TRAINING EFFECTIVENESS

How Come After I Trained Them They Still Make Mistakes?

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Craft Brewer’s Conference
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TRAINING EFFECTIVENESS

Does your safety training look like this?

https://www.youtube.com/watch?v=u2TkmxcC_J0
Tell me and I forget

Teach me and I remember

Involve me and I learn

-Ben Franklin
OBJECTIVES FOR TODAY

- Understanding Adult Learning Theory
- Distinguish Learning Styles
  - VARK
  - Paragon Adult Learning Theory
  - Multiple Intelligences
- Facilitating learning based on goals
- Human Error Basics
- Instructional Design of Safety Training for Craft Brewers
- Measuring Training Effectiveness
  - Results from Brewer’s Association Safety Training Platform
ADULT LEARNING THEORY

- Challenges in Training today: - Beloit Mindset List  - Class of 2021

- They never heard Harry Caray try to sing during the seventh inning at Wrigley
- Vladimir Putin has always been calling the shots at the Kremlin.
- The United States has always been at war.
- They have never had to watch or listen to programs at a scheduled time.
- If you want to reach them, you’d better send a text—emails are oft ignored.
- A Bush and a Clinton have always been campaigning for something big.
- John Elway and Wayne Gretzky have always been retired.
- Bluetooth has always been keeping us wireless and synchronized.
ADULT LEARNING THEORY

• Andragogical Model – Adults seek to know **WHY** they must learn
  
  • Need Buy In
  • What is the motivation? - required/mandated
  • Do they know why? Is any time spent on the why?
  • Are their experiences relied on or valued?
  • Are they free to learn on their own?
  • Can they control the pace?
  • Is the more than one medium used?
LEARNING STYLES

- VARK (Keller)
  - Visual
  - Auditory
  - Reading
  - Kinesthetic
LEARNING STYLES

• Paragon Adult Learning Styles Inventory
  • 4 Dimensions
    • Introversion/Extroversion
    • Intuition/Sensation
    • Thinking/Feeling
    • Judging/Perceiving
# LEARNING STYLES

<table>
<thead>
<tr>
<th>Introverts teaching Extroverts</th>
<th>Extroverts teaching Introverts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use group work and cooperative learning</td>
<td>Provide individual tasks</td>
</tr>
<tr>
<td>Use wait time with questioning</td>
<td>Call on all students regularly</td>
</tr>
<tr>
<td>Provide time for movement</td>
<td>Provide written venues for thinking</td>
</tr>
<tr>
<td>Value expression</td>
<td>Value reflection</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sensates teaching Intuitives</th>
<th>Intuitives teaching Sensates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide opportunities for creativity</td>
<td>Provide hands on activities</td>
</tr>
<tr>
<td>Give students the “big picture” of their work</td>
<td>Give clear step-by-step directions</td>
</tr>
<tr>
<td>Use concept attainment and problem-based strategies on occasion</td>
<td>Explain the practical application to work</td>
</tr>
<tr>
<td>Teach inductively on occasion</td>
<td>Avoid long abstract or theoretical lectures</td>
</tr>
<tr>
<td>Don’t overemphasize the details</td>
<td>Value the quality of students work</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thinkers teaching Feelers</th>
<th>Feelers teaching Thinkers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remember to show your warm feelings</td>
<td>Do not rely too heavily on praise</td>
</tr>
<tr>
<td>Avoid excessive conflict in your teaching style</td>
<td>Give concrete feedback</td>
</tr>
<tr>
<td>Include praise in your feedback</td>
<td>Try to accept some degree of healthy conflict</td>
</tr>
<tr>
<td>Avoid being too critical</td>
<td>Be consistent in your application of principles</td>
</tr>
<tr>
<td>Express your joy or pleasure whenever possible</td>
<td>Don’t be afraid to give honest feedback/critique</td>
</tr>
<tr>
<td>Value feeling in written work</td>
<td>Value logic in written work</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Judgers teaching Perceivers</th>
<th>Perceivers teaching Judgers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allow for some flexibility in assignment format</td>
<td>Provide clear written assignment guidelines</td>
</tr>
<tr>
<td>Use variety</td>
<td>Prepare students for changes in plans</td>
</tr>
<tr>
<td>Provide clear written assignment guidelines</td>
<td>Try to keep to the agreed upon schedule</td>
</tr>
<tr>
<td>Allow for flexible time frames for completion</td>
<td>Provide some routine in the day</td>
</tr>
<tr>
<td>Value novelty and open-mindedness</td>
<td>Value accuracy and punctuality</td>
</tr>
</tbody>
</table>
LEARNING STYLES

