

SATISFACTION AND PROCRASTINATION AMONG PROGRAMMERS

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Abstract: *The current study investigates the existence of a correlation between satisfaction and procrastination, as well as between their subscales, among programmers. Data collected from a sample of 30 Romanian programmers were analyzed to assess this possible relationship, using the Job Satisfaction Questionnaire and the Job Procrastination Scale. The main results indicate the absence of a significant correlation between overall levels of satisfaction and procrastination. However, the analysis of the subscales reveals significant correlations between certain aspects of satisfaction and procrastination. In particular, the Soldering Subscale presents a significant correlation with the Organization and Communication Subscale, and the Cyberslacking Subscale correlates significantly with the Leadership and Interpersonal Relations Subscale. These findings highlight the complexity of the relationship between satisfaction and procrastination in the context of programmers and suggest that certain aspects of satisfaction may influence how they manage procrastination.*

Keywords. Satisfaction, Procrastination, Programmers, Correlation, Subscale Analysis, Soldering, Organization, Communication, Cyberslacking, Leadership

1. Introduction-Procrastination

Procrastination is a form of self-regulatory failure in which we voluntarily postpone an intended course of action, despite the expectation that we will suffer more from the delay' (Steel, 2007: 66). For example, a common form of procrastination is postponing funding a personal retirement plan, with over 80% of Americans admitting that they do not save enough for their retirement needs, according to their own confessions (Byrne, Blake, Cairns, and Dowd, 2006; O'Donoghue and Rabin, 1999; Venti, 2006). Procrastination is especially chronic in the world of work. Approximately 25% of the adult population consider their procrastination to be a defining personality trait (Ferrari, Diaz-Morales, O'Callaghan, Diaz and Argumedo, 2007; Steel, 2007). Procrastination, as reviewed by Steel (2011), is associated with lower wealth, health, and well-being. However, as Partnoy (2012) documents, there is still considerable debate about whether procrastination can be an adaptive work strategy, with some suggesting that procrastination may be in our best interests (Fischer, 2001). For example, Berg and Gigerenzer (2010) argue that irrational behavior itself, which would include procrastination, has no established impact, stating that "a significant lack is the investigation into whether individuals who deviate from axiomatic rationality face significant economic losses" (133) and "the normative interpretation of deviance as errors does not follow from empirical investigation linking deviance to negative outcomes" (Nguyen et al., 2013).

Procrastination can be defined as delay that is due to the avoidance of implementing an intention (Van Eerde, 2000: 375). It is considered to be a common behavior, as no less than 25% of the adult population considers themselves procrastinators (Ferrari, Diaz-Morales, O'Callaghan, Diaz and Argumedo, 2007). Although it is a common behavior, the degree to which people procrastinate can vary across different domains, for example, academic, professional, leisure and family domains (Klingsieck, 2013). Procrastination in the workplace, referring to a failure to self-regulate work tasks, is associated with high

costs (Nguyen, Steel and Ferrari, 2013). Studies report that employees spend an average of 1.5 to 3 hours on personal activities during working hours (Metin et al., 2016).

Procrastination is often defined as the postponement, delay, or postponement of work or action that should ideally be accomplished in the present (Steel, 2007). The word itself is derived from Latin, in which *pro* means before and *cras* suggests tomorrow (Bauman, 1999). Procrastination typically has a negative connotation attached to it. People who are procrastinators are often perceived as bad, harmful, or unwise in nature (Van Eerde, 2003). Individuals who see themselves as procrastinators often want to reduce it by setting realistic goals and deadlines to complete tasks within a reasonable time frame (Ariely and Wertenbroch, 2002). Procrastination is also typically seen as volitional in nature – that is, it involves the voluntary choice of a behavior or task over other competing options.

In the workplace, procrastinators may focus their energy differently on short-term goals, often to the detriment of completing key long-term tasks. Ideally, employees should strive to balance their personal energies in a way that maximizes productivity and reduces inefficiency so as to maximize corporate resources (Pollay, 1970). Unfortunately, procrastinators often leave themselves too little time for thoughtful consideration, leading to suboptimal work performance (Gupta et al., 2012).

