

PSYCHOMETRIC EVALUATION OF THE ROMANIAN VERSION OF THE IRRATIONAL PROCRASTINATION SCALE IN A MILITARY STUDENT POPULATION

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Abstract: *The present paper examines the psychometric properties of the Romanian version of the Irrational Procrastination Scale (IPS). The Principal Component Analysis for IPS revealed a two factors structure, but the second factor is loaded by an item that refers to postponing tasks and another item that actually expresses the opposite behavior. We therefore conclude that IPS is in fact a one-dimensional construct, as the author of the scale suggested. The IPS has good reliability. The correlation matrix indicated that the procrastination scale did correlate weakly with measures of self-efficiency and self-regulation but it was highly correlated with factor H, factor O and global scale Q4 from Cattell's 16 PF personality questionnaire. As a conclusion, the Romanian translation of the Irrational Procrastination Scale is a general measure of procrastination as irrational delay which can be successfully used in student populations.*

Keyword: Irrational Procrastination Scale, Psychometric evaluation

1. Introduction

At least once in a lifetime, any person postponed a task or activity for various reasons; but when postponement turns into a habit that affects the individual's performance at work and its general well-being, we talk about procrastination as a pervasive self-regulatory failure requiring a certain type of intervention or treatment. [1] Milgram considers that "procrastination is primarily (1) a behavior sequence of postponement; (2) resulting in a substandard behavioral product; (3) involving a task that is perceived by the procrastinator as being important to perform; and (4) resulting in a state of emotional upset." [2]

Balkis & Duru [3] identified five types of procrastination: life routine procrastination, neurotic procrastination, compulsive procrastination, decisional procrastination, and academic procrastination.

In trying to identify the causes and effects of procrastination, Steel [4] performs a meta-analysis based on 691 correlations taken from correlative, experimental and qualitative studies. He identifies a set of strong predictors for procrastination: task aversiveness, task delay, self-efficacy, and impulsiveness. An important conclusion of his study refers to the strong relationship between procrastination, conscientiousness and self-regulation: "procrastination does appear to be representative of low conscientiousness and self-regulatory failure. This indicates that procrastination largely, although not entirely, accounts for the relationship of conscientiousness to performance. In addition, procrastination was strongly associated with a host of related concepts: distractibility, organization, achievement motivation, and an intention–action gap." [5]

Steel's study highlights the weak correlation of procrastination with personality traits such as agreeableness, sensation seeking, neuroticism, anxiety, impulsiveness or perfectionism. Conversely, procrastination is strongly associated with individual differences such as self-efficacy, need for achievement, degree of organization, self-control, distractibility, impulsiveness, and proneness to boredom.

P. Steel defines procrastination as a form of self-regulatory failure which can be successfully explained by Temporal Motivation Theory (TMT): "a recent integrative motivational model that seeks to explain self-regulatory behavior in a way that is consistent with a wide variety of theoretical perspectives (e.g., economics, personality, expectancy theory, goal setting) [6] a synthesis of traditional, well-established motivational formulations that include time as a fundamental term...."[7]

Ferrari [8] identifies three types of procrastination:

- arousal procrastination, the tendency to postpone because the person finds pleasure in the strong sensations created by working under pressure (behavioral procrastination);
- avoidance procrastination; delay is due to the need to protect self-esteem or to the fear of failure (behavioral procrastination);
- decisional procrastination, the tendency to postpone decision-making.

In his studies, Steel does not obtain data to support Ferrari's model, but he is convinced that procrastination should be seen as an irrational delay. He formulates two functionally equivalent scales to measure procrastination: the Pure Procrastination Scale (PPS) and the Irrational Procrastination Scale (IPS); the factorial analysis of these scales indicates the presence of a single factor "consistent with the dominant notion of procrastination as a dysfunctional delay" [9].

Svartdal, Pfuhl, Nordby, Foschi, Klingsieck, Rozental, Carlbring, Lindblom-Ylänne & Rebkowska [10] analyzed the

utility of the two scales translated into different languages, for measuring the degree of procrastination in a heterogeneous population of students and employees from six countries: Finland, Sweden, Norway, Germany, Italy and Poland. The authors showed that both the model identified by Steel in 2010 and the one with two factors proposed by Rozental et al. in 2014 demonstrated acceptable fit in the complete sample as well as in the subsamples (student and employees). Results across nations indicated the good fit of the one-factor model, with two exceptions: Finland and Sweden.

