

# Personality Impact on Vigilance Performance

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## PURPOSE

The purpose of this study is to investigate the possible influence of factors from the Big Five Model Personality Inventory on performance on a Cyber vigilance tasks.

## HYPOTHESES

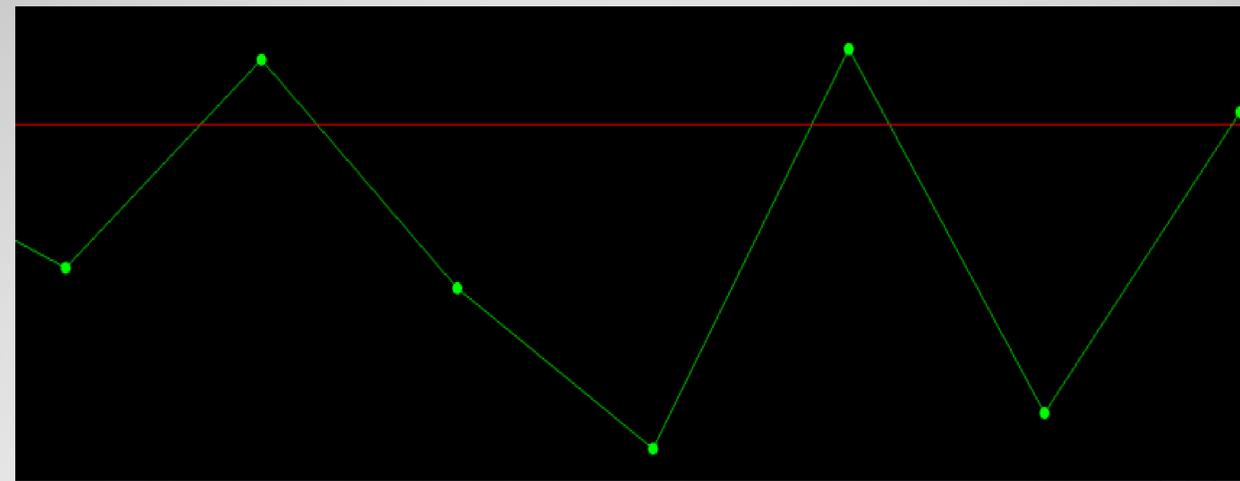
In our study, we hypothesize that individuals scoring high in conscientiousness will have the greatest vigilance performance, while individuals scoring high in extraversion will have the poorest vigilance performance skills.

## BACKGROUND

- Vigilance : the ability of observers to maintain a high level of concentrated mental alertness over a prolonged period of time.
- Vigilant behavior is critical in various occupations, particularly those in which continual detection is required in visually strenuous tasks.
- Cyber defense has proven to be a vital aspect of securing web-based communications.
- Rose et al., (2002), "The Role of the Big Five Personality Factors in Vigilance Performance and Workload": personality plays a heavy role in vigilant performance and perceived workload, and that individuals scoring high in extraversion lead to a decrement in vigilance performance.

## METHOD

- Participants (n=60)
- Demographics
  - Training
  - Participants were told to look for duplicate IP addresses, 'attack hits'
    - Cyber Vigilance Task : 40 minutes
  - Using the five-factor personality model, correlations were sought during a cyber-defense study to see whether personality factors had an influence on vigilance and sustained attention.



Timestamp	Source Addr.	Source Port	Dest. Addr.	Dest. Port
17-Jul-2013 13:15:41	108.189.138.186	42	108.174.132.212	37
17-Jul-2013 13:15:34	159.221.208.186	42	108.174.132.212	37
17-Jul-2013 13:15:26	135.205.245.249	53	229.160.238.186	37
17-Jul-2013 13:15:19	229.155.107.186	25	108.110.246.212	25
17-Jul-2013 13:15:11	159.205.139.249	42	159.121.148.196	42
17-Jul-2013 13:15:04	135.193.243.186	42	229.102.254.242	80

## RESULTS

- A bivariate correlation was conducted on the data
- No significant correlation was found between personality factors and vigilance performance.
- Analysis
  - The Cyber Vigilance 40 minute task was divided into four 10 minute sessions and a training task. Each session had four measures of performance.
    - Percent of Correct IP Address Matching
    - Percent False Alarms During IP Address Matching
    - Percent Correct During Graphical Tasks
    - Percent of False Alarms in Graphical Tasks
  - A bivariate correlation was conducted comparing each of the five factors of the Big Five Personality Model to the four measurements of performance. No significant relationship was found between any of the five factors of the personality model and the four measurements of performance in any of the 10 minute experimental sessions.
  - The same was true regarding the training sessions.

## DISCUSSION

- Could not replicate Rose et al. results (2002)
- Could not find a correlational relationship between personality factors and improved vigilance performance skills
- Correlations within each of the 5 personality factors were consistent with past findings (Rose et al., 2002).
- Limitations
  - Big Five Factor Model may not be predictive model for measuring vigilance performance
- The Big Five Factor Model may still hold importance for predicting other factors, worth examining
- Future work
  - Other methods to test vigilance performance for Cyber Defense
- Interesting Incidental Findings
  - Females have a significant relationship with agreeableness  
 $r = .301$
  - Video game experience had a significant relationship with intelligence /imagination  
 $r = .346$

## REFERENCES

- Rose, C. L., Murphy, L. B., Byard, L., & Nikzad, K. (2002, May 13). The role of the Big Five personality factors in vigilance performance and workload. *European Journal of Personality, 16*(3), 185-200.
- Clarke, S., & Robertson, I. T. (2011, January 11). A meta-analytic review of the Big Five personality factors and accident involvement in occupational and non-occupational settings. *Journal of Occupational and Organizational Psychology, 78*(3), 355-376.

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