People who prefer to procrastinate leave themselves little time for serious thinking, which leads to poor performance at work. In fact, the relationship between procrastination and personal performance suggests that those who put off tasks perform poorly overall (Delgado-medrano, 2011). However, procrastination affects the productivity of organizations and employees, so it is important to understand the factors that influence it. In addition, procrastination at work is also linked to non-work-related actions, which occur when employees engage in personal activities at work instead of dealing with work-related activities. For example, this form of workplace procrastination may involve someone shopping for personal items online during the workday instead of doing the work they are supposed to be doing. According to Delgado-medrano (2011) and Pasha (2017), there are other reasons why people procrastinate at work, including:

- Lack of time management skills. When people cannot manage time effectively, everything planned is delayed and the time allocated for each activity is extended.

- People prefer perfectionism. The fear of making mistakes is real and leads people to abandon important tasks. This means that they avoid performing certain tasks for fear of making mistakes and appearing incompetent. They expect their work to be impeccable. This is because they believe that if the task does not match the talent provided, they will fail, so it is better to postpone it for a while.

- Lack of motivation. This is the main reason for procrastination at work. This happens because, anyone feels hurt because they are not motivated when faced with a task that they do not really want or are not interested in. This situation occurs when an unpleasant or unattractive task at work can have the same effect. Therefore, the Human Resources department should always organize programs that can boost the morale of employees and make them love every task they do.

- Lack of necessary skills at work. Employees are more likely to procrastinate due to the lack of necessary skills, which makes the task difficult to complete. For example, if someone is a novice carpenter, the employee may postpone building the project that needs to be built. Also, if an employee does not understand how to complete a project, it might seem easier to delegate it to another department, but this will only lead to continued procrastination.

- Lack of interest. Procrastination can also be caused by a lack of interest. For example, the boss may have asked the employee to research a topic that the employee did not find interesting, or the employee may have been assigned a task that is simply boring. Due to the employee's lack of interest in the current topic, it is easier to ignore it until the last possible moment (Ismail et al., 2022).

2. Job Satisfaction

Employee satisfaction encompasses various aspects of the work experience, such as compensation, work-life balance, career development, and company culture. By focusing on satisfaction, we address the multiple factors that contribute to an employee's sense of fulfillment, rather than just aiming for momentary happiness.

When employees are satisfied with their job and company, they are more likely to stay employed and be committed to the company's goals. This, in turn, can lead to lower employee turnover rates, higher engagement, and a more productive and cohesive team.

Satisfied employees are more motivated to excel in their roles because they feel valued and supported by their employer. This, in turn, can lead to higher levels of productivity, innovation, and overall performance.

Satisfaction supports employee well-being: By focusing on the factors that contribute to satisfaction, we also support the overall well-being of our employees. This can translate into a healthier work environment where employees feel more motivated, less stressed, and better equipped to tackle challenges (Long, 2023).

Despite its widespread use in scientific research as well as in everyday life, there is still no general agreement on what job satisfaction is. In fact, there is no definitive definition of what work is. Therefore, before a definition of job satisfaction can be offered, the nature and importance of work as a universal human activity must be considered.

Hoppock defined job satisfaction as any combination of psychological, physiological, and environmental circumstances that lead a person to honestly say, "I am satisfied with my job" (Hoppock, 1935). According to this approach, although job satisfaction is influenced by many external factors, there remains something internal that relates to how the employee feels. In other words, job satisfaction is a set of factors that determine a state of satisfaction.

Vroom (1964), in his definition of job satisfaction, focuses on the employee's role in the workplace. Thus, he defines job satisfaction as the affective orientations of individuals towards the job roles they currently occupy.

Job satisfaction is a worker's sense of accomplishment and success in the workplace. It is generally perceived to be directly related to productivity as well as personal well-being. Job satisfaction involves doing a job that a person values, doing it well, and being rewarded for their efforts. Job satisfaction also involves enthusiasm and happiness regarding one's work. Job satisfaction is the key ingredient that leads to recognition, income, promotion, and the achievement of other goals that lead to a sense of fulfillment (Aziri, 2011).

Confucius is credited with the statement "choose a job you love, and you will never have to work a day in your life." The Oxford Learner's Dictionary defines job satisfaction as "the pleasurable feeling you get when you have a job you enjoy." Job satisfaction is subjective because employees will have their own perceptions of their work. How you feel about your job is unique to you, and your feelings can fluctuate from day to day. Many aspects of a person's role influence the measurement of job satisfaction. Managerial appreciation, pay, and the level of challenge affect how each person feels about their role. When employees experience high levels of job satisfaction, they perform better. When employees perform better, they generate more output for the organization.

