



Discussion:

Hypothesis: Unsupported

Virtual training ≠ Higher mission performance

The results showed that use of virtual briefings for training had no significant difference in soldier performance, but that the training actually slowed the mission completion time. The evidence does not support the hypothesis. The evidence from this research suggests that virtual training is obsolete in terms of its benefits over traditional methods. If that were true, there would be no need to spend the funds on the new systems and software associated with virtual trainers; however, the biographical data plays a substantial factor in the results from this study.

Another point that emerges from this study is the idea of training method latency and mental acceptance of a new system. The Army has been training soldiers in a specific way for decades now and by changing that method, there will be, as will all systems, be a learning curve. By changing the familiar system of training and introducing this new method, soldiers performance can be expected to degrade slightly due to the fact that they have been trained under one method for such a long time. Social theories of organizational change mirror this occurrence of organizational resistance to new technology.

Virtual Training:

Is it smart...

Is it efficient...

Is it worthwhile?

“The elements of combat power are: fires, maneuver, protection, and leadership. The focus of all good training is to grow competence and strength in exercising each element of power, simultaneously -- at multiple echelons of command. That's how we fight. There are few training events that achieve this ideal, but the virtual offers some opportunity to design what we want..”

-- GEN(R) Eric Shinseki

“We believe that simulations are the perfect complement to field training. It allows the training audience to practice tactics, techniques, and procedures (TTP) as well as tactical decision making in a low threat environment.”

-- Taijeron, Vincent (2006)

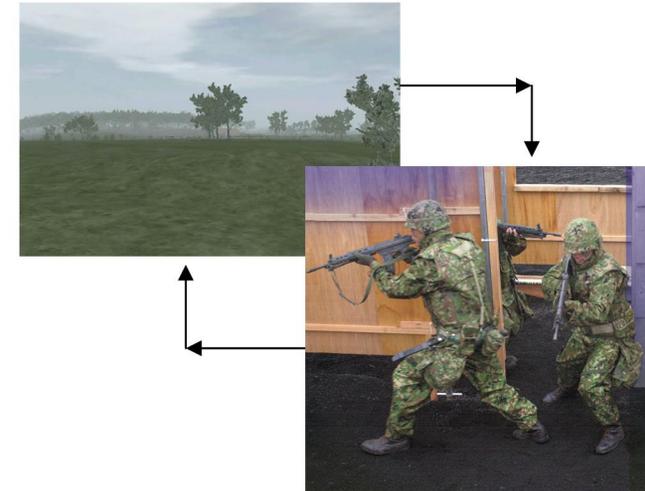


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Engineering Psychology Leader Series:
Effects of Virtual Training Methods Versus Traditional Methods on Soldier Performance and Mission Execution



**Train Smart...
Train Efficiently...
Train to Win!!!**

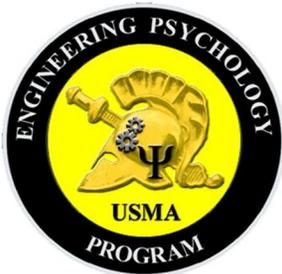
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Overview

Background: Our goal is to use principles of cognitive mapping, mental sets, and knowledge in the head to develop a more effective means of preparing soldiers for a mission. Our nation is currently at war and in order to maintain an efficient and effective fighting force the military should take advantage of technological advances that will streamline soldiers and better prepare them for the fight ahead. A large part of the advances that are taking place occur in the field of virtual simulation training. This stated, it is important to analyze the advantages and disadvantages of both traditional and virtual training. With this in mind, an analysis comparing the actual effectiveness of each method is necessary. This is where this study comes into play. We intend to discover which is better through the execution of a capstone mission which will follow a two group training briefing (one virtual and one traditional).



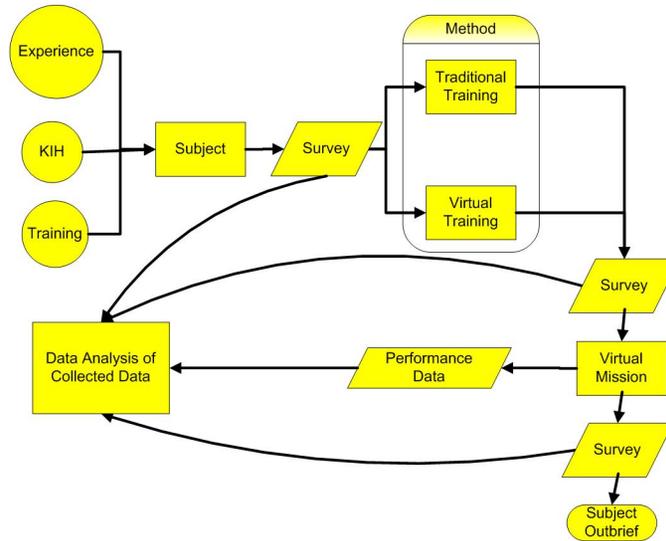
Hypothesis: Through testing, we expect to determine that those individuals that are trained via the virtual training method will perform better on the capstone than those trained traditionally: where better is equated to better overall statistics such as shot fired and enemy eliminated.



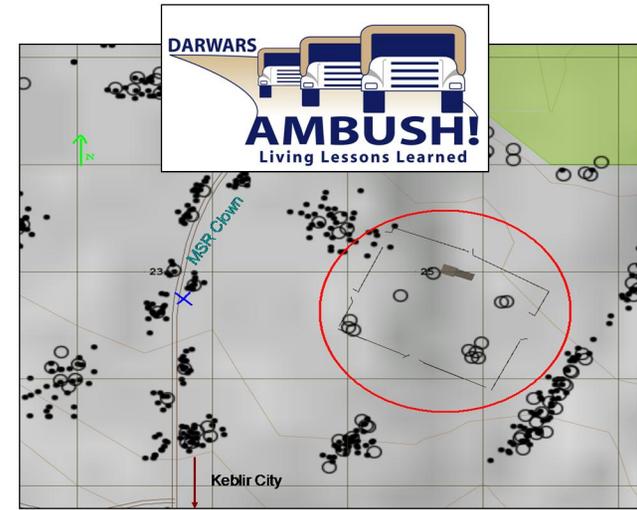
Theory

Top-Down Processing: The theory behind this hypothesis is directly correlated to top-down processing: as a result of the mental processing method's relation to reaction time. We feel that virtual training with a 3-D environment will allow for top-down processing during mission execution. This will consequently increase reaction time which equates, in many cases, to greater mission success: when success is defined as the least amount of allied lives or time taken during mission execution.

Research Method



Concept: All participants were briefed on the basics of the mission and given a survey to scope their gaming and military experience. The participants were next briefed on the OPORD for the mission utilizing the either virtual or traditional method with the: each with the same verbage. Next they were given a survey to asses their understanding of the situation. Finally, they executed the capstone mission.



Results

Traditional vs. Virtual Training:

The type of training, based solely on the time results, indicate that the virtual training had a degrading effect on the computer-based capstone. The mean score for the time comparison differed significantly between the Traditional and Virtual groups. However, neither the mean score for the health comparison measure nor the mean score for the number of enemy eliminated comparison maintain a significant difference between the Traditional and Virtual groups. The values calculated are viewable below.

Evaluation Outcome

Time:	t-value = -2.49	p-value < .042
Health:	t-value = 0.56	p-value < .586
Enemy:	t-value = -0.61	p-value < .557

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