

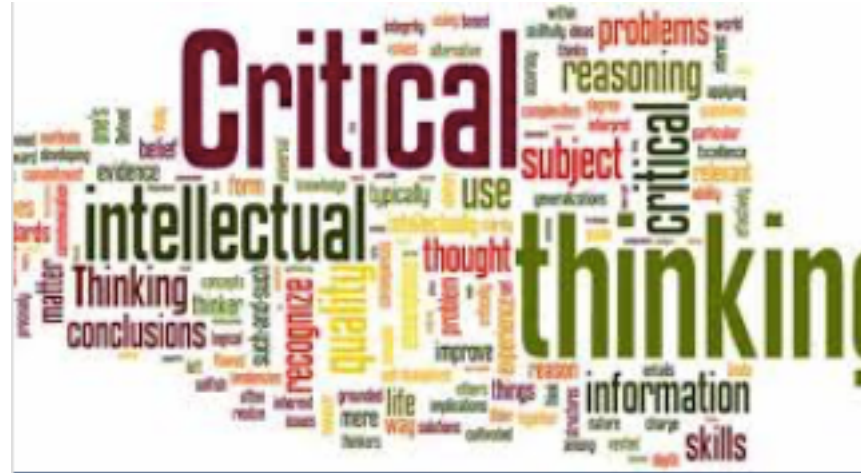
Morris Learning Design 

# Assessing Critical Thinking Skills on FedLearn

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Open edX Conference Lightning Talk  
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# Outline: Assessing Critical Thinking Skills

1. The Problem
2. The Solution
3. The Approach
4. Next Steps



# The Problem: Employee Performance

## Background:

- ▶ Client provides contract analysts to US government defense agencies
- ▶ Contract analysts tested their critical thinking skills with the Watson-Glaser test
- ▶ Their score of 22.9% placed them in the 12-17% range of their competitors

## Problem:

Client needed to improve analysts' critical thinking skills and show improved performance on the Watson-Glaser exam.

## Watson Glaser Critical Thinking Appraisal

The industry standard measure of Critical Thinking Ability

*This version is available on our new platform TalentLens Online. If you want to access your platform for free, please contact us on 0345 099 1485 or fill out the form at the bottom of this page.*

Critical thinking is the ability to look at a situation and clearly understand it from multiple perspectives whilst separating facts from opinions and assumptions. It is recognised as a key 21<sup>st</sup> Century job requirement for many roles.

Watson-Glaser is designed to be a quick, consistent and accurate measure of the ability to:

- Analyse, interpret and draw logical conclusions from written information.
- Recognise assumptions from facts.

