

THE DADE PROJECT: A VIEW OF DISTANCE LEARNING FROM A DIFFUSION OF INNOVATIONS PERSPECTIVE

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The Dade Project is defined as a seven-semester distance learning graduate program for practicing elementary and middle school math and science teachers in the Dade County Public School system. The Dade Project began in 1996 with a cohort of 200 experienced teachers, with an additional 50 educators entering the program during the second summer semester (Davis & Tobin, in press; Presmeg, 1998). The Dade Project consists of an innovative combination of internet-mediated interaction coupled with aggressive in-class learning.

This program of teacher development can easily be described as an innovation by offering teachers an opportunity to advance their teaching skills and simultaneously acquire a graduate degree in their area of specialization without leaving home. If we view this program through the Diffusion of Innovations paradigm posited by Everett M. Rogers, we are able to understand many aspects of the innovation and, perhaps more importantly for this project, several factors that the potential adopters may utilize in their decision to adopt or reject this innovation.

Rogers identifies five characteristics by which an innovation may be described, and shows how individuals' perceptions of these characteristics predict the rate of adoption of the innovation. Rate of adoption is the relative speed with which an innovation is adopted by members of a social system (Rogers, 1995). The factors that impact the rate of adoption of an innovation include: 1) the perceived attributes of the innovation, 2) the type of innovation-decision, 3) the communication channels, 4) the nature of the social system, and 5) the extent of change agents' promotion efforts. Of all five of these factors, it is perceived attributes of the innovation that explains from 49 to 87 percent of the variance in the rate of adoption. Clearly this is the most important factor of the innovation relative to the rate of adoption. This factor, perceived attributes of the innovation, is composed of five aspects: Relative advantage, compatibility, complexity, trialability, and observability (Rogers 1995). The purpose of this paper is to describe the perceived attributes of the Dade Project in Diffusion of Innovations terms.

Relative advantage is defined as the degree to which an innovation is perceived as being better than the idea it supersedes (Rogers 1995). It is often expressed as economic profitability, social prestige, or other benefits. The nature of the innovation determines what specific type of relative advantage is important to the adopters, although the characteristics of the potential adopters also affect which subdimensions of relative advantage are most important. The successful completion of the Dade Project provides relative advantage of an economic type to potential adopters by additional pay once the advanced degree is completed.

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A second type of relative advantage, that of social status, is also a motivating force for adoption of an innovation. The Dade Project confers upon the adopter the status derived from a graduate degree as well as the increased information in the area of specialization. Such status increases the adopters' opportunities for career advancement, earning potential, and spheres of influence within the social structure. Relative advantage indicates the benefits and the costs resulting from adoption of the innovation.

Relative advantage is only one aspect of the successful adoption of the innovation. The second most important predictor of adoption is compatibility. Compatibility is the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters (Rogers 1995). An innovation can be compatible or incompatible: 1) with sociocultural values and beliefs, 2) with previously introduced ideas, or 3) with clients needs for the innovation. The Dade Project appears to be compatible with: 1) the sociocultural values and beliefs of teachers in the Miami-Dade District School system, 2) the clients' needs for the innovation of a distance learning math and science graduate program, and 3) previously introduced ideas. The success of the program indicates that there is a willingness to adopt the new means of acquiring the desired consequences.

Another dimension of the compatibility of an innovation is the degree to which it meets a felt need. When the felt needs of the potential adopters are met, a faster rate of diffusion of the innovation usually follows.

The success of the Dade Project reveals that the enrollment in the program quickly increased in the second summer semester by 25 percent (Davis & Tobin, in press). Two major factors of compatibility contributing to the increased adoption rate are the cost of the program and time. The cost of the program is compatible with the budget of elementary and middle school teachers through tuition waivers funded by the Dade County School System with assistance from the National Science Foundation. The factor of time, or more precisely the adopters' teaching schedules, is made compatible via the format of Internet-mediated course assignments, class presentations, and scholarly discussion during the fall and spring coupled with traditional in-class instruction during the summer.

The third factor of innovation adoption identified by Rogers is complexity. Complexity is the degree to which an innovation is perceived as relatively difficult to understand and use (Rogers, 1995). If the innovation is perceived to be very complex, the rate of adoption is slowed. Research indicates that when potential adopters are required to develop many new skills in order to utilize the innovation, the rate of adoption is slowed. The members of the population of potential adopters of the Dade Project find that the level of complexity of the program is low overall, with one exception. Technology is a barrier for some potential adopters in The Dade Project. Specifically, the use of the Internet was a problem for some members of the program. Students are required to submit their work via the Internet, view their peers' scholarly contributions, and to post critical analyses of these works to the class Website. Additionally, students are required to give online presentations and engage in scholarly chat groups as part of the fall and spring curricula. It is the responsibility of each adopter to gain access to a

computer and the Internet on a weekly basis; this presented a problem for some students. To their credit, administrators and educators in The Dade Project tackled this issue of complexity by arranging face-to-face meetings with those adopters experiencing difficulty. The success of the program is largely due to The Dade Project instructors readily assuming the role of mentors when needed.

The fourth aspect of the attributes of the innovation that affect the rate of adoption is trialability. Trialability is the degree to which an innovation may be experimented with on a limited basis (Rogers, 1995). According to Rogers, an innovation will be more quickly adopted if adopters are able to experience the innovation on an "installment plan" (Rogers, 1995). The adopters are able to sample the innovation one semester at a time through each of the seven semesters. If the innovation of The Dade Project is found to lack compatibility or to be too complex, the adopter is free to drop out of the program.

Some may argue that the Dade Project is not really available for trial use by potential adopters; either a teacher elects to adopt the innovation or not. We do not oppose this position; rather we posit that the experiences of those members of the population who have already adopted the innovation will serve as a form of trialability for their peers. These early adopters informally or formally report to the greater population of potential adopters, the experiences both positive and negative they encountered in adopting the innovation. These experiences can be viewed as a vicarious trial for potential adopters. A major goal of The Dade Project is to train experts in the fields of elementary and middle school Math and Science education for the purpose of diffusing knowledge to others in the social structure that is the Dade County School System (Davis & Tobin, in press).

The last of the attributes of the innovation discussed by Rogers is observability. Observability is the degree to which the results of an innovation are visible to others (Rogers, 1995). The results of some ideas are easily observed and communicated to others. The Dade Project is a type of innovation that is easy to observe. Members of the group of adopters will successfully complete an advanced degree and acquire additional information in their area of specialization. Members of the Dade County School System attended the first graduation in order to witness the accomplishments of the first cohort of adopters. Their experiences are observable on these different levels.

The overall success of the Dade Project is evidence that the attributes of the innovation are viewed by the population of potential adopters as positive with respect to adoption. The program seems to have adequately addressed the aspects identified by Rogers that influence the rate of adoption of the innovation.

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