AUTODESK UNIVERSITY

DP20630

Design and Deliver Successful Training

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Learning Objectives

- Describe the difference between learning and training
- Identify the most important factors for relevance and retention
- Separate the components of instructional design
- Recognize what doesn't work well and why

Description

Learn how to design and deliver effective and successful instruction to technical professionals.
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Your AU Expert

Dieter Schlaepfer is a Principal Learning Content Developer at Autodesk, Inc., creating AutoCAD documentation and training guides. In prior employment he provided on-site consultative CAD/CAM/CAE training to manufacturing, architecture, engineering, and construction firms. He has 35 years of experience in the field, and he specializes in 3D modeling, training, and technical writing.

Part I – The Big Picture

Symptoms of training deficiencies

- I've learned lots of facts, but I can't put them together
- I don't even know what to ask
- I don't really understand the terms
- I'm confused by the tools and the workflow
- I don't feel like I'm ready to start
- I'm stressed out and frustrated

A story about a feature

- The need—schedules, bills of material, quantity take-offs
- The solution—table objects, bidirectional links to Excel
- The result—was underwhelming, any ideas why?
- The reasons—among other factors, productivity dip, learning curve
- The remedies

Where does training fit in?

- Product Design
- **Training**
- Documentation
- Social Media
- Product support
- Consulting services

If training is not available or adequate, it puts additional burden on the other components.

What is learning?

- Definition - Acquiring knowledge or skills through experience, practice, study, or by being taught: doing, reading, watching, listening, experimenting, etc.

- Acquiring a conceptual framework
  - Provides principles
  - Adds context
  - Sets expectations
  - Defines scope
  - Helps integration
  - Aids future learning

- Levels of learning: Bloom's Taxonomy (1956, 2000)
  - Create
  - Evaluate
  - Analyze
  - Apply
  - Understand
  - Remember

Learning paradigms

- Socratic questioning
- Mass production (industrial revolution)
- Constructivism/Discovery Approach
- Behaviorism (B.F. Skinner) – Behavioral Objectives
- Cognitive Load Theory (J. Sweller)
    - Controlled experiments and statistical analysis
    - Working memory is limited
    - Remove all extraneous load
    - Working memory > long term memory
    - Slow-wave sleep, hippocampus
    - Concepts and examples: ex. object snaps

What is training?

- Definition - The fastest, most efficient transmittal of the minimum knowledge needed for immediate productivity, and a solid conceptual foundation for future learning.

What makes training relevant?

- Understands the audience
    - Experience level
    - Discipline and application
    - Goals and objectives

- Matches their requirements
    - Discipline-specific & narrow scope
    - Fast & effective
    - Convenient & accessible

- Honors behavioral modes, deliverables
    - Explore, assess, and learn
    - Integration into workflow
    - Troubleshoot a problem
    - Production on a deadline

Elements of instructional design

- *Personas*
  - Who is your audience?
  - What are their goals?
  - Are they homogenous?

- Performance objectives
  - Tangible
  - Specific & measurable
  - Realistic
  - Short

- Course map
  - Outline: scope & sequence
  - Time: pacing
  - Materials: examples, exercises, quizzes

- Delivery options and technologies
  - Tutoring
  - Books
  - Videos
  - Classroom
  - Just-in-time training?
  - Patterning / conditioning
  - Stepped (cookbook) tutorials
  - Computer-based instruction
  - MOOCs / SPOCs
  - Micro-courses
  - Sandbox exercises
  - Gamification?

- Evaluation
  - Effectiveness in achieving the stated objectives
  - Focus on cognitive (performance) domain
  - Analyze and remediate

Part II – Practical Applications

What does *not* work well . . .

- Heterogeneous, multi-discipline audience
- Long lectures, demos without hands on
- Covering too much material too quickly
- Competing visual and auditory input
- Stepped (cookbook) tutorials - yes and no
- More than 5-6 hours of training per day
- Too fast . . . Too little, too slow . . . Too much

What *does* work well . . .

- Homogenous participants > separate tracks
- Clear objectives + communicate expectations
- ABC filter for content: Essential, Important, Good to know
- Conceptual frameworks (schemas)
- Be a subject matter expert, and a consultative partner
- Relevant examples—do what they do
- Restaurant analogy
  Look, bite, chew, swallow, talk, digest
- Structure
  Conceptual Intro, Demo, Hands-on, Q&A
- Sandbox
  Provide relevant samples, learn by doing
- Recall
  Review, reinforce, discuss, quiz, questions, contests & challenges

Initial planning

If I were asked to create training for AutoCAD tables and spreadsheets, here's what would flash through my mind first . . .

- Context
  - Audience – ask tons of questions!
  - Constraints, resources
  - Frequency
  - Business objectives

- Delivery
  - Tutoring
  - Classroom
  - Tutorials
  - Micro-courses, etc.

- Technologies . . . a means to an end
  - Videos
  - Computer programs
  - Internet delivery
  - iPhone app, etc.

Technology in training

Questions to ask . . .

- Can it be maintained?
- Can it be scaled
- Can it be replicated?
- Can it be extended or customized?
- Can it be automated?

Homework assignment . . . the YouTube experiment

1. Choose a subject in which you have expertise
2. Find a variety of YouTube videos on the subject
3. Evaluate each video—write observations & critique
4. Extract learning principles

My advice

- Training is a specialized subset of learning
- Know your audience, deliver value
- Achieve effectiveness by Leaving Stuff Out
- Plan the scope (breadth/depth), sequence, and pacing
- People learn by doing and by recalling . . . over time
- Choose the right tools and technologies
- Be a subject matter expert
- Test, evaluate, *bleed*, and refine

Questions?