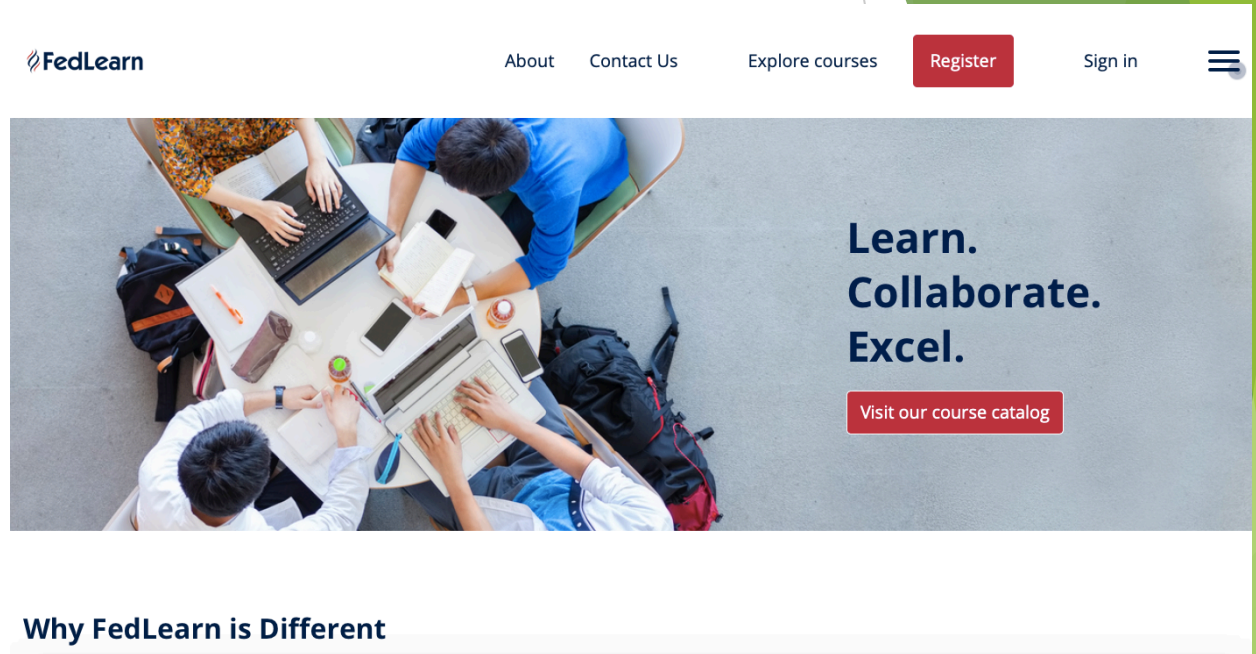
# Audience Analysis

- ▶ Contract intelligence analysts for the Defense Intelligence Agency
  - ▶ Primary Audience: Contractors located in the US and Europe
  - ▶ Secondary Audience: DIA regular employees
- ▶ Varied roles and experience level
- ▶ **Extrinsic motivation:** DIA willing to fund training for certain contractors
- ▶ **Intrinsic motivation:** Contractors have the opportunity to improve their work performance



# The Solution: FedLearn

- ▶ FedLearn: new elearning platform to provide online training for contractors
- ▶ Goal to be the central platform for training federal government employees
- ▶ Start-up resources



# Understanding by Design Framework: Begin With the End in Sight

## 1. Identify Desired Results:

- ▶ Demonstrate ability for lower-performing contractors to apply critical thinking skills to intelligence scenarios
- ▶ Improve scores on the Watson-Glaser test

## 2. Determine Assessment Evidence:

- ▶ Respond appropriately to real-world scenarios
- ▶ Achieve a high score on the Watson-Glaser test