2. Sample

Our sample consists of 100 military students, 50 girls and 50 boys; mean age is 19.5 (s.d.=1.1). I also took into consideration the type of high school they graduated: military (47%) or civil (53%) and the average grade obtained after the first semester. Students completed the tests on a voluntary basis during their free time.

3. Measures

3.1. Irrational Procrastination Scale [11] measures the degree of irrational postponement of daily actions. It is a questionnaire consisting of nine items using a Likert type scale with five levels. (1 = Very seldom; 2 = Seldom; 3 = Sometimes; 4 = Often; 5 = Very often). High scores on this scale indicate a high level of procrastination (for example: "I put things off so long that my wellbeing or efficiency unnecessarily suffers"). The scale contains three items that need to be reversed because they refer to behaviors opposed to procrastination (items 2, 5 and 8). Author validated the scale on a sample of 16 413 adults from eight English-speaking countries (58.3% women, 41.7% men) with a mean age of 38.3. In the study published by Steel, the tendency towards procrastination was strongly correlated with age, gender, marital status, education and nationality, "the procrastinators" being mostly young, unmarried men with a low level of education.

Rozental, Forsell, Svensson, Forsström, Andersson & Carlbring [12] studied the psychometric properties of the Irrational Procrastination Scale (IPS) as an Internet-administered self-report measure for evaluating procrastination in a clinical population. The Swedish version of the scale had excellent reliability.

We took the scale in the form presented by P. Steel on the site *Procrastination and Science* [13]. It was translated from English to Romanian by two English teachers, independently; then, the scale was translated back from Romanian into English. The language of the scale did not cause any problems; the Romanian version of the scale has fluency and closely follows the formulation of the English sentences.

3.2. General Perceived Self-Efficacy Scale [14] consists of 10 items using a Likert type scale with 4 levels (1= not at all true, 2 = barely true, 3 = moderately true, 4 = exactly true). Optimistic people usually get high self-efficacy scores, based on the confidence in their ability to successfully solve the problems that arise in their way,

3.3. Self-regulation scale [15] consists of 10 items using a Likert type scale with 4 levels (1= not at all true, 2 = barely true, 3 = moderately true, 4 = exactly true) items 5, 7 & 9 must be reversed. This scale measures the individual's ability to control their thoughts and emotions in order to achieve their goals and support their performance in specific areas of interest. Diehl, Semegon and Schwartz [16] used this scale to measure an individual's ability to maintain a high level of control over attention in pursuing personal goals and they reported a good internal consistency and a good criterion validity of the scale.

4. Results

The KMO and Bartlett tests (KMO = 0.797., Bartlett's Test of Sphericity: χ^2 (36) = 236.493 $p < .0001$) allow the factorial analysis. The nine items of the questionnaire loading three factors are presented in Table 1. Factor loading lower than .40 was ignored. As it can be seen,

items no. 3 and 8 do not significantly load any factor.

The value of the Cronbach coefficient is 0.73 for the 9-item scale, which is an acceptable level of consistency. Removal of item no. 3 would increase the value of the Cronbach coefficient to 0.79. Regarding item no. 8, the fact that it does not significantly load any of the three factors recommends it for removal, although this would decrease the consistency of the scale. (Table 2)

Test-retest reliability over a period of four weeks in a sample consisting of 70 students was .84.

In order to test the criterion validity we correlated student's procrastination scores with the self efficacy and self-regulation scores. As we expected, procrastination showed significant negative correlations with both self-efficacy scores ($r = -.269$, $p = .007$) and self-regulation scores ($r = -.380$, $p < .001$).

