Teaching and Assessing in the Affective Domain
Level I Workshop Agenda

The goals of the workshop are to (1) sensitize participants to the importance of the affective domain in learning, (2) anchor this reinforced sensitivity in sound theory, (3) provide concrete and useable tools to teach and assess affective learning, and (4) accomplish these goals with an engaging workshop format.

I. Establish the Game Plan (15 minutes)
   a. Brief introductions
   b. Setting the ground rules and expectations

II. Foundational Content: A new vision of domain integration   (35 minutes)
   a. Theoretical development and background discussion
   b. Traditional assessment and evaluation
   c. Domain integration in instruction and assessment

III. Transitional Demonstration: Putting theory into practice (15 minutes)

IV. Easy Affective Assessment in the Traditional Classroom (10 minutes)

V. 10 Methods – Demonstrations – Assessments – Discussions (10-15 minutes each)
   Please note: this list will likely change from one workshop to the next

   1. Case-based learning tips and technique
   2. Structuring a debate for domain integration
   3. No-tech simulation in the classroom
   4. The common experience: The best and the worst
   5. Team member's overlapping skill sets: Valuing diversity
   6. Structured reasoning by analogy: It worked for Einstein!
   7. Cognitive Dissonance assignments for attitude change
   8. Group-based concept mapping: Making knowledge explicit
   9. Action learning for problem-solving and group-work skills
   10. Interviewing: Right from the horse’s mouth
   11. Journal writing for authentic learning

VI. Wrap-up (30 minutes)
   a. Putting the pieces together
   b. Helping others make the transition to domain integration
   c. Next steps and action plans for execution
   d. For more information
# Level 1 Module 1: Establish the Game Plan

## Lesson I. Brief Introductions

### Before and After

Directions. Poll participants, by a show of hands, about whether they think the following historical events happened before or after 1974.

<table>
<thead>
<tr>
<th>Events in History</th>
<th>1973 or before</th>
<th>1974 or after</th>
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<tbody>
<tr>
<td>1. Man first walks on the moon.</td>
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<td>2. Martin Luther King, Jr. was assassinated.</td>
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<td>3. India becomes the 6\textsuperscript{th} country with nuclear bombs.</td>
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<td>4. Richard Nixon resigns from office.</td>
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<td>5. World population reaches 4 billion.</td>
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<td>6. First commercially successful VCR is marketed.</td>
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<td>7. The Beatles break up.</td>
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<td>8. Arab oil embargo.</td>
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<tr>
<td>10. Jim Jones and his followers commit suicide.</td>
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<tr>
<td>11. Sears tower is built in Chicago.</td>
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<tr>
<td>12. Walmart is founded.</td>
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<td></td>
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<tr>
<td>14. Microsoft is founded.</td>
<td></td>
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<tr>
<td>15. The year of your instructor’s birth.</td>
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</table>
Lesson II. Setting the Ground Rules and Expectations

Example Rules:

1. We are one group, we speak in turn, and show respect to all listeners and speakers.

2. We will not disrupt the flow of the session with personal communications.

3. We take regular breaks to keep us fresh and focused.

4.

5.

6.

7.
Lesson I. Theoretical Development and Background Discussion

In 1956, Benjamin Bloom and a committee composed of several of his colleagues published a taxonomy of educational objectives. It has become a standard reference work for instructional design. The taxonomy identified three domains of educational activities:

- **Cognitive**: mental skills (*Knowledge*)
- **Affective**: growth in feelings or emotional areas (*Attitude*)
- **Psychomotor**: manual or physical skills (*Skills*)

Domains can be thought of as categories. A taxonomy of learning objectives can be thought of as "the goals of the learning process." That is, after the learning session, the student should have acquired new skills, knowledge, and/or attitudes.

Bloom’s taxonomy goes into much greater detail for the cognitive and affective domains, but did not dig deeper into the psychomotor domain.

The taxonomy is ordered from the simplest learning objectives to the most complex. There are other systems or hierarchies that have been devised, but Bloom's taxonomy is easily understood and is probably the most widely applied used.
The cognitive domain involves knowledge and the development of intellectual skills. This includes the recall or recognition of specific facts, procedural patterns, and concepts that serve in the development of intellectual abilities and skills. There are six major categories, which are listed in order below, starting from the simplest behavior to the most complex. The first one must be mastered before the next one can take place.

<table>
<thead>
<tr>
<th>Category</th>
<th>Example and Key Words</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td><strong>Examples</strong>: Recite a fact in response to a question. <strong>Key Words</strong>: defines, describes, identifies, knows.</td>
</tr>
<tr>
<td>Comprehension</td>
<td><strong>Examples</strong>: Explain in one’s own words the steps for performing a complex task. <strong>Key Words</strong>: comprehends, converts, defends, distinguishes, estimates, explains, extends, generalizes.</td>
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<tr>
<td>Application</td>
<td><strong>Examples</strong>: Apply laws of statistics to evaluate the reliability of a written test. <strong>Key Words</strong>: applies, changes, constructs, demonstrates.</td>
</tr>
<tr>
<td>Analysis</td>
<td><strong>Examples</strong>: Troubleshoot a piece of equipment by using logical deduction. <strong>Key Words</strong>: analyzes, breaks down, compares, contrasts, diagrams, deconstructs, differentiates.</td>
</tr>
<tr>
<td>Synthesis</td>
<td><strong>Examples</strong>: Design a machine to perform a specific task. Integrates training from several sources to solve a problem. <strong>Key Words</strong>: categorizes, combines, compiles, composes, creates, devises, designs, explains, modifies.</td>
</tr>
<tr>
<td>Evaluation</td>
<td><strong>Examples</strong>: Select the most effective solution. Hire the most qualified candidate. Explain and justify a new budget. <strong>Key Words</strong>: appraises, compares, concludes, contrasts, criticizes, critiques, defends, describes, discriminates.</td>
</tr>
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</table>
Affective Domain

