continue, deaths due to AIDS will take a heavy toll of the Thai population, leading to a negative population growth rate in Thailand within 15 years (Brown & Xenos, 1994).

Several sociocultural factors help contribute to the rapid spread of HIV/AIDS in Thailand (Van Landingham & Grandjean, 1994):

1. *Religious values and beliefs:* Thai sexual behaviours relative to HIV/AIDS must be viewed in the context of a prevalent fatalistic world view. Fatalism makes people believe that HIV infection is predetermined by supernatural forces, rather than resulting from a failure to use safe-sex practices (Ford & Koetsawang, 1991; Fordham, 1993; Mulder, 1990; Klausner, 1993). The Thai belief in *Sieng-Duang* (accept fate) makes people believe that

the risk of contracting HIV/AIDS is beyond human control (Ford & Koetsawang, 1991).

2. *Polygamy and commercial sex:* These social practices have been intrinsic in Thailand for centuries (Kanato & Rujkorkarn, 1994; Klausner, 1993). Extramarital affairs are frowned upon for women, but not for men (Ford & Koetsawang, 1991; Klausner, 1993). Although Thai society now is legally monogamous, men of all socioeconomic classes still keep mistresses, known as *mia nois* (minor wives) (Klausner, 1993). Keeping *mia nois* bestows status, power, and prestige (Komin, 1990). Thai boys are socialized from a young age to value the experience gained from *pai len sao*, the courting of girls. Most young men experience their first sexual intercourse by visiting brothels (Kanato & Rujkorkarn, 1994; Nopeskorn et al., 1993; Stier, 1993; Bennett, 1995; Sittitrai & Brown, 1994). Young men view their interactions with CSWs as mostly a peer-related leisure activity; one which releases pent up energy. Another complex peer-mediated influence is signified by *kreng jai* (diffidence); individuals are often unaware of the degree to which their behaviours are affected by their friends (Van Landingham & Grandjean, 1994). If an individual is asked to go to a brothel by a friend, he might go because he wished to accommodate (*kreng jai*) the friend.
3. *High migration rate:* Many rural migrant workers (male and female) come to Bangkok to work in its factories, businesses, and commercial sex establishments. Male migrant workers often visit female CSWs and are at high-risk for HIV/AIDS. Migrant populations feel they are not part of any community, and often do not trust each other.

Despite these sociocultural obstacles, the Thai government responded to the AIDS epidemic much faster than any other country in the Asian region. The governmental budget in Thailand for HIV/AIDS prevention programmes (on a per capita basis) is higher than that of most other developed and developing countries in the world. However, it is still not clear whether efforts to disseminate information to prevent and control HIV/AIDS in Thailand are effective with members of unique populations. As we argued previously, unique populations are not only difficult to reach, they often ignore public health education messages because they feel 'ostracized' from mainstream society.

■ Data-Collection Steps

Data was collected in a sequence of six research steps, which were patterned after an HIV/AIDS evaluation project conducted in San Francisco by Professors Everett M. Rogers and James W. Dearing (Dearing et al., 1996; Rogers et al., 1995). The research instruments employed were translated into Thai, pretested, and revised, prior to implementation.

1. *Determination of the population of community-based HIV/AIDS outreach programmes in Bangkok:* A list of all HIV/AIDS outreach programmes in Bangkok was compiled from various organizations and individuals who were active in HIV/AIDS prevention efforts. These organizations were contacted to determine the extent to which their programmes targeted unique populations. For inclusion in the study, an organization had to (1) provide a direct HIV/AIDS outreach service to the Bangkok population, (2) engage in HIV prevention education, and (3) have been in operation for more than one year. Some 28 organizations operating 55 HIV/AIDS outreach programmes met these criteria.
2. *Measuring the uniqueness of HIV/AIDS prevention programmes:* A uniqueness score was computed for each of the 55 programmes, by asking programme managers whether or not they targeted their audiences on the basis of 14 factors (many of these factors represent high-risk for HIV/AIDS): (1) gender, (2) age, (3) education, (4) ethnicity/region, (5) homelessness, (6) socioeconomic status, (7) citizenship, (8) language, (9) hemophilia, (10) IV drug use, (11) non-IV drug use, (12) commercial sex work, (13) sexual orientation, and (14) other. The more risk factors associated with HIV/AIDS, the more highly targeted the programme. Risk was operationalized as 'the dangers of the targeted individuals of contracting HIV/AIDS' (Dearing, 1993). The 10 HIV/AIDS programmes that possessed more than four targeting characteristics were selected for further study.
3. *Distinguishing among programmes on the basis of process effectiveness:* A process effectiveness score was computed for the 10 most highly targeted HIV/AIDS programmes in Bangkok. Akin to the Dearing et al. (1996) study of HIV/AIDS programmes in San Francisco, we did not seek outcome measures (such as the adoption of safe-sex behaviours by