A sub-sample ($n = 30$) of the total sample completed Cattell's Sixteen Personality Factor Questionnaire (16 PF), Form A. The factors assessed by this questionnaire are bipolar constructs by which the author attempted to capture the entire range of the behavioral manifestations specific to each dimension [17]. We do not want to present here the entire questionnaire, but only the significant correlations we have identified: the procrastination scores correlated negatively with the factor H scores ($r = -.508$, $p = .016$) but was positively correlated with the scores for factor O ($r = .649$, $p = .001$) and for the global scale Q4 ($r = .685$, $p < .001$).

Factor H (Threctia *versus* Parmia) refers to the opposite behavioral manifestations of shyness and sensitivity to threats *versus* courage and lack of sensitivity. The negative correlation between the procrastination score and the score on this factor shows that students with a more pronounced tendency towards procrastination are shy, prudent, distant and reserved; they perceive dangers quickly and are perceived as cold and disinterested.

Table 1. Rotated Component Matrix

	Factor			Communalities
	1	2	3	
1. I delay tasks beyond what is reasonable.		.669		.688
2. I often regret not getting to tasks sooner.		.779		.663
3. I do everything when I believe it needs to be done.	.197	.075	-.820	.717
4. There are aspects of my life that I put off, though I know I shouldn't.	.685			.543
5. If there is something I should do, I get to it before attending to lesser tasks.			.649	.524
6. I put things off so long that my wellbeing or efficiency unnecessarily suffers.	.784			.678
7. At the end of the day, I know I could have spent the time better.	.768			.634
8. I spend my time wisely.	.491	.483	.311	.571
9. When I should be doing one thing, I will do another	.738			.725
Eigenvalue	3.39	1.33	1.02	
% of Variance	37.68	14.78	11.33	63.80
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.				
a. Rotation converged in 4 iterations.				

Table 2. Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 1	17.80	17.616	.459	.714
Item 2	18.07	18.975	.283	.740
Item 3	17.45	20.492	-.016	.796
Item 4	17.89	16.058	.579	.691
Item 5	17.61	18.362	.276	.744
Item 6	18.28	15.214	.630	.679
Item 7	17.62	17.814	.415	.721
Item 8	17.75	16.735	.559	.697
Item 9	18.17	15.557	.704	.670

The procrastination scores correlate positively with the factor O scores (Trust *versus* Culpability). At this factor, low scores indicate calm, serene, quiet, self-confident, stress-resistant, effective, vigorous, phobic-free individuals. High scores indicate feelings of insecurity, anxiety, depression, lack of confidence in others, high emotional sensitivity, self-

depreciation, feelings of guilt. Therefore, high scores for procrastination indicate a person with manifestations specific to Culpability pole of the factor.

Procrastination scores also correlate positively with Q4 scores (Low ergic tension *versus* High ergic tension). Low scores on this scale indicate people who are calm, relaxed, nonchalant, satisfied with

their lives. High scores indicate tense, strained, irritable, agitated, frustrated people. Higher procrastination scores are correlated, therefore, with increased ergic tension.

5. Discussion

The present paper examines the psychometric properties of the Romanian version of the Irrational Procrastination Scale (IPS). Following factor analysis, we propose removing the item no. 3 (*I often regret not getting to tasks sooner*), the item no. 5 (*If there is something I should do, I get to it before attending to lesser tasks*) and the item no. 8 (*I spend my time wisely*). The fifth item is the only item loading the third factor and it refers more to the person's ability to prioritize tasks according to their importance, which implies a cognitive processing of information about the tasks. Therefore, we would keep the following items on this scale:

1. I delay tasks beyond what is reasonable.
2. I do everything when I believe it needs to be done.
3. There are aspects of my life that I put off, though I know I shouldn't.
4. I put things off so long that my wellbeing or efficiency unnecessarily suffers.
5. At the end of the day, I know I could have spent the time better.
6. When I should be doing one thing, I will do another.

The Principal Component Analysis for IPS revealed a two factors structure. The second factor is loaded by an item that refers to postponing tasks and another item that actually expresses the opposite behavior

We therefore conclude that IPS is in fact a one-dimensional construct, as the author of the scale suggested; removal of the second item - *I do everything when I believe it needs to be done* – or its reformulation could improve the structure, validity and consistency of the scale.

