A qualitative study of change and reform through professional development and innovation diffusion: *One university's experience*

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Abstract: This paper reports a qualitative research study into the process of change and reform in a research university through a professional development model grounded in innovation diffusion (ID) theory as applied to instructional technology (IT). The study has its roots in the application of theory of change and reform to practical issues of the role of IT in research universities (Szabo, 1996; Szabo, Anderson and Fuchs, 1999). In 1996 the theoretical base for this work was developed from, and extended beyond, the seminal theory of innovation diffusion of Fullan (1993) and Rogers (1995). Theory was translated into a working system of reform with reliance on professional development of a faculty and administrators. The system was piloted between 1997 and 1999. An intensive qualitative evaluation study was conducted in 2000-2001, with results presented here. Although our experience is unique, it may inform others of the promises and pitfalls of engagement in change and reform.

Key words: change, reform, innovation, instruction, technology

1. THE PRESENT AND THE FUTURE

A study of successful and unsuccessful innovation diffusion (ID) projects from physical and social sciences, technology and education reveals several consistent traits, with implications for practice (see Table 1).

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Innovation Diffusion Trait	Implication for Practice
1. Innovations follow circuitous, unpredictable paths. Innovations are often guided by a strong and clear vision of the future:	A clear vision of the future of an innovation precedes successful (ID).
2. Accepted as an abstract concept, rejected as an operational outcome (the rational behaviour of individuals and institutions is to promote stability and resist change):	Individuals and institutions do not accord (ID) the significant role it deserves.
3. Most innovations fail to become widely adopted:	Innovation is at odds with good stewardship.
4. (ID) gap is the elapsed time between the development and widespread adoption of an innovative process:	The (ID) gap is regularly and significantly underestimated, and is at odds with the limited appointment times.
5. Many innovations undergo radical changes from their original intentions, under local control:	At the local level, individuals need to have the power to influence how the innovation is used.
6. Diffusion is driven by dedicated individuals who possess unflagging dedication to the innovation and the ability to motivate others:	Successful diffusion is dependent upon recruiting the correct personalities.
7. Innovations have the power to radically change peoples' daily lives, as opposed to minor changes:	Most things classified as innovations are merely minor changes.
8. One school of thought argues that (ID) cannot be managed - it must be led (Kotter, 1996; Senge, 1990):	Attempts to diffuse innovation through micromanagement or administrative pressure rarely works.
9. It involves testing many ideas/approaches and discarding, through trial and error, those which do not work:	Institutions/individuals who do not tolerate failure discourage the taking of calculated, reasoned risks.
10. People pass through three stages when they encounter an innovation — play, use and create:	Evaluation of an (ID)s' progress must consider the diffusion stage.

Table 1. Innovation diffusion traits and implications for practice

2. THE TRAINING, INFRASTRUCTURE AND EMPOWERMENT SYSTEM OF INNOVATION DIFFUSION

Using these traits, the Training, Infrastructure and Empowerment System (TIES) was created to investigate and foster IT diffusion within a research university (Szabo, Anderson and Fuchs, 1999). The two major features of TIES are to: (1) develop and disseminate a powerful shared vision for reform at the senior administration level, and (2) establish a workable theory-based system to empower strategically-located faculty leadership teams to share and carry out that vision. This system was created in the context of professional development and IT. It is primarily a model for general reform, and secondly related to IT.

2.1 The vision

The goal of creation, dissemination and support building for a vision of what the instructional programme of the institution will look like, generated by the chief academic officers (CAOs), was pursued in a retreat setting. It involved the CAOs and key support staff who would be provided with stimuli, resources and a mechanism to capture and edit their deliberations.

A visioning retreat has three goals, to: 1) expose the administrators to the world of IT in general and more specifically to individual exemplary applications at the local, national and international level; 2) produce a vision of the future of the institution with emphasis on IT as a new form of instructional delivery; and 3) plan to publicise and demonstrate commitment to achieving the vision.

2.2 Professional leadership development

TIES is strongly committed to (ID) through continuing professional leadership development for empowerment. It uses five distinct phases in the process: identification of departments; creation of department-based TIES leadership task forces (TLTF); creation of systems to train TLTFs; training of TLTFs; and continued follow-up and support of TLTFs.

2.2.1 Phase I: Identification of departments

Deans and chairs of departments were approached to describe the vision of the institution along with the formation of the TLTFs to meet that vision. Note the difference in this approach from conventional practice, in which

individuals from different departments may choose to participate on their own, with little or no advance commitment or support from their department to assist others in the department. Department administrators were made aware of the need to support their TLTF's work for at least a year.

2.2.2 Phase II: Creation of department-based TIES leadership task forces (TLTF)

Local leadership must be strategically located within an institution, i.e., within the power base of the institutions, within individual departments. This approach capitalises on the knowledge of the strengths, weaknesses, personnel, policies, and goals of the department, possessed by the members of the TLTF.

The goal of TIES is to bring about widespread increases in the use of IT within the department, over and above the 10-20% of a faculty who are likely to be 'early adopters' (Rogers, 1995). Leveraging leadership at the local level is a reasonable way to provide the massive training and support necessary for the large number of a faculty in an institution in order to reach a critical mass of users.

TLTF selection criteria: TLTF members were selected and invited to participate by the departmental administration. Membership criteria include faculty members who are respected opinion leaders, departmental administrators, and technical and curriculum resource supporters.

TLTF terms of reference: The TLTF members were asked to undertake four tasks: 1) increase and model the use of IT in their own classes; 2) meet relevant training needs within their own department; 3) provide just-in-time, effective and credible support for colleagues; and 4) develop a multi-year, rolling plan to realise the vision.

