What Do the Faculty Think? The Importance of Concerns Analysis in Introducing Technological Change

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Change management strategies tend to focus on the inherent characteristics of the proposed change. However, there is a personal side to change and it is reflected in what are called perceptions or personal concerns. To manage change successfully, facilitators must take measures to understand the personal concerns had by those who are required to implement the change. Moreover, this concerns analysis should be done early in the project, ideally before the change is implemented. The purposes of this chapter are to explain the importance of conducting a concerns analysis and to propose a theoretical framework for concerns analysis. The framework has been developed based on a case study of an information technology innovation project in a theological seminary. While these approaches are ideally suited for higher education settings, they are also relevant outside the academy.

INTRODUCTION

Why do some change efforts in higher education institutions succeed, and some fail? Successful changes result from a complex interplay of various factors. Some think that people will adopt a change if it has practical advantages over an existing practice. However, there are numerous examples where an advantageous change was never adopted or took a long time to be adopted. The failure to adopt a change is also due

to a variety of factors, including resistance or lack of cooperation on the part of those involved in the change, and the length of time the change may require to be fully implemented (Rogers, 1995).

Besides these operational issues, what seems to play an important role in the adoption process are the set of perceptions that the people involved in a change form toward that change. This personal side to change is reflected in what can be called perceptions or personal concerns. Eggan and Kauchak (1997) define perception as the process by which people attach meaning to their experiences. This meaning that individuals attach to change plays a critical role in a change process. Similarly, Tafoya (1983) defines perception analysis as the key to understanding why people perceive needs in a specific field. In too many cases, it appears that change facilitators, or those who make plans to introduce change, base their interventions or innovations on their own needs and time lines rather than their clients' needs, concerns, and readiness to change (Hall & Hord, 1987). Recently, however, several theories have begun to address the importance of understanding how clients perceive change, and this enables the change agents to show how they adjust what they do according to their perceptions (Coffing, 1973; Hall & Hord, 1987; Tafoya, 1983). Strebel (1998) indicates that despite the best efforts of senior executives, major change initiatives in corporations often fail, and those failures have at least one common root: Executives and employees see change differently. He argues that to close this gap, managers must reconsider their employees' personal compacts—the mutual obligations and commitments that exist between employees and the company.

Ertmer (1999) identifies two categories of barriers that organizations, educational or otherwise, face during a change process: first-order barriers and second-order barriers. First-order barriers refer to those obstacles that are extrinsic to the target audience of a change, meaning the individuals who must implement the change in their daily practices. Examples of first-order barriers are lack of equipment, time, training, or support. Second-order barriers are more serious, and refer to more fundamental, intrinsic obstacles, such as the target audience's underlying beliefs or the challenging of traditional practices. She argues that traditional approaches to change have focused on helping those involved in a change to overcome first-order barriers. However, Ertmer also argues that it is a belief system, not an economic or empirical warrant, which determines the failure or success of changes. Therefore, it is necessary to understand the target audiences' motivations, frustrations, and perceptions

about a change to accurately assess the needs for the change and to plan how to address these needs.

Based on this premise, this chapter will demonstrate the importance of performing a concerns analysis before a change project is conducted in an educational institution. In particular, this chapter will supply a specific framework, or model of concerns analysis, that an institution wishing to introduce a change can use to discover and address concerns their target audiences may have about the change. While the conclusions drawn here are based on the results of a specific case study (a instructional technology implementation project undertaken by a small educational institution) it is hoped that all institutions, regardless of size or educational mission, can use this framework effectively to help ensure the success of their own technological change projects.

A CASE STUDY OF INSTRUCTIONAL TECHNOLOGY CHANGE

The Context

In the mid-1990s a seminary in the midwestern United States was awarded an externally funded grant for a technology initiative, which included developing instructional computing capabilities throughout the school (Saint Meinrad School of Theology, 1995). The seminary hired two instructional interns to provide computer training to the seminary faculty and staff.

At the beginning phase of the initiative, the interns conducted a training needs analysis. The main focus of the analysis was to gather information about the kinds of training programs faculty and staff members would need. Through the analysis, however, several concerns surfaced (Saint Meinrad School of Theology, 1998). For example, faculty members did not seem to think that computer technology was a tool useful for theology education, which emphasizes personal interactions within small groups. Administrators of the initiative, however, did not pay much attention to this perceived concern. They proceeded on the assumption that faculty members always complain about new initiatives and they viewed such concerns as natural. They assumed that faculty members would eventually accept and use computers provided the faculty members received the proper training. With these assumptions in place, the administrators put effort into collecting and addressing training needs information while ignoring their concerns.