clients). One reason for our process effectiveness focus was that the HIV/AIDS programmes in Bangkok were still ongoing, so outcome measures were not readily available. Even if such data were available, however, it would not have permitted comparison among programmes. To enable comparison across programmes, we measured the process effectiveness of each HIV/AIDS programme on the basis of 15 objective indicators (Table 1), which are positively related to outcome effectiveness (Dearing et al., 1996). Many of these indicators are commonly used by local, state, and Federal funding sources and by private donors and foundations to provide evidence of process effectiveness.

Drawing upon the results of the Dearing et al. study of HIV/AIDS prevention programmes in San Francisco, we argue that an HIV/AIDS prevention programme is more likely to be effective if its staff, (1) collaborates more with other organizations in providing outreach services, (2) has more experience in health education efforts, (3) interact more on a face-to-face basis with clients, (4) works more service hours, and (5) perceive that their programme is more successful than other programmes which they have previously worked on and are acquainted with. Similarly, an organization that attracts more Federal funding for its prevention activities, a greater diversity of funding sources, and more volunteers from the local community, is more likely to be effective (Dearing et al., 1996; Rogers, 1995).

A comparative process effectiveness score was computed for 10 of the most highly targeted prevention programmes. For each programme, the numerical values for the 15 scale items were summed, and divided by the total number of items that applied to the programme and on which data were gathered. Dearing et al. (1996) factor analyzed these 15-scale items for unidimensionality with principal axis rotation. Factor loadings for most items were greater than 0.40. All 15 items were found to be internally consistent as measured by item-total score correlations and were thus retained in the scale (Dearing et al., 1996). Those HIV/AIDS programmes that received a high score on the process effectiveness scale were considered more effective; the programmes with the lowest scores were considered less effective.

4. *Interviews regarding programme strategies:* Personal interviews were conducted with programme managers of the 10 most

Table 1.
Process Effectiveness Indicators for HIV/AIDS
Programmes Targeting Unique Population Groups
in San Francisco and Bangkok.

1. Length of operation.
2. Number of collaborating organizations in conducting HIV/AIDS outreach.
3. Programme manager's perception of the success of outreach efforts.
4. Programme manager's perception of the effectiveness of their programme relative to other programmes run by the organization.
5. Programme manager's perception of the effectiveness of their programme relative to other similar prevention programmes operated by other organizations.
6. The experience of field staff (in the area of health education) for the programme.
7. The number of government organizations who funded the HIV/AIDS programme in the last year?
8. The total number of funding sources, including government, private, and individual donors for the programme during the last year.
9. Total funding received by the programme from all sources during the last year.
10. Total percentage increase in expenditure for the programme during the last two years.
11. The average length of interaction between the outreach worker of the programme and clients in the field.
12. The number of paid staff and volunteers who worked on the programme during the last year.
13. The average number of contacts between outreach workers and clients in the past year.
14. The average number of anecdotal 'success stories' heard by the programme manager about the impact of the programme in the past year.
15. The average number of service-hours per month for the programme during the past year.

Source: Dearing et al. (1996).

highly targeted programmes to ascertain the administrator's perceptions of whether or not the programme was effective in disseminating HIV/AIDS prevention information to its target audience. Programme managers were also asked whether or not their programmatic strategies included the explicit or implicit use of the six main concepts from the diffusion of innovations theory. During the interviews, programme administrators were prompted for specific responses, and allowed to freely discuss responses concerning programme origination, design, and implementation strategies.

