

# Adult Learning: The Often Overlooked Aspect of Technical Training

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## ABSTRACT

Advances in technology have a direct impact on individual education. We are all aware of how to engage the technology-savvy youth of the current generation. But have we considered the impact on the adult learners who are faced with the reality of “competing” with these youngsters that know more than them? New technologies require a higher level of education and training. Have we considered how to effectively train and educate the adults that will have to use these new technologies? This question forms the premise of this paper.

A popular method of teaching adults the new tools of the trade is to use the tech-savvy student as a mentor to the adult teacher. Herein lies the conundrum - adults know how to teach youngsters, but do youngsters know how to teach adults? Who is the teacher and who is the student? How is that relationship defined? The intergenerational gap can become quite pronounced. Youth education is largely subject-centered and future-oriented. Adult education is problem-centered. Adults insist “learning” for them have relevance and value right now. So how do we teach teachers technology?

This paper will explore some ways to help adults learn and change. Principles of adult learning and related andragogy are briefly examined. This super condensed mini-course in adult learning is designed to spark the flames of passion of education in any technology trainer. Sometimes all it takes to encourage and revitalize teachers is a “new” direction to take in presenting the learning concepts. Make it relevant and they will come.

## Categories and Subject Descriptors

K.3.1 Computer Uses in Education – *Collaborative Learning*  
K.3.2 Computer and Information Science Education - *Curriculum*  
K.6.1 Project and People Management - *Training*

## General Terms

Management, Measurement, Performance, Design, Human Factors, Standardization

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## Keywords

Faculty development, student management, technology, teaching, technical training

## 1. INTRODUCTION

Universities are facing a dearth of technology-trained persons to assist with the increased use of technology in the classroom or for course delivery. Several programs have been tried in South Dakota to alleviate this pending crisis. There have been faculty awards for teaching with technology, technical training through internal reinvestments, and peer mentorships, to mention a few. These incentives and training have resulted in a large number of faculty exploring new skills in the classroom. They now desire development of web sites for courses, addition of multimedia to augment lectures, and on-line activities using simulations and other devices to enhance the knowledge of their students. These demands and changes in curriculum to accommodate new technologies have severely strained the support organizations of the campuses.

To meet this need of increased technical support of faculty in the curriculum, a program involving Student Technology Fellows was created. The specific mission was, and is, to assist faculty in integrating technology into their teaching. The FY2000 Governor's Budget Request for this challenging program was approved and the South Dakota legislature appropriated to the Board of Regents sufficient funds to establish a technology fellowship for students at each of the state's six public institutions of higher learning. The project was inaugurated for the Fall 2000 semester.

South Dakota State University was allocated 73 awards for the creation of the distinctive Student Technology Fellows program. This is a special opportunity for all undergraduate students to develop professional-level skills in the design and implementation of technology for instructional purposes. The program is designed to help faculty and students learn new technology developments to assist with the educational process. With this student-assisted support in the use of technology for instruction, faculty members are able to integrate more technology into their classroom teaching experiences. The result of this investment is an increase in the technology skills of all who participate in and receive the benefits from this program.

Selection of the Student Technology Fellows is made by an eight member committee comprised of representatives of Information Technology Services, Computing Services, Instructional Technology Center, Agricultural Information Technology, and Library Technology, plus the Chief Information Technology

Officer, a college dean, and a faculty member. Award determination is made based on on-line applications submitted by undergraduate students in which they indicate their current technical experiences and perspective on how the award would advance their learning and career objectives. As part of the application process an on-line, 12-question, multiple choice, technical proficiency test must be completed. The questions asked are common problems found on campus and would be in the repertoire of any moderate computer user. Two additional questions are essay style with the first asking to describe the troubleshooting process for a hypothetical technical problem and the second is a question dealing with a response to an ethical dilemma involving technology.