• Multiple Intelligences (Gardner)

• http://www.tecweb.org/styles/gardner.html

• Visual-Spatial - think in terms of physical space, as do architects and sailors. Very aware of their environments. They like to draw, do jigsaw puzzles, read maps, daydream. They can be taught through drawings, verbal and physical imagery. Tools include models, graphics, charts, photographs, drawings, 3-D modeling, video, videoconferencing, television, multimedia, texts with pictures/charts/graphs.

• Bodily-kinesthetic - use the body effectively, like a dancer or a surgeon. Keen sense of body awareness. They like movement, making things, touching. They communicate well through body language and be taught through physical activity, hands-on learning, acting out, role playing. Tools include equipment and real objects.

• Musical - show sensitivity to rhythm and sound. They love music, but they are also sensitive to sounds in their environments. They may study better with music in the background. They can be taught by turning lessons into lyrics, speaking rhythmically, tapping out time. Tools include musical instruments, music, radio, stereo, CD-ROM, multimedia.

• Interpersonal - understanding, interacting with others. These students learn through interaction. They have many friends, empathy for others, street smarts. They can be taught through group activities, seminars, dialogues. Tools include the telephone, audio conferencing, time and attention from the instructor, video conferencing, writing, computer conferencing, E-mail.

• Intrapersonal - understanding one's own interests, goals. These learners tend to shy away from others. They're in tune with their inner feelings; they have wisdom, intuition and motivation, as well as a strong will, confidence and opinions. They can be taught through independent study and introspection. Tools include books, creative materials, diaries, privacy and time. They are the most independent of the learners.

Linguistic - using words effectively. These learners have highly developed auditory skills and often think in words. They like reading, playing word games, making up poetry or stories. They can be taught by encouraging them to say and see words, read books together. Tools include computers, games, multimedia, books, tape recorders, and lecture.

• Logical -Mathematical - reasoning, calculating. Think conceptually, abstractly and are able to see and explore patterns and relationships. They like to experiment, solve puzzles, ask cosmic questions. They can be taught through logic games, investigations, mysteries. They need to learn and form concepts before they can deal with details.
LEARNING STYLES

Your answers have been saved using the secret code: n6jn0jqw93688knc.
To see this chart again, type your secret code into the Results page.

- Kinaesthetic (Body Smart)
- Linguistic (Word Smart)
- Naturalistic (Nature Smart)
- Logical (Number Smart)
- Visual/Spatial (Picture Smart)
- Interpersonal (People Smart)
- Musical (Music Smart)
- Intrapersonal (Myself Smart)
FACILITATING LEARNING

• Focus on the ways we learn not on individual leaning styles
  • Learning styles help us to understand our students (Davis and Arend)

• 7 ways we learn based on outcomes/goals

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Way of Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Skills</td>
<td>Behavioral Learning</td>
</tr>
<tr>
<td>Acquiring Knowledge</td>
<td>Cognitive Learning</td>
</tr>
<tr>
<td>Developing critical and creative thinking</td>
<td>Learning through inquiry</td>
</tr>
<tr>
<td>Cultivating Problem Solving and Decision Making</td>
<td>Learning with mental models</td>
</tr>
<tr>
<td>Exploring Attitudes</td>
<td>Learning through groups/teams</td>
</tr>
<tr>
<td>Practicing Professional Judgment</td>
<td>Learning through virtual reality</td>
</tr>
<tr>
<td>Reflecting on Experience</td>
<td>Experiential Learning</td>
</tr>
</tbody>
</table>
FACILITATING LEARNING

• Of those 7 outcomes. What are our outcomes in safety and health training in breweries?

