



Regulation and Certification

Flight Standards Service



Matching Human Factors Training to the Fundamentals of Adult Learning

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This Presentation will:

- Help you to personally decide on HF training format or to evaluate current programs. It will simplify your job.
- It will help ensure that your HF development/delivery will be matched to adult learners.
- Your company will benefit from the continuing quality and applicability of your training product.

How to accomplish goals:

- Merely show you a number of learning principles that can be immediately applied to your HF training.
- But it works for ALL adult training

Agenda (AKA Process)

Principles of Adult Learning

Application of the Principles of Adult Learning

Upon completion of this talk you will rethink at least two of your HF training/presentation methods in light of a renewed understanding of basic adult learning principles.

Value of Info and Proof

- Information is based on a lot of years as a trainer and manager of adult trainers.
- Recent review of many new and interesting books. (See references)
- Applied these principles in a recent Train the Trainer class.
- Principles work for a system being delivered to 5000+ adult learners

Agenda

Principles of Adult Learning

Application of the Principles of Adult Learning

Psychology of Adult Learning:

Plenty of scientific research and practical advice
on adult learning

Agenda Train the Trainer – Day 2 – Unit 4

Five Assumptions about How Adults Learn – Knowles, M (1990)

Eight Statements about Adult Learning – Lawson, K (1998)

Four Key Adult Learning Principles – Stolovitch, H. & Keeps, E. (2003)

Sixteen Principles of Effective Adult Training – ...

...

Adult Learning - Practical Guide to Principles
Day 1 - Unit 4, Page 3



**Lufthansa
Technical Training**

Psychology of Adult Learning

Stolovitch, H. & Keeps, E. (2003). Telling Ain't Training. ASTD: Alexandria, Virginia

- Use class exercises that resemble the task being trained
- Support trainees when they return to their job
- Create handouts that will be helpful job aids
- Trainee's job performance = Proof of the training

Action

- Let learners take control
- Decision making as a part of training
- Treat adults as capable