This domain includes the manner in which we deal with things emotionally, such as feelings, values, appreciation, enthusiasms, motivations, and attitudes. The five major categories listed the simplest behavior to the most complex:

<table>
<thead>
<tr>
<th>Category</th>
<th>Example and Key Words</th>
</tr>
</thead>
</table>
| Attending:   | **Examples**: Listen to others with respect. Listen for and remember the name of newly introduced people.  
**Key Words**: asks, chooses, describes, follows, gives, holds, identifies, locates, names, points to, selects. |
| Responding:  | **Examples**: Participates in class discussions.  
**Key Words**: answers, assists, aids, complies, conforms, discusses. |
| Valuing:     | **Examples**: Demonstrates belief in the democratic process. Is sensitive towards individual and cultural differences (value diversity).  
**Key Words**: completes, demonstrates, differentiates, explains, follows, forms, initiates, invites, joins, justifies, proposes, reads, reports, selects, shares, studies, works. |
| Organization| **Examples**: Recognizes the need for balance between freedom and responsible behavior. Accepts responsibility for own behavior. Explains the role of systematic planning in solving problems.  
**Key Words**: adheres, alters, arranges, combines, compares, completes, defends, explains, formulates, generalizes. |
| Characterization| **Examples**: Displays a professional commitment to ethical practice on a daily basis. Values people for what they are, not how they look.  
**Key Words**: acts, discriminates, displays, influences, listens, modifies, performs, practices, proposes, qualifies. |
Behavioral (a.k.a. Psychomotor) Domain

The psychomotor domain includes physical movement, coordination, and use of the motor-skill areas. Development of these skills requires practice and is measured in terms of speed, precision, distance, procedures, or techniques in execution. Bloom’s committee did not produce a model for the behavioral domain model, but others have. The one below is taken from the work of Dave (1975). The five major categories listed the simplest behavior to the most complex:

<table>
<thead>
<tr>
<th>Category</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imitation: Observing and</td>
<td>Example: Copying a work of art.</td>
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<tr>
<td>pattering behavior after</td>
<td></td>
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<tr>
<td>someone else. Performance</td>
<td></td>
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<tr>
<td>may be of low quality.</td>
<td></td>
</tr>
<tr>
<td>Manipulation: Being able</td>
<td>Examples: Creating work on one's own, after taking lessons, or reading</td>
</tr>
<tr>
<td>to perform certain actions</td>
<td>about it.</td>
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<tr>
<td>by following instructions</td>
<td></td>
</tr>
<tr>
<td>and practicing.</td>
<td></td>
</tr>
<tr>
<td>Precision: Refining,</td>
<td>Examples: Working and reworking something, so it will be &quot;just right.&quot;</td>
</tr>
<tr>
<td>becoming more exact. Few</td>
<td></td>
</tr>
<tr>
<td>errors are apparent.</td>
<td></td>
</tr>
<tr>
<td>Articulation: Coordinating</td>
<td>Examples: Producing a video that involves music, drama, color, sound,</td>
</tr>
<tr>
<td>a series of actions,</td>
<td></td>
</tr>
<tr>
<td>achieving harmony and</td>
<td></td>
</tr>
<tr>
<td>internal consistency.</td>
<td></td>
</tr>
<tr>
<td>Naturalization: Having</td>
<td>Examples: Michael Jordan playing basketball, Nancy Lopez hitting a</td>
</tr>
<tr>
<td>high-level performance</td>
<td></td>
</tr>
<tr>
<td>become natural, without</td>
<td>golf ball, etc.</td>
</tr>
<tr>
<td>needing to think much</td>
<td></td>
</tr>
<tr>
<td>about it.</td>
<td></td>
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</table>
Evaluation and Assessment

Learning evaluation is a widely researched area. This is understandable since the subject is fundamental to the existence and performance of education.

Donald Kirkpatrick first published his ideas in 1959, in a series of articles in the US Training and Development Journal. The articles were subsequently included in Kirkpatrick's book Evaluating Training Programs (1975).

While Kirkpatrick's model is not the only one of its type, for most industrial and commercial applications it suffices; his theory has now become the most widely used and popular model for the evaluation of training and learning. Kirkpatrick's four-level model is now considered an industry standard across the HR and training communities.

Since Kirkpatrick established his original model, other theorists (for example Jack Phillips) have referred to a possible fifth level, namely ROI (Return On Investment). All these measures are recommended for full and meaningful evaluation of learning in organizations, although their application broadly increases in complexity, and usually cost, through the levels.

<table>
<thead>
<tr>
<th>Category</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reaction: what the learners thought and felt about the training.</td>
<td>Examples: 'happy sheets', feedback forms, also verbal reaction, post-training surveys or questionnaires.</td>
</tr>
<tr>
<td>Learning: the resulting increase in knowledge or capability</td>
<td>Examples: typically assessments or tests before and after the training, interview or observation can also be used.</td>
</tr>
<tr>
<td>Behavior: extent of behavior and capability improvement and implementation/application</td>
<td>Examples observation and interview over time are required to assess change, relevance of change.</td>
</tr>
<tr>
<td>Outcomes: the effects on the goals, business, or environment resulting from the learners' performance</td>
<td>Examples: productivity measures, normal management systems and reporting, performance appraisals - the challenge is to relate to the learning session</td>
</tr>
<tr>
<td>Return on Investment (ROI): the economic impact of the learning experience</td>
<td>Examples: dollar value of the increase in productivity compared to the cost of the learning experience.</td>
</tr>
</tbody>
</table>
Lesson II. Traditional Assessment and Evaluation

Goals of Assessment

What are the goals of assessment in the classroom? Why do we give students quizzes, exams, papers, and other assignments for grades? What are we trying to accomplish? How will the results be used?

