



November 30<sup>th</sup> - December 4<sup>th</sup>, Orlando, Florida

# I/ITSEC 2015

The World's Largest Modeling, Simulation & Training Conference

# ~~Practical tactics to maximize military learning~~

*"teach better"*

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WHY??

"teach better"

Who cares  
about teaching  
better?

WIIFM



Objectively defend  
investments in  
instructional quality



Learn more about  
Learning Science  
concepts and terms



Expand your set of  
instructional tools  
(for humans or tech)

WIFM



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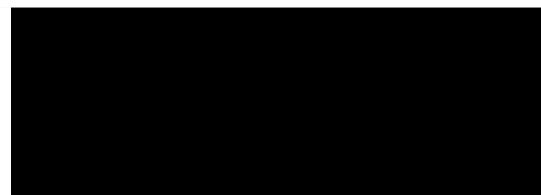
WHY??

"teach better"

Who cares  
about teaching  
better?

WIIFM







Simplify



Develop technology and systems



Prepare personnel to ~~cope with~~ complexity

!!

^  
thrive in



~~❑~~ Simplify

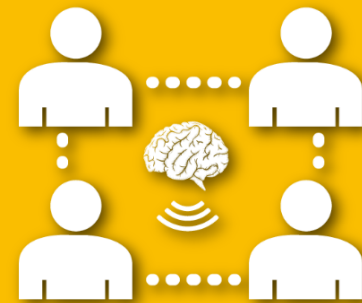
~~❑~~ Develop technology and systems



**More Skills**



**Higher Order**



**More Agile**

Who were your GREAT instructors?





# *Return on Investment*



It is clear from Tables 1 to 3 that the two most important factors impacting student gain are the teacher and the achievement level for the student. The teacher effect is highly significant in every analysis and has a larger effect size than any other factor in twenty of the thirty analyses. The achievement-level effect is significant in twenty-six of the thirty analyses and has the largest effect size in ten of the thirty analyses. These results are

0.05, 0.01, 0.001, and 0.0001 are 1.64, 1.96, 2.58, 3.29, and 3.89, respectively.

It is clear from Tables 1 to 3 that the two most important factors impacting student gain are the teacher and the achievement level for the student. The teacher effect is highly significant in every analysis and has a larger effect size than any other factor in twenty of

Despite ongoing debates about whether, and how much teachers make a difference in student learning relative to a host of other factors assumedly affecting student learning (Wang, Haertel & Walberg, 1993), and whether particular elements of teaching can be systematically and causally linked to student achievement (Scriven, 1990), the results of this study well document that the most important factor affecting student learning is the teacher. In addition, the results show wide variation in effectiveness among teachers. The immediate and clear implication of this finding is that seemingly more can be done to improve education by improving the effectiveness of teachers than by any other single factor. *Effective teachers appear to be effective with students of all achievement levels, regardless of the level of heterogeneity in their classrooms.* If the teacher is ineffective, students under that teacher's tutelage will achieve inadequate progress academically, regardless of how similar or different they are regarding their academic achievement. This finding is corroborated by recent research on the cumulative effects of teachers on the academic progress of students (Sanders & Rivers, 1996). These recent studies show that teacher effects on student learning as inferred from standardized test scores are additive and cumulative over grade levels with little evidence of compensatory effects. Thus, students in classrooms of very effective teachers, following relatively ineffective teachers,

Social Studies	Science
4.23	2.55
4.02	3.00
2.53	0.62
1.47	1.00
2.83	1.47
0.81	0.49
2.30	0.75
2.40	1.11
7.17	7.93
6.69	7.62
3.37	10.99
4.59	10.91
2.14	1.55
5.27	3.74
2.01	0.12
0.55	2.06
1.53	0.34
0.42	1.68
0.73	1.25
1.09	0.78
2.45	1.24
1.06	0.47
9438	9329
12320	12406

n = total number of students.

# The most important factor affecting student learning is the teacher

## 35% increase in teacher quality raises scores by $\approx 8-9\%$

Estimates of teacher fixed effects from linear regressions of test scores consistently indicate that there are large differences in quality among teachers in this data. A one standard deviation increase in teacher quality raises test scores by approximately .20 standard deviations in reading and .24 standard deviations in math on nationally standardized distributions

$\approx 35\%$  increase  
in teacher skill

$\approx 8-9\%$  student  
achievement increase

on average between beginning teachers and teachers with ten or more years of experience. Moreover, estimated returns to experience are quite different if teacher fixed effects are omitted from my analysis. This suggests that using variation across teachers to identify experience effects may give biased results due to correlation between teacher fixed effects and teaching experience.

Policymakers have demonstrated their faith in the importance of teachers by greatly increasing funding for programs that aim to improve teacher quality in low performing schools.<sup>4</sup> However, the vast majority of these initiatives focus on rewarding teachers who possess credentials that have not been concretely linked to student performance (e.g. certification, schooling, teacher exam scores). My results support the idea that raising teacher quality is an important way to improve achievement, but suggest that policies may benefit from shifting focus from credentials to performance-based indicators of teacher quality.

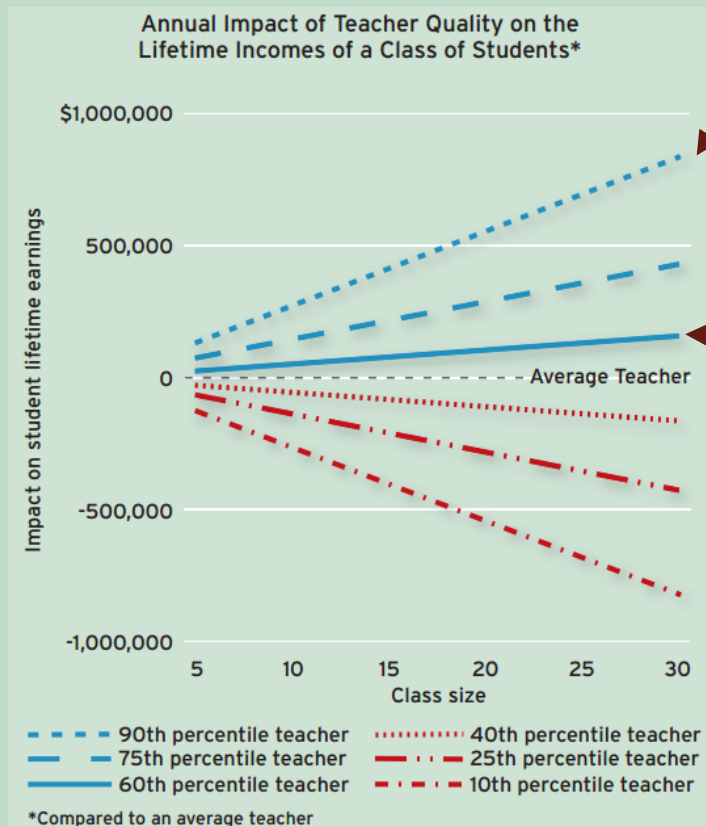
This paper is organized as follows: in section two, I provide an overview of previous

<sup>4</sup>The most recent example is the 'No Child Left Behind Act,' which appropriated over \$4 billion for training and recruitment of teachers in 2002. This is in addition to various other federal and state initiatives targeting teachers, such as forgiving student loans, easing qualifications for home mortgages, and waiving tuition for teachers' children who enroll in state universities.

The most important factor affecting student learning is the teacher  
 35% increase in teacher quality raises scores by  $\approx 8\text{-}9\%$   
 Top teachers (at 84th percentile) will increase student earnings by \$20K across a lifetime

## Effective Teachers Raise Students' Earnings (Figure 1)

*The economic value of an effective teacher grows with larger classes, and the economic costs of having an ineffective teacher are substantial.*



SOURCE: Authors' calculations

their

increases in earnings. Consider, for example, a teacher with a class of 20 students. Under such circumstances, the teacher at the 60th percentile will—each year—raise students' aggregate earnings by a total of \$106,000. The impact of one at the 69th percentile (as compared to the average) is \$212,000, and one at the 84th percentile will shift earnings up by more than \$400,000.

But there is also symmetry to these calculations. A very low performing teacher (at the 16th percentile of effectiveness) will have a negative impact of \$400,000 compared to an average teacher.



A good, but not great, teacher increases each student's lifetime earnings by \$10,600. Given a class of 20 students, she will raise their aggregate earnings by \$212,000.

Does 10 to 20 percent amount to much? For the average American entering the workforce, the value of lifetime earnings for full-time work is currently \$1.16 million. Thus, an increase in the level of achievement in high school of a standard deviation yields an average increase of between \$110,000 and \$230,000 in lifetime earnings.

How do increases in teacher effectiveness relate to this? Obviously, teacher quality is not the only factor that affects student achievement. The student's own motivations and support from family and peers play crucial roles as well. But

on an individual student. Take a good but not great teacher, one at the 69th percentile of all teachers rather than at the 50th percentile (that is, a teacher who is half a standard deviation above the average). She produces an increase of \$10,600 on each student's lifetime earnings. Even a modestly better than average teacher (60th percentile) raises individual earnings by \$5,300, compared to what would otherwise be expected.

While those numbers are not trivial, they are more dramatic once we recognize that every student in the class can expect such increases in earnings. Consider, for example, a teacher with a class of 20 students. Under such circumstances, the teacher at the 60th percentile will—each year—raise students' aggregate earnings by a total of \$106,000. The impact of one at the 69th percentile (as compared to the average) is \$212,000, and one at the 84th percentile will shift earnings up by more than \$400,000.

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Moreover, the economic value of an effective teacher grows with larger classes, as do the economic losses of an ineffective teacher. Figure 1 illustrates the aggregate impact on students'

# WHAT'S "BEST"?

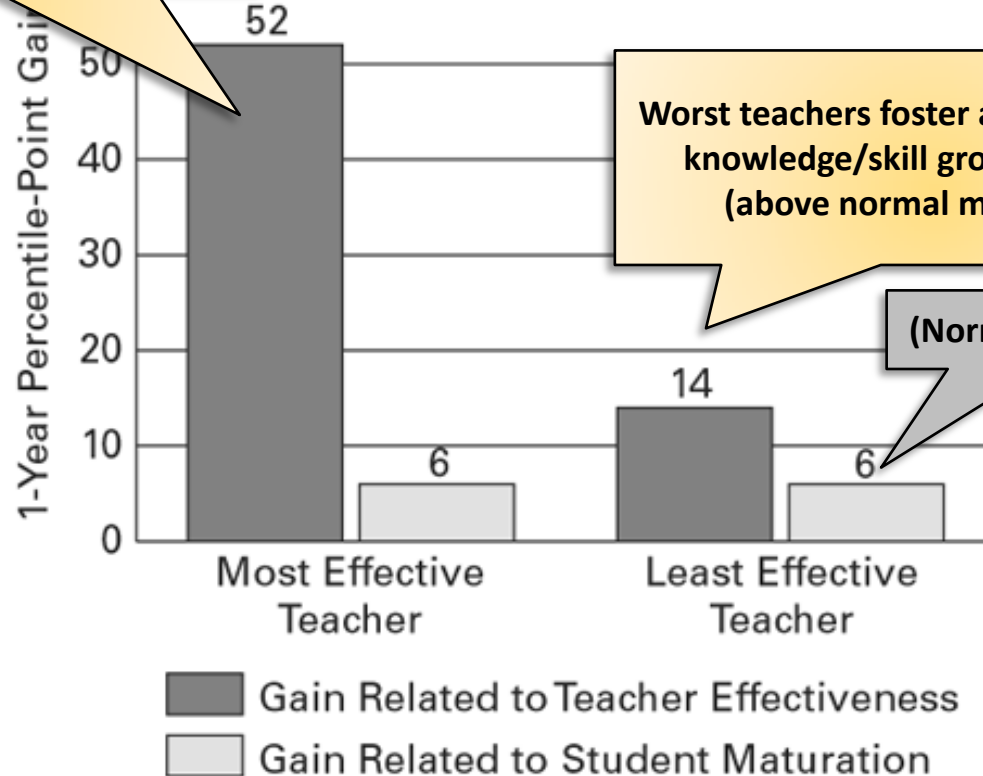
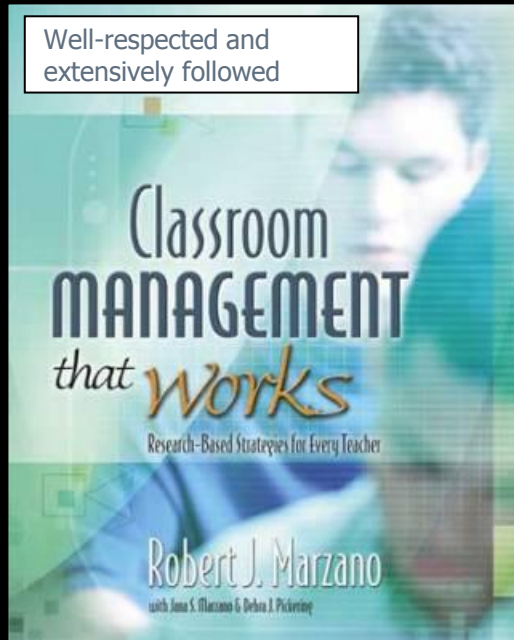
The most important factor affecting student learning is the teacher  
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Top teachers (at 84th percentile) will increase student earnings by \$20K across a lifetime

Best teachers foster  $\approx 6\text{X}$  more knowledge/skill growth per year vs. worst teachers

Best teachers foster 46% points knowledge/skill growth per year

Well-respected and extensively followed



Worst teachers foster about 8% points knowledge/skill growth per year (above normal maturation)

(Normal maturation)



(Berliner & Tikunoff, 1976; Schalock, 1979; Walberg & Waxman, 1983). Successful teachers tend to be those who are able to use a range of teaching strategies and who use a range of interaction styles, rather than a single, rigid approach (Hamachek, 1969). This finding is consistent with other research on effective teaching, which suggests that effective teachers adjust their teaching to fit the needs of different students and the demands of different instructional goals, topics, and methods (Doyle, 1985).

In addition to the ability to create and adapt instructional strategies, strong research support has linked student learning to variables such as teacher clarity, enthusiasm, task-oriented behavior, variability of lesson approaches, and student opportunity to learn criterion material. Teachers' abilities to structure material, ask higher order questions, use student ideas, and probe student comments have also been found to be important variables in what students learn (Rosenshine & Furst, 1973; Darling-Hammond, Wise, & Pease, 1983; Good & Brophy, 1986). No single instructional strategy has been found to be unvaryingly successful; instead, teachers who are able to use a broad repertoire of approaches skillfully (e.g., direct and indirect instruction, experience-based and skill-based approaches, lecture and small group work) are typically most successful. The use of different strategies occurs in the context of "active teaching" that is purposeful and diagnostic rather than random or laissez faire and that responds to students' needs as well as curriculum goals (Good, 1983).

Teacher education appears to influence the use of these practices. Teachers who have had formal preparation have been found to be better able to use teaching strategies that respond to students' needs and learning styles and that encourage higher order learning (Perkes, 1967-68; Hansen, 1988; Skipper & Quantz, 1987). Doyle (1986) hypothesizes that since the novel tasks required for problem-solving are more difficult to manage than the routine tasks associated with rote learning, lack of knowledge about how to manage an active, inquiry-oriented classroom can lead teachers to turn to passive tactics that "dumb down" the curriculum (see also Carter & Doyle, 1987), busying students with workbooks rather than complex tasks that require more skill to orchestrate (Cooper & Sherk, 1989).

...t learning is the teacher  
...y raises scores by ≈8-9%  
...y \$20K across a lifetime  
...r year vs. worst teachers

## Teacher Quality and Student Achievement: A Review of State Policy Evidence

by  
Linda Darling-Hammond  
Stanford University

December 1999  
(Document R-99-1)

Center for the Study of Teaching and Policy  
UNIVERSITY OF WASHINGTON

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Best teachers foster  $\approx 6\text{X}$  more knowledge/skill growth per year vs. worst teachers

Quality = Pedagogical (andragogical) knowledge and skills

Training in educational skill =  $4\text{Xs}$  more meaningful than subject-matter expertise

Studies have found a somewhat stronger and more consistently positive influence of education coursework on teachers' effectiveness. Ashton and Crocker (1987) found significant positive relationships between education coursework and teacher performance in 4 of 7 studies they reviewed—a larger share than those showing subject matter relationships. Evertson, Hawley, and Zlotnik (1985) reported a consistent positive effect of teachers' formal education training on supervisory ratings and student learning, with 11 of 13 studies showing greater effectiveness for fully prepared and certified vs. uncertified or provisionally certified teachers. With respect to subject matter coursework, 5 of 8 studies they reviewed found no relationship, and the other 3 found small associations.

In a study of more than 200 graduates of a single teacher education program, Ferguson and Womack (1993) examined the influences on 13 dimensions of teaching performance of education and subject matter coursework, NTE subject matter test scores, and GPA in the student's major. They found that the amount of education coursework completed by teachers explained more than four times the variance in teacher performance (16.5 percent) than did measures of content knowledge (NTE scores and GPA in the major), which explained less than 4 percent. In a similar study

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teaching it to the particular types of pupils to whom it will be taught. If the teacher is to teach fractions, then it is knowledge of fractions and perhaps of closely associated topics which is of major importance... Similarly, knowledge of teaching strategies relevant to teaching fractions will be important (p. 14).



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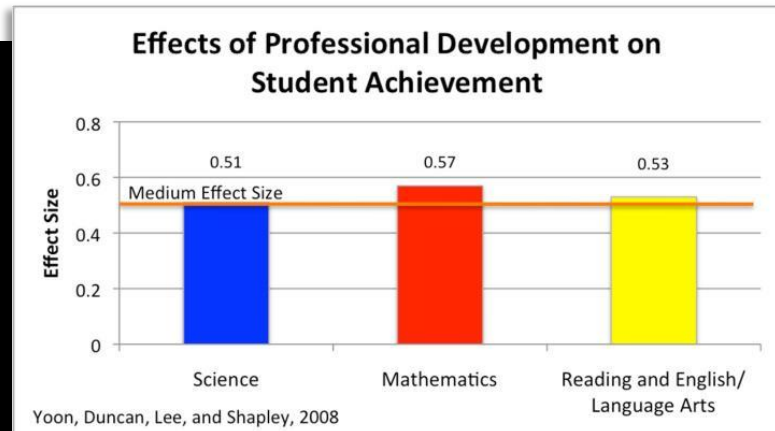
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**Result(s):** The purpose of the paper was to research any empirical links between professional development and student achievement. An average effect size of 0.54 in mathematics, science, and reading and English/language arts was reported. Consistency across the three academic domains suggests that professional development has a moderate effect on student achievement. Achievement increased an average 21% for students whose teachers were provided professional development. Because of the limited number of studies included in the paper, the study results applied only to elementary school students and teachers.