• What if you were designing a training session for entering a fermenter (confined space entry)?
FACILITATING LEARNING

• Building Skills
  • Common methods

• Acquiring Knowledge
  • Common methods

• Cultivating Decision Making
  • Common Methods
THE POWER OF STORIES

• Life is a Story
  • Full of drama
    • Use of stories to make a point

• Stories help us figure things out
  • Case Studies

• Examples
HUMAN ERROR BASICS: WHY PEOPLE MAKE MISTAKES

Knowledge
  Ignorance
  Pseudo-knowledge
  Imprudence
  Apathy

Cognitive Errors
  Loss of Activation
  Description
  Capture
HUMAN ERROR BASICS: WHY PEOPLE MAKE MISTAKES

Interpersonal
  Peer Pressure
  Power of Authority
  Stress

Errors in Judgments
  Heuristics – Mental Shortcuts
BREWERS ASSOCIATION INSTRUCTIONAL DESIGN

Instruction designed with the following parameters:

- Online Training Environment - Self paced Asynchronous
- Training by job task rather than safety subject
- Video segments no longer than 2-3 minutes before interaction by participant
- First person viewpoint (as participant would be performing task)
MEASURING TRAINING EFFECTIVENESS

• Increasing Training Transfer

• Four Phases/measurements of training effectiveness (Kirkpatrick)
  
  • Phase 1 – Reaction – Satisfaction Surveys
    https://www.surveymonkey.com/s/SZ_Training_Module_Evaluation
  
  • Phase 2 – Learning – Assessments – Tests (Pre and Post)

  _______________Time Lag______________________________

  • Phase 3 - Behavior – Audits/Observations, Questionnaire's

  • Phase 4 – Results – Change in Incident Frequency
# RESULTS FROM BREWER’S ASSOCIATION SAFETY TRAINING

<table>
<thead>
<tr>
<th>Module</th>
<th>Completed</th>
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</thead>
<tbody>
<tr>
<td>Overall Total</td>
<td>14,819</td>
</tr>
<tr>
<td>Bottling</td>
<td>1091</td>
</tr>
<tr>
<td>Canning</td>
<td>395</td>
</tr>
<tr>
<td>Ferm Cellar</td>
<td>1214</td>
</tr>
<tr>
<td>Ferm Clean</td>
<td>1320</td>
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<tr>
<td>Carbonation</td>
<td>1144</td>
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<tr>
<td>Filtering</td>
<td>280</td>
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<tr>
<td>Grain Handle</td>
<td>2214</td>
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<tr>
<td>Keg Clean</td>
<td>1198</td>
</tr>
<tr>
<td>Keg Fill</td>
<td>1121</td>
</tr>
<tr>
<td>Mashing</td>
<td>1856</td>
</tr>
<tr>
<td>Boiling</td>
<td>1584</td>
</tr>
<tr>
<td>Whirlpool</td>
<td>1402</td>
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RESULTS FROM BREWER’S ASSOCIATION SAFETY TRAINING
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RESULTS FROM BREWER’S ASSOCIATION SAFETY TRAINING
SUMMARY

Adults learn differently than children

Adults Learn through many different styles

Learning Outcomes may be a way to design training – Facilitated Learning

Causes of Human Error

Design criteria for online asynchronous training

How training effectiveness can be measured

Case Study Results from Brewer’s Association
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Teach me and I remember

Involve me and I learn

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REFERENCES