Types of Assessments

What types of assignments do you use to measure these goals? Can someone talk about the types of assignments that are given in traditional classrooms?

Response Formats

What sort of response formats do you use?
Level 1 Module 4: Easy Affective Assessment in the Traditional Classroom

1. Monitoring of student attention and energy levels.

2. Attendance rosters.

3. Class participation.

4. End of course student evaluations.

5. Teaser questions and one-minute papers.

6. Level of effort assignments.

7. Self-directed field trips, attendance at special programs, trips to museums.

8. Group assignments

9. Behavioral check sheets

10. Personal e-mails
Mr. Bolin-

Hello. I was in Jody Illies’ I-O Psych class at SCSU where you spoke the other day. He said you would be happy to talk to any of us more about your job and whatnot. I wanted to ask you about your navy pilot experience (or lack of experience). I’m glad I’m not alone in not knowing what kind of path to pursue in life. I am interesting in psychology and particularly I-O, but I also love music and would make a career out of it if I could. Is there any insight you could share with me about your experience? Are you happy that you are doing something “practical” instead of something possibly more exciting? Do you find your current job fulfilling? Do you still wish you had a chance to do something else? Please write back and give me some advice. I keep shifting back and forth between the practical career and the dream career and am finding it hard to move forward. I know this is a very personal decision, but any light you could shed on the subject would be greatly appreciated. Thank you. :)

Sincerely,
Rachel Hulkonen

-----Original Message-----
From: Coral.M***** [mailto:Coral.M*****@smail.astate.edu]
Sent: Monday, January 24, 2005 10:25
To: Bolin, Aaron CIV N9
Subject: from coral

Dr Bolin,

I was in your Intro. to Psychology in the Spring of 2004. That was the semester I had come from Pakistan and was having a terrible time adjusting to life here in the US. I had actually come to the US for treatment for my illness. I had been diagnosed with schizoaffective disorder, and had come to the US because I the doctors had been unable to find the correct medication for me for the past seven years. In spring that year, I was going through withdrawal from stelazine, which as you know is a tranquilizer, it was a struggle getting up in at 6am to be ready for your 8 o’clock class. But, it was so worth the effort, because you touched my life in such a wonderful way that year. I may not have survived the year or even taken an interest in continuing my education after all the emotional and physical turmoil my illness had put me through these past seven yrs. I realized that I learned valuable study skills from you, discovered a passion for a subject i had always dreamed of studying but did not know if it was what i wanted to do, and realized that humor, and education could go hand in hand. Studying did not have to be a chore, because with the right teacher, it could be highly pleasurable.

Currently, I am hoping to apply to grad school to study clinical psychology, and am looking for some universities where I can get a quality education and hopefully a fellowship. I know that it will be an uphill battle especially with my illness, and the financial constraints, but, I will hopefully make it. I just wanted to write to you and thank you for helping me find myself, and reigniting the passion for learning that I had been forced to bury within myself.

By the way, I was the indian looking pakistani girl who sat in the front row in a leather jacket and always asked you irritating questions. You really made my day that semester when you told me that you enjoyed my project at the end of the semester. Hope that helps you remember me.

Best wishes,
Coral
Introduction

Case studies are often associated with medicine, law, and psychology, but can be used in any discipline to explore how issues and principles learned in class translate in real world situations.

In essence, a case is an extended example (real, fictitious, or a combination). The construction of a case varies across disciplines and instructors, but is generally presented as an open ended problem. Sometimes, the actual solution to the problem is also presented. Students examine the case and use it to exercise and uncover classroom concepts.

When people talk about the value of experience, they often mean that an individual has acquired a personal knowledge of many potential cases and is now able to apply that case-based knowledge to new situations. Much of human reasoning is case-based rather than concept-based. When people solve problems, they frequently are reminded of previous problems they have faced. Everyone has vast experience in facing the problems brought up in daily life.

Benefits

Case-Based teaching is an excellent active learning strategy that is particularly effective in helping students develop the ability to apply concepts and ideas to practical experience and vice versa. Cases can be used in both large and small groups but generally work best in small groups.

Case studies challenge students by bringing them as close as possible to situations of the real world. Cases discussions are characterized by lively discussion in class, and they provide lessons that students can put into practice in their professional lives.

Writing the Case

The following common elements were defined for cases:

1. The issue, scenario, or problem provided as a back story
2. An open ended statement of the issue or problem in need of resolution
3. A statement of the required outcomes (i.e., written proposal for solution)
4. Supporting documents and additional data
5. The actual solution that took place (optional in some instances)
6. Written commentary or discussion by an expert (optional in some instances)
Issue, Scenario, or Problem

1. A good case has a good back story. The case should be unusual, shocking, or prototypical in some fashion that is relevant to the learning objectives. Negative case examples are often just as interesting and relevant as cases with positive outcomes.
2. A good case has emotional power, value relevance, or other affective hooks that make the case compelling and interesting.
3. A good case includes difficult choices, mixed motivations, and unknowns. It is open ended in some respect and open to more than one interpretation and solution.
4. A good case is selected specifically for its potential contribution to student learning.

Stating the Issue or Problem

1. Make sure to provide enough information in the back story. It can be tricky to make sure the issue is fully developed and matches your course objectives. However, the solution to the case should be contained within the case materials unless the case is designed to spur independent research.
2. Focus the students’ attention. A case narrative can be so complex and "juicy" that any number of issues and problems could come from it. Select a specific goal on which students can focus their attention. What issues could you explore from the motion picture, John Q?

Stating the Required Outcome

1. Verbal discussion of the case is almost always part of this type of learning activity. However, you should specify how students will be evaluated.

