Examples of the Presentation of Factor Analyses

Sage, M. A. (2015). Cyberloafing: *A study of personality factors and organizational commitment as predictor variables of cyberloafing and perceived organizational acceptance* (Unpublished master’s thesis). East Carolina University, Greenville, NC.

 To further investigate the number of constructs and structure of this measure, an exploratory factor analysis was conducted. Velicer’s Minimum Average Partial test and parallel analysis were employed to determine the appropriate number of factors to retain (O’Connor, 2000). Although the sample size was small and unlikely to have enough power for an adequate factor analysis, the analyses were done for the sake of comparison with the two-cluster solution.

 The exploratory factor analysis using a principal-axis factor extraction was conducted to determine the factor structure. Velicer’s MAP test recommended a three-factor solution, the Parallel Analysis recommended a two-factor solution for the cyberloafing items, and the scree plot indicated a two-factor solution. When comparing the two-factor solution to the three-factor solution, double-loading of items was an issue in each solution, however, the two-factor solution provided constructs that were less complex than those in the three-factor solution. For interpretation of the two factors, a Varimax orthogonal rotation was used. This rotation had sums of squared loadings ranging from 2.79 to 3.45, and the grouping of items was similar to that of the cluster analysis where the first factor was behaviors frequently performed and the second factor was behaviors infrequently performed (see Table 3). The frequent cyberloafing behavior construct had a Cronbach’s alpha of .848, and the infrequent cyberloafing behavior construct had a Cronbach’s alpha of .729, which could be increased to .752 if item 3 (“Browse investment-related Web sites”) was removed. Although the factor analysis was calculated with an insufficient sample size, and there was a large number of double-loaded items between the two measures, it shows more evidence of a two-factor structure consisting of frequent and infrequent cyberloafing behaviors.

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| Table 3.*Factor Analysis Cyberloafing Constructs.* |
| Prompt: How often do you engage in each activity during work hours for personal reasons?Scale: Never (0), Rarely (about once a month) (1), Sometimes (at least once a week) (2), Frequently (at least once a day) (3) |
|  | **Factor Loading**  |
| **Item** | **1** | **2** |
| **Factor 1: Frequent Cyberloafing Behaviors** (α = .848) |
| 5. Browse general news Web sites | .76 | .09 |
| 6. Browse non-work-related Web sites | .71 | .04 |
| 8. Send non-work-related e-mail | .68 | .06 |
| 7. Check non-work-related e-mail | .62 | -.01 |
| 4. Browse entertainment-related Web sites | .61 | .30 |
| 9. Receive non-work-related e-mail | .60 | -.02 |
| 2. Shop online for personal goods | .59 | .23 |
| 18. Send or receive personal text messages | **.59** | **-.30** |
| 1. Browse sports-related Web sites | **.49** | **.25** |
| 15. Post messages on non-work-related items | **.47** | **.31** |
| 14. Chat with other people with instant messenger | .41 | .18 |
| 19. Make personal phone calls | **.39** | **.22** |
| 11. Download non-work-related information | **.28** | **.25** |
| 21. Use Facebook | **.27** | **.20** |
| 22. Use Instagram | **.23** | **.13** |
| **Factor 2: Infrequent Cyberloafing Behaviors** (α = 729) |
| 12. Download online games | -.02 | .79 |
| 10. Play online games | .03 | .67 |
| 17. Read or write in a blog | .06 | .63 |
| 23. Download Media (music / videos) | .24 | .60 |
| 13. Chat with other people in online chat rooms | .21 | .48 |
| 16. Use the Internet to gain additional income while at work | -.02 | .45 |
| 20. Use Twitter | **.32** | **.44** |
| 3. Browse investment-related Web sites | **.26** | **.31** |
| Note. Double-loaded items are denoted in bold font. |

Aziz, S., Uhrich, B., Wuensch, K. L, & Swords, B.  (2013).  The Workaholism Analysis Questionnaire: Emphasizing work-life imbalance and addiction in the measurement of workaholism.  [*Journal of Behavioral and Applied Management*](http://www.ibam.com/jbam-toc-vol14-no2.html), *14*, [71-86](http://www.ibam.com/pubs/jbam/articles/vol14/No2/Article1.pdf).

**Results**

After culling four items with low item-total correlations and one item that produced multicollinearity, the 29-item measure had a Cronbach’s alpha of .934 (see Appendix A). After culling, all items had VIF values of less than 5. An exploratory factor analysis using the principle-axis factor extraction was conducted to determine the factor structure of the WAQ. Both parallel analysis and Velicer’s MAP test (O’Connor, 2000, 2012) indicated a five-factor structure. The WAQ was conceived as multidimensional, with the various dimensions being nonorthogonal. Accordingly, we employed an oblique rotation. Such a rotation created five factors with sums of squared loadings ranging from 3.7 to 8.3, and the clustering of items into factors seemed easily interpretable (see Table 1). The correlations between factors ranged from .24 to .48 (see Table 2). Although a multi-factor solution was tenable with rotation, this structure should be considered preliminary at this point, pending confirmatory work. Accordingly, only the total scores were used for the validity analyses.