2.2.3 Phase III: Development of TIES modules and workshop

Training TLTF members was done: (1) to ensure the members were qualified; and (2) as part of professional development leading to empowerment. Accommodation must be provided for wide variation in knowledge and adult learning principles. This training and support was carried out by a Leadership and Support Team.

TLTF training content: Training modules were created using a self-paced learning format for delivery through the internet (Szabo, 1998). In the area of IT, modules were designed to deal with digital presentation technology, digital interactive technology, and distance delivery, plus a set of modules on curriculum and instruction, and on evaluating students.

Professional staff trained in the change process and familiar with IT are critical to effective long and short term planning. Eight modules designed to promote leadership skills aimed at resistors were developed. The content of the modules drew heavily from the work on change theories of Senge (1990), Covey (1991), and Kotter (1996) among others.

Because not all participants would need to master all the modules, there was insufficient workshop time to complete all modules, some selection was needed by individuals, and learning rates required an allowance for self-pacing. So, modules were developed in an individualised, self-paced, web-delivered instructional format. Diagnostic and prescriptive tools helped participants identify competencies and corresponding modules to study. The internet format enabled the teams to: 1) continue their learning as needed throughout the year; and 2) use the resources as appropriate for any training endeavours they would engage in on behalf of departmental colleagues.

2.2.4 Phase IV: TLTF training

The actualisation of the vision needed to be done chiefly by those who were responsible for living with it in the future and who understood the environment in which the vision must be carried out. Tyack and Cuban (1995) recommended innovations be designed to be open to modification by those who must implement them. A faculty is more likely to support and enhance goals and methods which they create or are able to tailor, as opposed to goals and methods imposed from outside.

TLTFs from several departments attended a four-day workshop to: 1) acquire the skills and knowledge needed to provide leadership; 2) develop a cohesiveness as a team; and 3) begin to develop a strategy to implement the vision and adapt it to their unique needs and constraints. Activities were included in the workshop, which were aimed at dealing with co-operative efforts with respect to providing leadership. For example, participants were asked to identify what changes they would like to see and what things they would not want to see changed with respect to instruction. After considering these issues as a department, they came together to share, discuss and clarify their ideas.

2.2.5 Phase V: Follow-up support of TLTFs

The teams returned to their respective departments to carry out their terms of reference. The central training team was available to assist over the 12 month period following the initial workshop. This support modelled the importance of on-going, local and just-in-time support. A web conference

facilitated communication within and between teams and trainers during the following year.

3. EVALUATION PLAN

In 2000 to 2001, intensive interviews were conducted with four randomly selected stakeholder groups involved in TIES: chief academic officers, project directors, administrators and faculty members. This case study analysis used inductive content analysis, verified by triangulation including regular inter-subjectivity checks.

4. FINDINGS

First, neither administration nor faculty members distinguished change from reform; the former is exemplified by increased use of IT within the classroom; the latter by new instructional applications which supercede or extend the classroom. This is evidenced by the imprecise and mixed use of terms such as vision, goal, strategy, reform and change in interviewees' responses. Fundamental reform in the individuals', departments' or the institutions' culture was rarely discussed as an option. It may be hypothesised that one reason for limited diffusion of IT is that it is perceived as a minor change rather than as a disruptive innovation.

Second, the importance of vision predicted by TIES in promoting ID is not viewed with the same level of importance by senior administrators, who rely largely on administrative policy, procedures and committees to bring about change. Nor is it viewed as important by a faculty and departmental administrators, some of whom [mis]interpreted vision (where do we want to go as a faculty/department?) as strategy (how do we get there?). Subsequent to TIES, a document addressing 'vision and strategies' was developed for central administration but has not yet been acted upon.

Creating, empowering, and supporting strategically-placed leadership teams resulted in significant progress and localised application of diffusion efforts. The 'legacy' effect of continuation beyond the formal ending of the project was a project goal and was partially successful.

At all stakeholder levels, the benefits of participating in the initiative far outweighed the drawbacks. Each participant realised some benefit, and each of these benefits certainly played a part in the process of how smoothly the adoption of specific innovations could occur within these faculties. How far the diffusion process has occurred would be difficult to determine without interviewing other non-participating faculty members. However, subsequent

initiatives resulting in participating faculties and departments speaks to this issue.

REFERENCES

- Covey, S.R. (1991) *Principle-centered leadership*. New York, NY: Fireside
- Fullan, M. (1993) *Change forces: Probing the depths of educational reform*. London: Falmer Press
- Kotter, J.P. (1996) *Leading Change*. Boston, MA: Harvard Business School Press
- Moore, M. and Kearsley, G. (1996) *Distance education: A systems view*. New York, NY: Wadsworth
- Rogers, E.M. (1995) *Diffusion of Innovations*. New York: Free Press.
- Senge, P. (1990) *The Fifth Discipline: The Art and Practice of the Learning Organization*. New York: Currency Doubleday
- Szabo, M. (1996) Change in the use of alternative delivery systems through professional development within colleges and universities. In P. Carlson and F. Makedon (eds.) *Educational Multimedia and Hypermedia*. Charlottesville, VA: Association for the Advancement of Computing in Education
- Szabo, M. (1998) Modules for the training, infrastructure and empowerment system. Available at: http://www.quasar.ualberta.ca/edmedia/TIES/Ties_home.html
- Szabo, M., Anderson, T. and Fuchs, A. (1999) Report on a change system: The training, infrastructure and empowerment system (TIES). In B. Collis and R. Oliver (eds.) *Educational Multimedia and Hypermedia*. Charlottesville, VA: Association for the Advancement of Computing in Education
- Tyack, D. and Cuban, L. (1995) *Tinkering toward utopia: A century of public school reform*. Cambridge, MA: Harvard University Press

BIOGRAPHIES

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