## **2. COLLEGE/DEPARTMENT TECHNOLOGY PROJECTS**

The Student Technology Fellows are assigned to colleges and departments in which faculty have volunteered to be mentored by this program. There are several rules regarding the use of the Student Technology Fellows. Once those have been established and recognized by all, the true learning begins.

The college/department must have a project(s) that will constitute a significant contribution(s) to the use of technology in instruction. The project must be designed in such a manner as to demonstrate how a Student Technology Fellow (or a team) will enable the college/department faculty to succeed in the project. Faculty involved with the project must be able to demonstrate how the assignments will provide the Student Technology Fellow(s) with significant work experience related to technology that would enhance their learning and career objectives.

A list of potential assignments (project ideas) is open-ended, but might include some of the following suggestions:

- Assist in installation, application, and utilization of software.
- Assist in evaluating, selecting, and upgrading hardware.
- Assist in the education of faculty with Internet functions, such as on-line searches of different information databases utilizing multiple search engines.
- Assist a faculty member in preparation of a computer-based simulation to be used with a class.
- Assist in the development of WebCT designs for a course.
- Assist faculty in understanding, accessing, and utilizing network resources and support.
- Assist in the production of multimedia presentations used in the classroom.
- Assist in course design and preparation for distance education classes using technology.
- Assist in the preparation of a classroom for the use of technology in the delivery of the class.

What Student Technology Fellows will not do include:

- Word processing of tests, course handouts, syllabi, and similar routine keyboarding functions.

- Entering information or data in any form, electronic or paper, for research projects.
- Preparing presentation for professional meetings, seminars, conferences or the like.
- Entering management data in spreadsheets or databases.
- Performing clerical functions of any type for any faculty or staff member.

All individuals involved with the project must be able to collaborate with the Student Technology Fellows manager and mentor(s) to manage the Student Technology Fellow's time and achievements. Most importantly, faculty assigned to the project must be willing to develop information technology experience and skills with the assistance of the Student Technology Fellow(s) assigned to the college or department.

## **3. PRACTICAL APPLICATION OF LEARNING**

The idea of integrating technology into the curriculum is not new. The pedagogical benefits of improved student learning through technology are backed by research and are considered major motivating influences in adding technology to the teaching process. Warren Wilson in his research on faculty perceptions and uses of instructional technology found that "exemplary teaching combines skillful use of pedagogy with content expertise and innovative uses of technology." [1] In order for this to become reality, universities must address the technical training issues for faculty to learn how to incorporate technology into the pedagogy, curriculum, and learning process – whatever it may be.

The Student Technology Fellow concept seemed to be an answer to the faculty technical training dilemma. It appeared to be all well and good – at least in theory and on paper. The practical application of the program turned into a different matter altogether. The perception of the faculty to the students providing technical assistance was clearly different than from the student's viewpoint of teaching teachers technology. The learning style gap was even more pronounced when it came time for the "reverse teaching" that was part and parcel of this venture.

## **4. BRIDGING THE INTERGENERATIONAL GAP**

An immediate issue with any kind of student to faculty involvement is dealing with the intergenerational gap. Many faculty are loathe to be "taught" by some fresh-faced teenager – even if the teenager knows more than the teacher in a particular subject. Too many instructors are used to being the "sage on the stage" instead of the "guide on the side." The latter phrase is used in conjunction with collaborative learning on the part of the teacher and the student. In fact, there was some resentment to the motto of "teaching the teacher technology." The point of contention was the use of the word "teach" and applying it in relation to faculty learning. There was a definite resistance to the notion of "teaching" when faculty were the students. After all, they were the ones supposedly doing the teaching – not the learning. In this view of the "normal" educational process students learn, teachers teach. To get over that semantic (and psychological) hurdle, the mission and goal statement of the Student Technology Fellows program was changed to "enhancing

teaching through technology,” a seemingly acceptable compromise. Obviously, communication between the generations still needed to be improved.

