

WHITE PAPER: Ensuring the success of technical solutions in the workplace; a look at training methods and adults learners.

Nancy Heineke
Public Health Education Consultant

Overview

Today, private and public health organizations are challenged daily to respond to new problems. Critical issues such as outbreaks, bioterrorism scares and crisis-planning mandates produce the need for new technologies. Web-based applications are helping by: merging health information systems; increasing information sharing; and tracking real-time data. Local, state and federal health organizations are becoming "high tech" even in the most remote field positions. The down side is when technology becomes the source of great frustration.

Frustration with technology happens when knowledge and skills aren't properly transferred from the technical developer to the every day user. Without the transfer, from programmer to worker, it is likely the application will not be used as intended or for that matter - at all! Typically this problem stems from inappropriate training and inadequate long-term support for the users. Staff turn-over and upgrades to the system magnify the problem. Workers become students and workplaces become classrooms.

"Worker-students" are usually adults who have probably been away from traditional schooling for some time. As adults, these students can be challenging to teach. *The wrong training approach will seriously and negatively impact the implementation of a new technical solution in the workplace.* If training is going to be a necessary part of the business practice, specific steps must be taken to ensure successful outcomes. The two most important ideas to consider when planning to train on new technology is: 1) consideration for how adults learn, and; 2) thoughtful selection of the training delivery method.

Problem:

Technology solutions that can easily become workplace frustrations.

The wrong training approach seriously and negatively impacts how new technical solutions "work" in the workplace.

How Adults Learn

Adults learn differently than children and teens. Two studies (Beder and Darkenwald 1982) demonstrated this idea by collecting and comparing self-reported data from teachers. The study identified differences in teaching styles for preadults (children and teens) vs adults; and showed that teachers of children naturally provide the opposite of what adults gravitate to as students. Adults are self-reliant and want well-organized lessons with less "talk." Trainers must understand the large list of difference when developing training programs. Trainers who do NOT consciously incorporate adult learning methodologies into their program will most likely end up teaching by default – relying on teaching styles of their own childhood teachers.

Adult teaching methodologies were developed several decades ago by Dr. Malcom Knowles, a nationally recognized professor of adult education. Dr. Knowles popularized an adult learning theory called the "Andragogical Model," which draws on four assumptions about how adults learn. The term andragogy is defined as "the art and science of helping adults learn." The term has taken on a broader meaning since Knowles' first edition and currently refers to learner-focused education for of all ages.

The Andragogical Model states that adults have:

- A self-concept tending towards self-direction;
- A growing reservoir of experience;
- A developmental readiness to learn;
- A problem-centered and present reality orientation to learning.

By expanding on Dr. Knowles' corner stones, trainers can develop many useful guidelines from which to build curriculum, develop training agendas, and select teaching mediums. In an article titled "30 Things We Know For Sure About Adult Learning" Ron and Susan Zemke listed motivators, ideas and items for consideration. Their ideas are, in some ways, a translation of Dr. Knowles Characteristics". Some of the ideas include:

- Adults seek out learning experiences in order to cope with specific changes (i.e.; new software application on the job). Learning is a means to an end.
- Adults are busy people and respond best to single concepts, clearly defined objectives and classroom structure.
- Many adults have been away from the classroom for a long time and appreciate a non-threatening atmosphere. Likewise adults take errors personally and are more likely to let them affect self-esteem.
- Adults like self-direction where they can control pace and star/stop times. Self-direction does not mean isolation. Self directed projects should include resources, guides, encouragers and one-to-one expert access.

As a group, adult learners experience learning as a very complex, tense and emotional phenomenon. Because adults have been away from formal schooling for a significant period of time, they are more use to informal learning. Adults take mistakes to heart but also see learning as a means to an end. Regardless of the method selected, the training should be informal, to the point and have relative meaning to their life. Once a trainer has familiarized herself with these general concepts, she is ready to incorporate the ideas into her curriculum and selection of a training method.

Designing the Training Plan

A Training Plan paints the big picture of how the workers (users) will learn and incorporate the new software application into daily life on the job. Training expert Pete Blair suggests to employers to "do it right the first time" in his white paper "Technical Training Tips." Mr. Blair cautions, when designing a training plan "don't be to quick to select the *course delivery mode* until you have complete and accurate definitions of three things:

"A well designed training program pays for itself and increases the bottom line."

