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What Can Students Learn from Technology Planning?

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ABSTRACT

The development of a technology plan as a learning exercise generates not only the specific technology plan, but also, provides an avenue for the participants to enhance their leadership skills and their higher order thinking skills. The participants practice their skills of communication and collaboration. They solve the problems of helping students learn with technology while mindful of monetary issues. Instructors will provide a framework to develop the plan but encourage the students to creatively develop the plan with student learning as the ultimate goal. This chapter will attempt to answer three main questions. They are: 1. What learning takes place during the technology planning process? 2. How do students develop a technology plan? 3. What pedagogy is used to teach technology planning?

INTRODUCTION

Technology planning is presented to students enrolled in a graduate instructional technology course in a major Northeastern USA university. The major project of the course is to construct a technology plan. This technology plan contains vision and mission statements, as well as goals, objectives, hardware and software configuration, budget and an implementation scheme. Finally, it contains an analysis and assessment section that is designed to measure the effectiveness of the plan.

The students in the course learn the terms and procedures of the technology planning process. They also practice their communication and collaboration skills. The analysis section requires them to polish their higher-order thinking skills. So, not only do they learn the process of the plan but, they learn about the collaboration necessary to construct a plan.

This paper attempts to investigate the learning that takes place during the technology plan construction phase. Terms and procedures are learned along with leadership and thinking skills. How can we use this process in a pedagogical setting? What are the learning skills and steps? How does the interaction affect the plan?

How can we create a lesson from the technology planning process?

BACKGROUND

The importance of technology planning is to set a vision for an implementation of technology into the learning environment to improve learning, enhance teaching and provide for effective administration (Lockard, 18). Lockard further describes the planning process as a collaborative endeavor. Teachers, principals and administrators form the team to build, implement and assess the effectiveness of the technology plan. The question for this paper is how can universities use this planning process to help our instructional and information technology students become effective technology planners and eventually become leaders in the technology planning process.

The steps involved in the technology planning process begin with a determination of the current state of technology implementation. Next, vision and mission statements are constructed to provide guidance during the planning process. They are followed by learning goals, teaching goals and administrative goals. Then, action plans, budgets, configuration proposals, personnel development endeavors, and assessment activities are constructed. Every plan needs formative assessments to check the progress of the plan during implementation. It must also contain a final summative assessment that will evaluate the effectiveness of the current plan and to provide data for the next planning process.

Lockard (2001) writes of a collaborative process that is used to build effective technology plans. She calls for individuals that have an interest in integrating technology into the learning environment to be part of the planning process. These individuals feel a sense of ownership and pride in their work. Their work is obviously performed to satisfy certain needs of the students, teachers, administrators and the organization.

These needs can follow a hierarchy as postulated by Johnson (Jan/Feb 2003). His thesis shows a progression from reliability of systems, to adequacy of resources, to effective teaching and enhanced learning (p. 30). However, Johnson cautions that the individual steps in the process may not be completed individually before the next step is ready for implementation. The dilemma is for a planning team to recognize the implementation of the steps in a variable time-line.

The technology planners must not only recognize how to develop a technology plan but also how to time the implementation. Thus, the planners need to develop a technology plan literacy. They need to know the terms and processes of constructing a technology plan. Next, they are to work collaboratively with others to develop, implement and assess the plan. Additionally they are to know when and how to implement various phases of the plan.

These are complex tasks that are not always intuitive. Planners must communicate and collaborate with each other. They must solve complex problems, evaluate systems of technology that go beyond simple hardware and software and deal with student learning and teacher effectiveness. These tasks involve higher-order thinking skills. We are aware of the developmental nature of HOTS, but need to know more about the interaction of the technology planners during the planning process. What characteristics of the individuals are essential to the technology planning process? Do some plans fail because the members of the committee cannot communicate or collaborate? What are the positional leadership skills necessary to perform the planning process? Are there specific skills needed for the various phases of the plan?

MAIN THRUST OF THE CHAPTER

There are three main questions to discuss in this chapter. What learning takes place during the technology planning process? How do students develop a technology plan? What pedagogy is used to teach technology planning?

