What's Old is New Again: Training is the Information Technology Constant

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ABSTRACT
This paper is an account of some of the more instructive experiences we gained as we sought to ensure that our information technology training programs kept pace with a fast changing milieu of hi-technology. It will talk about some ways that we successfully kept old training ideas new in our tech training classroom.

Who would have thought that in just one hundred years mankind would progress from its first sustained flight at Kitty Hawk to personal computers, smart phones, or global positioning systems? Yet today, space flight is more or less taken for granted until something out of the ordinary happens. Personal computers, in so many various forms, are nearby no matter where we go. Hi-tech phones have become an indispensable part of our daily life and today can be found in almost every purse or clipped on every belt. Global positioning systems which were once on every military wish list are now an optional item in our cars. All of this gives testimony of our technological ingenuity and adaptability. Many of these systems, when used on the job, require some level of training in order for the users to feel comfortable. Therefore the need for training has become the one indispensable constant in the fast-changing and ever-dynamic world of hi-technology.

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1. INTRODUCTION

Most ideas about teaching are not new, but not everyone knows the old ideas. Euclid, c. 300 BC

San Antonio is the state's third largest metropolitan area and has the eighth largest population in the United States. The almost always pleasant climate makes it an ideal place to live and go to school. The University of Texas at San Antonio is one of 15 component institutions in the University of Texas system. One of the university's mandates is to "serve the needs of the multicultural population of San Antonio, the South Texas region, and Texas, emphasizing programs that contribute to the technological, economic, and cultural development of the city, region, and state." Its faculty and staff consist of over 4, 000 (2002) mostly local residents. The university boasts three separate campuses all of which receive technology training support through the Office of Information Technology, Student Computing Services, Training Office.

In 2001, a training assessment found overall attendee satisfaction in technical training to be consistently low; coming in at around 45% or averaging 4.5 on a scale of 1 to 10. Furthermore, only about 40% of those who registered for class actually showed up for training. Overall the classes themselves appeared a bit lethargic or had fallen in to an appearance of mediocrity. After further analysis and planning for specific learning outcomes, permission was granted to make whatever changes we deemed appropriate to improve our technical training program. A self imposed constraint was that we would stay within the original allotted time for each course.

2. TRAINING
A customary setup in technical training classrooms include an instructor using some form of training aid to guide students through scripted processes. Classrooms are usually arranged in the classic IT manner in which we find each student positioned

in front of their PC monitor at a workstation. Typically students all face a wall mounted or ceiling hung projection screen or one is otherwise easily viewable. We find our instructor positioned so that he or she can lecture and occasionally view the student's monitors to check on their progress. Usually, steps in a particular process are projected on the screen and students are told to follow along as the instructor guides them by reading from the script. Each step is displayed in count-down fashion and before long; students become accustomed to the process and anticipate the end of one step and the beginning of another.

One would expect few, if any, problems to arise out of this method. To the observer the teaching method is one that we all are accustomed to and would appear logical. In this setup, each student has a computer at their workstation and this is a similar arrangement to what they have on their jobs. Logic follows that if they could do it in class, they would be able to do it back at work. So when the instructor tells the class to follow along as he or she reads through the steps little thought is given to checks on learning. The coolest thing is that this method appears to make efficient use of available time which is another important consideration in any classroom.

Many education experts define "trained" as a change in behavior as a result of a learning experience in the absence of the stimulus. In the simplest of terms, if a person can now do something as a result of a learning experience that they could not do before, it is reasonable to say that they have been trained. However, just because students could follow along might mean that they could follow instructions but did not mean that they were necessarily trained. To confirm our thinking, students occasionally showed up for training stating that they had taken the class sometime before, but that they had forgotten what they had learned and so were here to learn again. This was not such a large number, but when taken into consideration with low enrollment and low satisfaction, we were compelled to look for improvements. We didn't know whether these students had fallen victim to Ebbinghaus's curve of forgetting or had simply not learned the processes. None the less we wanted a better training program or at least one that produced better results.

An old adage related to learning and training is that people learn best by doing. Despite this well known saying, the method we were using did not appear to allow trainees to do it themselves. We discovered that the central reason for the training method in use at the time of our observation was a mistaken belief that there was insufficient time to allow students to work through the training processes on their own. Despite understandable and necessary time constraints, we believed that we could develop a process more in line with a widely-held belief of many educators that active learning is the best and most efficient method. R.M. Felder and R. Brent described active learning as a method in which students solve problems, answer questions, formulate questions of their own, discuss, explain, debate, or brainstorm during class. It can be as simple a process as taking notes or asking questions. This was the process we wanted to implement in our classroom. We wanted a dynamic and highly interactive environment. The standard "watch this-do that" technique that was in use at the time of our analysis did not give us confidence that we were taking our best shot. We thought that we could do better. In fact, under the current method, the only time students were likely to ask questions, debate, or brainstorm during class was when a scripted process did not work.