5. *Content analysis of programme managers' interviews:* Interviews with the 10 programme managers of the most highly targeted prevention programmes were translated, transcribed, and content-analyzed to identify whether implicitly or explicitly the six diffusion of innovations concepts were related to the effectiveness of outreach strategies targeted at unique populations. *Content analysis* is the quantification of the manifest or latent meaning in communication (Holsti, 1969). The transcribed interviews were content-analyzed by two blind, and two non-blind, coders. An intercoder reliability score of 0.92 was achieved. Each identified criterion was categorized according to whether or not it implicitly reflected the six main concepts of the diffusion of innovations theory.

6. *Case studies of the most and least effective programmes:* An in-depth case study of the single most effective and the single least effective programme was conducted to enable a contextual interpretation of the study's quantitative results. The most effective HIV/AIDS prevention programme was a slum-based programme directed at housewives; the least effective was directed at motorcycle taxi drivers in the city. The case study data were derived from (1) personal interviews with the programme managers, (2) in-depth analyses of organizational and programme documents, (3) accompanying outreach workers to meet clients, and (4) focus group interviews with clients of these two HIV/AIDS outreach programmes. A total of four focus group interviews—two comprising a total of 11 slum-based housewives, and another two focus group interviews comprising a total of 16 motorcycle taxi drivers—were conducted on audiotape and transcribed and translated from Thai to English. These interviews provided some insight into how effective/ineffective the programme strategies were for changing high-risk behaviours related to HIV/AIDS.

■ Results and Analysis

■ Targeting, or a Lack Thereof?

Research question #1 asked: *To what extent do HIV/AIDS prevention programmes in Bangkok target unique population groups?* The 55 outreach programmes engaged in HIV/AIDS information dissemination in Bangkok, did little targeting at unique populations. The mean targeting score for the programmes was only 1.6, which means that these programmes utilized less than two audience characteristics in targeting outreach efforts. Programme managers of 20 HIV/AIDS programmes reported that they did not use any audience characteristic to target their outreach efforts. Instead they utilized a 'blanket' approach in reaching a general population. Some 11 outreach programmes targeted their audiences using only one risk factor. Rather than using targeting strategies that would signify 'depth', a large number of programmes were more focused on 'width', signifying a relatively undifferentiated audience. As Mr Manop, a programme manager in Bangkok noted: 'It is hard to reach people of unique groups. Very few organizations work in the slum. The slum dwellers are the labourers of Bangkok. No one wants to deal with the slum'. This lack of focus on targeting by most programmes in Bangkok was noteworthy, given the presence of several unique population groups at high-risk for HIV/AIDS.

The most highly targeted programmes (n=10) in the present investigation employed between four to six audience characteristics in their targeting strategies. Most targeted their efforts on the basis of age, gender, occupation, location, and high-risk behaviours. Relative to most other HIV/AIDS programmes in Bangkok, the identification of one or more homogeneous sub-audience(s) from a heterogeneous population, was considered important by all 10 programmes that targeted outreach efforts toward unique populations. This approach, commonly used by commercial and social marketers, is called *audience segmentation*, defined as the identification of one or more homogeneous subaudiences from a population. An example of audience segmentation was provided by a programme manager in Bangkok: 'We try to reach those individuals who are at the highest risk for HIV, such as a (1) young (2) female (3) commercial sex worker, who is an (4) intravenous drug-user and who is (5) homeless'. Such a segmentation strategy is an example of a highly targeted audience group with five risk

factors for HIV/AIDS.

Audience segmentation becomes especially important when educational efforts for HIV/AIDS prevention are directed unevenly within the Thai population. For instance, while HIV/AIDS education is mandatory in Thai schools, this information does not always reach populations at high-risk. Instead, these high-risk populations are often looked down upon, and are ostracized by other segments of society. As programme manager Ms Boonsom stated: 'In the slum we find that the out-of-school young people are a very special group. Since many of these young people do not attend school, we found that they do not get much information about HIV/AIDS'.

Programme managers of the 10 most highly targeted HIV/AIDS programmes in Bangkok realized the importance of audience segmentation. As programme manager Mr Saithong said: 'Our target group are children and youth only. Hence, most of the material we use are developed specifically for them. We do not use it for any other groups'. Another programme manager, Mr Carl noted: 'We break our focus down into different categories of commercial sex establishments—massage parlours, tea houses, cocktail lounges, bars, pubs, brothels, Karaoke bars, rice shops, and ice cream parlours. We then decide on the type of health service to be provided'. Finally, programme manager Mr Supoi said: 'With a specific [audience] focus, the programme has a greater potential to reach the poor and to give the poor a greater chance to change their high-risk behaviour. The rich already have such knowledge'.