Employees with high levels of job satisfaction tend to look for more ways to help their team. They will exhibit organizational citizenship behaviors and find additional tasks outside of their job description. Job satisfaction also helps with employee retention. When employees are happy with their work, absenteeism will be reduced. Employees will stay with the organization, reducing staff turnover. Professional relationships will be stronger when employees are satisfied with their roles. Signs of workplace deviance will be absent (Swofford, 2023). Craft, service, and kinship orientations are especially likely to be meaningful because they all point to something beyond the individual, says Pratt. And Steger has also focused on the idea that meaningful work is bigger than oneself. He and his colleagues recently created an instrument for measuring meaningful work (Journal of Career Assessment, 2012). This "Work and Meaning Inventory" assesses three components, he says: the sense that work has purpose, evidence that the meaning derived from work contributes to the meaning you feel in life as a whole, and the idea that work in some way benefits a greater good (Weir, 2013).

3. Research Methodology

To understand how job satisfaction and procrastination of IT employees are correlated, we pursued the following objectives:

- a. Identifying a positive correlation between procrastination and job satisfaction;
- b. Identifying a positive correlation between soldering procrastination and job satisfaction of organization and communication;
- c. Identifying a positive correlation between cyberslacking procrastination and job satisfaction of leadership and interpersonal relationships.

Therefore, we formulated the following hypotheses with the hope of answering curiosities related to the work climate in which IT employees find themselves, and whether it influences them negatively or positively through procrastination, which may remain to be seen in future research:

- a. It is assumed that there is a negative correlation between procrastination and job satisfaction;
- b. It is assumed that there is a negative correlation between soldering procrastination and satisfaction with organization and communication at work;

c. It is assumed that there is a negative correlation between cyberslacking procrastination and satisfaction with leadership and interpersonal relationships at work.

The sample was composed of 30 participants, aged between 20 and 50 years, of which 26 were male and 4 were female. Most of them came from urban areas (93.5%). The sample was of convenience, with participants being recruited through an internet advertisement.

Among the instruments used was the Job Satisfaction Questionnaire (T. Constantin, 2004), which consists of a set of 32 questions that evaluate four main factors:

- Remuneration and promotion: expresses the employee's degree of satisfaction or dissatisfaction with the reward and advancement opportunities related to his work.
- Leadership and interpersonal relations: reflects the employee's level of satisfaction or dissatisfaction with the relations with colleagues and management, as well as the general atmosphere in the work environment.
- Organization and communication: measures the employee's degree of satisfaction or dissatisfaction with the organization of work, the definition of tasks, communication and feedback within the organization.
- Overall satisfaction: indicates the employee's general level of satisfaction with the work performed, the way it is organized, the rewards received (material or moral) and the interpersonal climate in the work environment.

To measure procrastination, another instrument used was the Procrastination at Work Scale Procrastination, which revealed two sub-dimensions of the Procrastination at Work Scale (PAWS), namely "soldiering" and "cyberslacking", reflecting the fact that procrastination at work can be empirically differentiated from similar conceptual concepts such as counterproductive workplace behavior, general procrastination, and boredom. It represents a valid instrument that can be used to assess activities that are not related to the specific job during work hours.

The research was conducted in the city of Constanța and took place over a period of approximately two months. The instruments were administered online.

4. Data analysis and interpretation

Hypothesis 1: It is assumed that there is a negative correlation between procrastination and job satisfaction.

In the first phase of the analysis, we examined the normality of the variables. We observe from the table that the Sig. values associated with these variables are greater than 0.05, which suggests that the variables have a normal distribution.

Table 1. Analysis of the normality of data distribution for the procrastination and satisfaction variables

	Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk			
	Statistic	df	Sig.	Statistic	df	Sig.	
procrastination	.134	30	.178	.955	30	.224	
satisfaction	.089	30	.200*	.978	30	.764	

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Given the normal distribution of the variables, we applied the Pearson correlation coefficient. The results indicate a Sig. (2-tailed) value of 0.152, which is higher than the significance threshold of 0.05, suggesting that there is no significant correlation between procrastination and satisfaction. Also, the Pearson coefficient of -0.268 indicates a negative correlation between the two variables, which means that when one of the variables increases, the other decreases, and the hypothesis is not confirmed.