Table 1*. Oblique Factor Analysis of the WAQ*

|  |  |  |
| --- | --- | --- |
| Item | Greatest |Beta| | Factor |
| 28 I have difficulty maintaining friendships. | .72 | 1, Work-Life Conflict |
| 24 My work often seems to interfere with my personal life. | .67 | 1 |
| 29 I have difficulty maintaining intimate relationships. | .66 | 1 |
| 26 I often miss out on important personal activities because of work demands. | .62 | 1 |
| 25 I often put issues in my personal life “on hold” because of work demands. | .62 | 1 |
| 23 I experience conflict with my significant other or with close friends. | .60 | 1 |
| 14 I find myself unable to enjoy other activities because of my thoughts of work.  | .47 | 1 |
| 27 I find it difficult to schedule vacation time for myself. | .46 | 1 |
| 6 I constantly feel too tired after work to engage in non-work activities. | .45 | 1 |
| 12 I frequently have work-related insomnia. | .45 | 1 |
| 1 I feel stressed out when dealing with work issues. | .33 | 1 |
| 19 I frequently check over my work many times before I finish it. | .66 | 2, Work Perfectionism |
| 20 I ask others to check my work often. | .56 | 2 |
| 22 It takes me a long time to finish my work because it must be perfect. | .50 | 2 |
| 21 I frequently feel anxious or nervous about my work. | .50 | 2 |
| 18 I often obsess about goals or achievements at work.  | .41 | 2 |
| 8 I prefer to work excessive hours, preferably 60 hours or more per week. | .66 | 3, Work Addiction |
| 11 I enjoy spending evenings and weekends working. | .63 | 3 |
| 13 I feel very addicted to my work. | .58 | 3 |
| 7 I think about work constantly. | .42 | 3 |
| 9 I have a need for control over my work. | .29 | 3 |
| 17 People would describe me as being impatient and always in a hurry. | .67 | 4, Unpleasantness |
| 15 I consider myself to be a very aggressive person. | .62 | 4 |
| 16 I get irritated often with others. | .60 | 4 |
| 10 I have a need for control over others. | .39 | 4 |
| 3 I feel anxious when I am not working. | .94 | 5, Withdrawal Symptoms |
| 2 I feel guilty when I am not working. | .85 | 5 |
| 4 I feel bored or restless when I am not working. | .55 | 5 |
| 5 I am unable to relax at home due to preoccupation at work. | .44 | 5 |

Table 2. *Correlations among the Factors (N =188)*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Factor | 1 | 2 | 3 | 4 |
| 2 | .31 |  |  |  |
| 3 | .29 | .24 |  |  |
| 4 | .30 | .28 | .26 |  |
| 5 | .48 | .47 | .38 | .28 |

Fourteen graduate students were asked to identify the WAQ’s 30 items out of a pool of 40 items. Items from the WAQ were correctly identified 89% of the time, which establishes adequate content validity. Table 3 presents descriptive statistics and intercorrelations. Neither the WAQ nor the WART was significantly correlated with AC and NC, establishing discriminant validity and supporting H1a and H1b respectively. Both the WAQ and the WART were significantly correlated with CC, demonstrating concurrent validity and supporting H1c. Furthermore, the WAQ and the WART were significantly correlated with OCPD, showing concurrent validity and supporting H2. However, the WAQ and the WART did not differ significantly with respect to their correlations with CC, Steiger’s *z* = .75, *p* = .44; OCPD, Steiger’s *z* = .00, *p* = 1.00; AC, Steiger’s *z* = 1.46, *p* = .14; and NC, Steiger’s *z* = .55, *p* = .58. Additionally, the WAQ significantly correlated with the WART (*r* = .72), establishing convergent validity and supporting H3. Finally, all scales had acceptable reliability coefficients (Nunnally & Bernstein, 1994) and were similar to those found in previous research (e.g., Meyer et al., 1993; Samuel & Widiger, 2010). Chronbach’s alpha was significantly greater for the WAQ than for the WART, Feldt *W* = .629, *p* < .001.

Table 3. *Correlations and Descriptives (N =188)*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | WAQ | WART | AC | CC | NC | OCPD |
| WAQ | .93 |  |  |  |  |  |
| WART |  .72\*\* | .90 |  |  |  |  |
| AC |  -.06 | .02 | .88 |  |  |  |
| CC |  .27\*\* |  .23\*\* |  -.11 | .80 |  |  |
| NC | .06 | .03 |  .75\*\* | .07 | .90 |  |
| OCPD |  .64\*\* |  .64\*\* | -.07 |  .25\*\* | .01 | .73 |
| *Range of Possible Scores* | 1-5 | 1-4 | 1-7 | 1-7 | 1-7 | 0-1 |
| *Range for Current Data* | 1.03-4.17 | 1.21-3.58 | 1.00-7.00 | 1.17-7.00 | 1.00-7.00 | .16-1.00 |
| *M* | 2.49 | 2.56 | 4.38 | 4.18 | 4.08 | .53 |
| *SD* | .67 | .47 | 1.51 | 1.33 | 1.53 | .15 |

*Note*. Entries on the main diagonal are Cronbach’s alpha. WAQ, Workaholism Analysis Questionnaire; WART, Work Addiction Risk Test; AC, Affective Commitment; CC, Continuance Commitment; NC, Normative Commitment; OCPD, Obsessive-Compulsive Personality Disorder. \**p* < .05 \*\* *p* < .001. |*g1*| < .41 and |*g2*| < .79 for all variables.

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