Measuring Adaptability in Military Personnel

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Background

Adaptability is an important aspect is many walks of life. From athletics to the military and everywhere in between, the ability to alter one's behavior to fit the situation is a vital skill. Clearly, not everyone possesses an equal amount of this key ability, but what if individuals could be trained to think more adaptively? If adaptability could be trained, would increasing domain specific adaptability also increase domain general adaptability and vice versa? Using a military population, this study aimed to resolve these crucial points.

Purpose

The study addressed the question of whether adaptive thinking could be augmented by the implementation of a training program. Furthermore, whether training caused an increase or decrease in domain general and/or domain specific adaptability was also of interest. Lastly, any subject variables that led to individuals scoring particularly well were of interest to further understand the construct of adaptability.

Methods

600 Marine Corps Officers participated in the study while completing officer training. The officers ranged in age from 20-35, were 92% male, 86% Caucasian and achieved commission through one of five different routes: officer candidate course, platoon leader's course, NROTC, US Naval Academy, or enlistment to officer.

The officers were split into two groups with one group receiving adaptability training and the other serving as a control group. Both groups were given pretests and posttests for domain general (Survival Test) and domain specific (Situational Judgment Test) aspects of adaptability.

Training was done by Marine Corps faculty both in classes and in the field. The experimental group received exercises consisting of perspective taking, battle plan readjustment, steps useful in adaptive thinking, and giving on the spot feedback in the field.

The Situational Judgment Test

The Situational Judgment Test was used as the domain specific test of adaptability. The test had items relating to military situations. Participants were given options of possible actions to take and were asked to select the most and least effective options given the situation.

Experts were asked to assess the effectiveness of all the responses on a seven point Likert scale. The expert responses were then averaged using the mean.

Participants' scores where determined by assigning the experts' mean score to the possible responses. Then, the participant's worst choice was subtracted from the best choice, allowing for negative scores and partial points on items. Each of these item scores were summed to provide an overall score.

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The Survival Test

The Survival Test was inspired by the NASA Moon Survival Test (Hall 1978). Participants were told that their plane had crashed on the way back to base and they were told the contents of a military survival kit that contained twenty items. The participants were asked to rate each of the twenty items' usefulness on a scale of 1-10 and were also asked to rank the top six items. The environment changed for each scenario. Environments included the ocean, snowy terrain, a vast meadow, a mountain, the desert, and the jungle.

A consensus scoring approach was implemented for the ratings. The overall mean was calculated for each item in each scenario and the deviation score between the participant's score and mean score was taken. These deviation scores were then summed up for all twenty items for all six scenarios for a pretest total, posttest total, and an overall total . The closer the total score is to zero, the "better" the responses. A gained score was always calculated by subtracting the posttest score from the pretest, giving the participant's change in score over time.

Survival Test Sample Item

Item	RATING 1-10	RANK 1-6	Item	RATING 1-10	RANK 1-6
Knife			Tarp		
Compass			Whistle		
Sheet			First Aid Kit		
Stainless Steel Pot			Shovel		
Duct Tape			Binoculars		
Lighter			Soda Can		
Flashlight			Oar		
Fishing Hook			Blanket		
Aluminum Foil			Sunglasses		
Alarm Clock			Rope		

Results

The Survival Test showed convergent validity with the Situational Judgment Test. The tests had significant, small, negative correlations with each other ranging from -.12 to -.14. These correlations are negative due to the different scoring methods used on the tests.

A paired samples t-test was run to determine if any differences were observed in the Survival Test Gained Score between the control and the experimental groups. Interestingly, the control group showed significant improvement from pretest to posttest while the experimental group's score stayed at the same level.

A hierarchal multiple regression for Survival Test posttest score was calculated using age, experimental condition, commission status, and Survival Test pretest score. A X^2 test revealed that the control and experimental groups differed on age and commission status. In the final step of the regression, commission through NROTC and the participant's Survival Test pretest score remained significant. This suggests that how officers reach commission has a great effect on their ability to think adaptively.

Spearman's Rho Correlation Coefficient

	SJT Posttest	SJT Pretest
Survival Posttest Total Deviation Score	-.14*	-.12*
Survival Pretest Total Deviation Score	-.09	-.13**

N= 344 342 400 440
*p<.05 **p<.01

Hierarchal Multiple Regression for Survival Test Posttest Deviation Score

Predictor	ΔR^2	β
Step One	.00	
Group		
Step Two	.00	
Age		0.09
Step Three	0.02	
Platoon Leader's course		-8.74
Officer Candidate Course		-7.07
NROTC		-17.25*
US Naval Academy		-11.49
Step Four	0.11***	
Survival Pretest Score		.33*
Total R^2	0.12***	
N	329	

* p<.05, ***p<.001

Discussion

The Survival Test may prove itself useful as a screening device. The test takes minimal time to complete and could provide information on who could benefit the most from adaptability training or who may need remediation.

The surprising findings may be attributed to a few causes. The differing route to commission may have driven the observed effect of the control group out performing the experimental group. Four of the five commission types were distributed unevenly, and the different commission types may or may have had different components that previously trained for adaptive thinking.

The intervention was also fairly brief. Over the course of three weeks, six total hours of adaptability training were given to the experimental group. This number could not be increased due to the rigorous scheduling of Marine Corps officer training. The limited amount of time allotted to the intervention may have not been sufficient, and the experimental group may not have truly had adequate training to separate themselves from the level of adaptability the control group possessed.

References

1. Stemler, Steven E. (2009). *Final Report on the Measurement of Adaptability in Military Personnel.* Middletown, CT. Wesleyan University.
2. Hall, Jay. (1978). *Nasa Moon Survival Task: An exercise in the effective use of group resources. Bromley: Teleometrics.*