“Achievement increased an **average 21%** for students whose teachers were provided **professional development**”



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per year vs. worst teachers

(logical) knowledge and skills

than subject-matter expertise

impact on student outcomes

## Organizations with a Strong Learning Culture Significantly Outperform their peers...



throughout my career. Bersin is the first one that actually helps me do my job better."

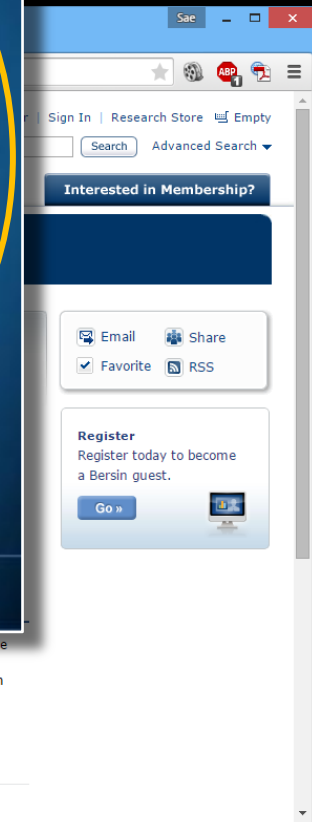
Patricia (Tricia) Rhine  
Leadership & Organizational  
Development Specialist  
Center for Learning  
and Organizational  
Development - People  
St. Joseph Medical Center

The first comprehensive, grounded look at how an organization's collective set of values, conventions, processes and practices that influence and encourage continuous learning are a substantial factor in both short-term business performance and long-term business growth.

[Audio Overview](#)

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[More Info](#)



- ☒ Instructional quality matters
- ☒ Instructional quality can be defined
- ☒ Instructional quality can be developed via training
- ☒ Investments in instructional quality make sense

OK

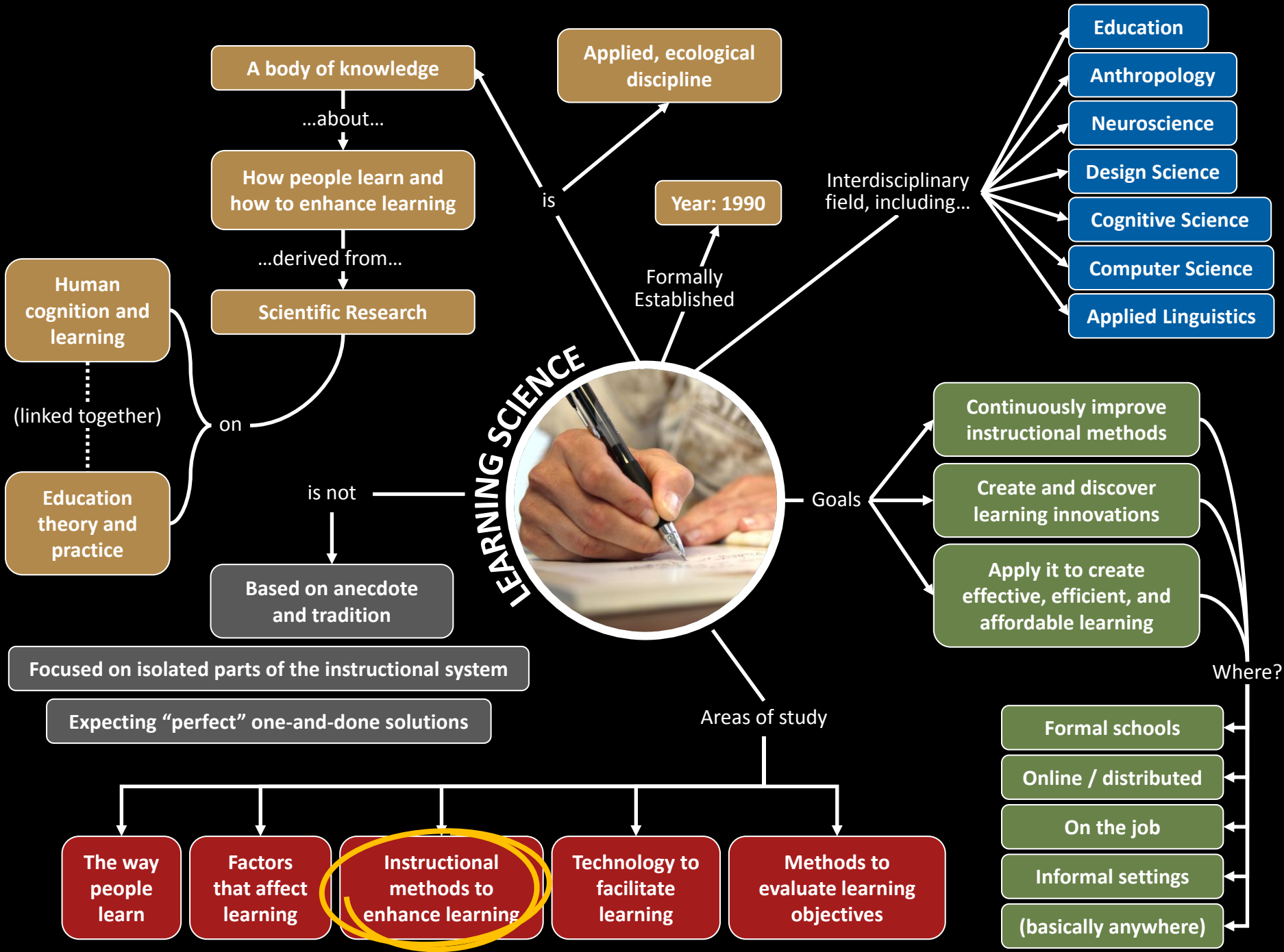
I'm convinced already!

...now what do I do?

A: Use Learning Science



*Learning Science*







# *Practical Tools*

# **INSTRUCTOR KSAs**

What does "Right" look like?

(Berliner & Tikunoff, 1976; Schalock, 1979; Walberg & Waxman, 1983). Successful teachers tend to be those who are able to use a range of teaching strategies and who use a range of interaction styles, rather than a single, rigid approach (Hamachek, 1969). This finding is consistent with other research on effective teaching, which suggests that effective teachers adjust their teaching to fit the needs of different students and the demands of different instructional goals, topics, and methods (Doyle, 1985).

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Darling-Hammond (1999). *Teacher quality and student achievement: A review of state policy evidence.*

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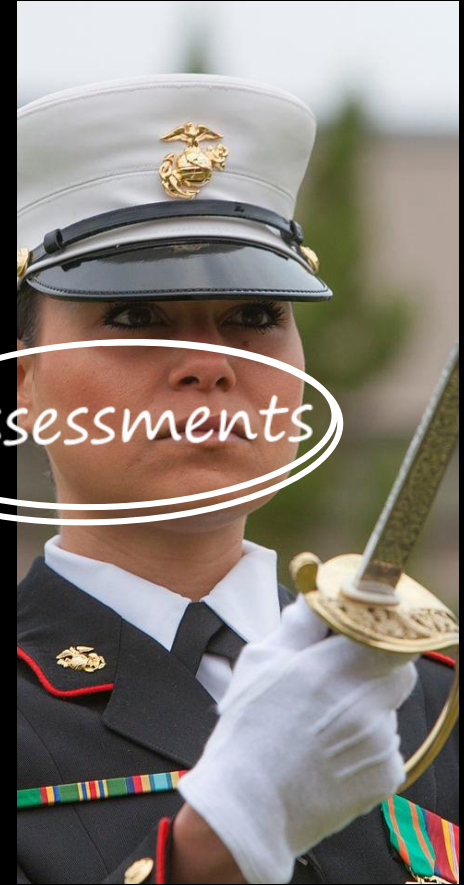
Leadership

Communication

Expert  
Technique

Character





Strategies

Assessments

Tactics

Leadership

Communication

Expert  
Technique

Character





# INSTRUCTIONAL STRATEGY

# Strategies

VS

# Tactics

Gagné's 9 Events of Instruction

Master Learning

Sequencing of Tactics

Types of Desired Thinking

Demonstration ✗

Case Study ✗

✗ Lecture

**Instructional strategies** involve meta-level prior planning, and **instructional tactics** refer to the individual learning activities that take place during the instructional process.

sequencing models

9 Events of Instruction  
Elements of Lesson Design  
Direct Instruction Model

affective • cognitive • psychomotor  
learning taxonomies

OBJECTIVES

action learning  
Cognitive Load Theory  
SOCIAL LEARNING  
CONSTRUCTIVISM

Scaffolding  
Behaviorism  
CONTROL THEORY

Many different  
strategies and  
paradigms

Competencies  
Learning Theories

# INSTRUCTIONAL STRATEGY

ARCS Model of Motivational Design

Instructional  
Media

delivery technologies

blended learning

ADAPTIVE LEARNING  
Learning Components

MOTIVATION THEORIES

Instructional Design Models

MASTERY LEARNING

Guaranteed Learning Model

ISD First Principles of Instruction  
SPACED LEARNING

Pedagogy  
vs. Andragogy

conditions of learning

**S**

**Situation** – Overview of the learners and learning context

**M**

**Mission** – Goals for the learning activity; its desired end-state

**E**

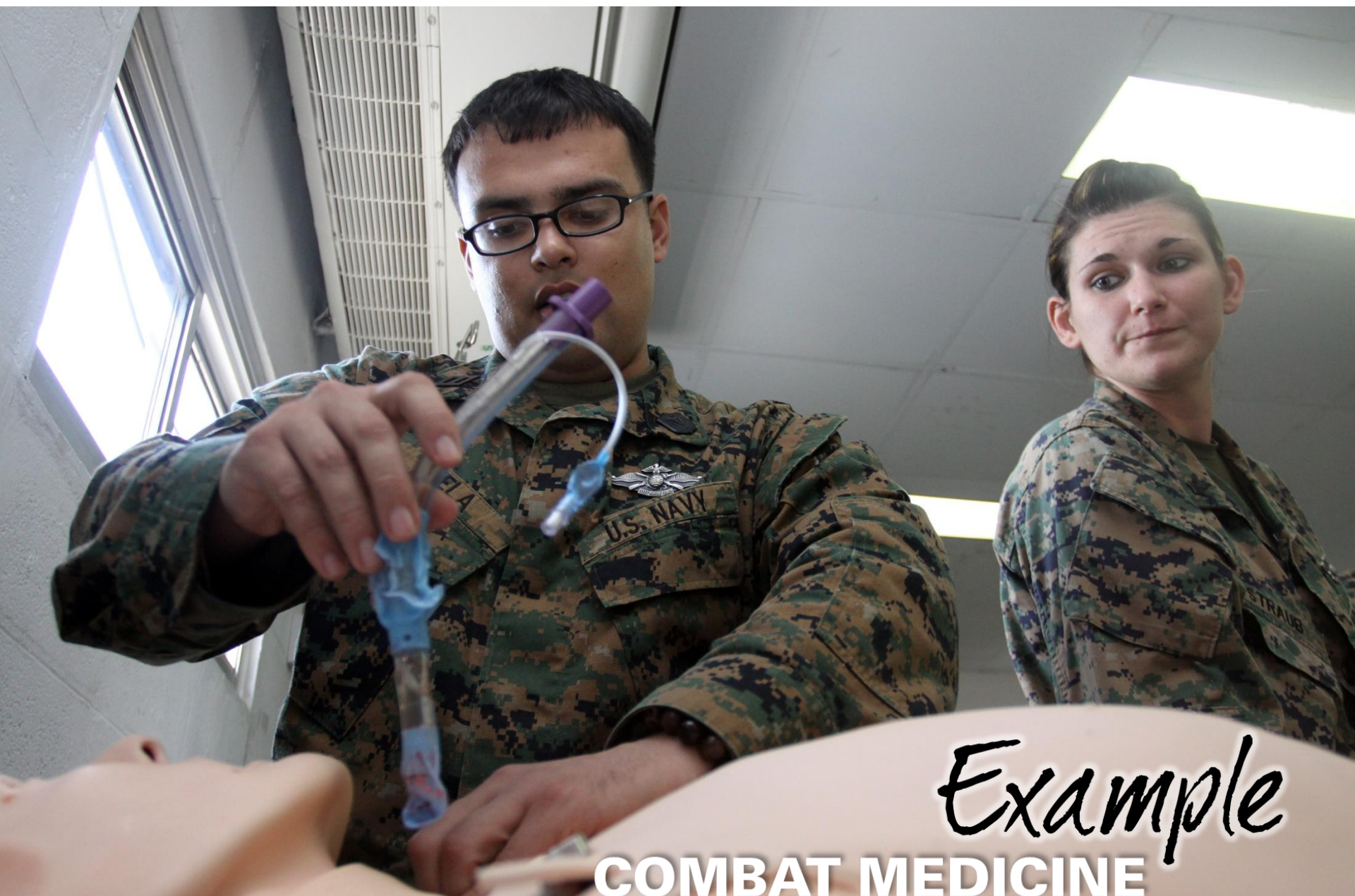
**Execution** – Instructional plan of action, e.g. sequencing, tactics

**A**

**Administration** – Resources and administrivia

**C**

**Command** – How will you monitor instructional effectiveness?



*Example*

**COMBAT MEDICINE**





## SITUATION: LEARNERS & LEARNING CONTEXT

- Group size
- Attitudes and motivations
- Jobs and duties
- Prior knowledge
- Experience levels
- Technology familiarity

M

E

A

C

*31 Novice Corpsman  
High School knowledge  
Minimal XP in medicine  
Average XP w/online learning  
No XP with mannequins*

S

M

E

A

C

## MISSION: COURSE PURPOSE AND MILESTONES

- Course objectives
- Ultimate endstate
- Endstate rationale
- Course strategy
- Course milestones

*Introduction to Combat Medicine*  
TLOs =

- Patient assessment
- Airways and CPR
- Splinting and spinal stabilization
- Pressure dressings

*Certified in Tactical  
Combat Casualty Care (TCCC)*

S

## EXECUTION: PLAN OF ACTION

- Lesson endstates
- Instructional tactics

M

- Potential pitfalls and contingencies
- Plans for adaptation

E

- Sequence
- Assessments

*(Define daily lesson goals)*

*(ELOs / interim learning outcomes)*

*(Specific tactics)*

*(Specific assessments)*

*(Overall CONOPS)*

A

C

S

## ADMINISTRATION: LOGISTICAL DETAILS

- Logistics
  - Time constraints
- M
- Facilities
  - Resources
  - Technologies
- E

A

C

*3 days x 10 hrs*

*Face to face, on site*

*Mannequins available*

*Supplies Budget = \$200/student*

*Computer lab available*



S

## COMMAND: MONITORING YOUR INSTRUCTION

- Monitoring your design and delivery
- Gauge effectiveness

M

- Peer review
- Self-improvement

E

- Improvement areas

A



*Plan to work on new ethics content  
Will keep a short daily journal  
Gauge outcomes with surveys  
Will ask [peer] to visit and give feedback*