Our findings reinforce the importance of segmenting the audience. Programme managers and outreach workers must be knowledgeable about the target audiences' attitudes, values, and behavioural patterns. Such knowledge, when carefully employed in conjunction with targeting strategies, increases the effectiveness of HIV/AIDS prevention and control programmes.

■ Diffusion Concepts Utilized by All Highly Targeted Programmes

Research question #2 asked: *Which concepts from the diffusion of innovations framework are used consistently by the highly-targeted HIV/AIDS programmes directed at unique populations?* Of the six concepts previously discussed, our data indicated that two were consistently employed by all highly-targeted programmes: (1)

Communication channels and (2) innovation attributes.

Communication Channels

How to gain access to unique populations, and how to best harness the available interpersonal and mass communication channels, were considered important by all 10 highly targeted HIV/AIDS programmes in Bangkok. The content analysis of programme managers' interviews yielded 172 references (mean=17.2) to the importance of strategically choosing communication channels in disseminating information about HIV/AIDS.

While mass media strategies were often used as initial information-spreading sources, interpersonal channels of communication were viewed as being more effective in building trust between the outreach workers and the target audience. As programme manager Mr Carl said:

Participation in our programme gives them an opportunity to talk to someone about their life. While working in the commercial sex industry, they often have to lead a semi-secret life, living in a situation where they really never let people know who they are and what they do. So I think that the chance of talking to someone who is going to be non-judgmental, a situation where they can express their fears and worries, and hopes and dreams with someone that is not going to judge them, is very useful. I think they like just having people treat them like human beings rather than goods for purchase.

Interpersonal channels were also used to communicate the importance of overt behaviour changes associated with HIV/AIDS prevention. As programme manager Ms Bonsom put it:

First, we start our outreach efforts with information that takes place in a large group. In these groups we show slides and videos about AIDS to inform them about the dangers. Next, we visit them in their homes. We think this is very important because we can provide them with more detailed information about AIDS. We often find that they do not understand clearly in these large groups, but do so during our house visits.

Responses from various programme managers suggested that mass media channels alone cannot affect behavioural change among members of unique populations. Interpersonal channels were

viewed as being important in accessing unique populations and persuading them. As programme manager Mr Manop argued:

In our work we cannot always deal with problems through media channels. The number of HIV cases are so large that we have to reconsider the tools that we use. We need to become more familiar with their thoughts, and their basic culture. To do that we have to go to the slum and try to change their attitudes.

Clients served by the HIV/AIDS prevention programmes also highlighted the importance of using appropriate communication channels to disseminate information in their communities. One housewife from a Bangkok slum explained: 'We also serve an important role in spreading information in our community. By talking with our neighbours we spread information about the programme, reducing the risk of getting HIV/AIDS'.

In sum, interpersonal channels were considered as being especially appropriate in accessing and persuading members of unique population groups. Interpersonal communication helps build trust between the outreach workers and the client audience, especially for a 'taboo' topic such as HIV/AIDS (Rogers, 1995).

Attributes of Innovations

All 10 highly-targeted HIV/AIDS programmes were sensitive to how their client audiences perceived the innovation. Content analysis of programme managers' interviews yielded 42 references (mean=4.2) that highlighted the importance of client perceptions about the desired behaviour changes to reduce the risk of HIV/AIDS. Some programmes paid more attention to the clients' perceptions of the HIV/AIDS programme than others; also, certain innovation attributes were emphasized more by certain programmes than others.

A value was put on the presentation of the innovation (the HIV/AIDS control and prevention programme) and it being perceived positively by the clients. Economic advantages of participation were especially emphasized: It did not cost the clients anything to be involved in the programme; rather, incentives were provided. As one programme manager, Mr Carl, explained: 'Participation and services [like condoms] are provided free of charge. We also give them a gift for participating'.