-Pete Blair,
Training Expert

1. What the learner must be able to do at the conclusion of the training.
2. What the learner must know to meet the objective.
3. What the learner already knows and can do before the training.

Pete Blair's idea can be translated in a training plan as follows:

1. Performance objective stated;
2. The content of the course expressed through an agenda and description of appropriate support materials; and
3. A computer skills assessment of potential students.

Also for consideration, the manager and trainer should evaluate how to make the plan; *efficient*, *effective* and *appropriate*. *Efficient* training is considerate of all costs direct and indirect. Available resources should be assessed and named at this point. The list should include: trainer costs, training time lines, production down-time, copies and materials, etc. *Effective* training ensures that learners "got it" the first time, thus reducing the need for repeat training events or excessive help desk support This includes the pre-assessment (skills test), conversations with prospective trainees regarding needs, and a solid proactive follow-up plan. Finally, *appropriate* training takes into consideration the student's learning style. It ensures that the delivery method selected to transfer knowledge and skills is most conducive to the learner.

Successful Training is:

- ✓ Efficient
- ✓ Effective
- ✓ Appropriate

The main reason training programs fall unsuccessful is because the method selected did not suit the learners! Business administrators, who are arranging the implementation of newly acquired software, may unknowingly select or request the wrong method of training for their particular group of workers (students) if professional guidance is not available. Managers need to take guard against looming issues and distractions that could interfere with the right decision. Often too, managers select training methods on the basis of personal familiarity or preference.

Don't pick a training method just because it is familiar to *you*.

Very often the "fire hose method" is used (Joan Lloyd 2002). That is to "say and spray as much information at students in as short a time as possible." Unfortunately, the drenching doesn't penetrate and the small percentage of information students do remember is likely to evaporate quickly. When selecting a training method, managers and trainers should consider how aspects of the three basic training methods (identified below) match the needs of their specific audience.

Saying and Spraying is dangerous!

Methods of Training

There are three basic ways to provide technical training:

1. Lecture/Lab;
2. Self-paced Instruction; and
3. Structured On-the-Job-training.

Each method has advantages and disadvantages and works best with a certain type of audience. Managers often select the method they are personally most comfortable with - which is usually classroom style. Often, they select someone to teach who is part of the group, respected for their skills and experience with the new technology. The "trainer" may think "Easy - I'll just tell them everything I know." While this approach may seem straightforward, it is really breeding-grounds for inefficient and ineffective training. Hence, the "fire hose

Basic ways to train:

1. Lecture/lab
2. Self-paced instruction
3. On-the-job

method” occurs, followed by the need for intense help desk support and re-training, with the results being miss-use or no use of the new application.

Each training method has a specific list of particulars. The goal is to select the best training method for your students.

1) Lecture/Lab: Defined as a straightforward kind of oral delivery, face-to-face, hands on instruction. A teacher (trainer) presents information live in a classroom setting to students (workers) who practice (the technology) as part of the lesson.

Benefits:

- Highly controlled (classroom) environment.
- Controlled production (training occurs within a specific time-frame).
- Training is efficient because it is simultaneous for many students at one time.
- Instructor can identify student “problems” (inadequacies) as they occur.

Drawbacks

- Requires a classroom equipped with computers, monitor and (possibly) internet access.
- Forces workers to separate from their day to attend.
- Involves coordination of multiple schedules (worker’s and trainers).
- Students need to be of like knowledge/skill level.

Hints:

- Don’t lecture for more than 20 minutes at a time. Insert activities such as practice, discussion and team assignments.
- The more difficult the material the fewer points the trainer should make per hour.
- Create “quick reference guides” that students can take back to their jobs for each reference after training.
- Don’t over do Power Point and don’t read the bullet points. Adult students do not want to be read to.
- Start the session by outlining exactly what the student should learn (objectives) by the end of the class.
- Don’t waste time. Adults are extremely sensitive to this. Start on time. Keep things moving productively. Be well organized.