Autonomy

- Unique former knowledge
- Training must be capitalized on it

Experience

- Vocabulary, attitude, and examples must match to the student's experiences

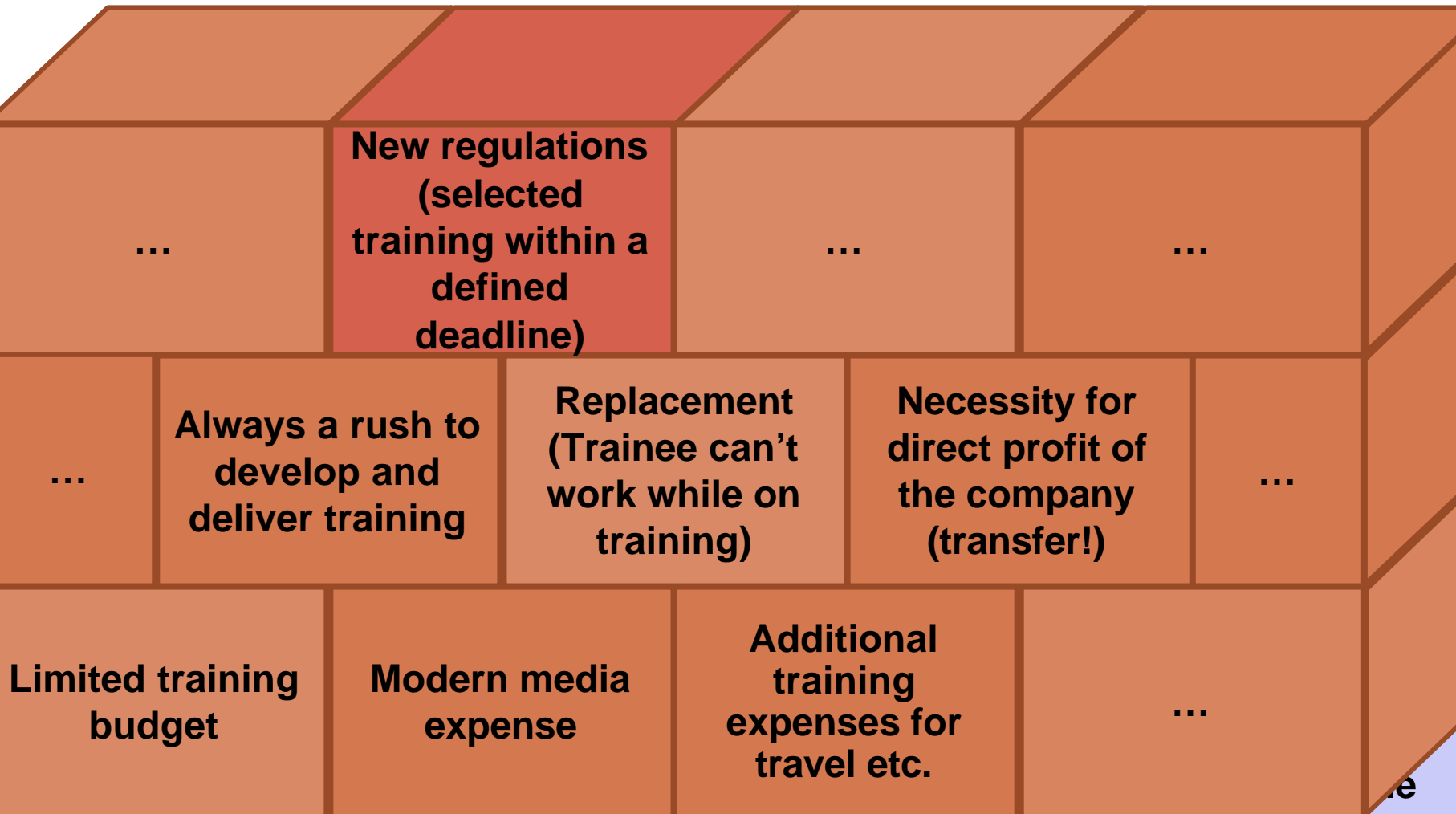
Readiness

- Adults are ready to learn
"When they are ready"
- Content value of training is believable

Principles of Adult Learning:

... and the “hard truth”

Stolovitch, H. & Keeps, E. (2003). Telling Ain't Training. ASTD: Alexandria, Virginia