Supporting Documents and Additional Data

2. It is usually a good idea to withhold some information until after an initial discussion. It is especially effective to withhold information and only provide it in response to specific questions or after a time lapse – whichever comes first.
3. For some cases, it is appropriate for students to seek additional information on their own. For example, a law instructor might require students to look up obscure case law to support their line of reasoning.
Evaluation

There are many ways to formally and informally evaluate the quality of student work on these kinds of activities, including:

1. observations of students at work
2. evaluations of the products they create
3. case-based exams (in which students individually analyze a case)
4. peer evaluations of presentations
5. group self-evaluations
6. traditional examinations that cover the objectives of the cases.

Some Online Resources for Case-Based Learning

Harvard Case Study Resources
http://harvardbusinessonline.hbsp.harvard.edu/b01/en/cases/cases_home.jhtml

Problem-Based Learning Clearinghouse
https://chico.nss.udel.edu/Pbl/
Davis, Claire and Wilcock, Elizabeth (2004) "Teaching Materials Using Case Studies"
http://www.materials.ac.uk/guides/casestudies.asp

Herreid, Clyde Freedman (1998) "Return to Mars: How Not to Teach a Case Study"
http://ublib.buffalo.edu/libraries/projects/cases/teaching/mars.html

http://ublib.buffalo.edu/libraries/projects/cases/teaching/betty.html
Lesson II. Structuring a Debate for Domain Integration

Directions. An effective debate must include both facts and value judgments. A debate that relies solely on facts will be dry and boring. A debate based solely on values will be circular, overly emotional, and inconclusive. A properly structured debate will include information from both affective and cognitive domains and require value-based interpretation and integration. In preparation for jury deliberation, read the following scenario.

The Costly Underwater Tunnel

A billion dollar underwater tunnel is being constructed despite an almost certain loss of workman lives during the construction process. The tunnel will provide many benefits to the community, including a large reduction in the number of people who die while on the way to the hospital.

At a critical moment in the construction process, when a fitting must be lowered into place, a workman is trapped in a section of the partly laid tunnel. If the fitting is lowered, it will probably crush the trapped workman to death. Yet, if it is not and a time consuming rescue of the workman is attempted, the tunnel will be swamped and the footings will be distorted; the tunnel will have to be abandoned forever.

Two workmen have already died in the project as a result of anticipated and unavoidable conditions in the building of the tunnel. Rather than sacrifice the whole project, the construction foreman decides to lower the fitting into place. Although the workman’s body is never recovered, everyone assumes that he died.

You are on the jury who has been chosen to decide the foreman’s case. The foreman is a single father to two small children and was once convicted of petty theft as a teenager. The missing workman had recently made an appointment with his union representative to make a complaint, but no one knows what the complaint was concerning. The company already paid a large settlement to the workman’s family.

All of the evidence that is available has just been presented. Should the foreman be convicted of murder? Make your decision and support it with a reasoned review of the evidence.
<table>
<thead>
<tr>
<th>Evidence</th>
<th>Guilty</th>
<th>Innocent</th>
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Lesson III. No-tech Simulation in the Classroom

Scenario description. All of the agreements between Big HMO and the staff the chain of hospitals and clinics just happen to expire sometime in the next three months. Each member of your group represents one of the interest groups who will enter into negotiations to forge new HMO-staff agreements: HMO management, physicians’ association, nurses’ union, or support staff union. First, everyone select a role to play.

The situation is complicated somewhat by the fact that all negotiations will be conducted simultaneously. That is, staff groups can negotiate with the HMO and also with each other; gaining a concession from another staff group can be used as a strategy to maximize the outcomes for your group. Also, each bargaining session will only last for two minutes.

Bargaining Score Sheet (Chip Game)

<table>
<thead>
<tr>
<th>Your Points</th>
<th>Game 1</th>
<th>Game 2</th>
<th>Game 3</th>
<th>Game 4</th>
<th>Game 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total of all 5 players</td>
<td></td>
<td></td>
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</table>

Everyone starts with 2 chips of each color. Negotiate concessions within your group to maximize the outcome for your group.

<table>
<thead>
<tr>
<th>Payoff Schedule</th>
<th>Red</th>
<th>Blue</th>
<th>White</th>
<th>Mixed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wages</td>
<td>Benefits</td>
<td>Working Conditions</td>
<td>Misc.</td>
</tr>
<tr>
<td>Pair</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3 of a kind</td>
<td>9</td>
<td>7</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>4 of a kind</td>
<td>15</td>
<td>12</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>5 of a kind</td>
<td>22</td>
<td>18</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>6 of a kind</td>
<td>30</td>
<td>25</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>7 of a kind</td>
<td>39</td>
<td>33</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>8 of a kind</td>
<td>49</td>
<td>42</td>
<td>35</td>
<td></td>
</tr>
</tbody>
</table>
IV. The Common Experience and Other Creative Uses for Games

Best and Worst Bosses I’ve Ever Had

1. Think about the best boss, leader, or supervisor you’ve ever had. In narrative (or story) form, please provide a detailed account of the things this person did that made you select him/her as your **Best Boss**, explain your reaction to this person, and how this person affected your work in terms of motivation, job satisfaction, commitment to the organization, etc.

2. Think about the worst boss, leader, or supervisor you’ve ever had. In narrative (or story) form, please provide a detailed account of the things this person did that made you select him/her as your **Worst Boss**, explain your reaction to this person, and how this person affected your work in terms of motivation, job satisfaction, commitment to the organization, etc.

3. What were the commonalities among the experiences around the room?

4. What characteristics are useful distinctions between the best and worst bosses?
V. Team Member’s Overlapping Skill Sets: Valuing Diversity

Directions. The goal is to show that the necessary expertise for problem solution resides in the complete team rather than one individual.

1. Define the problem space.

2. Brainstorm elements of the problems that will be important for a comprehensive solution.

3. Identify your personal areas of expertise and weakness.

4. Pick an area of personal weakness and then ask the group if anyone in the room can count your weakness as a personal strength.