We concluded that with an abbreviated approach to Instructional System Development we could quickly improve our processes and achieve positive results. For example we skipped a time consuming and protracted formal training analysis. We began at the development phase and started directly on lesson objectives. Next we developed lesson outlines and wrote the objectives into every lesson outline. Our new or revised training objectives were to be, above all else, student centered. We subsequently developed student workbooks (exercise booklets) that stated those objectives and steps that each student was to follow in the training process. We gave each student a workbook at the beginning of training and carefully explained our process which was for them to do the work and make discoveries on their own.

After the instructor gave an Introduction and Overview in which he described the conduct of the class, students were directed to work through the workbook exercises on their own. The instructor remained available and engaged. The instructor was free to answer questions or provide additional guidance when necessary. In this new process, our students were immediately and actively involved. Some didn't like this idea of being left to work on their own. They called it "self training" and added that they wanted to be lead by the instructor. However, for most of our students, as they gained confidence they sailed through the requirements. The instructor stayed engaged through the use of preplanned questions that served as an effective check on progress. Preplanned questions can often engender discussion and is an excellent way to conduct reviews. According to many educational psychologists, periodic reviews are a great aid in memory consolidation. Tony Buzon's exceptional book *Use Your Head*, Peter Russell's *The Brain Book*, Eric Jenson's work in brain-based learning and many educational journals support the importance of periodic reviews in learning. In our revised process, students set their own pace and were not locked into a group-paced process that did not suit their particular level of experience.

Subsequent student evaluations praised our new workbooks as the one thing they enjoyed most in their training experience. They saw the workbooks as something tangible that they could take from the class and use as a desk reference whenever necessary.

In our revised system, the student rather than the instructor is the center of instruction. Our classroom is clearly a more energized and interactive learning environment. Students were actively involved throughout the learning process and satisfaction levels skyrocketed. The following old Chinese proverb serves to summarize our new training philosophy:

> Tell me; I forget.
>
> Show me; I remember
>
> Involve me; I understand.

We successfully involved our students, in every phase of training, as this proverb suggests and results proved our effort worthwhile.

3. DELIVERY

We integrated old training principles that seemed to have been absent from many tech-training classrooms under the mistaken assumption that with PC's in the classroom one need not concern themselves with delivery techniques. Too many

technical training instructors begin their instructions with a disclaimer reminding their students that they are technicians and not instructors; in which case many students immediately concern themselves with their chances of learning from an apparently ill prepared "instructor." Many experts tell us that an important and indispensable part of training is preparation. Preparation is not just limited to how the instructor prepares before class; consideration must be extended to the student as well. It is a definite indicator of poor preparation when instructors' makes disclaimers or excuses before even starting instruction. Chances are they will not do well when they discredit themselves at the outset.

To help our instructors feel genuine and well prepared we summarized some old instructional principles that worked well for us especially in the tech-training classroom. We called these old principles our Basic Ingredients of Successful Training. When we put them all together, the result was a wonderful and exciting training environment. The six basic ingredients that we added to our instructional preparation mix are as follows:

- Attitude. Your students will remember your attitude long after everything else about you fades in their memory. Your audience will assume that your attitude characterizes the value of the training they are about to experience. They will want an instructor who will do great things for them and act in their best interest.
- Rapport. Make a connection with your students early on. Here are two good ways to do this. One, use their names when addressing or calling on them and another is to make eye contact with each of them. Effective eye contact, whether staring or sweeping, says, "I'm interested in you." "You can talk to me." "I'll listen to you."
- Paint a word picture. Help your audience visualize doing what you're training them to do. Don't make the task sound so difficult that to them only the most gifted will succeed. If it's a Word class, suggest a document that they produced with ease using many of Word's helpful features. If it is PowerPoint, suggest a slide presentation that rises above the ordinary, but that is simple and easy to produce.
- Structure. Ensure that your presentation is built to start with the simple and generally known ideas and move to the more complex. Build in a few preplanned questions. Effective questioning will help to make sure that everyone is following along.
- Lighten up and complement. Even the most serious of training situations can stand a touch of well placed wit. Obviously, wit should not come before necessary content, but you don't want to appear so serious all the time that your class feels threatened. Thank them often for their willingness to participate even if you had to drag them into the discussion. Don't belittle and remember that people are grateful when you make them feel valued and often will show their gratefulness by rewarding you.
- Give'um a break. Although it remains a much debated issue, we believe that the value of breaks cannot be overstated. In his book Accelerated Learning; Colin Rose refers to French researcher Henri Pieron's work on a planned series of breaks during study and his belief that such breaks helps improve recall.