Each of the 10 highly targeted programmes provided economic and status-conferring rewards to the clients to elicit and boost

their participation in programme activities. Motorcycle taxi drivers, the client audience for a prevention programme, were given vests. As programme manager Mr Somsak explained: 'We give them vests [with logos promoting the programme] after they have completed the AIDS awareness workshops. These vests are very popular'. Many of the motorcycle drivers told us 'how good they felt' about donning these vests. The vests often helped spur interpersonal discussion about the issue of HIV/AIDS between motorcycle taxi drivers and their passengers.

Several programme managers highlighted the importance of being sensitive to the lifestyles of their clients. Many tried to make their programmes as 'compatible' as possible with the lifestyles of the clients. As Ms Nitaya, programme manager of the HIV/AIDS programme directed at slum housewives explained: 'Our programme adjusts to the needs of our clients. We must adapt the programme to make them, the slum dwellers, feel that this is their problem. We have to find ways to make them realize that this is close to them, their own kids, husbands and so on'.

Another HIV/AIDS programme directed to commercial sex workers was also sensitive not to disrupt their lifestyles. As programme manager Mr Carl noted: 'We conduct our research and outreach efforts around the hours of the commercial sex establishments'. The programme directed at motorcycle taxi drivers also tried to integrate its activities with the behavioural patterns of the motorcycle taxi drivers: 'We have found that food stalls where the motorcycle taxi drivers meet to be a good place to pass out HIV/AIDS prevention materials'.

The perceptual attribute of observability deals with the degree to which the results of an innovation can be seen by an audience of potential adopters. Clients of various HIV/AIDS outreach programmes indicated that they have observed the impact of the programmes in reducing high-risk behaviours. A housewife, Waew, from the Klomg Toey slums, commented: 'This programme has changed our lives. Many people even travel to Klomg Toey to take a look at our programme and the approach we use. We can claim that our community has become the model for others'. Bunchoo, another housewife from Klomg Toey, added: 'The slum's drug problem seems to have decreased. We see less people use drugs'.

Some motorcycle taxi drivers also commented on the observable outcomes of the HIV/AIDS educational programme. Ko, a young, single motorcycle taxi driver, stated: 'Since we learned about AIDS, many of us have stopped going to brothels'. Another added: 'When

we do visit brothels, we do so with protection. The programme taught us how to use condoms'. A third motorcycle taxi driver observed: 'The programme has visibly changed many of my co-workers in a positive way. Now they are more afraid of contracting AIDS and using drugs'.

In sum, effective utilization of available communication channels and an understanding of certain innovation attributes (such as relative advantage, compatibility, and observability) were viewed as important by all highly-targeted HIV/AIDS programmes. However, certain diffusion concepts were deemed as being more important by the more effective highly-targeted programmes relative to the less effective ones.

■ *Diffusion Concepts Utilized by the More Effective Programmes*

Research Question #3 asked: *Which concepts from the diffusion of innovations framework are used by the more effective highly-targeted HIV/AIDS programmes directed to unique populations, relative to the less effective ones?* Three concepts of diffusion of innovations theory were utilized to a greater extent by the more effective highly-targeted programmes compared to the less effective ones: (1) Homophily, (2) opinion leadership, and (3) the innovation-decision process.

Homophily

Evoking a sense of safety, trust, and respect when conducting outreach efforts were viewed as being highly important by programme managers of the more effective highly-targeted programmes. *Homophily* between outreach workers and clients was seen as being especially important. The positioning of unique groups in relation to society often triggers fears of being stigmatized, increasing the importance of finding 'homophilous' outreach workers who are perceived as 'insiders' not 'outsiders'.

This focus on homophily between outreach workers and clients is especially critical when targeting unique populations, given the many illegal or semi-legal professions in which these populations operate. Motorcycle taxi-drivers (MTDs), for instance, have a semi-legal status in Thailand (Singhal, 1995). The police must be bribed to allow them to work. The various MTD wins are often run by the *Maelow* (a local mafia), and interactions between outreach

workers and clients are monitored. Commercial sex work is also illegal in Thailand, and access to CSWs is tightly controlled by brothel managers. If adequate trust is not built, these populations can be extremely hard to access. As programme manager Nitaya explained: 'If we try to take the commercial sex workers out of the brothel, the *Maelow* do not support us. They don't want them to learn about the world outside and are afraid that they might transfer to different brothels.'