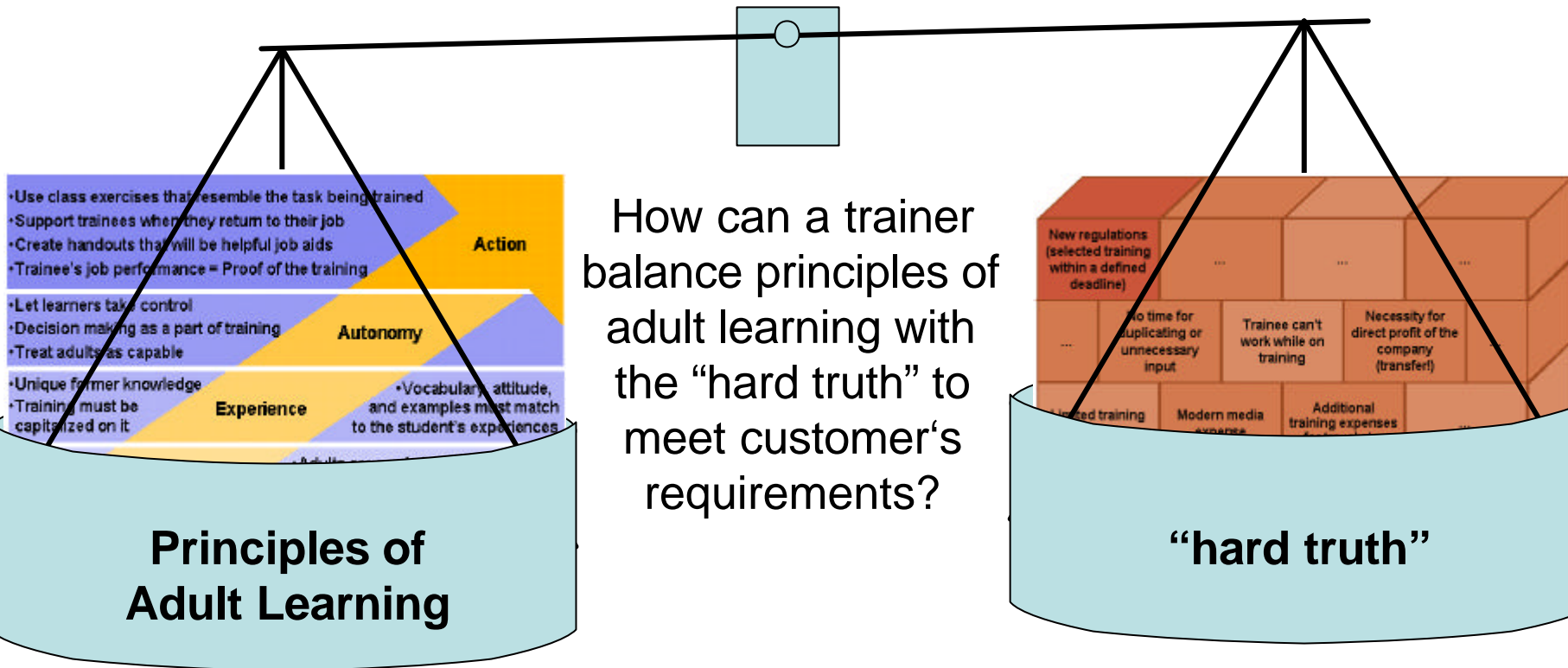


Agenda

Principles of Adult Learning

Application of the Principles of Adult Learning

Applied Principles of Adult Learning: A Challenge



An example answer is: “With a Human Factors Blended Training program.

"Blended Training" Google Search in March 2003

The screenshot shows the Google search interface from March 2003. The search term "blended training" is entered in the search box and circled in red. The search button is labeled "Google Search". Below the search bar, the results bar shows "Results 1 - 10 of about 3,060. Search took 0.18 seconds." and is also circled in red. The first search result is from Hill Associates, titled "Blended Programs", with a snippet mentioning "blended training programs". The second result is from Course Technology, titled "Course Technology - Corporate - Blended ...", with a snippet mentioning "Blended Training Solutions".

March 2003
3,060 Hits

Combination of instructional approaches designed to achieve high value, efficient, and effective technical training.

Blended Training Google Search in October 2004

Web Images Groups News People more »

Google "blended training" Search Advanced Search Preferences

Results 1 - 10 of about 8,270 for "blended training". (0.33 seconds)

[ViewCentral : Solutions : Blended Training](#)
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[Blended Training: Prerequisites and Purple Monkeys](#)
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[v.learningcircuits.org/2002/jun2002/elearn.html](#) - 32k - [Cached](#) - [Similar pages](#)

March 2003
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March 2004
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October 2004
8,270 Hits

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50% rise in hits since March 2004!

270% rise since March 2003!

Application of the Principles of Adult Learning

- Instructor-led 1-day class with Lecture/Review, Exercises, Discussions, Video for discussion
- Event investigations (Off-line & On-line)
- HF discussion led by customer supervisors
- Convincing state-of-the-art technology

Action

- Student controls WBT.
- On-line qualification exam

Autonomy

- Trainee can reinforce concepts seeing familiar things.

Experience

- Adults assign credibility to familiarity

Readiness

- Learner must comply with Regs for EASA 145.
- Mechanics can use system when they want to.