To bridge this gap and to provide an avenue for two-way professional conversations, South Dakota State University elected to provide to the Student Technology Fellows a series of instructional design courses geared toward incorporating technology into the curriculum. The main emphasis was that the first step in this series was a basic course on adult learning. “Young” students (age 18 – 24) were startled to learn that “older” students (over age 25 or so) learn quite differently than they do – especially the over 40 crowd of faculty who have started to be set in their ways. These “adult” folks need to diagnose, plan, and conduct their own learning. In other words, the older adult students need to become involved with the learning process as a teacher/student.

Applying the principles of adult learning such as those found in Russell Robinson’s “Helping Adults Learn and Change,” provided the first stepping stones to mutual understanding between technically savvy “teenage” students and the technically challenged adult faculty.[2] The adult learning course focuses on a few of the tools to be used in passing knowledge back and forth.

- Recognizing lifelong learning desires
- Introducing pragmatic topics and instruction
- Employing motivational techniques

One of the first things the young students learn is the difference between andragogy vs. pedagogy. “Andragogy” is a word coined by Malcolm Knowles from the Greek word *aner* (with the stem *andr-*) meaning “man” and translates to “the art and science of helping adults learn” as distinguished from “pedagogy” (from the Greek stem *paid-* meaning child) which is the art and science of teaching children.[2] The principles of Knowles andragogy are discussed in relation to the intergenerational gap. Certain salient issues are part of the focal point of this training.

- Need for learning
- Learning objectives
- Implementation
- Evaluation

This is not an in-depth course (only one hour per week is allotted for one semester), but it is enough so that the younger student/teacher is able to view their older teacher/student in a different light. From this class comes a mantra of “together we learn.” That alone is enough to open communication between student and teacher – no matter who is playing the roles.

## 5. RESULTS OF THE ADULT LEARNING ENLIGHTENMENT

The results of this brief introduction to adult learning are:

- the lessening of tensions in the intergenerational gap,

- the development of a faster learning curve,
- the joint realization of a more enjoyable experience by all..

Assessment of these achievements is through several methods:

- a weekly log kept by the students,
- periodic surveys of the faculty,
- anecdotal commentary,
- an increase in requests from other faculty to join the program (word of mouth).

As the program progresses, new ideas for bridging the intergenerational gap now comes from both sides of the chasm. The adult learning class is just the first step in helping faculty learn new technology. As an example of one Student Technology Fellow’s observation of this successful interaction: “I helped a professor learn how to use a computer. He had no idea how to even turn it on. I first taught him how to use Microsoft Word so he could type up his syllabus. Then I taught him how to use the Internet via Internet Explorer. He really liked that. In fact, I think I may have created a monster!”

## 6. CONCLUSION

The Student Technology Fellows program will be entering its fourth year in the fall of 2003. The first full eight semester graduates will be turned out in May 2004. In education terms, the first full cycle will be completed. We have learned much in these short years since the inception of the program. However, there is still much to do to help faculty and Student Technology Fellows find a common comfort level with enhancing teaching through technology. There is no doubt that the effort to teach adult learning to young “traditional” students has greatly enhanced the learning process of seasoned faculty. Refining and closing the intergenerational gap will continue to be an educational challenge for teacher and student (or is it student and teacher?). It is heartening to see these lines blur with some of the more successful pairings of young and old.

Not all of the Student Technology Fellows training program is focused on this one area – albeit a pivotal one. Other Student Technology Fellows training classes emphasize the art and science of instructional technology and its application to pedagogy and the curriculum. It is anticipated that these next challenges will be easier to address since the fundamental aspects of learning differences now have been recognized.

## 7. REFERENCES

[1] W. Wilson. Faculty perceptions and uses of Instructional Technology. *EDUCAUSE Quarterly*, pages 60-62, Number 2 2003.

[2] R. Robinson. *Helping Adults Learn and Change*. Omnibook Co, West Bend, Wisconsin, 1996.