# INSTRUCTIONAL TACTICS

*Examples of instructional tactics?*

# Examples

Action Learning Projects

Assigned Questions

Card Sorting

Case Studies

Compare and Contrast

Concept Maps

Cooperative Learning

Crystal Ball Exercises

Decision-Forcing Cases

Demonstrations

Drill and Practice

Ethical Decision Games

Experiments

Field Research

Fishbowl Discussions

Guided Discussions

Interviews

Jigsaw Groups

Journal Writing

Lecture

Metacognitive Prompts

Mindfulness Exercises

Model Building

Problem-Based Learning

Reciprocal Teaching

Role-play Exercises

Sand Table Exercises

Scenario-Based Tasks

Socratic Seminars

Staff Rides

Summarizing

Tactical Decision Games

Tactical Walks

Think Aloud

Visual Imagery

Visualization Exercises

Workbooks/Worksheets

Worked Examples

Writing

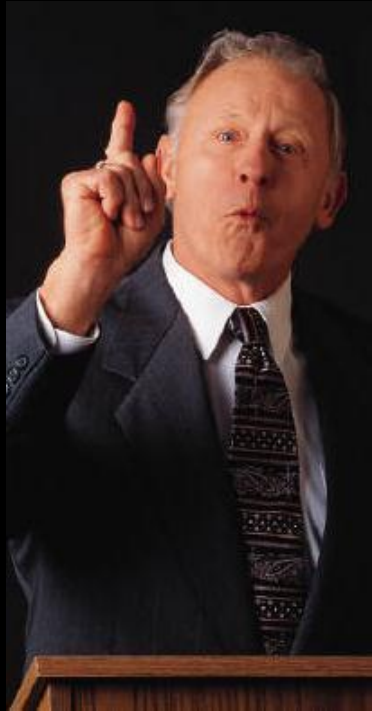
*...and more!*



# INSTRUCTIONAL TACTICS

*Examples of instructional tactics?*





Direct

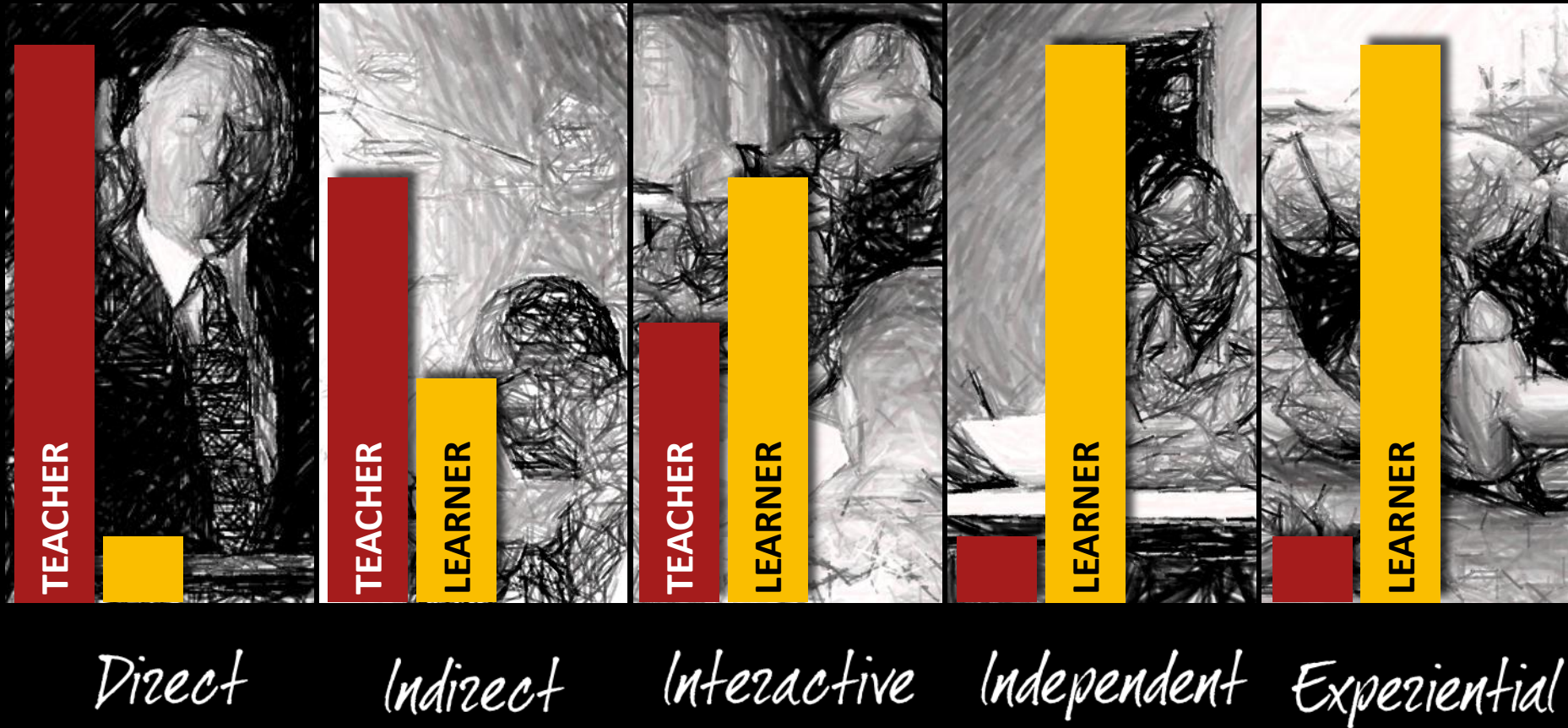
Indirect

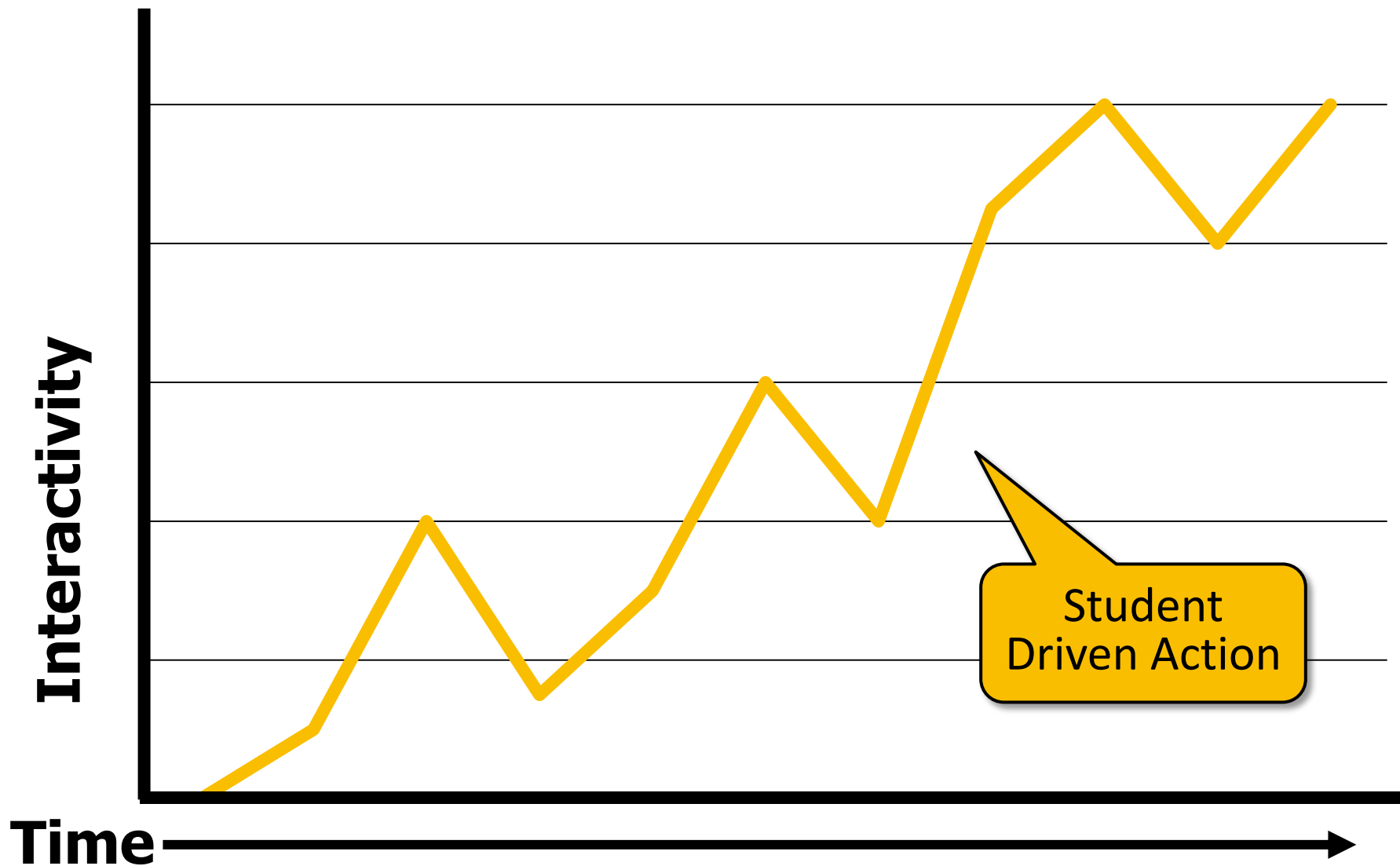
Interactive

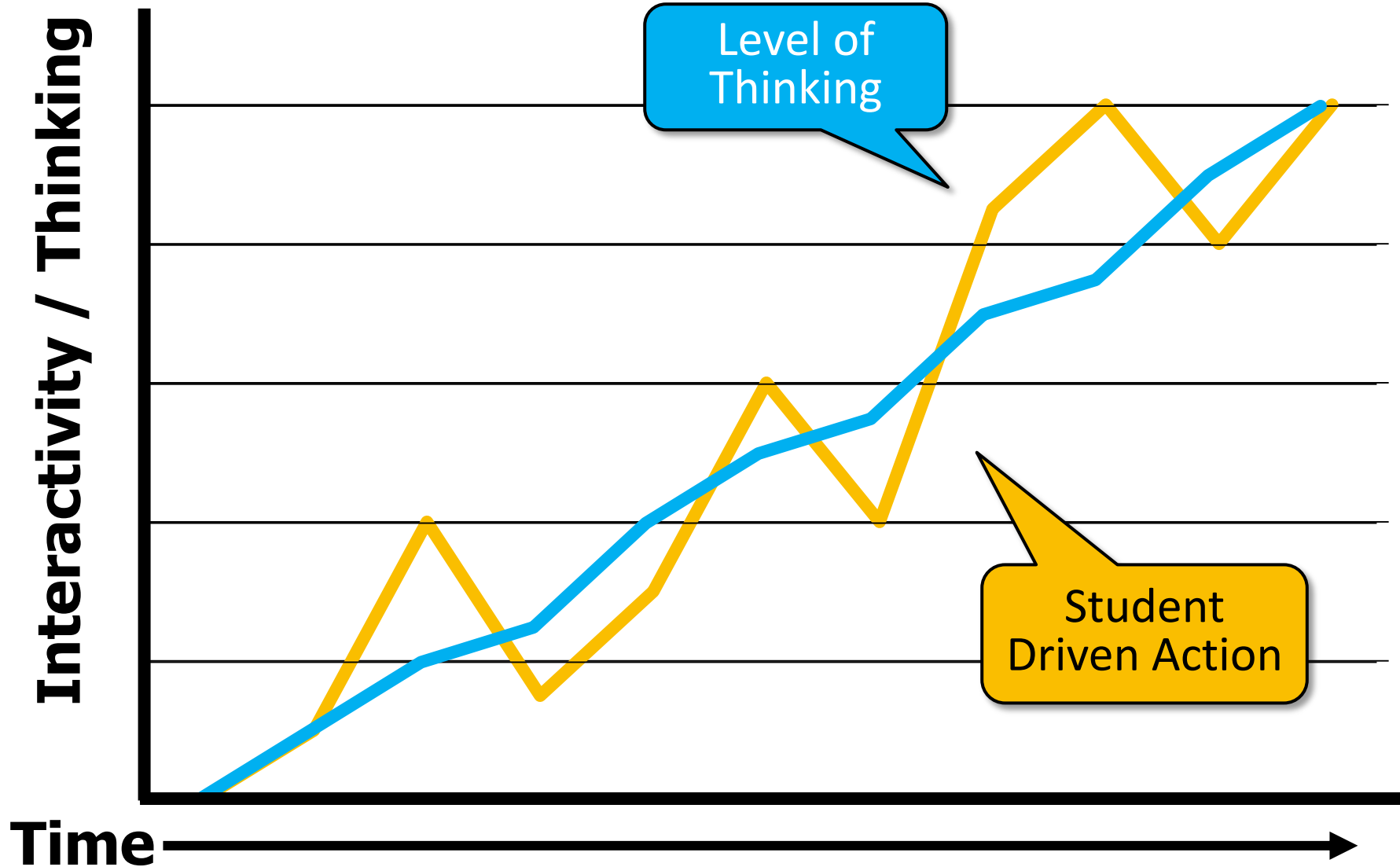
Independent

Experiential

# INSTRUCTIONAL TACTICS









# Examples

BACON

Meat

Yummy

Brussels sprouts

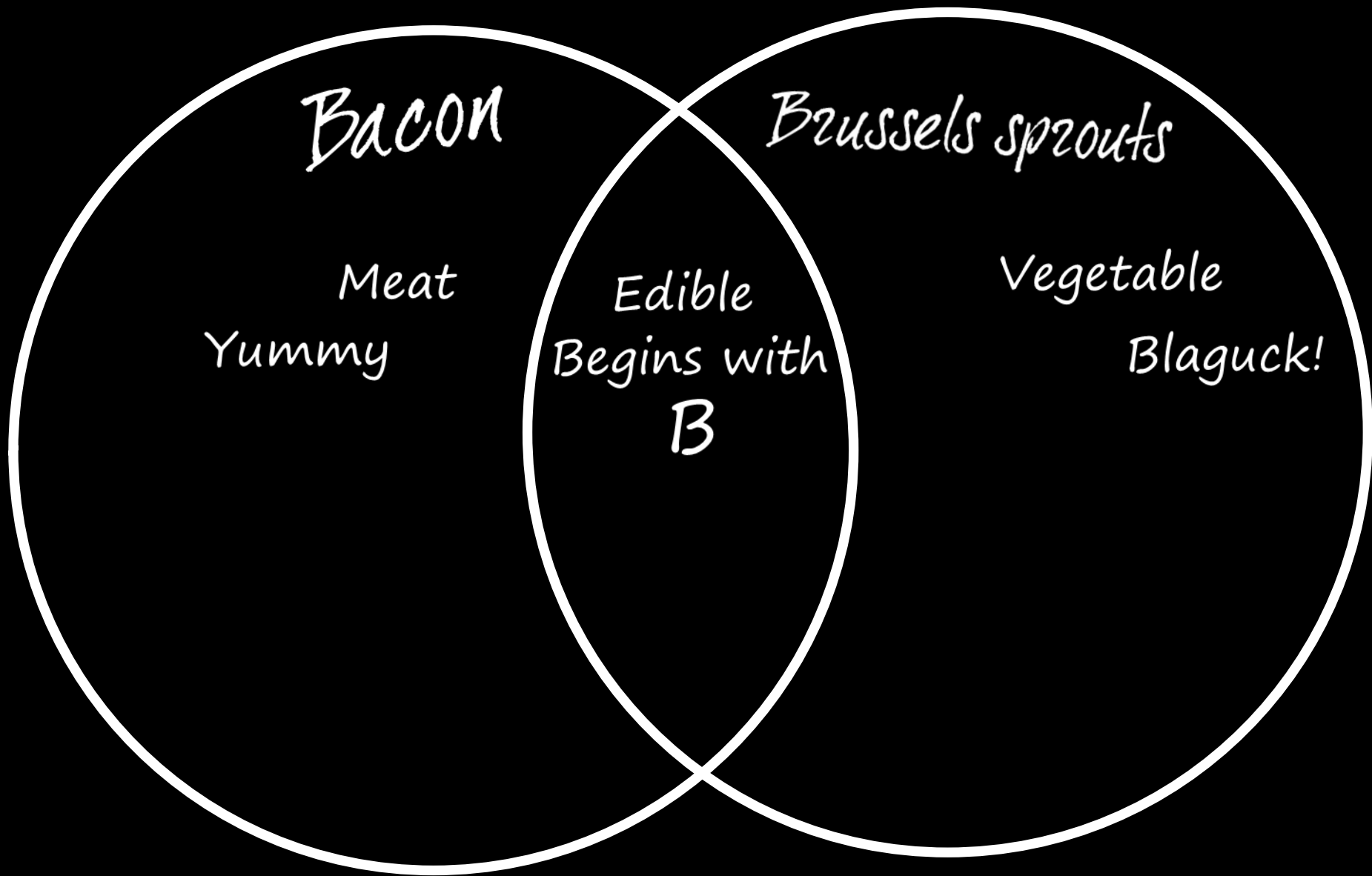
Edible

Begins with

B

Vegetable

Blaguck!



# COMPARE AND CONTRAST

- ☐ Direct Instruction
- ☐ Indirect Instruction
- ☐ Interactive Learning
- ☐ Experiential Learning
- ☐ Independent Study