## 3. Define Content Strategy:

- ▶ Teach critical thinking concepts through case studies
- ▶ Peer learning



**UNDERSTANDING BY  
DESIGN® FRAMEWORK**  
BY JAY MCTIGHE AND  
GRANT WIGGINS

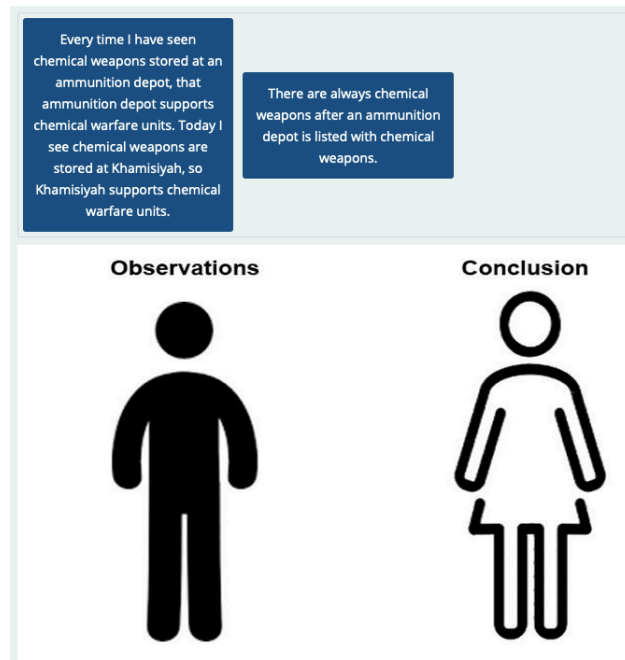




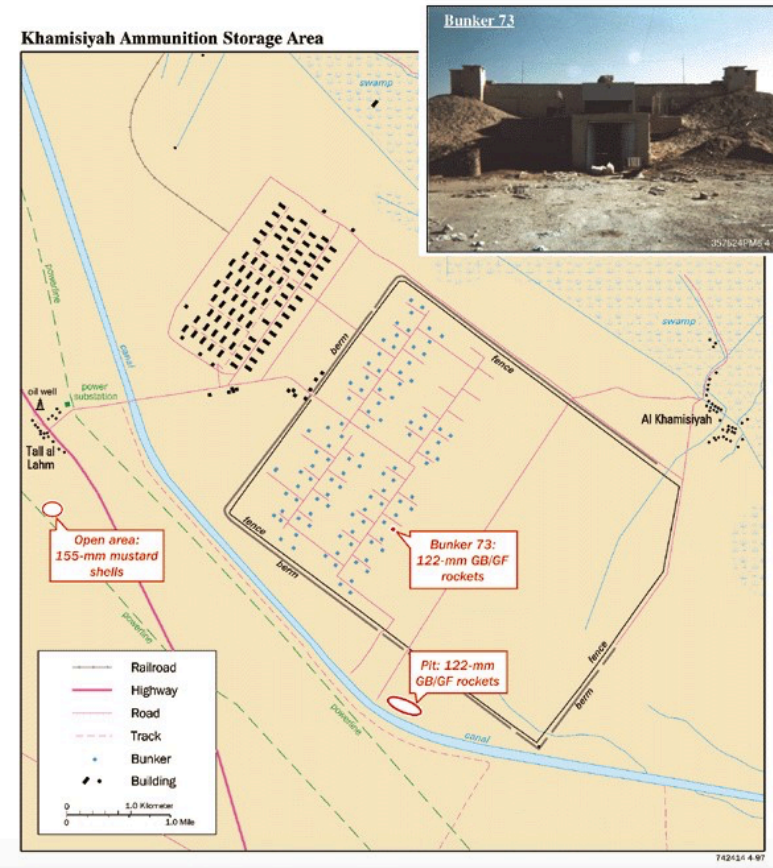


# Engaging Assessment Types

- Surveys, drag 'n drops, Peer Instruction



## PEER INSTRUCTION QUESTION





# Determine Watson-Glaser Assessment Strategy

**Desired Result:** Improve scores on the Watson-Glaser test

**Step 1:** Learners who didn't pass the pre-test take the Watson-Glaser test

**Goal:** Set a benchmark.

**Step 2:** Learners re-take the Watson-Glaser test after completing the critical thinking course

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# Define Content Strategy

- ▶ Core content on critical thinking skills
- ▶ Original content from defense departments
- ▶ Khamisiyah Case Study - complex scenario to illustrate lack of critical thinking
- ▶ Test-taking strategies for Watson-Glaser test

## ASSUMPTIONS, INFERENCES, AND OBSERVATIONS



### ASSUMPTION

A judgment or assertion that we consider to be true without supporting evidence.



### INFERENCE

An idea or conclusion that's drawn from evidence and reasoning. Think of an inference as an educated guess.



### OBSERVATION

Using the human senses with or without the use of tools to help perceive information about the surroundings or subjects.

#### Khamisiyah Case Study

##### Reasoning Approaches in the Khamisiyah Case Study

Now let's see how to apply these reasoning types to a real-world scenario. The scenario for this and subsequent lessons in this course is the "Khamisiyah Case Study." Here's a little background if you are not familiar with this case.

You have undoubtedly heard of the Gulf War Illnesses that affected some who participated in that conflict in Iraq. It's likely you also heard that the US intelligence community had no knowledge, at the time, of the presence of chemical weapons at one of the facilities called Khamisiyah that was demolished in 1991.

As a result of this knowledge gap and the subsequent illnesses, a case study was produced several years later by the Persian Gulf War Illnesses Task Force, and was completed in April, 1997. The key questions addressed in this study are 1) what the Intelligence Community knew about the Khamisiyah storage facility, 2) when they knew it, and 3) what they did with that information.