5. Whoever says yes is the next person who is added to the team. They will now identify areas of personal strength and weakness.

6. Note areas of overlap (where two or more people meet) as points to share common experience, translate through analogy, and build consensus. Note areas of uniqueness as a point on which we must rely on that teammate’s expertise. Note areas that lack coverage as blind spots where we need a new team member.

7. Continue the process until you have covered most if not all of the problem space.
The importance of managing team performance is gaining in recognition. Because modern operations are so dynamic and complex, organizational performance is increasingly dependent on staff members who are highly specialised and organized into teams. For the purposes of our discussion, a team is defined as a “distinguishable set of two or more people who interact dynamically, interdependently, and adaptively toward a common and valued goal/objective/mission, who have each been assigned specific roles or functions to perform” (Salas et al., 1992, p. 4).

The Team Performance Paradox

Organizations that organize work around teams in hopes of increasing productivity are often disappointed with the results – teaming is just as likely to result in reduced productivity. Further, teams composed of high-performing individuals often fail, and teams with less impressive individual members are capable of greatly exceeding expectations. The 2003-04 and 2004-05 Detroit Pistons basketball team recently illustrated the team performance paradox by winning back-to-back NBA championships using an unimpressive roster of players. The same team performance paradox is played out on a daily basis all around the world as innovative start-up teams with network-enabled capabilities vanquish established mega-corporations with superior resources and technology. How?

Well over 50 years of research has addressed the topic of team effectiveness. The theoretical paradigm that drives much of the research on team effectiveness is based on open systems theory. The basic theory states that team inputs (e.g., skills and abilities such as personality, task design characteristics, and work norms) are transformed into team output (e.g., the quality and quantity of the team product) through interaction processes such as skill utilization, effort, and task strategy (Gladstein, 1984; Hackman & Morris, 1975; Steiner, 1972). The flexibility of the basic input-process-output (IPO) model is demonstrated by its widespread use and application to a variety of team settings (Campion, Medsker, & Higgs, 1993; Driskell, Hogan, & Salas, 1987). In essence, the IPO model predicts two primary sources of team failure: (1) Inadequate Resources or (2) Sub-optimal Processes (see Figure 1). Even if resources are adequate for task completion, the IPO model suggests that the actual productivity of a team is usually less than would be expected. According to Steiner (1972), the reason teams fail to reach their full potential lies in their persistent use of inefficient and ineffective processes that result in decreased effort and/or sub-optimal coordination among team members. To further complicate matters, the specific processes used by a team depend largely on the structure of the task and team inputs (Steiner, 1972). The model also provides for the possibility of process gains sometimes referred to as “assembly plus factors” or “team synergy” that contribute to the superior performance of exemplary teams.
VI. Structured Reasoning By Analogy: It Worked for Einstein!

Analogy: a comparison based on similarity; using a model to explore a phenomenon; an argument or theory that proposes similarity between different concepts
Model: an abstract representation of reality that can be manipulated with the goal of gaining a better understanding of reality.
John Stuart Mill called it Mental Chemistry

“Virtually all theories are based on some kind of metaphor, implicit or explicit……No theorist would suggest that the metaphor is exact; rather, it supplies a kind of model on which one can hang various kinds of experimental evidence to make it clearer”
(Stagner, 1988, p. 13)

Principles of Analogical Reasoning
a. Analogies, like theories, can be better and worse depending on the criteria used to evaluate a theory. Good analogies are parsimonious, testable, integrate evidence, and useful.
b. A good Analogist, like a good detective, looks for both confirmatory and disconfirmatory evidence. We can often learn more about a phenomena by exploring its limits. Likewise, we can often learn more about a criminal by determining the type of person who could not have committed the crime.
c. A good Analogist, like a good theorist, considers the logical conclusions and implications of various models. Analogies and models can both be used to generate testable predictions.
d. A good Analogist, like a good researcher, varies the level of different variables to determine the effect on the overall model.

Using metaphors is a powerful way of thinking. Critically testing and probing a metaphor until it reaches its limits and collapses is even more powerful. Example – Reverse engineering a tank and testing the limits of its capabilities is a good way to understand it to the point that it no longer threatens.

Analogies and metaphors have a long history in scientific discovery.
- A clockwork universe – Sir Isaac Newton
- Information-processing model of the mind
- Big bang as an analogy for the beginning of the universe.
- Kurt Lewin’s model of change: the states of water, unfreezing, changing, re-freezing.
- Tabula Rasa: blank slate
- Freud was the master of analogy, often describing psychological states in terms of energy, force and flow, resistance, conversion, defense and regression. Freud’s description of a rider on a horse as symbolic of the relationship between the Id and Ego conveys a wealth of meaning in a simple picture (1926/1959c p. 195).
Completed Analogy Worksheet

**Analogy:** A class is like .... A guided tour

<table>
<thead>
<tr>
<th>Confirmatory Evidence</th>
<th>Dis-confirmatory Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The instructor is the tour guide.</td>
<td>1. Tours are voluntary, but students have to take general education courses to graduate.</td>
</tr>
<tr>
<td>2. Students are the tourists.</td>
<td>2. Most tours go somewhere.</td>
</tr>
<tr>
<td>3. Syllabus is the itinerary.</td>
<td>3. Tours are supposed to be entertaining.</td>
</tr>
<tr>
<td>4. The textbook is the map.</td>
<td>4. We should go somewhere besides just the classroom.</td>
</tr>
</tbody>
</table>

**Implications Analogy is True (If...Then)**

<table>
<thead>
<tr>
<th>Variables and Their Influence (Levers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Students can’t come to class late because the tour will already have left the station.</td>
</tr>
<tr>
<td>2. All assignments should be eliminated.</td>
</tr>
<tr>
<td>3. The instructor should memorize the presentation and do it the same every time.</td>
</tr>
<tr>
<td>1. Itinerary-Syllabus controls the destination and route.</td>
</tr>
<tr>
<td>2. In general, the price impacts the quality of the experience.</td>
</tr>
<tr>
<td>3. Guide-Instructor has a big impact on customer satisfaction.</td>
</tr>
</tbody>
</table>

