

The Effects of Electronic Monitoring on Time Spent E-learning: Examining the Role of Conscientiousness and Implications for Skill Development

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ABSTRACT

This study examined the role of personality during monitored, online training. Seventy-eight e-learners completed a challenging Web-based software training program. As hypothesized, the effects of electronic monitoring on time spent training were more pronounced for low-conscientious e-learners. In addition, there was a positive relationship between time spent training and performance on post-training skill tests.

INTRODUCTION

Statement of Purpose

- This study is designed to replicate and extend what is known about monitored web-based training
- The purpose of this research is threefold:
 1. To investigate the effect of electronic monitoring/surveillance on the amount of time e-learners spend training;
 2. Test whether this effect varies as a function of trainee personality (i.e., conscientiousness);
 3. Examine whether, practically speaking, time spent e-learning translates into skill development.

Monitored Web-Based Training (WBT)

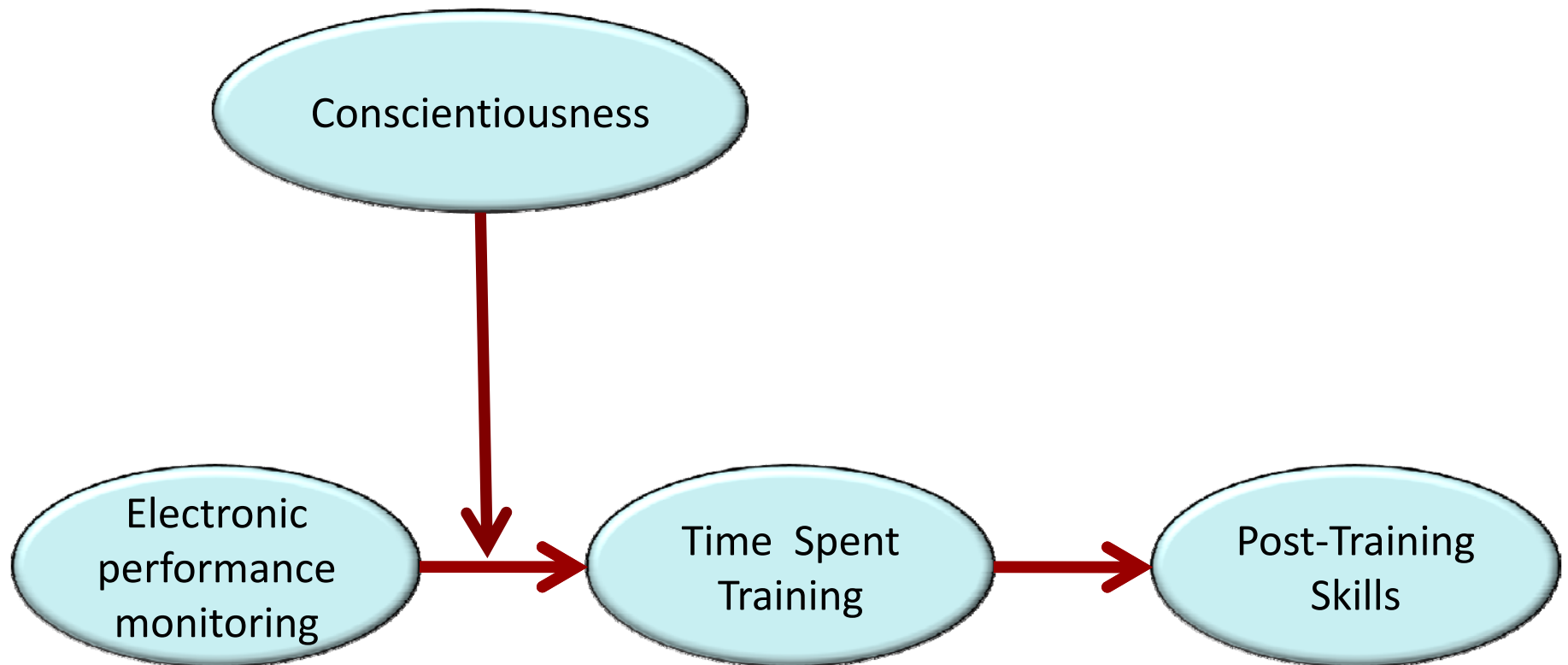
- WBT is a technology-mediated learning environment that gives individuals latitude to control the amount and sequence of material (DeRouin, Fritsche, & Salas, 2005)
- WBT can be monitored to track important activities (e.g., number of training modules attempted, how long trainees work on modules, etc.)
- Past research (Brown, 2001) demonstrates that some trainees who are placed in an autonomous, learner-controlled environment make poor choices, such as skipping critical practice exercises or moving through the training too quickly
- Monitored WBT is common but little is known about the dispositional and situational variables that influence the time spent training