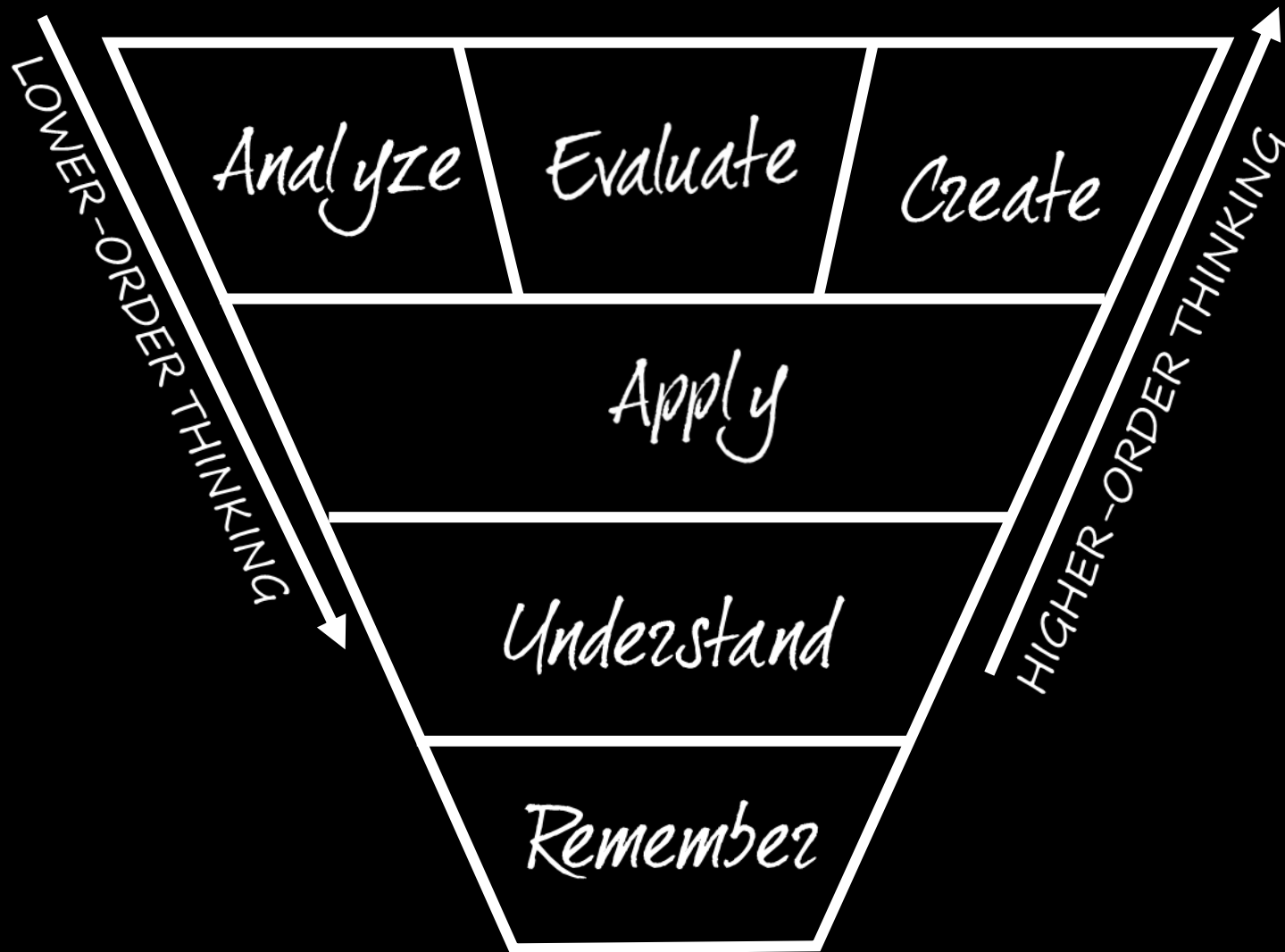
# COMPARE AND CONTRAST



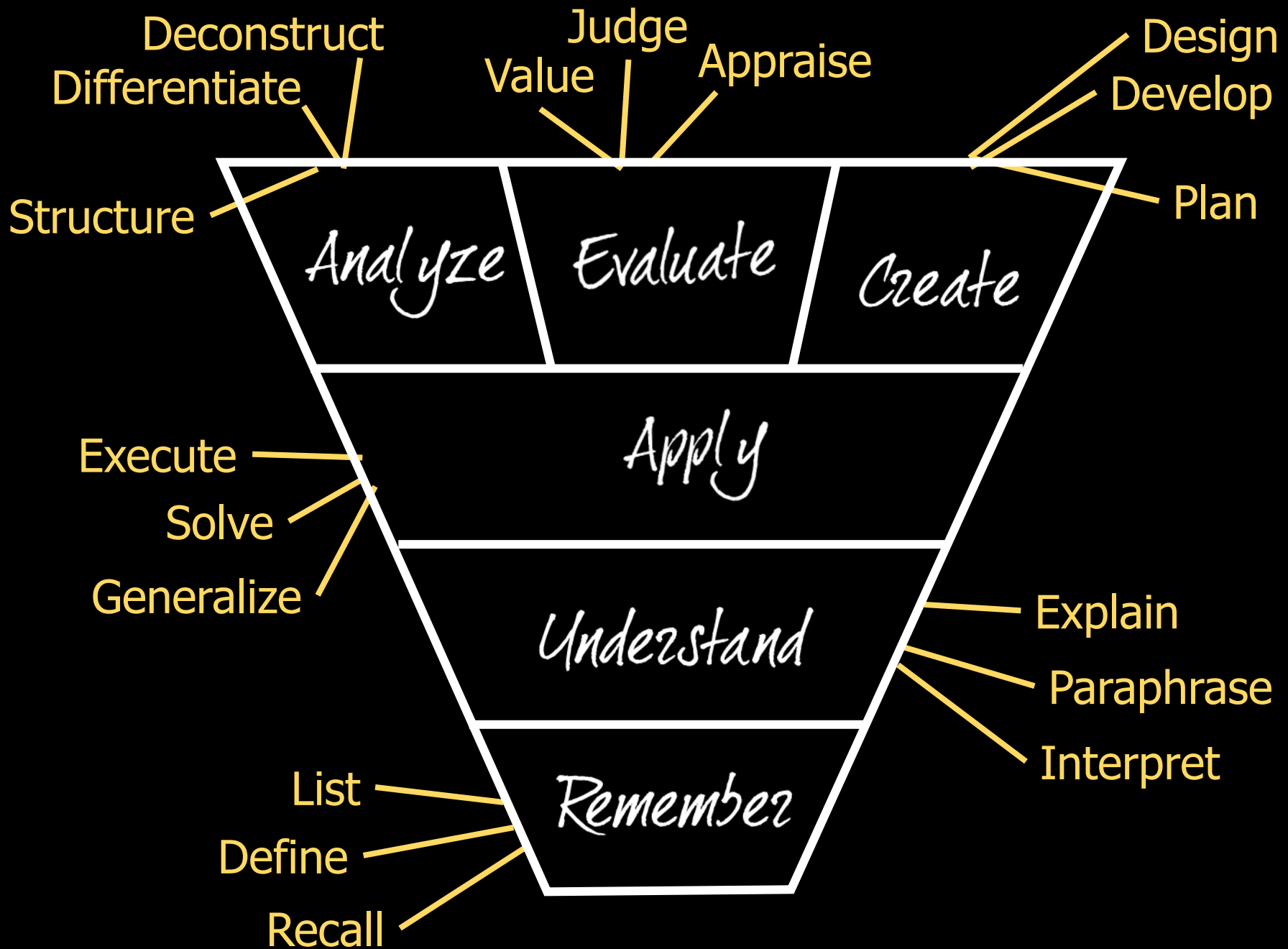
*Direct*

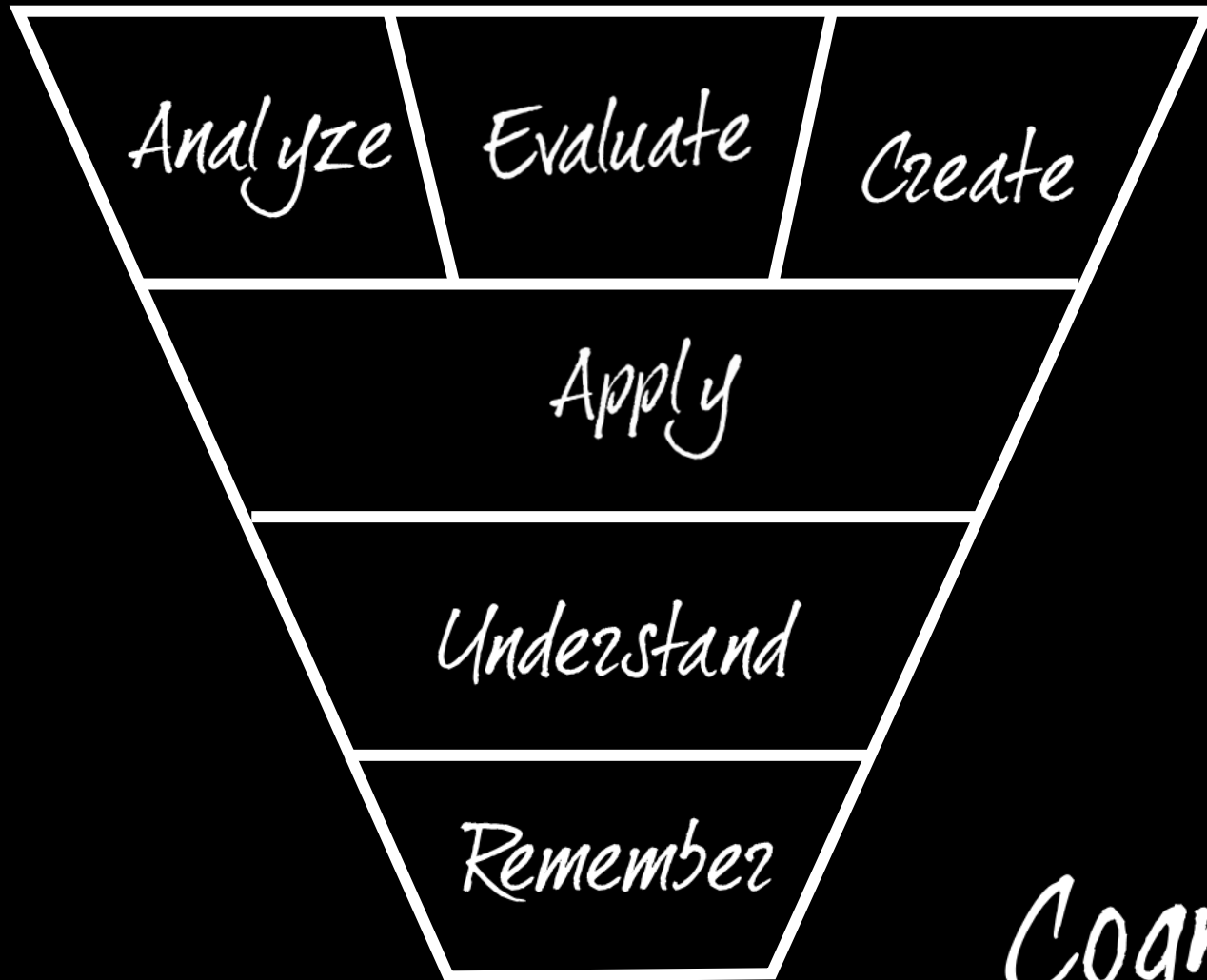


*Interactive*









Cognition

*Characterization*

Becomes a characteristic of someone

*Organizing*

Internalizes into own value set

*Valuing*

Attaches real value

*Responding*

Compliance / Participation

*Receiving*

Basic awareness

Krathwohl et al.'s Affective Taxonomy

*Originating*

Create new movements

*Adapting*

Can adapt to special cases

*Mechanizing*

Habitual responses

*Guided Responding*

Imitation and trial-and-error

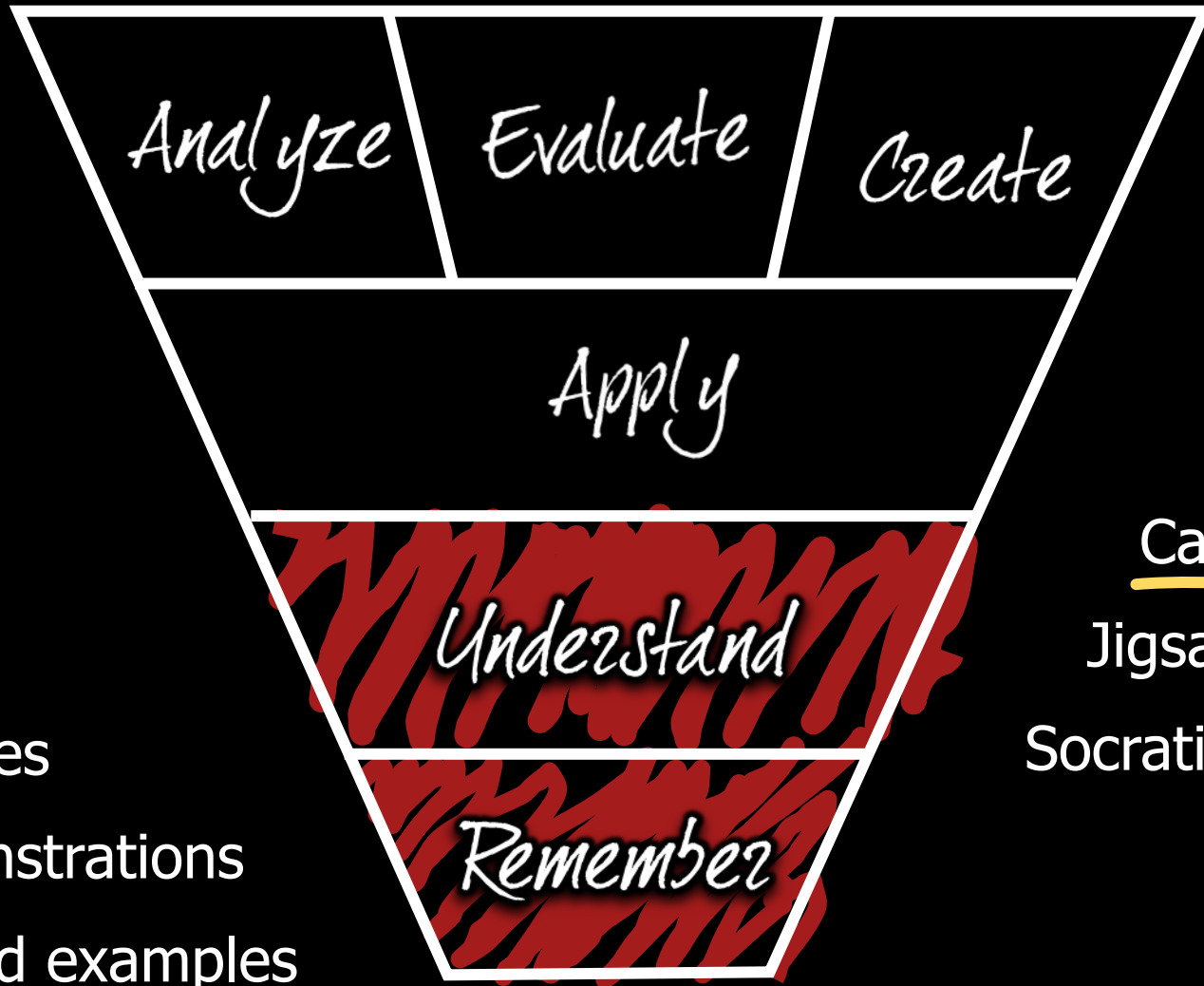
*Setting*

Is ready to act / mindset

*Perceiving*

Senses

Simpson's Psychomotor Taxonomy



Lectures

Demonstrations

Worked examples

Card Sorting

Jigsaw Groups

Socratic Seminar





**ANALYZE**

**UNDERSTAND**

**APPLY**

**CREATE**

**REMEMBER**

**EVALUATE**

Define

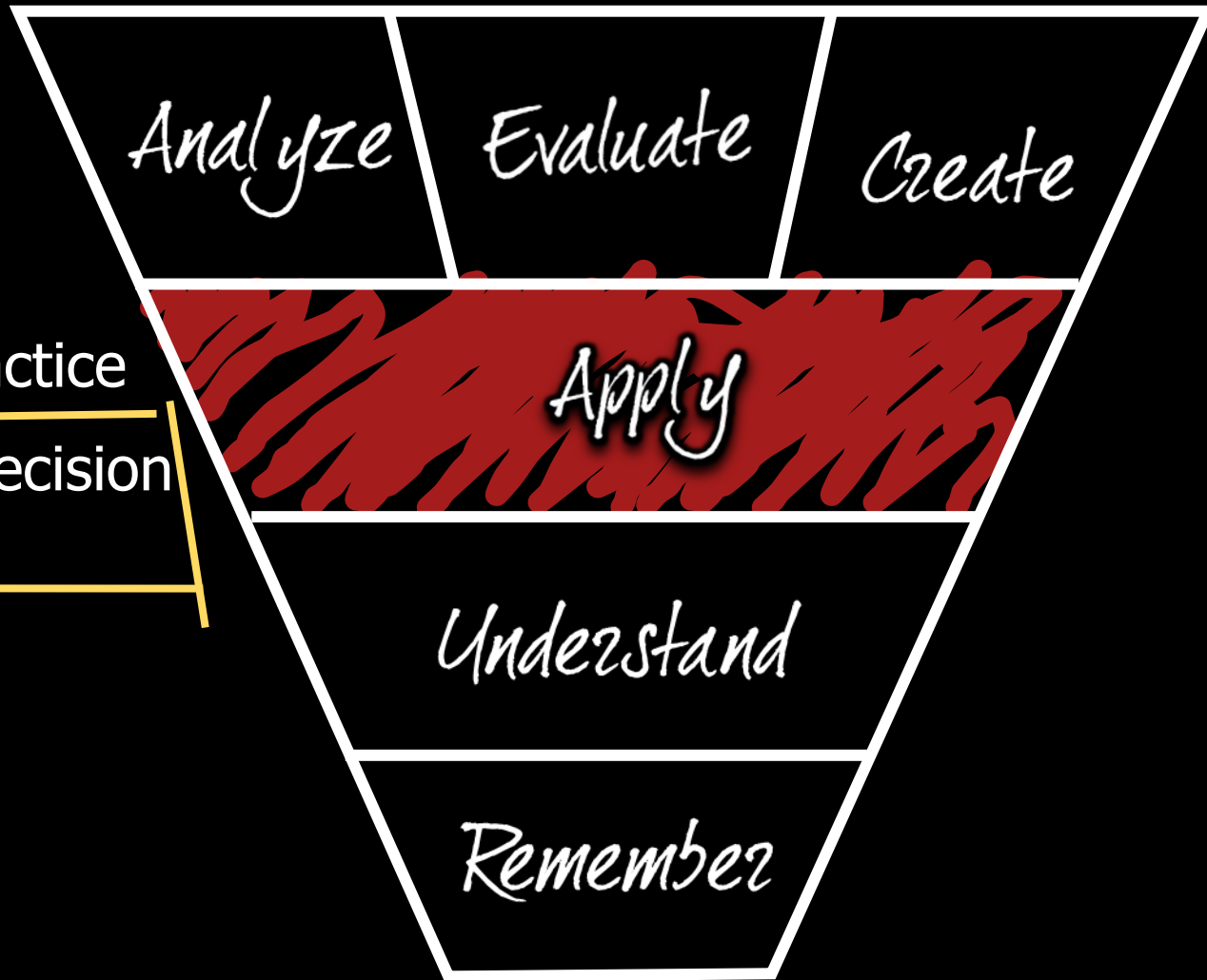
Paraphrase

Criticize

Diagram

Classify

Example



*Analyze*

*Evaluate*

*Create*

*Apply*

*Understand*

*Remember*

*Role-Play*

*Drill & Practice*

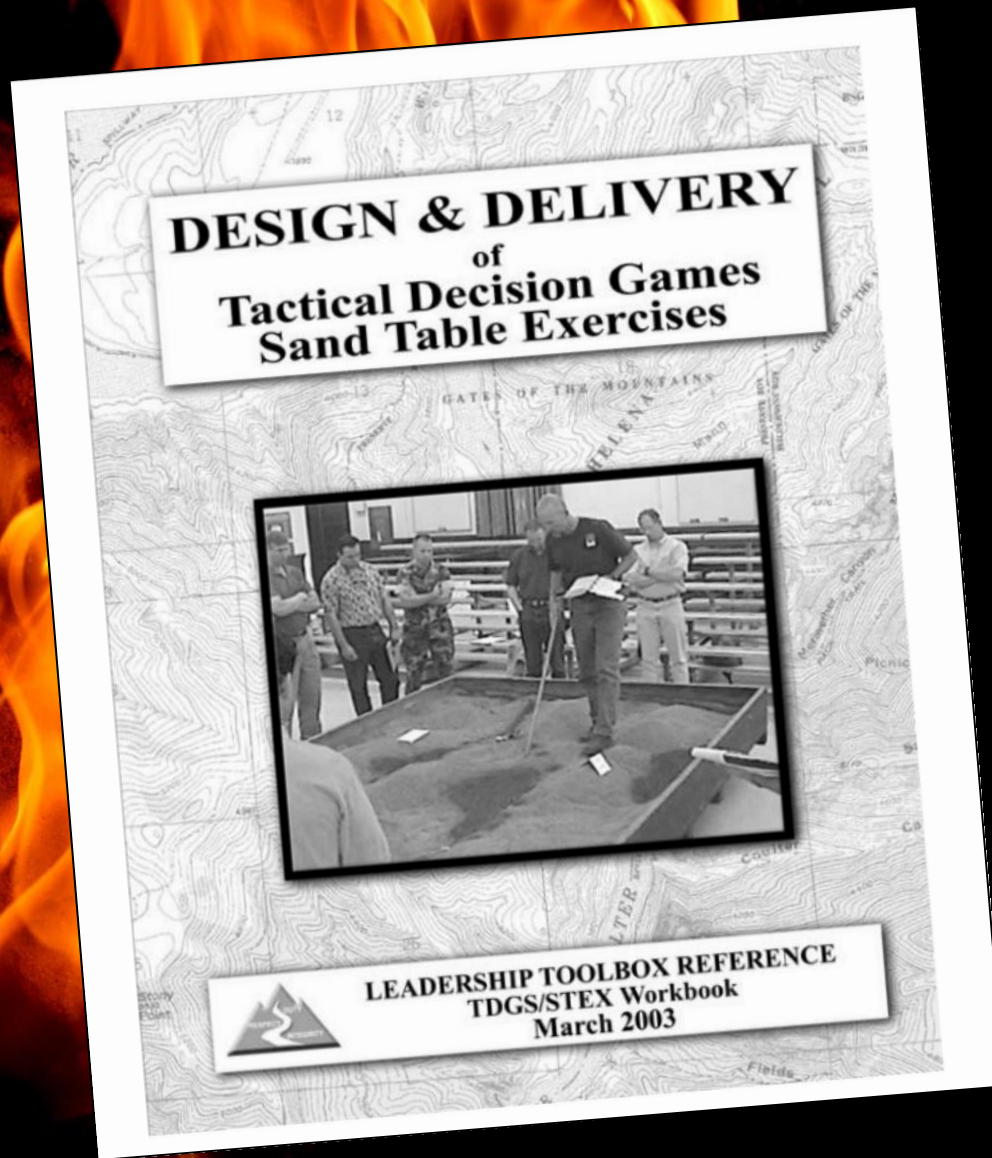
*Tactical Decision  
Game*



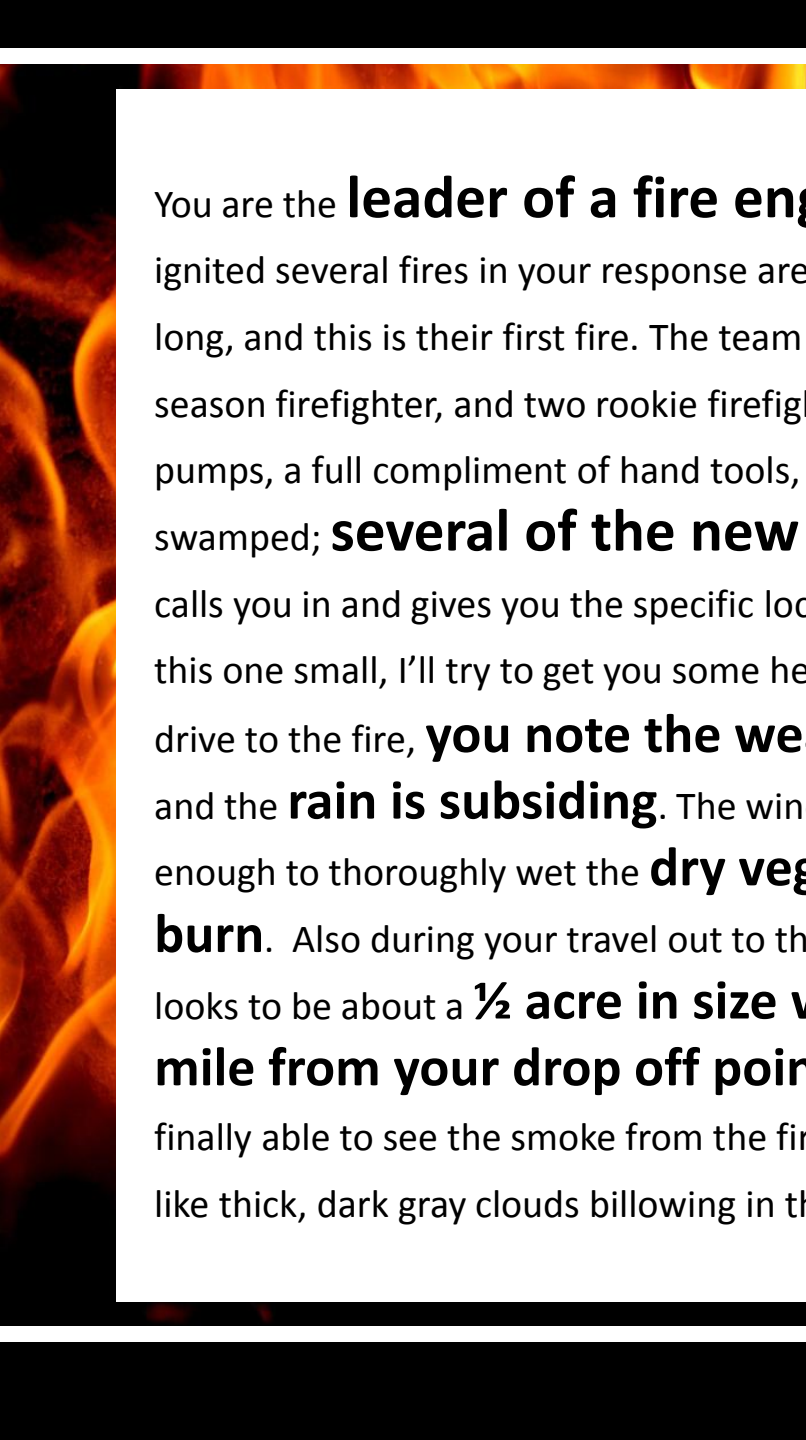


# Example

**Objective:** Given the scenario, the players will practice the decision-making process by deciding how a given fire can be safely approached and then verbally communicate their decision to the appropriate individuals.

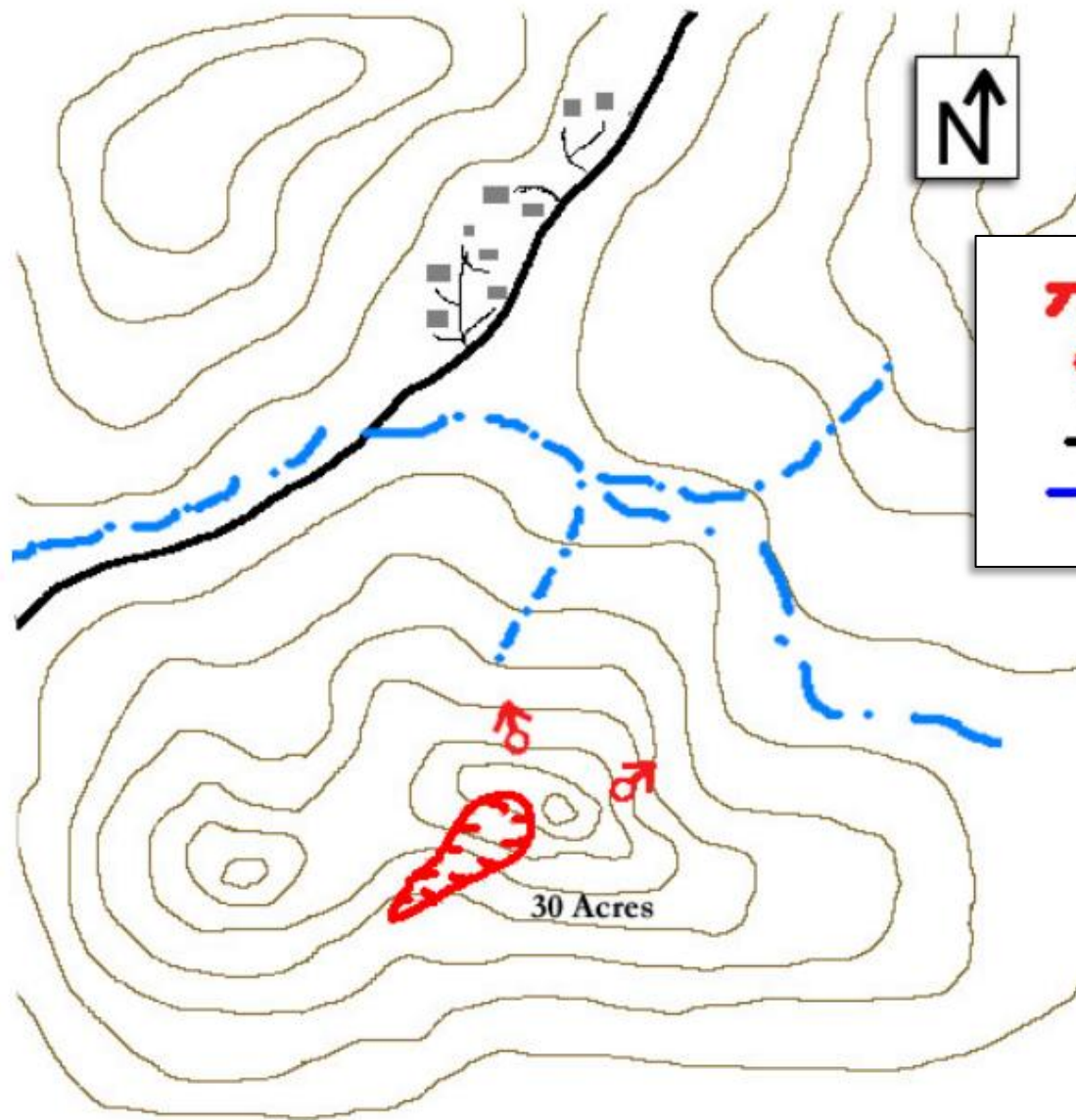




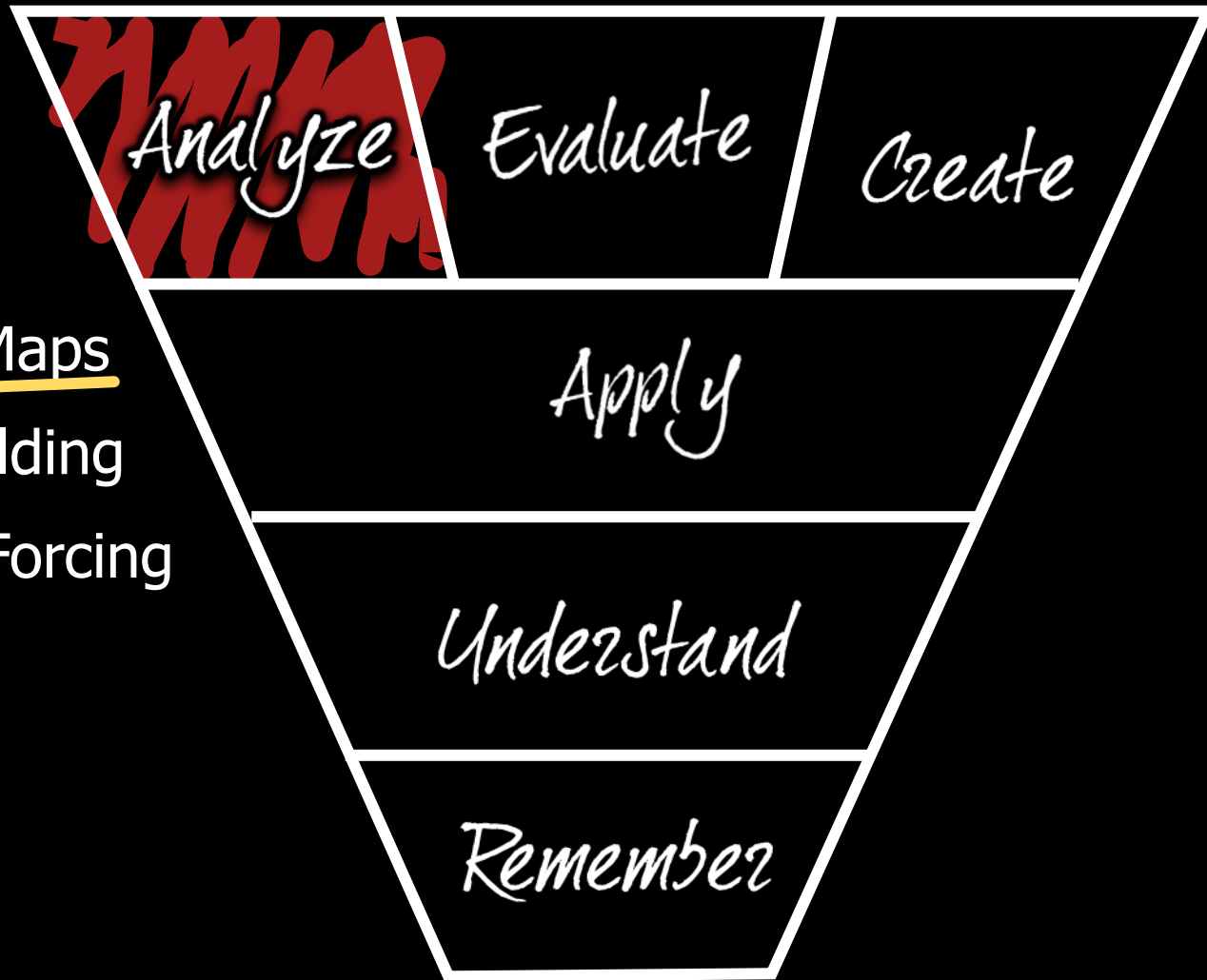