Selecting a homophobic outreach worker is critical, according to programme manager Boonsom:

We have to select someone that can go well with the motorcycle drivers and other target groups. The first thing we tell our outreach workers is that they have to get close to their target group and develop a good relationship with them. Some people might think that we are some kind of spy or the police. So we have to show our sincerity, and they will start to open up and listen to us.

Several programme managers pointed out how outreach workers can be more empathetic toward their client audience. Programme manager Nitaya, who lives in the same Klong Toey slum area as her HIV/AIDS programme is based, and who herself is highly homophobic with the slum housewives at whom the programme is directed, said: 'One has to listen to their stories. They have to feel comfortable with us before we can talk about AIDS'. Programme manager Mr Supoj explained: 'We change our language from an official one to a more easily understood language'. Finally, Mr Manop said: 'The way we approach them must convey respect towards the slum dwellers. We must pay respect to them as if they were our relatives. We must make them feel that we are their friends, and empathize with their situation'.

In addition to comments received from programme managers about the importance of homophily between outreach workers and clients, a number of clients also drew attention to this issue. A client of programme manager Nitaya stated: 'We like the involvement and genuine care shown by Khun Nitaya and her family to our community. Ms Nitaya is easy to talk to, provides help when needed, and has a good understanding of the housewives' problems. After all she is also a housewife'. One of programme manager Somsak's clients also addressed the

homophily issue when stating: 'He can blend with us well. He speaks the same language as most motorcycle taxi drivers, and is aware of the high-risk situations that most of us find ourselves in'.

In Thailand, many members of high-risk populations wrestle with more impending daily problems than worry about dying from AIDS. Hence messages communicated by outreach workers need to be grounded in the reality experienced by their client audiences. CSWs make more than 10 to 20 times the money in the sex industry than they could in alternative jobs. Outreach workers must empathize with their targeted populations' behavioural choices, prior to persuading them to modify their lifestyles. As two programme managers explained:

You cannot look at commercial sex workers just as commercial sex workers. You have to remember to look at them as people. They are commercial sex workers only during the time that they work. Outside they are wives, mothers, girlfriends, children. They are people with hopes and dreams. It is their profession that makes them different.

We usually send former commercial sex workers to talk to these clients, since they have a greater deal of trust with each other, and since the current commercial sex workers perceive them as more able to understand their situation and their needs.

In sum, issues of safety, trust, respect, and empathic understanding were important considerations for more effective HIV/AIDS outreach programmes that utilized the diffusion concept of homophily to a greater extent than programmes ranked as less effective.

While homophily between the outreach worker and clients was deemed as being important by the more effective programmes, a certain degree of heterophily between the outreach worker and clients was also considered important. This heterophily was viewed as being important in terms of the outreach worker being more knowledgeable than the client in the area of HIV/AIDS prevention. As programme manager Vikrom said: 'We set certain criteria for our volunteers. They should be better in reading and writing than a sixth grader'. To which programme manager Supoj added: 'I am mostly interested in the ability of the staff'.

Opinion Leadership

The use of the concept of opinion leadership by the more effective highly targeted programmes, suggests that the status of opinion leaders in unique populations takes on increased significance given the populations' ostracism from society at large. Opinion leaders are respected for their knowledge and reputation, and they exert informal influence among members of a social system (Rogers, 1995). Programme manager Mr Manop illustrated how effective HIV/AIDS outreach programmes in Bangkok identified opinion leaders to enhance the quality of their outreach efforts: 'In the community there are both formal and informal leaders who form their own committees in each slum. We always ask for their cooperation. These people usually have special skills in spreading information through word-of-mouth'. Mr Manop also highlighted the importance of training opinion leaders: 'When we have conducted training for about two months, we look for the individuals who are most enthusiastic about the programme. We then seek to train these individuals in even more depth. Later on we utilize these people to train their peers'. Programme manager Ms Nitaya explained how she identifies potential opinion leaders: 'In any group one can discern the spokesperson for the group...everyone respects them. They are the right people to bring to one's side'.

The most effective highly targeted HIV/AIDS programme of the present study identified influential housewives in one of Bangkok's Klong Toey slums to diffuse messages to their immediate community. As their programme manager, Ms Nitaya explained: 'During activities they participate a lot...they ask for material to distribute to other slum dwellers and inform other people in the community about our programme. If we ask them to bring 30 housewives to our meetings, they will bring 30'.