- Assess students' computer comfort/knowledge level prior to the training session. Plan accordingly so that similar groups are trained together.
- If necessary, build additional instructions into the front of the curriculum if required computer skills are missing (mouse use, internet navigations).
- Include separate *and* integrated practice exercises. Plan separate exercises for each module/concept and an integrated exercise to "put the whole thing together."
- Don't mix and match terms.
- Spell out acronyms.
- Restrict content to that required to meet the objectives and perform job tasks.
- Integrate teaching aids (manuals and handouts) into the training. Otherwise they will likely go unused.

2) Self-paced instruction: Defined as a teaching method that allows students to progress through material with the aid of a textbook, workbook or software to navigate the desired learning. An instructor and technical support is always available. Self-paced instruction includes training workbooks and computer based training (CBT) such as an instructional CD, and web based training (WBT).

Benefits:

- Adults have a deep need for self directing (Lindeman Theory) and prefer self-directed learning. Adults like to direct the training pace and start/stop time.
- Students have flexibility and convenience to complete assignments at a pace that fits their work and personal schedules.
- Because students can work at their own pace; they can take as much or as little time as needed to grasp each new concept.
- Lessons are logically and sequentially integrated without fail.
- A tracking system is (usually) established with CBT which allows changes and updates to be performed efficiently.
- Trainer can multi-task; proving support from a distance as needed while also working on other tasks at the same time.
- Expense of a training facility is not necessary.
- It may be difficult to incorporate into the workday because students can not get away.

- Outcomes are clearly identified - especially with web-based programs that monitor participation and progress.

Drawbacks

- Less direct control over student's performance.
- Requires development; needs to be part of the implementation plan from the beginning.
- Classroom experiences have taught adult-students to be dependent and passive – two fatal learning attributes in distance learning.

Hints:

- Launch the program with an orientation meeting. Provide overall instructions, support/help desk information and timelines (if appropriate).
- Provide access to a content expert as well as technical/help desk support. It is critical students have real-time support. Having to leave an e-mail or message is discouraging and inefficient for adult students.
- If planning to monitor the students on line – let them know this up front.
- Check external links regularly for functionality, accuracy, validity and content.
- Don't use technology just for the sake of technology - "Toolishness is Foolishness"

3) Structured On-the-Job training: Defined as training that is offered by an "already experienced and successful employee" and uses company standardized methods to train new employees. Usually as part of the work day it is also referred to as "learn as you earn".

Benefits:

- New "student" receives one-on-one attention.
- Requires minimum resources.
- Little interruption to the work flow.
- Does not require coordination of multiple schedules or high-tech training mechanisms.
- Efficient and effective way to train positions with limited use of the application (i.e.: data entry clerk).
- Provides a quick way to respond to demands caused by employee turn-over and/or upgrades and changes to system.

Drawbacks:

- May be difficult to monitor progress, if check lists and sign-off forms aren't incorporated.
- Trainings may be susceptible to interruptions.
- If demand increases, managers may need to decide if trainer(s) are expert workers first and trainers second or visa versa.

Hints:

- Formal train-the-trainer workshops can prepare eligible employees to become designated trainers.
- Training should follow an outline or standardized check-off list of criteria.
- Training should conclude with a sign-off form to record achievement for each trainee.

Summary

The 5 main points for developing a training plan are:

Clear Goals

What are the expected outcomes of the training?

Content

For software training this is usually the main functions of the system. An outline of the software's functions is the start of an agenda.

Appropriate Delivery Mechanism

Decide: Lecture/Lab, Self Paced or On-the Job Training.

Assessment

How will you know if trainees have learned the content?

Consider computer skill assessments, pre and post quizzes, and monitored practice sessions.

Remediation

What kind of additional support should you plan to provide for the trainee?

Consider: Quick Guides, Step-by-Step lists, Help Desk, post-training Care Calls.

In summary, when designing a training class, start at the end and work backwards. Ask yourself what specific action(s) you want the learner to be able to do when training is over. Next consider the learner, the work environment and the project's time frame. Finally, ask yourself what method of training would best suit these variables based on each method's benefits and drawbacks. The appropriate training approach will seriously and positively impact the implementation of new technical solutions in your workplace!

White Paper: Ensuring the success of technical solutions in the workplace; a look at training methods and adults learners, WHP037-A, October 20, 2004

Scientific Technologies Corporation

4400 E. Broadway, Suite 705

Tucson, Arizona 85711

520-202-3333

www.stchome.com