**Useful Analogy Shells for the Classroom**

1. Cooking a common dish: macaroni / pie / cake
2. Mining for gold or diamonds
3. Biological System / Medical (heart, lungs, brain)
4. Business model
5. Basketball / Team sport model
6. Driving a car model
Blank Analogy Worksheet

**Analogy: Running a hospital is like ….**

<table>
<thead>
<tr>
<th>Confirmatory Evidence</th>
<th>Dis-confirmatory Evidence</th>
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VII. Cognitive Dissonance Assignments for Attitude Change

Cognitive Dissonance Theory

1. The basic idea behind cognitive dissonance is that being a hypocrite is undesirable, especially if it is brought to your attention. Being publicly known as a hypocrite in public is especially distasteful. In other words, people like to maintain consistency between their thoughts, feelings, and actions.

2. Doing something that is inconsistent with character because you feel coerced into it does not produce dissonance; if your actions are not freely chosen then they do not reveal your character nor can they make you a hypocrite.

3. If you can get someone to do something by choice that is consistent with a particular attitude, then they are more likely to develop that attitude.

4. People tend to resist things, like learning new information, if it seems likely to increase dissonance. People become committed to a thought-feeling-action to the extent that their character is at stake.

5. People tend to seek things, like learning new information, if it seems likely to reduce dissonance.

6. Cognitive dissonance is the basis of the foot-in-the-door and escalation of commitment phenomena in the world of selling.

Cognitive Dissonance in Practice

1. In dealing with dissonance increasing information, the instructor should make every effort to make the information as non-threatening as possible.

2. Praising thoughts, feelings, and behaviors that are consistent with the learning objectives reinforces the individual and helps anchor a new consistency by calling attention to the desirable thought-feeling-behavior.

3. Free choice (even if the choice is imaginary) and smaller than warranted rewards can be used to produce dissonance.
In the Classroom

Any one of the following assignments can be easily modified to take advantage of the Cognitive Dissonance Phenomenon. However, the effect would be even stronger if students were given a choice of doing any one of the options as a mandatory assignment. Further, if the resulting work could be publicized through publication, posting, or public attendance – the effect on student attitudes would be magnified.

1. Write an essay that supports a particular position. Make sure that your essay includes concrete facts that supports your position and concludes with a strong appeal for action.

2. Attend an event that is frequented by people in your field. Again, write an essay explaining what you learned and why the experience was beneficial for your long-term career goals.

3. Give a speech to the class advocating a particular position. You will be assessed on the speeches emotional impact, logical support and presentation, and enthusiasm.

4. Participate in a debate with one twist. You are assigned a role that is consistent with the desired thought-feeling-action. Role reversal consists of asking someone to play the role of another person whose views are dissimilar to his/her own.
VIII. Group-based Concept Mapping

Concept Maps

Concept maps are visual depictions of knowledge structures. Typically, concept maps are used to represent cognitive knowledge structures – how all of the facts and data fit together into a coherent whole. However, students can learn to include attitudes and opinions in a concept map if explicitly directed to do so by the instructor.

More importantly, concept maps can be evaluated against an expert model to check for understanding, complexity, clarity of organization and structure, and appropriate linkages. They can be graded!

Drawing a concept map is pretty straightforward process.

1. Identify a focus question that clearly specifies the problem or issue boundaries.

2. Identify relevant concepts and place them roughly in rank order along a general concept (highest level) to specific concept (lowest level) continuum. Most concept maps will have sufficient detail after 10-15 concepts.

3. Construct a preliminary map by placing concepts and descriptive links.

4. Seek out cross links, illogical relationships, missing links, and missing concepts.

5. Revise the map to reflect increased understanding and to clarify meaning.

Live Example

1. Focus question: How can we integrate affective and cognitive objectives to improve instruction in Health Management Education Programs?

2. Relevant Concepts: Instructional techniques, student motivation, assessments, student learning, outcomes

3. Preliminary map: instructional techniques influence student motivation, assessments measure student learning, assessments predict outcomes

4. Seek out additional and missing content: student motivation impacts student learning

5. Revise the map.
This map was created with CMAP Tools. CMAP Tools is available as a free download at: http://cmap.ihmc.us/
IX. Action Learning

Introduction

Action learning means many different things depending and when and who you ask for a definition. In this context, we will be discussing Marquardt’s Action Learning Model. According to this model, Action Learning is a semi-structured approach to the design of group discussion based on two ground rules and organized around six components.

Ground Rule 1: Statements should only be made in response to questions. Ground Rule 2: The action learning coach has the power to intervene at any time.

Six components of Marquardt’s Action Learning Model

1. Problem
   • Important
   • Urgent
   • No existing solution
2. Group
   • Four to eight individuals
   • Commitment to problem solution
   • Power to take action
   • Familiar with the context in which the problem resides
   • Diverse backgrounds, experience, expertise, and perspectives
3. Questions
   • Cause us to focus and/or to stretch; creates deep reflection
   • Challenge assumptions
   • Generate action
4. Action
   • Systemic thinking, systematically applied
   • Emphasize effectiveness over activity; tied to key points of leverage
   • Goal directed and adaptive to changing circumstances
5. Learning
   • Leadership, group and team dynamics
   • Knowledge acquisition at greater speed, depth, and breadth
6. Coach
   • Only ask questions
   • Focuses on group learning and group process and not on problem solution
   • Has the power to temporarily stop the work and intervene at any time

Once a suitable problem has been identified for discussion and a group assembled, the action learning coach presents the ground rules and provides a brief overview of action learning components.
The group’s work then begins with a brief presentation of the state of the problem. The action learning coach may intervene to keep the problem presentation brief by interrupting the presenter and asking the other groups members if they have any questions.