The HIV/AIDS programme directed toward housewives in Bangkok's Klong Toey slums is effective because 'respected' and 'influential' housewives in the community have become involved. Some 305 housewives, 30 husbands, and 65 slum youth are intimately involved with the programme (Svenkerud, 1995). The interviews show that the housewives were proud to be involved: 'We feel that the community and other housewives have come to respect us more after our involvement in the programme', says Waew, an opinion leader among the slum housewives. The additional respect they have gained from their involvement in the programme, has helped several housewives to yield more

interpersonal influence over their peers than they previously did. The least effective of the highly targeted HIV/AIDS programmes concerning motorcycle taxi-drivers in Bangkok, on the other hand, had many problems identifying opinion leaders. As programme manager Somsak explained: 'Motorcycle taxi drivers are very busy. We only spend five minutes with them before they are forced to leave. So we don't seek out specific individuals to spread information'. By not targeting opinion leaders, nor actively seeking them to influence other members of the group, the effectiveness of this programme is limited.

The Innovation-Decision Process

The innovation-decision process—the over-time sequence through which an audience member must pass from becoming aware about the message to being persuaded, to adopting, to implementing, to confirming—is more closely monitored by the more effective highly targeted programmes than by the less effective ones. These programmes make a careful determination of where a certain client is in the innovation-decision continuum, and try to provide an appropriate intervention to help them adopt a particular HIV/AIDS prevention and control behaviour. As programme manager Mr Carl said: 'They know who we are when we go into the [sex] massage parlours. And some of them know everything about AIDS. For them we give more of a reinforcing and social support message'.

More effective programmes conduct baseline evaluations of where the target audience members are located on the innovation-decision continuum. As programme manager Mr Manop illustrated: 'We conduct a pre-test to establish level of knowledge. Then, for the first two months we work on establishing a good relationship with the slum dwellers. When we get to know the majority of the people in our target group, we use broad-media strategies, such as slides or plays, slowly building up their knowledge before going more in-depth'. More effective programmes also implement follow-up procedures to see whether or not behaviour changes have occurred. As programme manager Mr Pia said: 'We conduct assessments of our target group every week. One-to-one consultation is very important to change their behaviour. Some people gave up drug injections because they knew we could help them...We conduct follow-up checks to monitor their behaviour'. Programme manager Vikrom said: 'We have "post tests" to assess how well they remember what has been taught to them and whether and how they have changed'.

Programme managers of more effective programmes also monitor explicit client reactions to disseminated messages in order to gauge where their clients are in their innovation-decision process. Programme managers Vikrom and Pia monitor feedback from their clients during training sessions: 'People who are afraid will not participate...while those who have knowledge will actively participate'. Monitoring attitude change is relatively easier, than to monitor their changed behaviour, according to Vikrom and Pia: 'But even to see this [attitude change], makes us think our programme works'.

Other programme managers also emphasized the importance of analyzing where the audiences stood in the innovation-decision process. Programme manager Bonsoom said she never sends out an outreach worker before determining where the audiences stand vis-a-vis the topic of HIV/AIDS prevention: 'After we have provided them with knowledge, we can, by talking to them, find out if they have changed their behaviour. In the past, they never used to say that they used condoms, now they know how to use condoms and they use them'.

In contrast, the less effective programmes did not consciously consider where their clients stood in the innovation-decision process. As programme manager of the least effective HIV/AIDS programme Somsak said: 'We only teach them, we can not change them'. He added, 'Most of our programme material remains the same since we think there is little difference between the motorcycle taxi drivers'.

■ *Relevance of Diffusion Concepts to Uniquely Targeted Population Groups*

While the diffusion concepts of *communication channels* and *innovation attributes* were used consistently by all the highly targeted programmes, and the concepts of *homophily*, *opinion leadership*, and *innovation decision process* were employed to a greater extent by the more effective highly-targeted programmes, the only diffusion concept which was not perceived as useful in targeting unique population groups was *adopter categories*. Our explanation for this finding is linked to the characteristics of the unique population groups targeted. The populations targeted by these programmes were very homogenous in terms of personal and behavioural characteristics. For example, CSWs, intravenous drug users, and homosexuals represent homogenous 'fringe' groups

within the overall Thai population. Furthermore, each population shares similar socioeconomic characteristics. However, the adopter categories identified within the diffusion of innovations framework assume that there are clear-cut distinctions among people within each category concerning attitudinal, behavioural, and socioeconomic characteristics. For example, early adopters of an innovation are usually more integrated within the local social system than are innovators, and they have more years of education and higher socioeconomic status than later adopters (Rogers, 1995). Since the unique populations targeted by HIV/AIDS prevention programmes in Thailand are far more homogenous than the overall Thai population, it is not surprising that adopter categories did not prove to be an especially useful concept in targeting strategies.