The IPS has good reliability with Cronbach's $\alpha = 0.79$. The correlation matrix indicated that the procrastination scale did not correlate highly with measure of self-efficiency ($r = .28$) and self-regulation ($r = .38$) but it was highly correlated with factor H ($r = -.50$) with factor O ($r = .64$) and with global scale Q4 ($r = .68$) from Cattell's Sixteen Personality Questionnaire (16PF).

We did not identify statistically significant differences between the procrastination scores of girls and boys or civilian college graduates compared to military high school graduates. Also, there were no significant correlations between procrastination scores and the average grades obtained after the first semester.

The main limitation of this study is given by the small size of the sample; results should be interpreted in light of this limitation.

6. Conclusion

The Romanian version of the Irrational Procrastination Scale is a general measure of procrastination as irrational delay which can be successfully used in student population studies. Our results suggest that irrational postponement may be less correlated with self-efficacy or control over attention in goal pursuit but may be strongly linked to certain personality factors.

References

- [1] Rozental, A., Carlbring, P., Understanding and Treating Procrastination: A Review of a Common Self-Regulatory Failure, *Psychology*, 5, 1488-1502, 2014, <http://dx.doi.org/10.4236/psych.2014.513160>
- [2] Ferrari, J.R., Johnson, J.L., McCown, W.G., *Procrastination and Task Avoidance: Theory, Research, and Treatment*, New York: Plenum, 1995, p.11

- [3] Balkis, M., Duru, E., The evaluation of the major characteristics and aspects of the procrastination in the framework of psychological counseling and guidance. *Educational Sciences: Theory & Practice*, 7(1), 376-385, 2007
- [4] Steel, P., The Nature of Procrastination: A Meta-Analytic and Theoretical Review of Quintessential Self-Regulatory Failure, *Psychological Bulletin*, Vol. 133, No. 1, 65–94, 2007, DOI: 10.1037/0033-2909.133.1.65
- [5] *Ibid.*, p.81
- [6] *Ibid.*, p.71
- [7] *Ibid.*, p. 66
- [8] Steel, P., The Nature of Procrastination: A Meta-Analytic and Theoretical Review of Quintessential Self-Regulatory Failure (2007.) *Psychological Bulletin*, Vol. 133, No. 1, 65–94, 2007, DOI: 10.1037/0033-2909.133.1.65
- [9] Steel, P., Arousal, avoidant and decisional procrastinators: Do they exist? *Personality and Individual Differences*, 48, 926-934, 2010, <http://dx.doi.org/10.1016/j.paid.2010.02.025>, p. 15
- [10] Svartdal, F., Pfuhl, G., Nordby, K., Foschi, G., Klingsieck, K.B., Rozental, A., Carlbring, P., Lindblom-Ylänne, S.R., Rebekowska, K., On the Measurement of Procrastination: Comparing Two Scales in Six European Countries. *Front. Psychol.* 7:1307, 2016, DOI: 10.3389/fpsyg.2016.01307
- [11] Steel, P., Arousal, avoidant and decisional procrastinators: Do they exist? *Personality and Individual Differences*, 48, 926-934, 2010, <http://dx.doi.org/10.1016/j.paid.2010.02.025>
- [12] Rozental, A., Forsell, E., Svensson, A., Forsström, D., Andersson, G., Carlbring, P., Psychometric evaluation of the Swedish version of the pure procrastination scale, the irrational procrastination scale, and the susceptibility to temptation scale in a clinical population, *BMC Psychology* 2014, 2:54, <http://www.biomedcentral.com/2050-7283/2/1/54>
- [13] <https://surveyyourself.files.wordpress.com/2015/02/pure-procrastination-scale.pdf>
- [14] Băban, A. *Stres și personalitate*, Presa Universitară Clujeană, Cluj-Napoca, 1998
- [15] http://userpage.fu-berlin.de/health/selfreg_e.htm
- [16] Diehl, M., Semegon, A.B., Schwarzer, R., Assessing Attention Control in Goal Pursuit: A Component of Dispositional Self-Regulation, *J. Pers Assess.*, 86(3): 306–317, 2006; DOI: 10.1207/s15327752jpa8603_06
- [17] Minulescu, M., *Chestionarele de personalitate în evaluarea psihologică*, Garrell Publishing House, București, 2006