You are the **leader of a fire engine** being ordered for a dry lightning storm that has ignited several fires in your response area. The firefighting team has not worked together for very long, and this is their first fire. The team consists of **four firefighters** – yourself, one second season firefighter, and two rookie firefighters. You are equipped with one chainsaw, two backpack pumps, a full compliment of hand tools, and a two-way radio. The Fire Management Officer is swamped; **several of the new fires appear to be growing larger**. He calls you in and gives you the specific location information for the fire. His instructions are to “Keep this one small, I’ll try to get you some help if you need it, but for now you are on your own.” As you drive to the fire, **you note the weather and fuel conditions**: The storm has passed and the **rain is subsiding**. The wind is blowing from the north at 3 k/hr. The rain wasn’t heavy enough to thoroughly wet the **dry vegetation**, and there is a lot of **swampland to burn**. Also during your travel out to the fire you hear the Aerial Recon tell dispatch that your fire looks to be about a **½ acre in size with some flame showing**. After walking about **½ mile from your drop off point** traveling south through a swamp, you and your team are finally able to see the smoke from the fire, it is below you and to your right. The smoke column looks like thick, dark gray clouds billowing in the wind. The time is 10:00, what instructions will you give?





-  Fire Perimeter
-  Spot Fire
-  Structure
-  Road
-  Wet Drainage

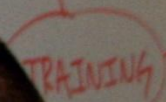
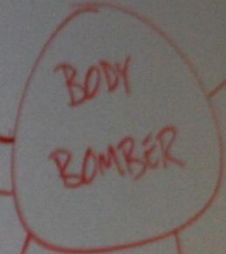


Concept Maps

Model Building

Decision-Forcing  
Cases

- Supply - Components - Bomb maker - Funding - Training
- Finances - Backed by like minded personnel
- Transportation - Logistics -
- Ideology - Religious - Revenge - Honor - Fear - Monetary



MONETARY

REVENGE

SEEKING

PSYCHOLOGICAL

ANXIETY/FEAR

IDEOLOGY

SECURITY  
STEALTH

TACTICAL ADVANTAGE

ELEMENT OF SURPRISE  
WOMEN & CHILDREN ETC.