# Course Content

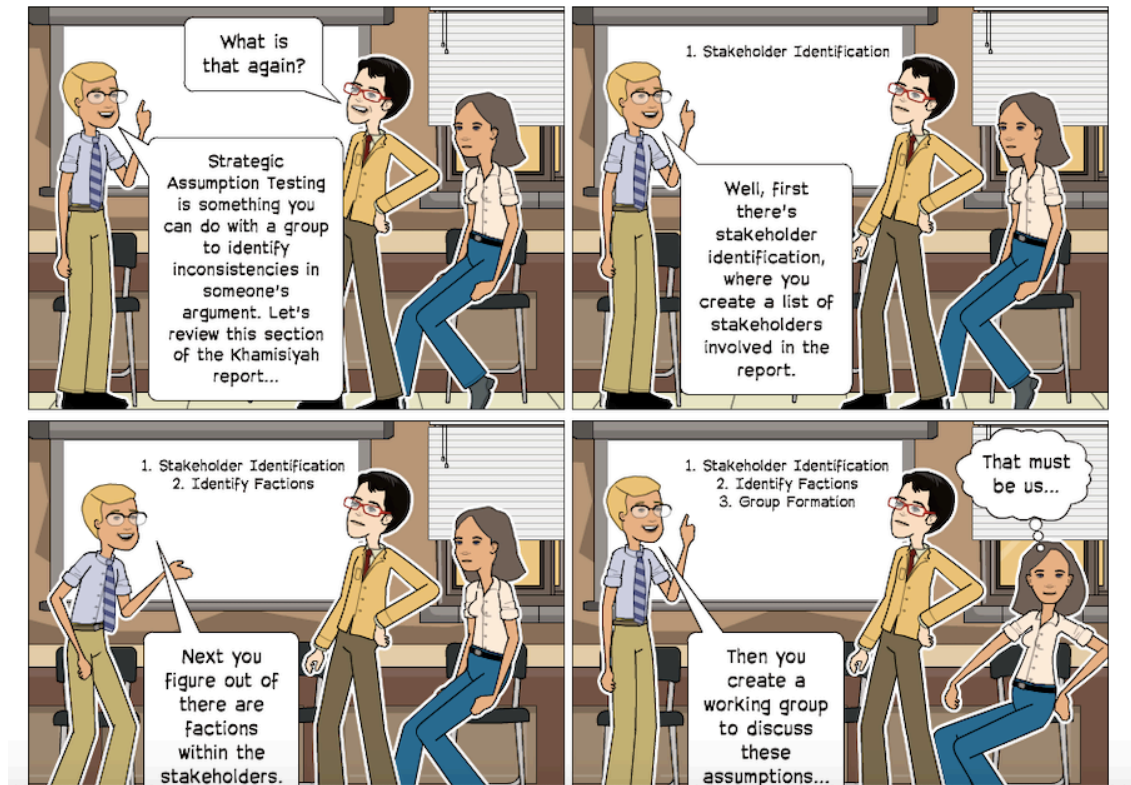
## Observations and Conclusion using Inductive logic



This soldier is reaching a weak conclusion based on two separate observations. If we apply the three elements to these observations it becomes clear why that is:

1. **How accurate and comprehensive?** The observations are subjective from one person's experience, and begs additional questions. Are there any cases where the presence of decontamination vehicles at a facility didn't indicate chemical weapons?
2. **How strong is the causal link?** The causal link between the decontamination vehicle and chemical weapons is strong. The causal link between this observation and chemical weapons at Khamisiyah is also strong given the observation of the decontamination vehicle at Khamisiyah.
3. **How similar are the observations?** There is similarity in that these observations identify decontamination vehicles being at a depot with chemical weapons.

"As of early 1988, Iraqi artillery shells, bombs, and rockets loaded with chemical warfare (CW) materials were stored either at Samarra or in a large ammunition dump near the town of Muhammadiyat. This facility was located about 12 [sic] kilometers outside of Baghdad. Additionally, 122-mm rockets temporarily were stored at the airbase in Kirkuk for further transport to Sulaymaniyah."



# Next Steps...

- ▶ Original beta tester launch date November, 2018, pushed back to April, 2019
- ▶ Incorporate beta testers' feedback for completed course launch
- ▶ Remove Watson-Glaser exam once course results are validated



# Recap...

“The point is that if you want to assess learning outcomes associated with critical thinking, you cannot do that well without understanding how critical thinking is defined in your discipline.”

- Assessing Critical Thinking Skills, [\*The Teaching Professor\*](#), 26.3 (2012): 4.