After the interns had provided in-service training for one year, they began to make informal visits to the classrooms, computer labs, library,

and the faculty resource center. They found that many faculty members were not integrating computers into their teaching. According to the project implementation plan, almost all faculty members should have been using computers in their instruction after one year, since all the necessary facilities and training had been provided.

Faced with such resistance, the administration began to take the idea of concerns seriously. The administrators of the seminary learned it was not the lack of facilities or training, but concerns of the faculty that affected the success of the initiative. With this realization, they asked the interns to conduct a concerns analysis. One-on-one interviews and document analyses were used as data collection methods. All 26 teaching faculty and several administrators and staff of the seminary were interviewed.

After conducting many rounds of card sorting, the interns identified 24 categories of concerns. To analyze the concerns and to develop effective interventions for addressing the concerns, the interns designed a special framework called the "concerns matrix."

Concerns Matrix

The concerns matrix derives from the overlap of two major dimensions in the change process: the degree to which the change is compatible with the values of the target audience, and the levels of the institution where the change efforts must take place. These two dimensions are best approached as questions: 1) Is the change compatible with organizational and personal values? and 2) Are the concerns or needs addressed for both the individual faculty members and the organization as a whole?

The first dimension of the concerns matrix refers to the individual faculty member's perceptions about the compatibility of the change with personal and institutional values. In this case, values refer to those principles and beliefs considered most important and given greatest priority; in this sense, both individuals and the institutions of which they are a part hold specific, identifiable values. If the proposed change is not compatible with the value systems of individual faculty members, or with the current value system at work in the institution, then the change will be hard for the target audience to adopt. If the change is compatible with cultural or religious values then this compatibility promotes the adoption of the change (Rogers, 1995). However, the compatibility of a change with the current value system still will not guarantee its easy adoption. Even when a change is compatible with current values, the

adoption of a change usually takes quite a long time because of other barriers, such as lack of organizational support or resources.

The second dimension of the concerns matrix refers to the level of the concerns. The concerns analysis of the seminary faculty revealed two distinct types of concerns: those of individual faculty members and those of the institution as a whole. Basically, these two levels of concerns originate from different contextual backgrounds. Individual concerns are based on felt needs, while institutional concerns are based on real needs. According to Monett (1977), felt needs can be identified by viewing the target audiences' personal, perceived needs, while real needs are identified by focusing on objective gaps between the current performance level and the desired performance level. Hence, a concerns analysis must incorporate both levels of concerns, individual and institutional, since the two levels of concerns have fundamentally different foundations.

Based on the overlapping interests of these two dimensions, compatibility of changes and levels of concerns, we have identified the following four areas of concern: 1) individual-compatible, 2) organizational-compatible, 3) individual-incompatible, and 4) organizational-incompatible (see Figure 10.1).

FIGURE 10.1
The Concerns Matrix: Two Dimensions of Concerns

	<i>Compatible</i>	<i>Incompatible</i>
<i>Individual</i>	Individual-Compatible	Individual-Incompatible
<i>Organizational</i>	Organizational-Compatible	Organizational Incompatible

In the concerns matrix above, compatibility is a matter of degree, and the extent to which the change is compatible with its context is the key issue. This is why the levels of compatibility, individual and organizational, can be separated with a dotted line in Figure 10.1. However, the two levels of concerns, individual and organizational, are separate and independent issues, separated by a solid line. This chapter will define and explore each of these areas, with a greater focus on concerns in the area of incompatibility, as these are generally more difficult concerns to overcome.

Individual-Compatible Concerns: Learning Intervention

Even when the values of a change are compatible with the target audience's values, the target audience may not accept the proposed change as planned for several reasons, including fear of the unknown and lack of information or knowledge required to implement the change.

In the initial needs analysis for the project, the interns found that the faculty's needs were diverse and the range of technology competencies was wide. Some faculty had difficulty understanding even the basic functions of technology. Several concerns were identified by the faculty members of the seminary, such as fear of technology, more work, lack of detailed information, a need for teaching and mentoring, and time conflict. Also, they expressed that they had no time to learn technology and that technology was not a priority for them.