■ *Conclusions*

Of the six main diffusion concepts, we have found that two—*communication channels* and *innovation attributes*—were employed by all of the highly targeted programmes. Three additional concepts—*homophily*, *opinion leadership*, and the *innovation-decision process*—were used to a greater degree by the more effective highly targeted prevention programmes. One concept—*adopter categories*—was not used by any of the highly targeted programmes.

The ways in which the diffusion of innovations framework was used by HIV/AIDS programme managers in Thailand was particularly noteworthy, given that they indicated they had not formally received any training in this approach. The use of diffusion concepts was also significant given that, while selecting the highly targeted HIV/AIDS programmes, we did not seek programmes that used diffusion approaches. Rather, we inductively sought highly targeted programmes, and investigated the strategies they utilized to target their audience. Interestingly, it was not only the programme managers who drew attention to the diffusion of innovations concepts; a number of programme clients also raised these diffusion concepts in their evaluations of programme effectiveness. These findings point to the wide applicability of the diffusion framework in understanding how innovations spread among the members of a social system, even if they are among unique populations that may be located on the outer fringes of society. Given the importance of spreading information about HIV/

AIDS prevention and control to unique population groups at high risk for the disease, this finding is of particularly significance.

Our findings provide certain important policy lessons. First, programme managers and outreach workers could benefit from formalized training in the diffusion of innovations framework. A more conscious and informed use of such diffusion concepts as *homophily*, *opinion leadership*, and the *innovation-decision process* can improve the effectiveness of HIV/AIDS programmes in bringing about behaviour change among members of unique populations. Second, we found a surprising lack of targeting by many of the prevention programmes in Bangkok. In fact, 20 of the 55 programmes investigated, indicated no targeting strategies were used; some 11 programmes indicated they targeted based on only one demographic audience characteristic. Since targeting unique populations should be central to any programmatic effort directed at reducing the incidence of HIV/AIDS in a nation, this finding is particularly troublesome. HIV/AIDS prevention programmes in San Francisco were much more highly targeted (Dearing et al., 1996).

One limitation of the present study is that it focused primarily on process measures to gauge programme effectiveness (see Table 1) as opposed to outcome measures. As we argued in a previous section, process measures, despite their apparent limitations, (1) predict outcome measures, (2) permit comparisons across diverse programmes based on objective criteria, and (3) often represent the 'best available' data, especially if the programmes are still ongoing (Dearing et al., 1996; Rogers et al., 1995). However, in addition to focusing on process measures of programme effectiveness, future research on HIV/AIDS programmes directed at unique populations may also investigate other outcome measures such as behavioural changes on part of the client audiences (such as adoption of safe-sex practices). Future research might also consider a more direct evaluation of clients' reports, as opposed to programme managers' perceptions, regarding the effectiveness of prevention programmes. In the present investigation, our focus group interviews with housewives in Bangkok's Klong Toey slums and with motorcycle taxi drivers, helped provide such clients' reports, albeit on a limited basis. In future research, more personal interviews and in-depth interviews of clients may be employed for an enriched understanding of the effectiveness or ineffectiveness of HIV/AIDS programmes. Another important direction for future research is to grapple with the underlying sociocultural causes for such high-risk behaviours as

commercial sex work and IV drug use, instead of focusing primarily on such stop-gap measures as using condoms or clean needles.

HIV/AIDS is one of the most pressing public health problems in the world today. In this article we have shown how diffusion of innovations theory can explain the relative effectiveness of outreach efforts directed at unique population groups. Theories of communication and social change are useful to the extent that they can contribute to improving the quality of peoples' lives. The concepts of diffusion of innovations theory inform us about how to more effectively implement public health programmes that deal with life-threatening diseases.

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