Students participating in an Instructional Technology course at a major university located in the Northeast portion of the United States are presented with a project to create a technology plan for a school district. The plan follows the guidelines proposed by Dr. Larry Anderson, and prepared by his Graduate Students at Mississippi State University

(Anderson, 1996). While the Guidebook contains chapters on creating the Vision and Mission statements, goals and objectives, and data analysis, this chapter is concerned with the soft skills underlying the planning process and the pedagogy used to produce an effective product.

Students first concentrate on the "what" aspect of the planning process. Terms, such as, vision statements, mission statements, data analysis and budgeting are defined. Students are presented with cues to envision the future, to design an ideal environment and to consider

monetary limitations. The initial comments start with stories of what happens to them in their own environment. The students begin to relate their own experiences and to tell their own stories. As the stories progress, they begin to enter comments about limitations, monetary constraint, cultural inhibitions, lack of administrative, parental, and/or community support. The first task is to define the vision of technology use over the next three years. The mission for all students to learn develops quickly. However, the vision of the future is often wrought with frustration and confusion. Again, the limitations of their environments precede their own capability to create a new future. The students are instructed to break free of the past. They are encouraged to dream and to think beyond their restrictions. Some students become more creative and design technology environments that are not cognizant of the monetary issues.

Once the vision and mission statements are developed, the students write goal statements and action items to successfully complete the goals. The thrust of all goals has to be the issues of the No Child Left Behind Act of 2002. In this act, Congress states that all children must read and perform math at the proficient level before 2012. The scope of the planning process shall not discuss the issues of NCLB, but rather it shall accept it and plan for how technology can be used to accomplish the goals of the law. Thus, student learning is paramount in the development of the technology plan. Computers, scanners, flat panel screens, high-speed internet service, and virtual private networks (VPN) are discussed and written into the plan, but only if the technology supports the goal of helping students learn. This is a far cry from technology plans in the 1980's. At that time, technology was implemented for technology's sake. Laser printers were purchased without consideration of student learning. Clarity of print, and the use of large font for students with visual problems became more important reasons to acquire the printers. The technology plans must pay closer attention to student learning to be successful, to gather community support and to perform the right task. Teachers are better trained to determine issues of student learning but need to understand the technology planning process in order to determine the tools necessary to help that process.

The back room technologies can still support the learning process. Firewalls, servers, switches, and wireless access points are important to the learning process but may not be known to the teacher-students. The planning process provides an opportunity to become familiar with this set of technologies.

Skills of collaboration, budgeting, balancing complex demands and developing and empowering others (Schwahn, 1997) can be learned. The planning process can be presented to train information technology and instructional technology specialists to become better technology planners. The students often commented about the time involved to communicate and to collaborate to develop the technology plan. Email, asynchronous and synchronous chats were the electronic tools used. Students often met on weekends at local restaurants and during the week in unused classrooms at the university. This brand of networking fostered the students' skills of communication and collaboration. The students were not only building a technology plan, but they were working together with a diverse group of their peers.

The technology of email, asynchronous and synchronous chats provide tools in the pedagogical process of teaching students how to develop a technology plan. Students need the guidance and direction to construct vision and mission statements. They need permission to think outside of their normal environments to become creative to develop plans that enhance student learning. While the students also need the reality of budgets, they need to create goals that create new paths of learning rather than are blocked by old habits and limitations. Thus, the instructor needs to encourage the development of innovative plans as part of his pedagogical practice.

FUTURE TRENDS

The future development of the technology planning process will seek to create new paths for student communication and collaboration. Technology tools will be used to create a positive learning environment that is rich in opportunities to learn and to work. Instructors will continue to encourage their students to think creatively, yet to be grounded in the realities of fiscal responsibility.

CONCLUSION

In summary, the development of a technology plan as a learning exercise generates, not only the specific technology plan, but also provides an avenue for the participants to enhance their leadership skills and their higher order thinking skills.

The participants practice their skills of communication and collaboration. They solve the problems of helping students learn with technology while mindful of monetary issues. Instructors will provide a framework to develop the plan but encourage the students to creatively develop the plan with student learning as the ultimate goal.

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