Based on the results of the needs analysis, several learning tasks were arranged. First, each faculty member received an individual learning road map and was provided training programs to help them reach their learning goals. After participating in group-based training sessions for one year, the faculty improved their computer competencies by 0.6 points on the 5-point Likert scale (Saint Meinrad School of Theology, 1998). To address time concerns, the seminary formed a committee to reorganize teaching loads. Also, lack of time to learn was the most crucial factor in this category in the seminary. To address this concern, the seminary developed a training schedule that was flexible, meeting at different hours of the day, even evenings, so that faculty could best take advantage of the offering.

Thus, the major strategy for addressing concerns in the individual-compatible area is learning, because usually these concerns can be overcome by providing well-organized training programs, job aids, and consultation programs. Also, providing correct information in a timely manner is another useful strategy. This type of concern usually appears in the beginning stage of a change. Hence, change agents have to set up training interventions to overcome individual-compatible concerns before implementation starts.

Organizational-Compatible Concerns: Support Intervention

A change that is compatible with current organizational values is sometimes not adopted by the target audience because of a lack of organizational support (for example, a lack of organizational incentives and benefits or inadequate technical and administrative support). Concerns of this type are extrinsic to the target audience and can be addressed by the organization.

In the seminary, several concerns arose in this area, such as students' lack of involvement in the change, students' limited access to equipment and support services, general equipment and maintenance problems, and lack of organizational benefits for adopting the change. Especially, major problems for seminary faculty lay in the institution's lack of incentives or motivation for encouraging faculty members' active usage of the change. Many faculty suggested benefits and motivations both monetary and nonmonetary, such as vacations, training opportunities, and a lessened teaching burden. Instead of monetary benefits, the seminary then provided many forms of nonmonetary benefits such as training programs and visits to other technologically advanced schools. Also, a new master plan was developed which included major changes to several campus buildings over the next five years.

Ertmer (1999) explains that a support function changes as individuals in the adoption units mature. In the early stages of change, teachers tend to have a greater need for deep and reliable technical backup. Over time, however, teachers' technical dependency tends to decrease as they learn problem solving skills. Once they have gained technical competency, teachers feel an increased need for instructional and professional support as they begin exploring new ways to integrate the technology within the classroom. These concerns can be eliminated if the organization acquires resources and equipment, provides timely technical and administrative support, provides incentives or benefit systems, and maintains equipment.

Individual-Incompatible Concerns: Persuasion Intervention

People are not usually willing to spend much time on a change they do not yet value (Dormant, 1986). Ertmer (1999) called these types of concerns second-order barriers. These concerns cause more difficulties because they are less tangible, more personal, and deeply ingrained (Kirr, 1996). If the resulting resistance is not addressed well, then it can impact the target audience negatively throughout the change process.

The seminary faculty mentioned several issues in this area, such as their skepticism of technology, their comfort with current teaching methods, and their perceptions of technology as opposing personal values. They criticized technology because they perceived that it could reduce the human interaction between students and instructors. This area of concern was the most important issue in this case. The change's incompatibility with each faculty's personal values or past experiences was the critical factor in some faculty's not adopting the change. All of the faculty who were

at the persuasion stage in terms of Rogers's (1995) diffusion of change framework were critically influenced by this area of concern. To them, it was very difficult to change their teaching style because it had worked well for decades.

Actually, the seminary found it difficult to address this area of concern. The administrators realized that persuasion on an individual basis was the best strategy, after noticing the faculty's resistance to the change. In fact, the seminary had not tried to persuade the faculty at the beginning of the change. For example, the change administrators did not meet the individual faculty members directly to hear their opinions regarding the change. Only in the faculty meeting did administrators try to overemphasize the positive benefits of technology. This was not an effective way to persuade individual faculty to accept the change.

In this case, the administrators were able to step back to reassess the target audience's concerns and attempt to address them. The seminary identified a core group that was very skeptical about technology even after several years had passed since the change started. To clarify their concerns, the Instructional Service Department staff conducted one-on-one interviews with faculty members to become aware of the many issues that related to this area. The department stressed that the Instructional Service staff were not attempting to change faculty's teaching styles, but to enhance their teaching styles with the use of technology. Also, the seminary established a monthly technology newsletter, both in print and on the intranet, featuring articles that addressed specific individual-incompatible concerns expressed by faculty as well as by staff and administrators. The seminary also offered faculty members the chance and means to visit other advanced technology-driven education institutions, and presented them with learning opportunities to familiarize them with the practical applicability of the technology in the seminary context. More than ten faculty members attended technology-related seminars, conferences, and workshops.