New technology requires new thinking: Challenges

Competency-based training is not time-based

Non-traditional scheduling

WBT requires computers and www connection

Revised learner motivation and rewards

Innovative regulators



But it is not only the money!

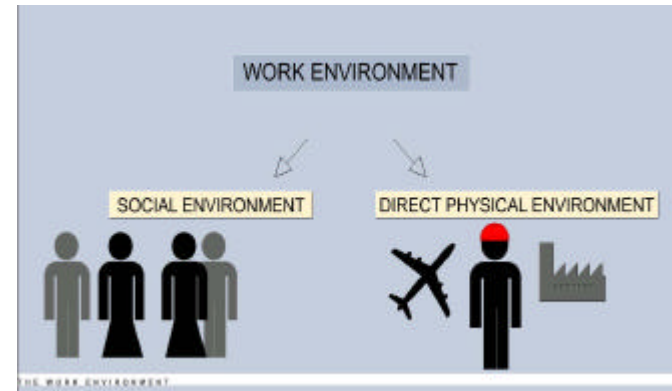
Students can learn at individual pace (“Teachable Moments”)

Best instructional methods are matched to requirements

Students can review without instructor

Reduces scheduling logistics

Opens high value training to more organizations



Welcome
to the web-based edition of our new Human Factors Blended Training

Blending Instructional methods for Human Factors Training

There are some outstanding challenges associated with Human Factors in the Aviation Maintenance. The three most notable are:

- + 80% of aviation incidents and accidents are results of human errors
- + **Regulations and Guidelines** (i.e. IAA, Transport Canada and FAA) are requiring human factors training
- + IROs and Airline want to ensure continuing **safety** and maintenance work **efficiency** through best human performance measures

For these reasons Lufthansa Technical Training (LTT) is now offering a new Human Factors Blended Training. The "new" blended course distinguishes from conventional courses in that about 50% of the contents are imparted by **Web-Based Training (WBT)**. The learner first uses the WBT to learn or review the HF concepts prescribed by most International Regulatory Guidelines. Upon successful completion of the on-line test the student qualifies to attend the one-day workshop.

This combination of web-based and classroom training contains various advantages and benefits for you:

- + it guarantees the usual **high quality** training based on the **experience** of Lufthansa Technical Training, which has conducted more than 400 instructor-led human factors classes worldwide
- + the web-based training allows each student to **learn at their own speed**
- + allows **scheduling flexibility** for participant and employer
- + resulting in **cost-saving opportunities** for your organization by reducing travel and training expenses
- + resulting in **reduction of events and failure costs caused by human errors**

For further information or registration please contact:
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E-Mail: human.factors@lth.de

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WBT Demo
➤ To the demonstration which also includes FAQ's

Registered Users
➤ Login into the Web-Based Training

FAA Human Factors Website
➤ Visit the FAA Human Factors Website

www.ltthf.com

The FAA does not endorse or recommend any specific training product over another. The Blended-Training demonstration used for this presentation was selected based on availability and on the author's familiarity with the product.

Bill Johnson

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Flight Standards Service

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Reader(s)



Streaming Video: Flight Standards Service "Organizational Overview"
(Windows Media, 8 minutes)
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www.faa.gov/avr/afs/

Thank you

Bibliography of Reference Notes used in Bill Johnson's Slides

Charles, C.L., Clarke-Epstein, C. (1998). *The Instant Trainer*. New York: McGraw-Hill.

Harney, C, Conway, K. (1998). *The Trainer's Tool Kit*. New York: AMACOM.

oad, T. (1997). *The First-Time Trainer*. New York: AMACOM.

olles, R. (2001). *How to Run Seminars & Workshops*. New York: John Wiley& Sons, Inc.

awson, K. (1998). *The Trainer's Handbook*. San Francisco: Jossey-Bass.

ipman, D. (1999). *Improving Your Storytelling*. Little Rock: August House Pub.

tolovitch, H., Kepps, E. (2003) *Telling Ain't Training*. Alexandria: ASTD.