For the first several minutes, the action learning coach may have to remind group members of the ground rules by asking – are you asking a question or making a statement.

After about 10 minutes of interaction, the action learning coach should interrupt the group’s work with the first intervention. The intervention consists of a series of questions about group process and function. Example questions include: How are we doing thus far as a group? What are we doing well? What could we do better? What is the quality of our learning? What are we doing to optimize our learning?

The action learning coach continues to intervene periodically with decreasing frequency. What questions have been most effective and why? What barriers have we uncovered? How satisfied are you with the group process? How are we doing as a team – okay or not okay?

Toward the end of the session time limit, the action learning coach should intervene and ask questions that focus the group toward concrete action steps.

A final intervention should focus the group to reflect on the process and learning.

According to Marquardt, the weaknesses of traditional leadership development programs are caused by a number of factors, most notably: teachers rather than practitioners are the purveyors of knowledge; a separation exists between the learning and action; very little learning gets transferred to the workplace (2004). Action learning differs from normal leadership training in that its “primary objective” is to ask appropriate questions in conditions of risk, rather than to find answers that have already been precisely defined by others (Marquardt, 2004).

**Problem Statement for Practice Demonstration**

In the next 10 years, 60% of experienced executives in the health care arena are expected to retire. Projections suggest that this “brain drain” will cause major problems throughout the healthcare industry due to big shortages in qualified applicants to replace the executives who retire. The federal government just announced the availability of $3 billion dollars in grants to organizations that can identify and implement innovative solutions to the dilemma.
X. Interviewing: Right from the Horse’s Mouth

An Interview with a Leader

1. Why do people do what they do (i.e., what is your personal theory of motivation in the workforce)?

2. Shirking duties, social loafing, doing a task with minimal effort, and free riding on the work of other employees are common problems in every organization. How should you (or do you) deal with people who do not carry their fair share of the workload?

3. Were you mentored as you prepared for leadership? Do you mentor aspiring leaders? If so, how? Who are your leadership role models?

5. Some theorists believe that people decide if they are satisfied by asking and observing other people. If the group is happy, the individual is usually happy, but if the group is unhappy, the individual is usually unhappy. In other words, attitudes are contagious. Is it true? What implications does it have for you as a leader?

6. How do you deal with people who feel like they aren’t getting their fair share of the rewards?

7. Is there a difference between leadership and management?

8. Effective leaders must be able to judge situations accurately, inspire others, develop loyalty in subordinates, work long hours, and communicate effectively. Is there anything missing from this list?
9. What makes a good leader? Can people learn to be leaders?

10. Does your leadership style differ depending on whom you are leading? If so, how? Do you always or usually end up being the leader in many situations or does your leadership hinge more on the situation?

11. How do you know that you are a leader?

12. What is the worst mistake you ever made as a leader and what did you learn from it?

13. Is there anything that I forgot to ask? Is there anything that you wish that you had known about leadership before taking on a leadership role? Do you have any words of wisdom that you would like to pass on?

14. Who are you: name, organization, position, title, etc. (so that the instructor knows who I interviewed)?
XI. Journal Writing for Authentic Learning

The primary purpose of the journal is to encourage students to connect the facts, concepts, and principles that they acquire from the course to their experiences. The journal adds a personal dimension to the course and provides an opportunity to apply course concepts to daily experiences (Hettich, 1990).

Directions. Instruct each participant to select one of the following writing prompts to respond by writing for at least five minutes.

1. Happiness – How do you define it and what makes you happy/unhappy?

2. Determinism and Free Will – How would you like to be remembered by future generations? What are you doing (or can be doing) to create this ideal image of yourself?

3. Learning Experience – Describe an important learning experience or a life-changing event of your life. How did it change your old way of thinking or behaving? Why was this experience so powerful?

4. Why have you decided to take this course? Name at least one topic of special interest or a question that you would like to explore over the course of the semester. What is your opinion of having to keep a journal throughout the course?

5. What is your opinion about knowledge gained from research that violates ethical standards? How do you feel about using animals to conduct painful or damaging research? What is the best way to balance the benefits of knowledge with the rights of research subjects?

6. Draw a line down your paper and mark off the years since you were born. To the left of your time-line mark events in your life that you find personally meaningful (e.g., graduation from high school, first kiss, moving to a new city, parents' divorce, special teachers, etc.). Write a paragraph at the bottom about how you feel about this assignment; did you learn anything about yourself?

7. Analyze one of your favorite movie characters or storybook characters from the perspective of the course material. What principles can be seen in the story?
I. Putting the pieces together

Student motivation is among the strongest predictors of instructional effectiveness (Pass, 2006). This fact is readily confirmed by the experience of everyone who has ever tried to teach students who are not motivated to learn.

For meaningful learning to take place, three conditions are necessary (Novak & Canas, 2006):
1. The material must be clear and presented in a way that can be understood.
2. The learner must possess relevant prior knowledge.
3. The learner must choose to learn.

For learner and instructors, meaning resides in the moment of choice. In spite of this fact, many instructors hesitate to use affective measures for grading purposes (Krathwohl, Bloom, & Masia, 1984). Some of this hesitation stems from the inadequacy of the appraisal techniques and the ease with which a student can fake interest in order to obtain rewards. In addition, it is widely believed that one’s beliefs, attitudes, values, and character are private matters; instructors who attempt to influence student attitudes and belief may inadvertently cross the invisible line between education and indoctrination.

Assessment of cognitive objectives is assessment of affective objectives. The two cannot be separated completely. Behavior may be conceptualized as being embedded in a cognitive-emotional-motivational matrix in which no true separation is possible (Krathwohl, Bloom, & Masia, 1984). Attitude objectives are pervasive in school work, even if they are not stated explicitly (Smith & Ragan, 1992). Broad curricular goals tend to be more explicitly affective in nature.