These "ingredients" are guides that, when practiced conscientiously, will help the concerned instructor prepare for the task of delivering a successful training session.

4. OTHER IDEAS

Jean Piaget

Piaget also believed that individuals construct their own meaning (constructivism) through the interacting processes of assimilation, adaptation, accommodation and equilibrium, and the extension of schema, or ways of thinking.

There were also other ideas that proved tremendously helpful in our overall training program. We successfully applied principles of J. Piaget's pioneer work on development of intelligence from some 70 years ago in our technology training and we were gratified to see that it helped us. Piaget's ideas have had great influence on others, such as Seymour Papert and his work with computers. So, borrowing from their ideas and others and to increase student learning and satisfaction, we integrated student-centered objectives in our technology training. Student centered objectives are concise statements that describe what the student will be able to do as a result of their learning experience. For us, they are the most important element of the lesson because they are the means of measuring success of both students and instructors. Student-centered objectives describe student outcomes rather then instructor input. Thus, we were able to efficiently and meaningfully lift certain procedural steps out of the text and bring them to life in our classroom. By doing so, we signaled to our students that some material that they were likely to read required more attention then others.

5. CHALLENGES

Some challenges that come from offering dynamic training are to keep the program up-to-date, relevant, and free from superfluous information. We had to remain constantly on guard against our program becoming outdated in a fast-changing, technical environment. Otherwise our students would become discouraged and disinterested finding that what they were learning in class was somehow different then what they would use at work. New versions of software applications seemed to arrive every year requiring updated processes and new procedures. Clearly, in the hi–tech world in which we train, becoming outdated is a real threat and can happen seemingly overnight. A great help to us was integrating sound principles of instructional management and Instructional System Development in our training program.

Sometimes what students learn in class is not necessarily what was intended. We avoided false messages by adhering to a strict

policy of student-centered objectives in our training. This way students were directly involved in all aspects of training in the classroom and few, if any false messages were sent.

Susan Kovalik, in her book ITI: THE MODEL Integrated Thematic Instruction (1990) is precise in her assertion of what we learn and retain and shows the importance of involving our students in the training process. She says that we learn and retain as follows:

10 percent of what we hear
15 percent of what we see
20 percent of what we both see and hear
40 percent of what we discuss
80 percent of what we experience directly or practice doing
90 percent of what we attempt to teach others

Piaget's work and the work of other esteemed educational and training experts seem to agree with Susan's conclusion. In fact, today many of our classroom curriculums, at all levels, are based upon these ideas.

6. SOMETHING NEW

During our work we developed an acronym that will help our instructors kept their students in the forefront as they prepare for future technical training. The acronym is STUDENT and it goes as follows:

- Size – How many will participate? Is the room large enough? Given the size of the group, can I attain the best classroom arrangement? This information can be easily obtained from sign-up rosters and a survey of the training site.
- Terminology – Is my terminology easily understood and familiar to the participants? Will I need to define terms first or as we go? If possible, determine what your potential students presently do. Have a space on your roster that allows them to state where they are employed-such as department or office.
- Understand – What do they already understand about the subject? Can we proceed from the known to the unknown? You can get a good feel for this information during your introduction.
- Diversity – What is the makeup of the group; the demographics; the similarities-the differences? Diversity is good for exchange of ideas. See Terminology above.
- Evaluate – How will I evaluate my effectiveness? Will my evaluation help me make corrections on the spot? Develop a plan before you start any training session. It can be as simple as a few preplanned questions.
- New – Is this new or cutting edge information? Is the information based upon the best references available? Have I done recent research? Your research will provide the answer to this question.
- Training – What did I learn from my last training session? Have I included lessons learned in this session? Continue to be honest in your self assessment and success will be your reward.

7. CONCLUSION

We concluded from our experience that we would be better served by developing student-centered objectives that would then allow us to build an efficient instructional program that centered on exactly what the training outcomes should be. First, we wanted our students to learn; next, we wanted them to have fun; and, finally, we wanted them to return for further training. We knew students weren't holding back a burning desire to get to our next tech-training class. But, more importantly, we didn't want them to use a sick day to avoid coming to training

By offering classroom training in a highly-interactive environment, we raised learner interest and improved their satisfaction with their learning experience. Enrollment increased by 3.5 percent and on a scale of 1 to 10, student satisfaction increased dramatically over the past two years to an average of 8.5. This is a significant increase and an important achievement in our drive to continually improve our training program.

Integrating a lot of "old" ideas into our technology training program helped to emphasize for our students the importance of the material by the special attention we gave it.

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