BOMB MAKER

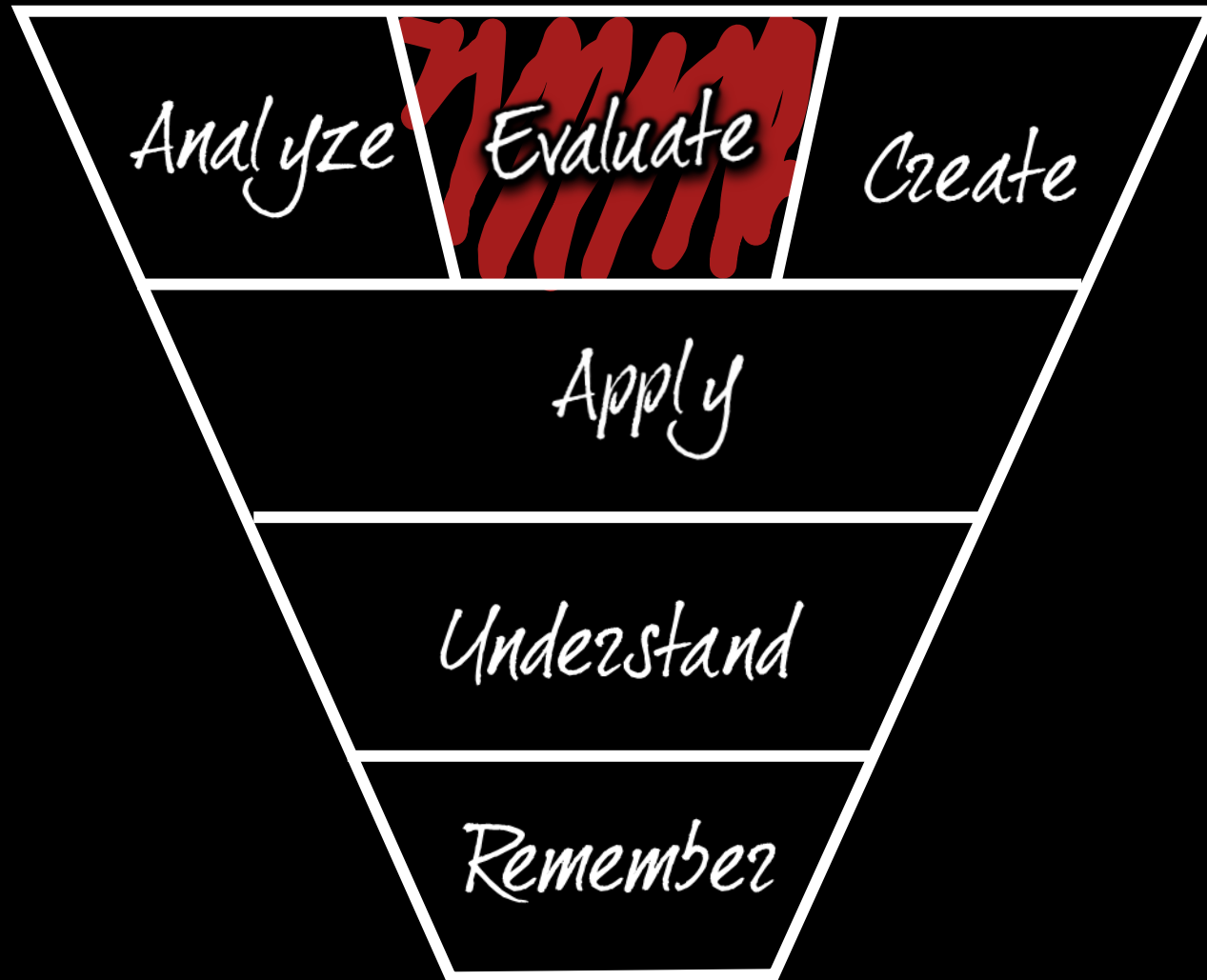
INTERVIEW

Increased Number of Combatants

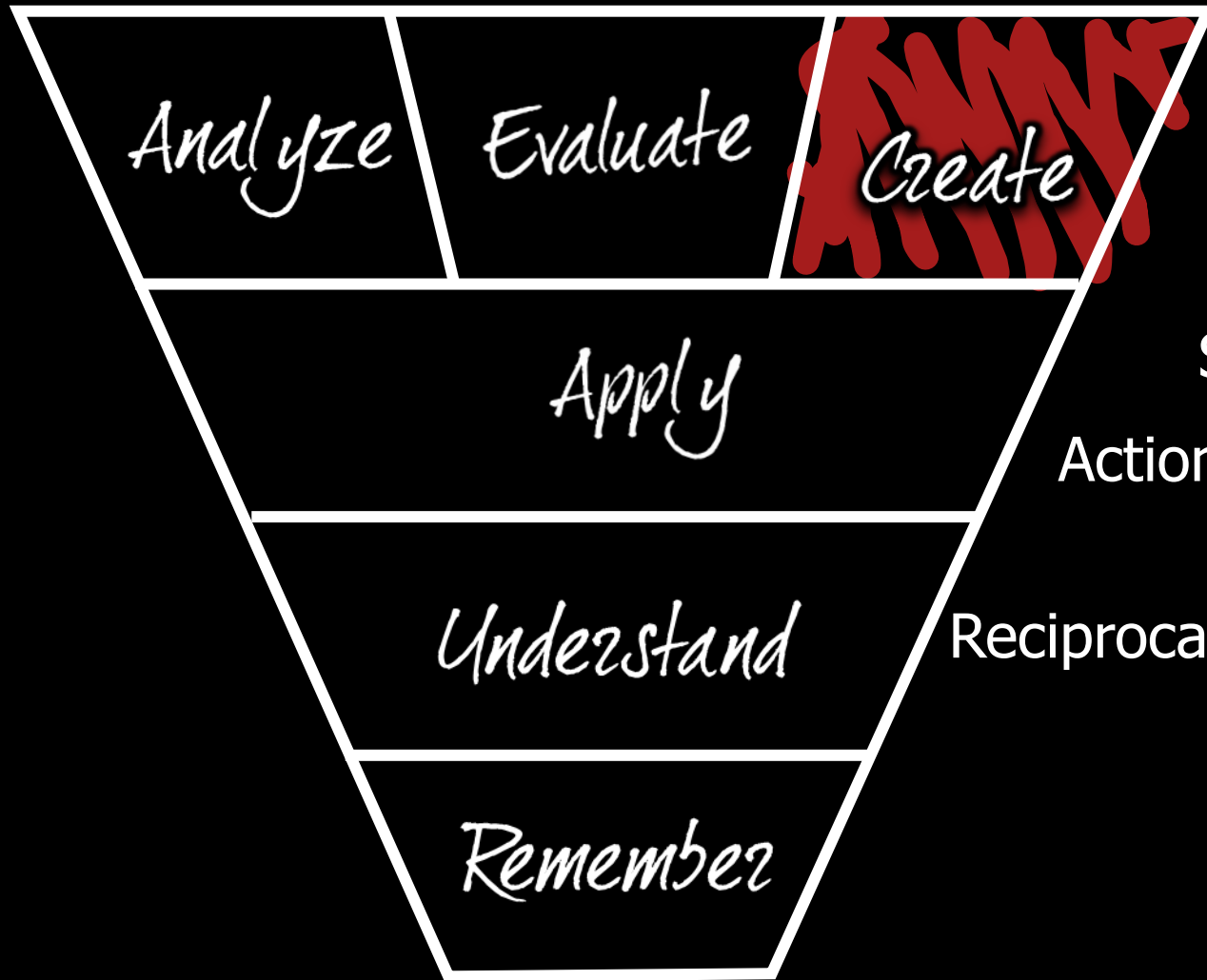
Partin  
sons



# Staff Ride – Journal Writing – Case Studies







*Analyze*

*Evaluate*

*Create*

*Apply*

*Understand*

*Remember*

*Full-Task  
Simulation*

*Action-Learning  
Project*

*Reciprocal Teaching*



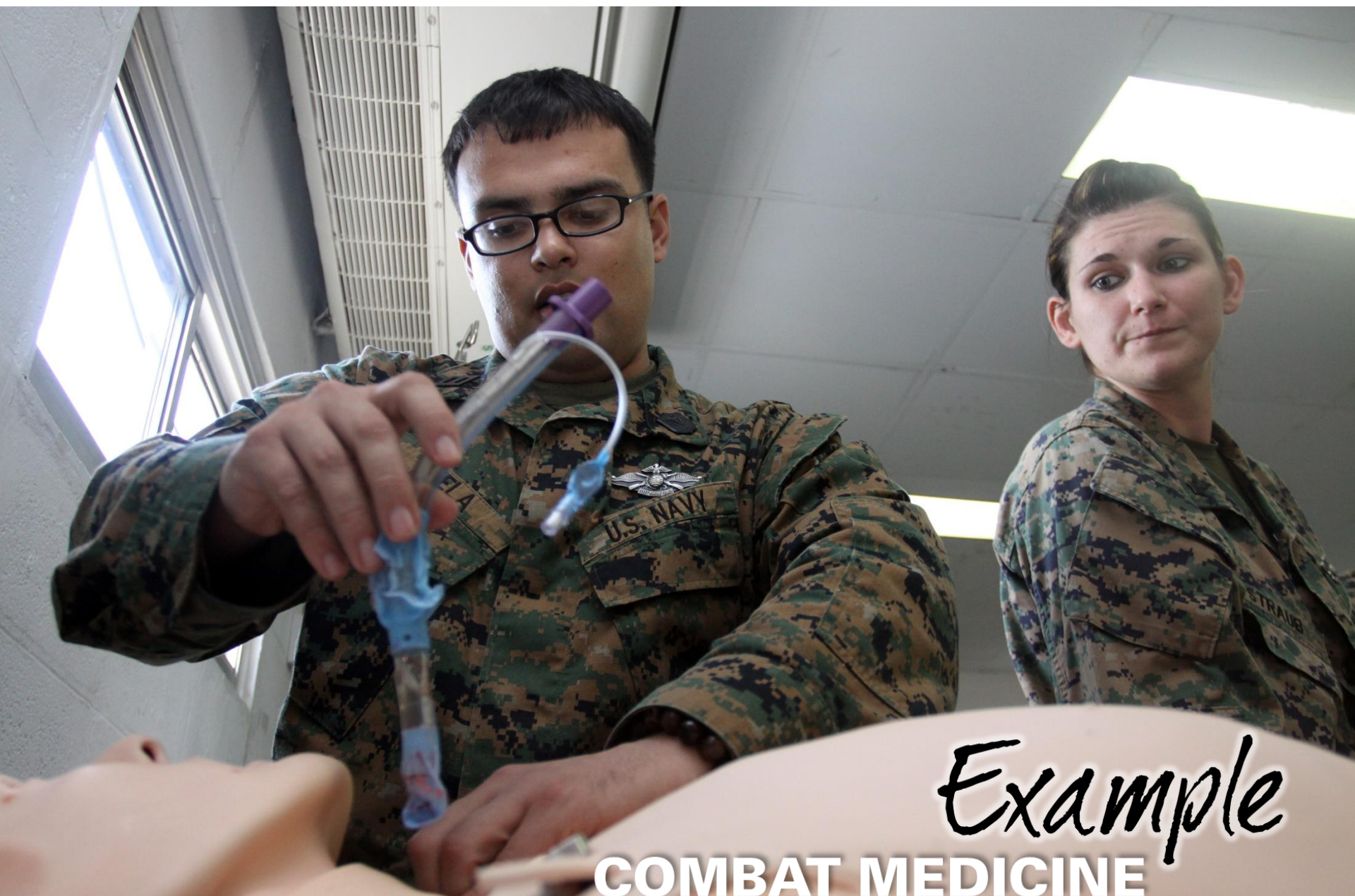
# INSTRUCTIONAL TACTICS

☐ *Don't wing it!!*

☐ Incorporate variety

☐ Gradually increase complexity

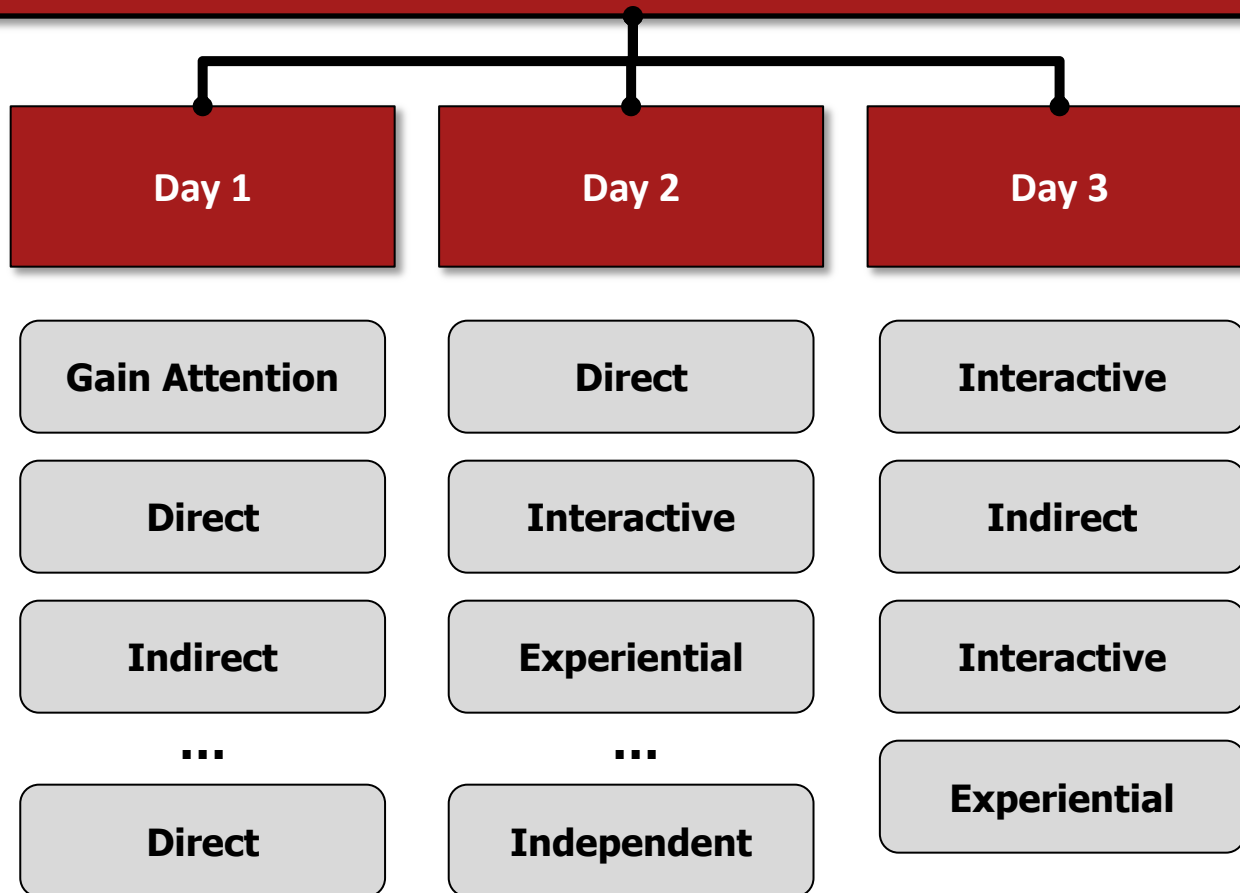
☐ Tailor interventions to your learners



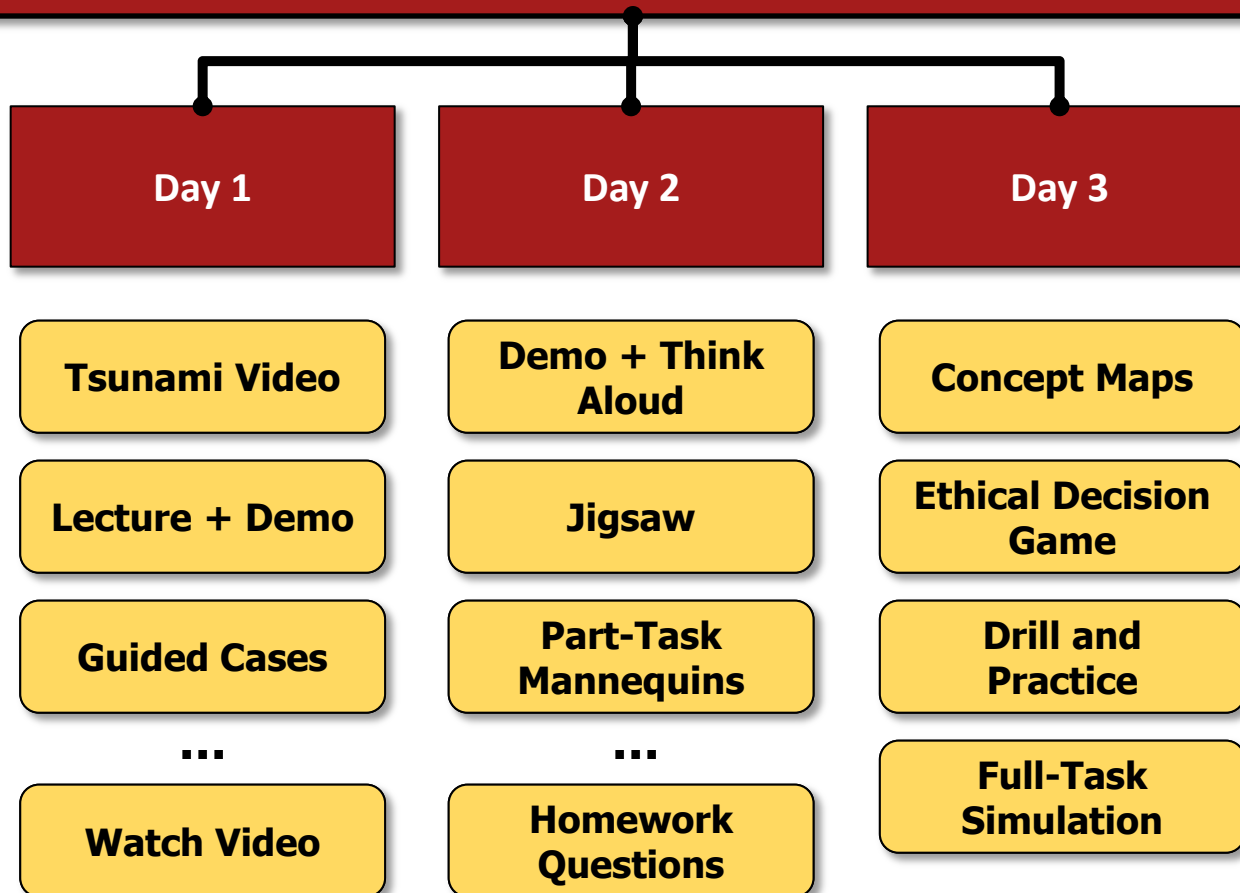
*Example*

**COMBAT MEDICINE**

# TCCC



# TCCC



ASSESSMENTS

Why do we use assessments?



# CHECK LEARNING PROGRESS

assign scores or grades *A+*

*Why do we use assessments?*

Make a  
Decision

# Enhance Learning

set a baseline (pre-test)

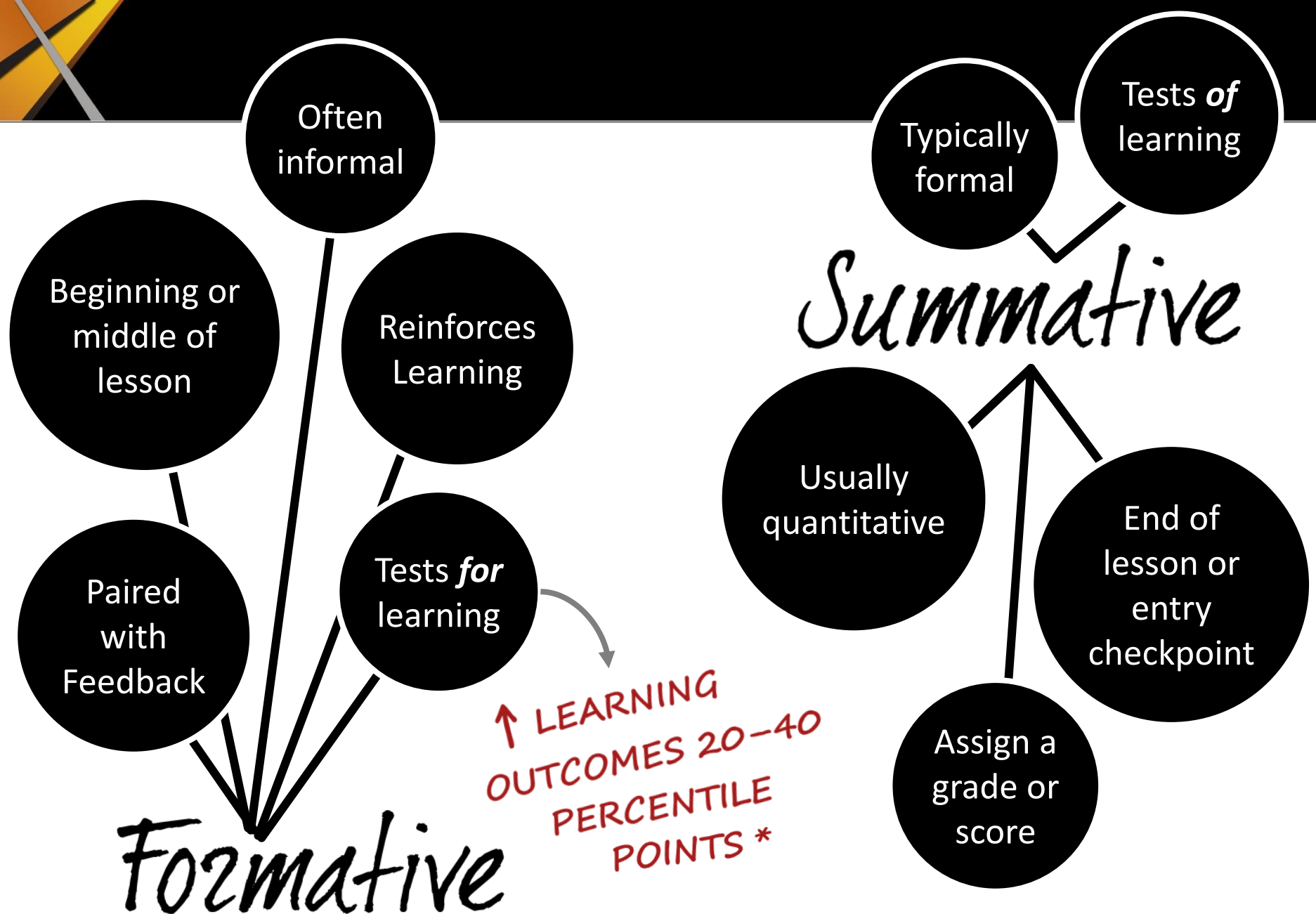
**Check (and Encourage) Compliance**

Establish Context (Pre-Test)