Global objectives of the curriculum.

Affective learning outcomes often take a long time to establish: A semester course may not be sufficient to establish a value (Martin & Briggs, 1986). Interests, attitudes, and character develop slowly and are only visible in appraisal techniques over long periods of time (Krathwohl, Bloom, & Masia, 1984).

At the same time, “The knowledge explosion, especially in the medical and health fields, has increased so rapidly that hard decisions must be made about what to include and what to omit in professional training” (Martin & Briggs, 1986, p. 322). Our drive for subject-matter mastery and the every-increasing amount of knowledge available gives us more and more subject matter to cover (Krathwohl, Bloom, & Masia, 1984). Out of necessity, the focus of learning and education has shifted from being able to remember and repeat information to being able to find and use it.
The ability to use information, or transfer of classroom knowledge to the real world, is extremely motivating for learners of all ages (National Research Council, 2004). Transfer is also enhanced by instruction that helps students represent problems at higher levels of abstraction. In essence, learning in the cognitive domain is driven by learning in the affective domain and both are driven by the likelihood of being able to apply the material in the behavioral (psychomotor) domain (i.e., the real world).

A cursory examination of learning and instruction theories demonstrates that they are woefully inadequate in terms of domain integration (Martin & Briggs, 1986). Instructional designers have spent very little time developing theories or models that address affective behaviors and even less time integrating them with cognitive behaviors. The little research that directly addresses the question of domain integration suggests that the two domains are interrelated and that affective outcomes may be a prerequisite for cognitive outcomes.

The question should not be: Should values be taught? For the health of the field in particular, it is important that the students develop an organized system of beliefs, commitments, and values that are consistent with professional practice requirements (Smith & Ragan, 1992).

Instead, we need to ask: What values do students need for professional excellence and how can these values be developed?

This brief workshop was designed to sensitize participants to the importance of affective learning outcomes and provide several concrete examples of domain-integrated teaching techniques. The list of techniques and the review of educational theory is not exhaustive. It is hoped that workshop participants will be motivated to pursue the topic further. Toward that end, a number of resources and references are included at the end of this guide.

II. Helping others make the transition to domain integration

When change initiatives fail, as they often do, the source of failure can almost always be attributed to the lack of positive attitude about the change efforts (Martin & Briggs, 1986). Successful change requires new thoughts, new behaviors, and new attitudes.

The techniques described in this workshop can also be used to encourage others to make the transition to domain-integrated instruction.

Through discussion, debate, analogy, and even concept mapping --- others can be taught the virtues of domain-integrated instruction. In addition, their attitudes toward domain-integrated instruction can be improved by inducing cognitive dissonance, simulating situations through dialogue, and even producing formal case studies for discussion. For example, the following list of questions might be useful in an action learning group format:
Paradigm shifting questions for Action Learning Groups

1. Why does instruction have to take place in the classroom?

2. Why is assessment necessary? Can traditional classroom rewards become punishing to student motivation and initiative?

3. Process/content interaction: how does the teaching method interact with the content to influence affective outcomes?

4. How strong is the relationship between the learning domains? Is the affective learning domain more important in the long run due to the short shelf life of today's knowledge?

5. How far can you go with affective teaching before it becomes indoctrination and impinges on the free will of the learners? Some have used extreme measures to attain affective outcomes: Chinese political education, North Korean brainwashing methods, Pavlovian conditioned emotional responses, hypnotism?

6. How should we evaluate our curriculum for ROI, outcomes, and behavior change?

III. Next steps and action plans for execution

1. Tell somebody. Make a public commitment to domain-integrated teaching. Say, “I will integrate affective learning experiences into my curriculum!”

2. Put these techniques or others that you develop to use. Behavior (doing) is a great way to anchor learning that takes place in other domains (thinking, feeling).

3. Become a model for domain-integrated teaching at your institution. Educate others on the importance of domain-integrated teaching --- don’t forget to consider their attitudes and values in your instruction.

4. Include domain-integrated teaching goals in the planning documents for your institution.

5. Continue to build your own knowledge of domain-integrated teaching and teaching techniques.

The normal curve should not be the model outcome of instruction that we expect. -- Benjamin Bloom, 1972
IV. For more information

References and Resources


About the Presenter

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Born and raised in northern Illinois, Aaron completed his doctoral work in Industrial/Organizational Psychology at Northern Illinois University in 2002. In his professional career, he has held positions at Arkansas State University, Rockford Public Schools, National Computer Systems, and the Ball Foundation. In addition, Aaron has been a contracted consultant with a number of organizations including Sears & Roebuck, Wonderlic Personnel Assessments, Arkansas State Board of Psychological Examiners, St. Cloud State University, and Jonesboro Tobacco Free Coalition. Aaron also served in the U.S. Army Reserve as a carpentry-masonry specialist from 1993 to 2001.

Aaron has been employed as a Supervisory Psychologist with the U.S. Navy Human Performance Center since August of 2004. During his tenure with the Navy, he has led performance improvement and training projects at the Surface Warfare Officers School and the First Naval Construction Division. In December of 2005, Aaron moved to Millington, Tennessee to establish and manage the Human Performance Center Detachment at Navy Personnel Command.

In addition to working with the Navy, Aaron remains active in his professional community. He regularly presents at professional conferences and has published articles in several scholarly journals including Education and Psychological Measurement, Measurement and Evaluation in Counseling and Development, Journal of Business and Psychology, and Journal of Psychology.

Aaron’s professional affiliations include International Society for Performance Improvement, Society for Industrial and Organizational Psychology, American Psychological Association, and American Psychological Society. Beginning in April of 2006, Aaron will serve as President of the Armed Forces Chapter of the International Society for Performance Improvement. Aaron is a Certified Performance Technologist (CPT).
Notes