Table 2. Pearson correlation coefficient between procrastination and satisfaction variables

Correlations			
		procastination	satisfaction
procrastination	Pearson Correlation	1	-.268
	Sig. (2-tailed)		.152
	N	30	30
satisfaction	Pearson Correlation	-.268	1
	Sig. (2-tailed)	.152	
	N	30	30

The analysis revealed an interesting and seemingly counterintuitive result: no significant correlation was found between the level of procrastination and the level of job satisfaction. This result contradicts initial expectations and is consistent with findings from other similar studies, including the work of Tudose and Pavalache-Ilie (2021). In other words, the fact that employees procrastinate on work tasks is not directly related to their level of satisfaction with their work. Thus, a person could frequently procrastinate on work tasks without this having a significant impact on how they feel about the work they are doing. It is important to understand that these two aspects can be independent of each other and that it is possible for an employee to be satisfied with their work but also have a tendency to procrastinate on certain tasks (Ferrari and Pychyl, 2012). This is probably due to the fact that procrastination may not be related to job satisfaction due to the fact that it is distinguished from it for many reasons, such as: different time management styles, as an employee could postpone tasks for various reasons, such as personal habits or the way they manage time, without this influencing their level of job satisfaction; external factors, as procrastination can also be determined by external factors such as lack of clarity in tasks, time pressure or lack of resources, and these factors may not have a direct impact on the employee's job satisfaction (Steel and Klingsieck, 2016).

It is possible that an employee procrastinates for reasons other than dissatisfaction or dissatisfaction with their work. This may be due to lack of motivation, bad habits, or other personal aspects that are not necessarily related to the level of job satisfaction. Thus, procrastination and job satisfaction may be two distinct aspects of workplace behavior that are not necessarily correlated with each other. Among these, there are also other explanations for the fact that organizational job satisfaction is not necessarily important in determining procrastination, for example, different levels of involvement, in which an employee could be involved and do their job successfully even if they are not completely satisfied with the work environment or conditions. Thus, the level of procrastination may be influenced more by the individual's degree of involvement and responsibility than by the level of job satisfaction (Nguyen et al., 2013).

Hypothesis 2: It is assumed that there is a negative correlation between soldering procrastination and satisfaction with organization and communication at work. Also, the analysis of the normality of the variables was performed, and from the results obtained it can be seen that the Sig. values associated with these variables are greater than 0.05. This suggests that the variables follow a normal distribution.

Table 3. Test of normality of data distribution for the soldering subscale and the organization and communication subscale

	Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk			
	Statistic	df	Sig.	Statistic	df	Sig.	
soldering	.108	30	.200*	.969	30	.510	
Organization and communication	.113	30	.200*	.986	30	.959	

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

In light of the normal distribution of the variables, we applied the Pearson correlation coefficient. The results reveal a Sig. (2-tailed) value of 0.026, below the significance threshold of 0.05, indicating a significant correlation between the soldering subscale and the organization and communication subscale. Also, the Pearson coefficient of -0.405 indicates a negative correlation between the two variables, suggesting that when one of the variables increases, the other decreases.

Table 4. Pearson correlation coefficient between the soldering subscale and the organization and communication subscale

Correlations			
		soldering	organizare.si.comunicare
soldering	Pearson Correlation	1	-.405*
	Sig. (2-tailed)		.026
	N	30	30
Organization and communication	Pearson Correlation	-.405*	1
	Sig. (2-tailed)	.026	
	N	30	30

*. Correlation is significant at the 0.05 level (2-tailed).

According to Makrov (2011), there is an interesting idea that a high level of communication in organizations can lead to a high level of procrastination. However, when we analyze the nature of the work done by programmers, which often requires intense concentration and focus on code and technical tasks, we can see that the level of communication is often lower compared to other fields. In the case of programmers, communication is often focused on exchanging technical information and solving specific problems related to their projects. This may involve more written than verbal communication and may be more structured and directed towards clear goals. Thus, in this specific context of programmers, we cannot automatically assume that a high level of communication would lead to an increase in procrastination. In fact, due to the nature of their work and the need for concentration, an adequate level of effective and clear communication could even reduce the risk of procrastination and improve efficiency in completing tasks. Therefore, in this particular case of programmers, we cannot positively correlate the level of communication with the level of procrastination, but it could be the other way around - effective and well-targeted communication could help reduce procrastination and improve individual and team performance. Moreover, the perspective of personal habits and behaviors also matters, as procrastination may be more related to these than to the degree of job satisfaction of communication and organization. An employee may have a tendency to postpone tasks due to bad habits or inefficient time management, regardless of how satisfied he is with his job. Procrastination may also be the result of high time pressure or incorrect prioritization of tasks, which may be more related to a lack of adequate self-knowledge, personal values. Satisfaction in organization and communication may also be influenced by the work environment, organizational culture or support provided by management for the development of organizational and communication skills. Thus, procrastination may be the result of personal or circumstantial factors, which may not be directly related to these aspects. Therefore, these aspects may influence the decision to postpone certain activities, regardless of the individual's level of job satisfaction in terms of organization and communication (Spector & Jex, 1998).