check general outlook

assign scores or grades → *Summative*

*Formative* → Enhance Learning



\* Ainsworth, L., & Viegut, D. (Eds.). (2006). *Common formative assessments*

# Examples

## TYPICAL ASSESSMENTS

**Checklist**

**Direct Observation**

**Multiple Choice Test**

**Survey**

**Direct Questions**

**Task Completion**

## LESS COMMON

**Rubric**

**BARS**

**Card Sorting**

**Concept Maps**

**Metacognitive Prompts**

**Situational Judgment Test**

## INFORMAL CHECKS

**Exit Cards**

**Four Corners**

**One Sentence Summary**

**Paraphrasing**

**Knew / Learned / Question**

**Socratic Seminar**

# Examples

# Rubric

Paper Type (Circle One): CIAO/Op-Art/WFTS/Leadership

Due Date: \_\_\_\_\_

Student Name: \_\_\_\_\_

Conf Grp #: \_\_\_\_\_

Maximum Point Value	Thesis and Evidentiary Support of Thesis		
	55-60 Points (A Level)	48-54 Points (B Level)	43-47 (C Level) Unacceptable
10	Substantial (interesting, creative), clearly stated thesis. Thesis directly links to assignment.	Interesting thesis, but not as clearly stated. Thesis adequately links to the writing assignment.	Weak thesis (obvious); poorly stated thesis. Thesis does not link directly to assignment.
50	Thesis strongly supported by argument and evidence. Supporting evidence is accurate and thorough. Supporting argument reflects appropriate depth of analysis and interpretation of data. Argument reflects appropriate depth of research. Effective conclusion.	Thesis is adequately supported by argument and evidence. Supporting evidence is less thorough. Supporting argument reflects adequate depth of analysis and interpretation of data. Argument reflects adequate depth of research. Conclusion is stated.	Thesis is not adequately supported by argument and evidence. Supporting evidence is inaccurate or weak. Supporting argument reflects inadequate depth of analysis/interpretation of data Argument reflects inadequate research. Conclusion is inconclusive or not stated.
	Organization		
	13-15 Points	12-13 Points	10-12 Points
15	Proper ordering of argument and evidence. Plan outlined and clear to reader. Plan is sustained throughout the paper. Each element of assignment is addressed.	Minor flaw in ordering of argument and evidence. Plan is apparent, but not faithfully sustained throughout the paper.	Random ordering of argument and evidence. No apparent plan.
	Style		
	13-15 Points	12-13 Points	10-12 Points
15	Clear, easy to follow logic. Good transitions between sentences/between sentences and paragraphs. Paragraphs focused on one idea. Precise and appropriate word choice	Logic is evident but more difficult to follow. Some inconsistency in the flow between sentences and paragraphs. Minor problems with word choice.	Not clear, hard to follow. Poor flow or awkward transitions between sentences and paragraphs. Many incorrect/inappropriate word choices.
	Mechanics and Grammar		
	9-10 Points	8-9 Points	7-8 Points
10	Consistently correct sentence structure, grammar, punctuation, spelling, and format.	Occasional errors in sentence structure, grammar, punctuation, spelling, and format.	Frequent errors in sentence structure, grammar, punctuation, spelling, and format.
Total Numeric Score =		Final Letter Grade =	
Instructor's Comments:			

# Examples

# BARS

**Theme 1. Know and Use All Assets Available.** Combat leaders must not lose sight of the synergistic effects of fighting their command as a combined arms team - this includes not only all assets under their command, but also those which higher headquarters might bring to bear to assist them.

1	2	3	4	5
(A) Asks questions about facts of own organic assets.	(A) Identifies how assets can be used in a general sense (e.g., unmanned aerial vehicles (UAVs) can be used for recon), but not how to maximize for	(A) Articulates how specific organic assets can be used to overcome enemy capabilities and accomplish the mission.	(A) Articulates rationale for employing a particular organic asset based on situational factors.	(A) Leverages non-organic assets from larger organization.
(B) States facts about what assets are organic to own unit.	(B) Makes a straight match of organic asset(s) to portion(s) of the mission without regard to prioritization of effort.	(B) Identifies trade-offs, benefits and risk of splitting or reassigning assets.	(B) Makes a statement about the availability and/or value of non-organic assets.	(B) Articulates how non-organic assets can be accessed.
(C) States facts about capabilities of organic assets.	(C) Describes general posture for organic assets to take rather than specific tasks.	(C) Articulates rationale for use of specific assets for particular task or mission (e.g., armored vehicles needed for safety).	(C) Makes statements about own and other units as a team rather than isolated entities.	(C) Assembles assets in an integrated fashion based on rapid assessment of situation.
(D) Gives "templated" answers about how assets will be used/restates mission information.	(D) Questions whether assets (e.g., size of force) are adequate for mission or contingencies.	(D) Describes or makes reference to trade-offs of employing assets or keeping them in reserve.	(D) Makes a statement about the availability and/or importance of non-military assets such as civilians.	(D) Makes a statement about assets in terms of what other units need. [Big Picture]

Phillips, J. K., et al. (2006). *Behaviorally anchored rating scales for the assessment of tactical thinking mental models.*



# Examples

# Card Sorting

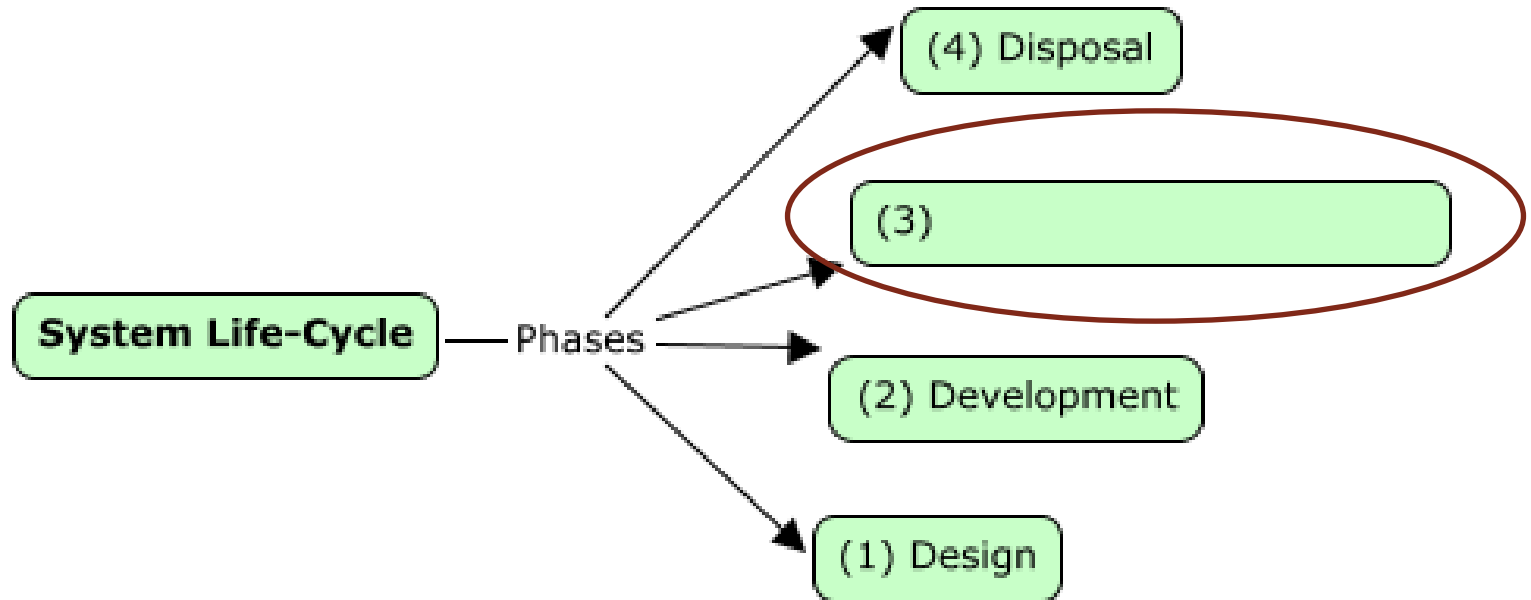
## CARD SORTING ASSESSMENT FOR LOW, ROE, AND EOF

**Directions:** Review the items at the bottom of this page. Determine whether the item is an example of a Law of War (LOW), Rule of Engagement (ROE), or Escalation of Force (EOF) procedure. Write the letter of the item in its appropriate column.

Laws of War	Rules of Engagement	Escalation of Force Procedure

- A – No night or surprise searches
- B – Fire a warning shot
- C – Marines may not fire at enemy unless enemy preparing to fire first
- D – Hostilities must be preceded by a declaration of war
- E – It is unlawful for belligerents to engage in combat without meeting certain requirements
- F – Use visual warnings, such as flags or hand signals
- G – Only women can search women

- H – Orient weapons to the potential threat
- I – prohibited to attack doctors or hospitals displaying the Red Cross or Red Crescent
- J – Use non-lethal devices such as a green laser light
- K – Troops cannot fire at insurgents walking away from an area where IEDs have been laid
- L – Villagers must be warned prior to searches
- M – Use audible warnings, such as air horns or sirens
- N – Forces cannot engage the enemy if civilians are present



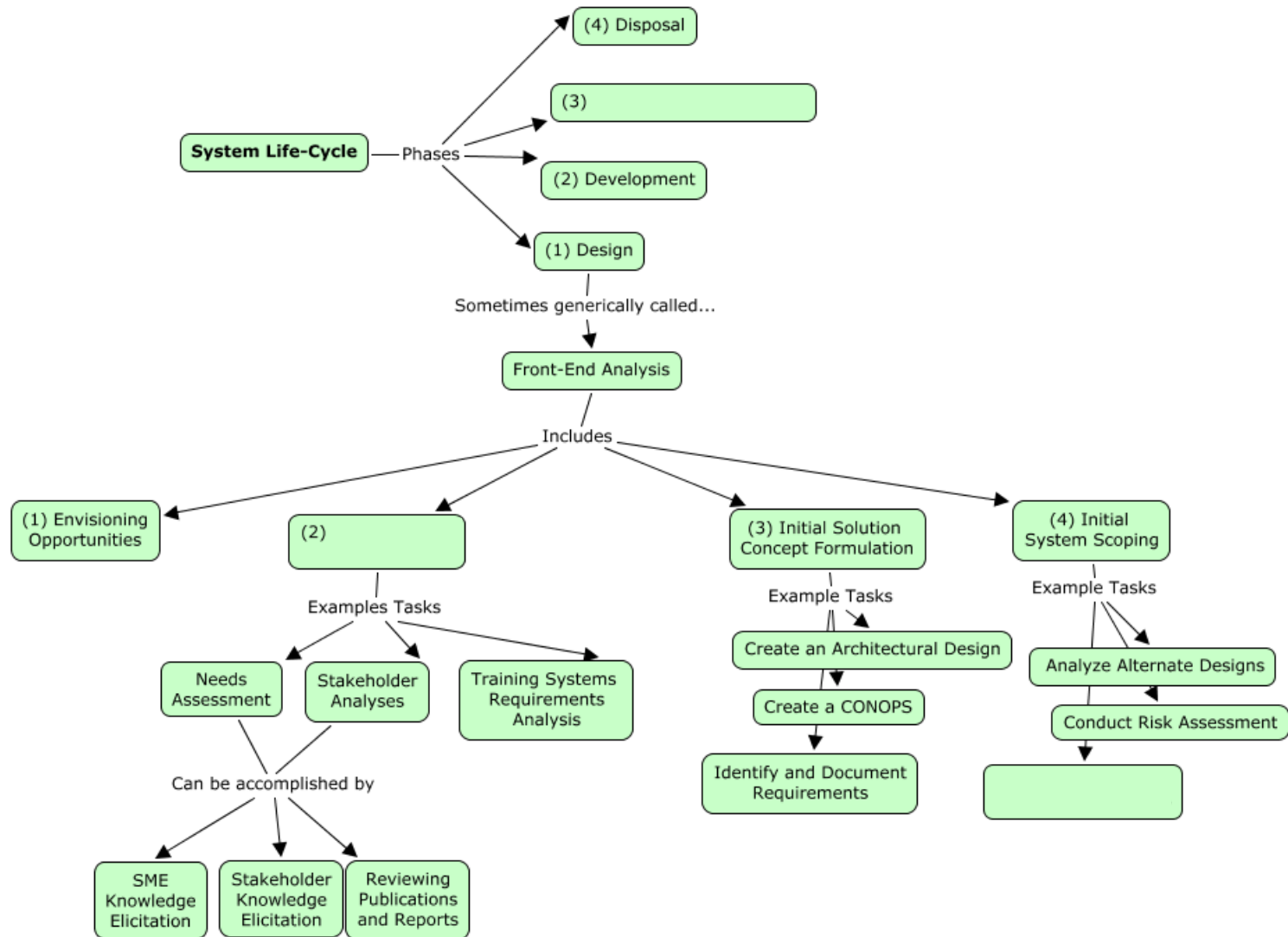
**What is the correct word or phrase for item #3?**

a. Applied Research

c. Test and Evaluation

b. Implementation

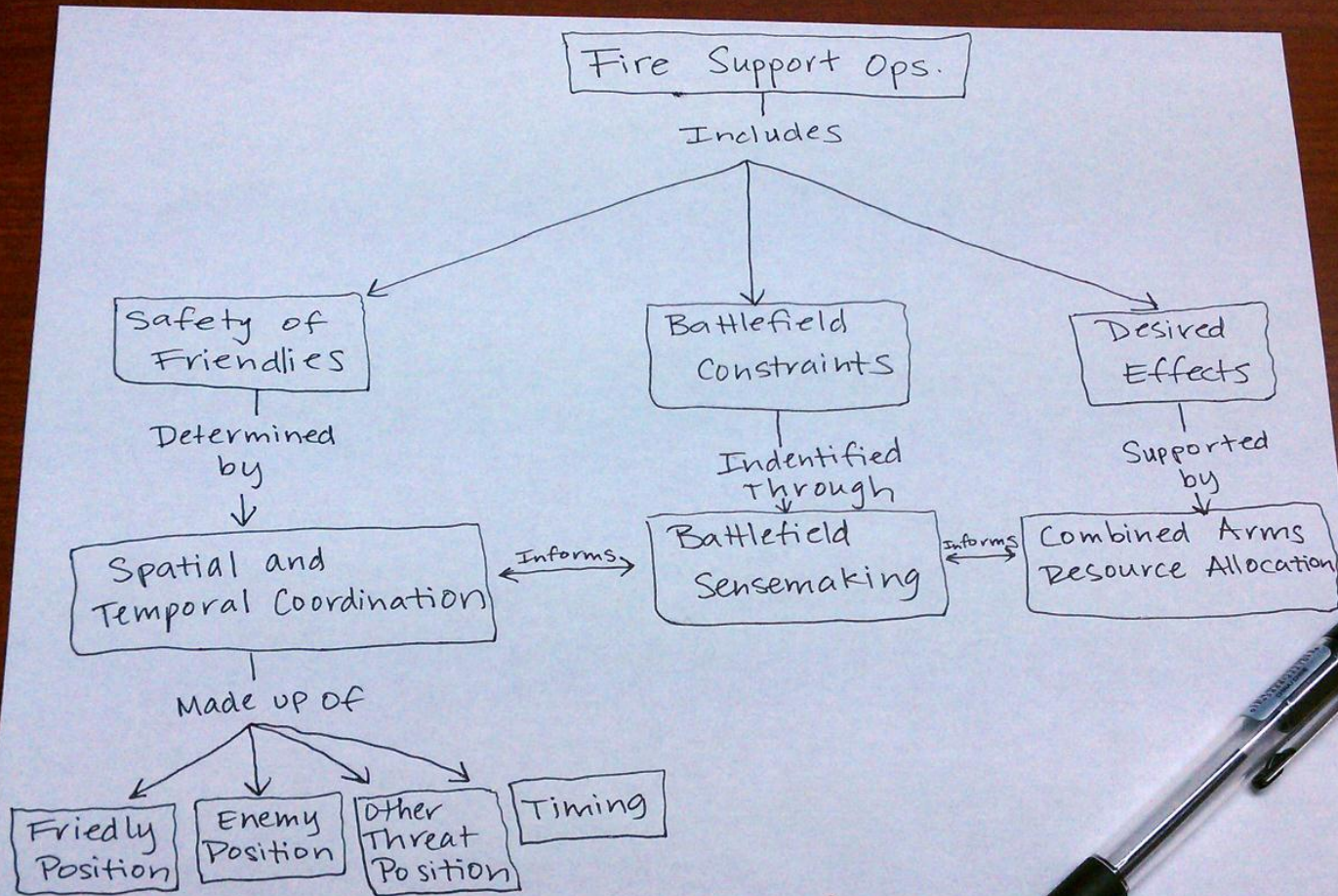
☒ d. Operations and Maintenance





# Examples

# Concept Maps



For each item, write a sentence that describes the relationship between two given concepts. Each of your short-answers should be accurate, meaningful (to this course), and coherent. You do not need to provide extensive details in each sentence; in fact, being succinct is preferred.

1. Manpower and Personnel
2. Humanitarian Aid and Reservists
3. Mortar Fire and Rear Guard



# Examples

# SJT



**SCENARIO:** You are Joint Terminal Attack Controller (JTAC) in support of a 13-man dismounted reconnaissance element. During your patrol, you spot an enemy compound. You determined that the enemy has approximately 20-30 armed personnel, 3 buildings, and 2 civilian vehicles. You are approved to neutralize this threat. Beaker 21-22 (2 x F-18s) have been redirected to support your mission. Beaker 21 informs you that the aircraft are 12 Miles south of your position, have 15 minutes of playtime, and are carrying 2 x MK-83, 2 rockets and 600 rounds each.