In most changes in higher education institutions, individual-incompatible concerns are critical because changes are usually introduced in an organization without considering the target audiences' values, attitudes, or interests. Hence, identifying these issues is essential at the beginning stage of a change.

Organizational-Incompatible Concerns: Collaboration Intervention
Change sometimes produces conflicts with organizational values, cultures, or climates. Organizational context and cultural incompatibility

are critical issues in a change implementation process (Ertmer, 1999; Hall & Hord, 1978). For example, Moore and Mizuba (1968) mentioned the concept of cultural incompatibility for the first time in their study, "Water Boiling in a Peruvian Town." They found the change they studied was not adopted because it was incompatible with the experience of the villagers, or the target audience. The lesson of this story has to be remembered when one is introducing change into education as well. A change's lack of compatibility with widely held cultural or religious values may well prevent the adoption of that change.

Faculty generally expressed that the change was not compatible with the seminary culture. The seminary culture focused on religious education and thus was oriented toward greater human interaction. Not only did the introduction of instructional technology seem foreign to and incompatible with the organization's mission, but faculty also expressed their isolation from the change. The change was initiated in a top-down manner, and clear goals for or directions of the change were not given to faculty, nor did they receive information in a timely fashion. Furthermore, faculty members tended to work individually rather than in teams. Every individual faculty member understood the change differently. Hence, they perceived that two incongruent change diffusion tracks existed in the seminary: tracks of the individual faculty and of the institution at large.

Collaboration is often the most useful strategy to address institutional-incompatible concerns. To address issues in this area of concern—the seminary's geographical isolation, diverse faculty disciplines, a top-down diffusion strategy—collaborative work among the seminary faculty was essential. Since the administrators had failed to share ideas from the beginning stage of the change, many faculty expressed their isolation to the change and formed unfavorable attitudes toward it. Creating a vision statement and sharing change-related experiences among the members of the target audience eventually became important tasks for the seminary.

After the interns performed the concerns analysis, the administrators were able to revise their approaches to both the innovation and the target audience. The president rector established an ad hoc faculty committee, consisting of faculty, staff, and students to address technology issues on campus. The committee's goal was to set a clear vision for technology and teaching at the seminary. They developed a vision with consensus of all faculty members and reported their findings to the faculty. To meet the mission, a set of goals was also identified in the consensus of all fac-

ulty members. Mission and goal statements made clear for all faculty members the directions of the change.

Sharing among faculty was the key activity to changing the seminary culture as the change was in process. The seminary arranged several events in which faculty members shared their ideas with other faculty members. These events included Faculty Presentation Day, Faculty Learning Day, small group interests, brown bag lunches, and learning sessions. Through the grant funds, many faculty took advantage of conference opportunities to gain more knowledge about the appropriate use of technology. Furthermore, the seminary developed external contacts to have faculty experience cultures of educational institutions where technology was compatible with, or already part of, the organizational culture at large. Eventually, the seminary was able to find and demonstrate good practices in technology for theological instruction.

CONCLUSION

The interventions described above solved many of the perceptual concerns of faculty at the seminary where this case study was performed. However, there were still concerns that could not be solved through these interventions. The concerns in the category of personal incompatibility were particularly difficult to address. The faculty members who were skeptical of technology were not persuaded to use the computers even in the five years that have passed since the initiative began in 1995. This phenomenon points to the importance of conducting a concerns analysis before a change is introduced. Some concerns in the category of organization-incompatibility were also difficult to address. The seminary tried to establish a vision statement as well as detailed action plans to address such concerns. They formed another technology committee that consisted of representatives of the faculty, students, and instructional consultants. This committee's work has just begun at the time of this article, and its impact is yet to be determined.

The concerns matrix is a framework that change facilitators, those in charge of change projects, can use to identify important concerns held by their target audience, those the facilitators expect to implement the change. The specific concerns discovered and solutions undertaken in this case study are unique to their context, an instructional technology change project initiated in a theological seminary with a relatively small faculty and student body. The concerns matrix is designed to be flexible in its applications, however. Thus, it can be used in a range of change

projects by educational institutions regardless of size or mission, and may even be used in developing changes for organizations whose interests lay outside the realm of education.

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