RESEARCH HYPOTHESES

- **Hypothesis 1:** Electronic monitoring and conscientiousness will interact such that the effects of time spent training will be more pronounced for low-conscientious e-learners.
- **Hypothesis 2:** There will be a positive relationship between time spent training and post-training skills test performance.

Figure 1

Model of Hypothesized Relationships among Study Variables



METHOD

Participants

- 78 undergraduate students
 - Mean age = 20.15 years
 - 75% were Caucasian and 64% were male

Procedure

1. Self-reported conscientiousness assessed prior to training
2. E-learners randomly assigned to one of two conditions: they were informed that training activities would or would not be monitored electronically in real time
3. Microsoft Excel web-based training then occurred
4. Microsoft Excel skills tests completed after training

Measures

- Conscientiousness (10 items)
 - e.g., “I am always prepared.”
 - Drawn from a subscale of Goldberg’s (1999) International Personality Item Pool
- Time Spent Training (captured electronically)
 - Computer software recorded the time each e-learner spent on WBT content modules
- Post-Training Skills (14 item test, scored correct or incorrect)
 - e.g., “Insert a formula in cell D12 using the IF function that will sum cells C3 through C10 only if the average of (B3:B10) is greater than 1000. Otherwise, have the formula return a 0.”

RESULTS

- **Hypothesis 1 supported**
 - Electronic surveillance has a larger effect on low-conscientiousness e-learners compared to their highly conscientious counterparts
- **Hypothesis 2 supported**
 - Moving through web-based training rapidly may adversely affect skill development
- See Table 1 for regression weights

Table 1

Regression Model for the Study Variables

Criterion:	<i>b</i>	<i>R</i> ²	<i>F</i>
Time Spent Training			
Regression Model	—	.16*	4.76**
Electronic Monitoring	1.71**	—	—
Conscientiousness	0.54**	—	—
Electronic Monitoring X Conscientiousness	-1.62*	—	—

* $p < .05$ (1-tailed) ** $p < .01$ (1-tailed)

IMPLICATIONS

- Link between conscientiousness and performance generalizes to self-directed, monitored, web-based training
- Demonstrates interaction between conscientiousness and electronic monitoring for web-based training outcome variable
- Increased time spent training increased post-training skills test performance

LIMITATIONS/FUTURE RESEARCH

- Student sample may represent threat to external validity
- Future research should examine whether conscientiousness influences the effects of electronic monitoring on other outcomes (e.g., maladaptive training behaviors) in addition to time spent learning
- Future research should also identify additional dispositional and situational variables that alter the influence of electronic monitoring on training outcomes

References

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Goldberg, L. R. (1999). A broad-bandwidth, public domain, personality inventory measuring the lower-level facets of several five-factor models. In I. Mervielde, I. Deary, F. De Fruyt, & F. Ostendorf (Eds.), *Personality Psychology in Europe, Vol. 7* (pp. 7-28). Tilburg, The Netherlands: Tilburg University Press.

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