In the scenario described above, what should a JTAC (*you*) do if, as a result of tactical action, friendly personnel appear in previously unexpected location, causing initial plans to change?

How do you react appropriately in this situation?		RANK ORDER <i>1 = best; 5 = worst Assign each rank only once!</i>	RATING SCALE			
			Adequate	Rather Adequate	Rather Inadequate	Inadequate
(A)	Notify aircraft to return to final hold position until new direction and TOT can be determined		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(B)	Contact friendly element with attack information, and redirect aircraft direction and terminal guidance		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(C)	Let the aircraft pilot make the decision on required adjustments.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(D)	Direct friendly element to pop smoke as to exact location and then direct aircraft to new location		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(E)	Redirect aircraft pending ground assault activity and reduced ADA		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments (Optional):						

# Activity

## **Case 1:**

**Multiple-Choice Tests  
in Military Ethics**

## **Case 2:**

**Low HADR Course  
Completion Rate**



# *Military Ethics*

**Anecdotally  
observed  
knowledge gaps and  
misconceptions**

**Lack of participation  
(by some)**

**Everyone passes  
end-of-course  
multiple-choice test**



# HADR



**3-days of  
online content  
+ multiple-  
choice tests as  
progress  
“gates”**



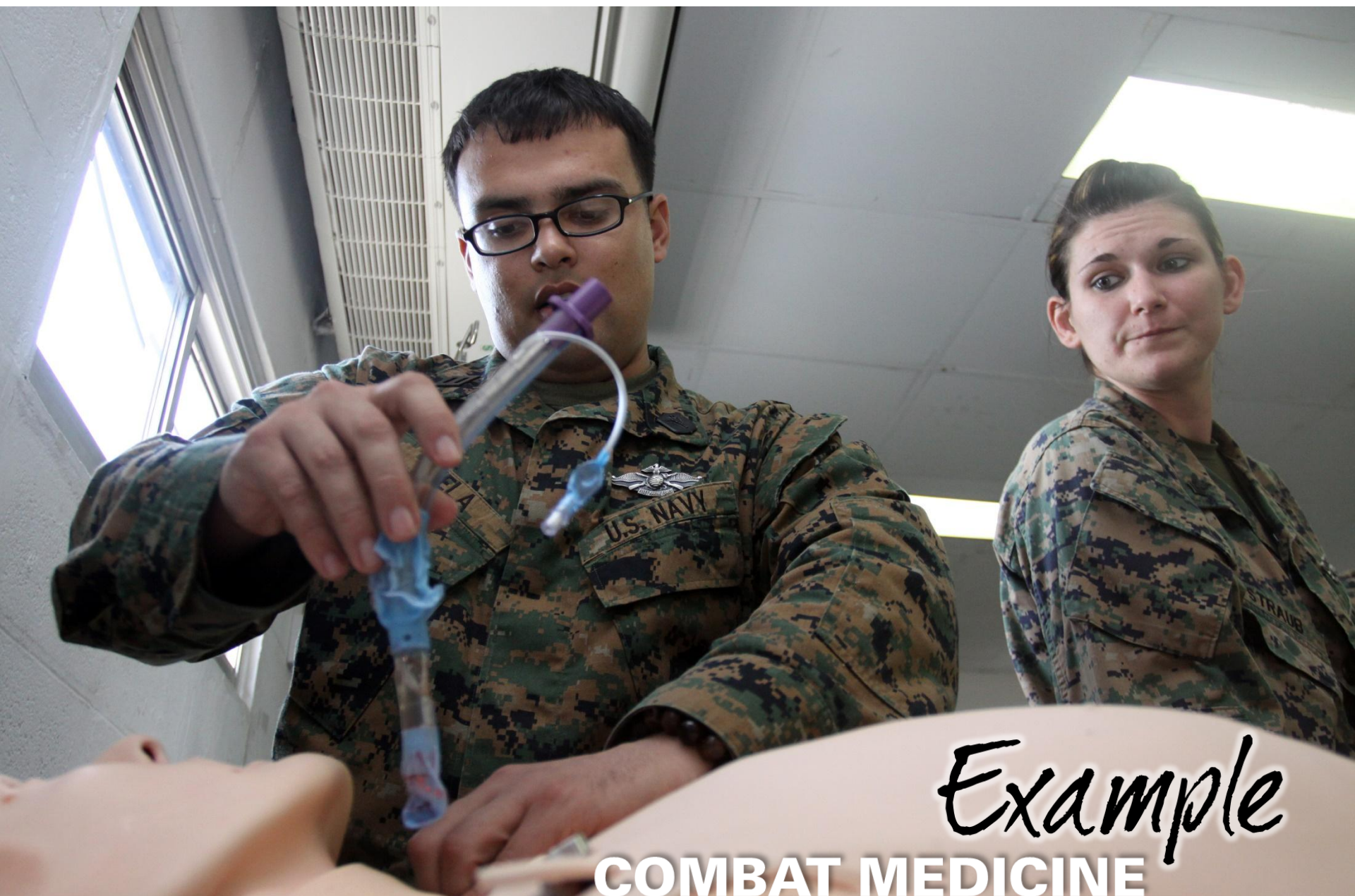
**+2-days of face-  
to-face lecture  
and discussion**



**Summative  
assessment =  
(1) Computer  
Simulation and  
(2) SJT**

**BUT! High  
failure rate and  
unable to  
predict who  
will fail**



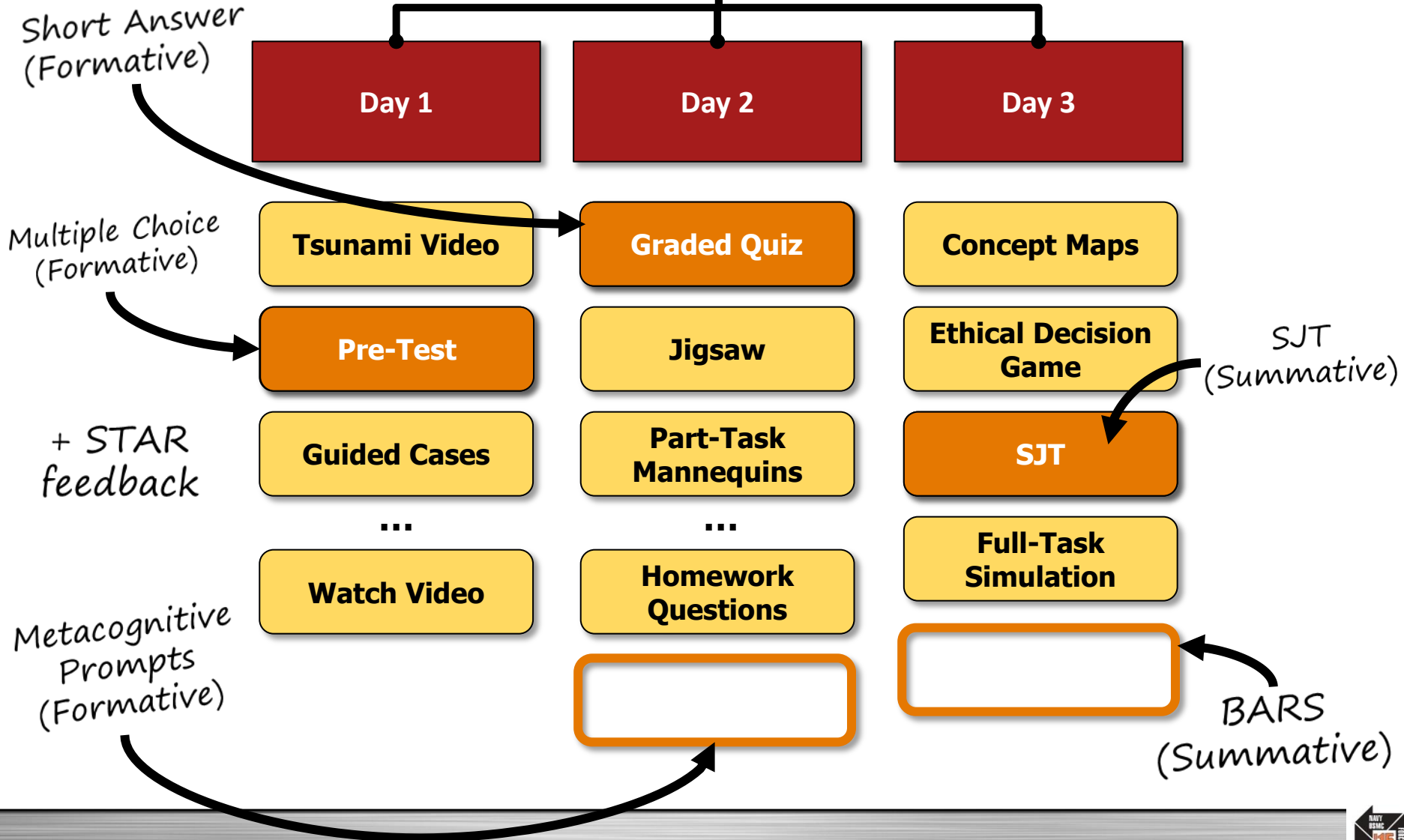


*Example*

**COMBAT MEDICINE**



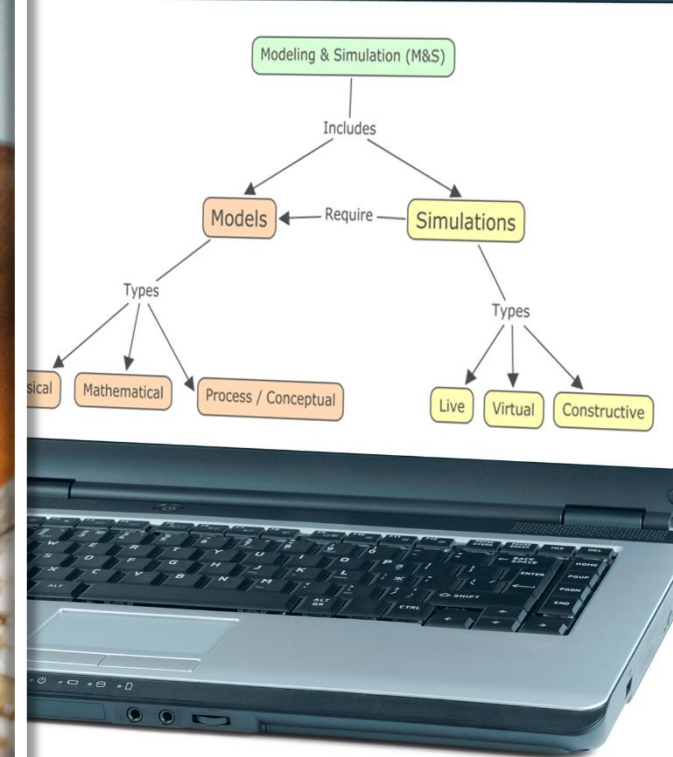
# TCCC





4  
COMMENTS

BUT!  
what about  
technology?!




The medium is less important than the way learners interact with the material and each other



Search entries or author


Unread

Subscribed



**Sae Schatz**  
Jan 2, 2015

Question: How are HSI and Human Factors different?



**Sae Schatz**  
Jan 2, 2015

Paraphrase: Contrast HSI to Human Factors.

Answer: If you look at the formal definitions of HSI and Human Factors, then they seem to be the same thing. In practice, though, Human Factors engineers usually focus on the immediate touchpoint between human users and the technical system. For example, Human Factors specialists might help improve the computer interface on a new medical device, or they might study the interaction tools that nurses and doctors use to communicate in an ER. The point is that Human Factors is usually more narrowly defined than HSI. When people say, "Human Factors," they are generally *not* talking about broader system life-cycle or full the range of applicable domains (e.g., training, personnel, safety). Human Factors also doesn't usually include the process controls (e.g., creating shared representations, risk mitigation, cost-benefit analyses) that HSI involves. So, in summary, Human Factors is generally more narrowly focused than HSI, at least in typical practice. (BTW, Module 1 includes some of this info, too.)

Next Question: What is Human-Computer Interaction (HCI), and how does it relate to Human Factors? <-- The next poster should actually answer this question!

Joint For

You are the commander of a  
stood up in response to a ser

Farwayi  
Caucasu  
minister  
the dem  
governn  
Planning  
the geo  
staff.

Assessment Ins

For each item,  
Each of your sh  
need to provid

Example: If give  
sentence: Suc  
flexibly support the expected needs of accurately applied Joint fires

1. Mission Analysis and OPLAN

2. Subordinate Campaign Plan and Base Plan

3. Planning Initiation and Course of Action development

4. Joint Operational Planning and Crisis Action Planning

5. Theater Campaign Plan and National Strategic Objectives

6. Wargaming and LNOs and Decision Matrix

Submit

Monitoring  
(Situational  
Awareness)

QUESTION 1

Executing

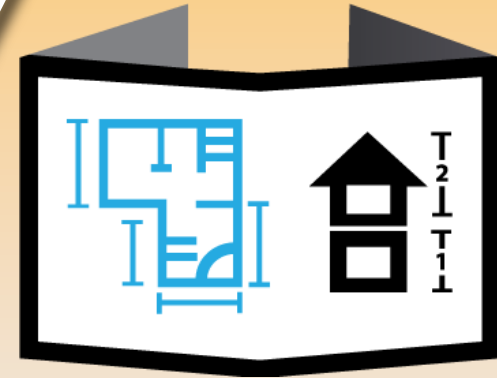
1. Which of the following concepts best fits in this box?  
a. Directing  
b. Organizing  
c. Planning  
d. Communicating  
e. Financing

You can modify the tactics and assessments for the sophistication level of your technology

# EX Scenario-Based Learning



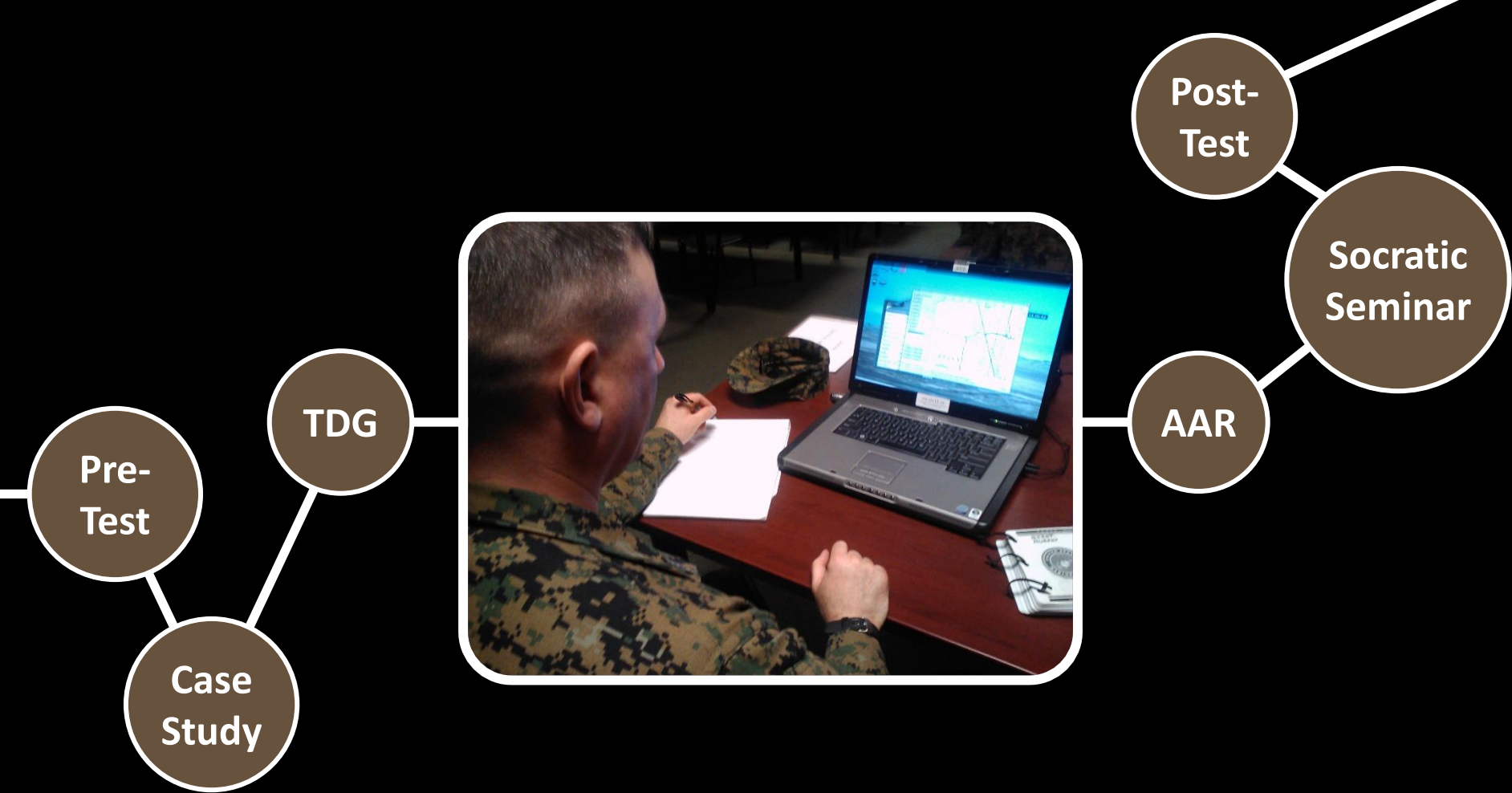
*Simulation*



*Strategy and Tactics*

“Simulation” isn’t instruction; it’s a tool. Combine it with an instructional strategy and tactics





Remember to think about the pre- and post-  
technology activities





Instructional  
quality is worth  
the investment



Ongoing,  
evidence-  
based process



Instructional  
strategy



Instructional  
quality is worth  
the investment



Ongoing,  
evidence-  
based process



Instructional  
strategy



ence



**Practical Tools**

Instructional  
strategy

SMEAC

Assessments

SUMMATIVE

FORMATIVE

S.T.A.R. FEEDBACK

Tactics

**VARIETY**

GRADUALLY INCREASING COMPLEXITY

TAILORING TACTICS TO LEARNERS





November 30<sup>th</sup> - December 4<sup>th</sup>, Orlando, Florida

# I/ITSEC 2015

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# Questions?

**Sae Schatz, Ph.D.**

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