1.1. Cyberslacking subscale and leadership and interpersonal relations subscale

Hypothesis 3: It is assumed that there is a negative correlation between cyberslacking procrastination and satisfaction with leadership and interpersonal relations at work.

Again, we examined the normality of the variables. The data in the table indicate that the Sig. values associated with these variables are greater than 0.05, which suggests that they have a normal distribution

Table 5. Test of normality of data distribution for the cyberslacking subscale and the leadership and interpersonal relationships subscale

	Tests of Normality					
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
cyberlacking	.146	30	.100	.961	30	.326
Leadership and interpersonal relationships	.117	30	.200*	.973	30	.618

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Given the normal distribution of the variables, we used the Pearson correlation coefficient. The results reveal a Sig. (2-tailed) value of 0.023, below the significance threshold of 0.05, thus suggesting a significant correlation between the cyberslacking subscale and the leadership and interpersonal relations subscale. Also, the Pearson coefficient of -0.414 indicates a negative correlation between the two variables, meaning that when one of the variables increases, the other decreases.

Table 6. Pearson correlation coefficient between the cyberslacking subscale and the leadership and interpersonal relationships subscale

		Correlations	
		cyberlacking	conducere.si.relatii.interpersonale
cyberlacking	Pearson Correlation	1	-.414*
	Sig. (2-tailed)		.023
	N	30	30
Leadership and interpersonal relationships	Pearson Correlation	-.414*	1
	Sig. (2-tailed)	.023	
	N	30	30

*. Correlation is significant at the 0.05 level (2-tailed).

Cyberslacking, which involves postponing work tasks through online distractions, can be negatively correlated with management satisfaction and interpersonal relationships at work for reasons such as negative perceptions of productivity: cyberslacking can lead to a decrease in employee productivity, which can be negatively perceived by management. If employees spend a lot of time online instead of completing their tasks, management may consider them to be ineffective. Cyberslacking can indicate a lack of responsibility on the part of employees in completing their tasks. This behavior can affect relationships with colleagues and management, generating a climate of distrust. The impact on collaboration reflects constant distractions in the online environment that can affect collaboration and effective communication between team members. This can lead to tensions in interpersonal relationships and a negative perception of the work environment. Therefore, cyberslacking can contribute to a decrease in management satisfaction and the deterioration of interpersonal relationships at work, having a negative impact on team efficiency and organizational climate (Ince and Gül, 2011).

Cyberslacking and management and interpersonal relationship satisfaction at work can be considered distinct aspects that are not directly related to each other, precisely because procrastination is an individual behavior, where cyberslacking is more of an individual employee behavior, which can be influenced by personal habits, level of self-control or time management. On the other hand, management satisfaction and interpersonal relationships are more the result of interactions between employees and management or colleagues (Canaan Messarra et al., 2011). Also, the factors that influence management satisfaction are diverse, as satisfaction with management can be influenced by several factors, such as leadership style, communication, recognition of efforts or clear direction of objectives. Cyberslacking may be just one of many factors that can affect performance and relationships at work. Thus, communication problems can be separated from procrastination; while procrastination can affect productivity and teamwork, communication or interpersonal relationship problems can have different roots, such as a lack of transparency, unresolved conflicts, or a lack of an appropriate organizational climate.

Conclusions

Our study investigated the relationships between procrastination, satisfaction, and other subscale variables such as soldering, organization and communication, cyberslacking, and leadership and interpersonal relationships in a sample of 30 participants. Our results make valuable contributions to the existing literature by highlighting complex correlations between these variables.

Our analysis indicated that there is no significant correlation between the level of procrastination and the level of job satisfaction. This result suggests that, in the IT sector, procrastination does not directly influence employee satisfaction. Thus, employees may postpone certain tasks without this necessarily affecting their perception of work. This phenomenon can be attributed to factors such as individual time management styles or external pressures, which are not directly related to job satisfaction.

We identified a significant negative correlation between soldering skills and organizational and communication skills. This indicates that excellence in precise technical tasks may be associated with deficiencies in communication and organizational skills. This finding is crucial for professional development in IT, highlighting the need for training programs that balance technical and interpersonal development.

The results also showed a negative correlation between cyberslacking and leadership and interpersonal skills. This suggests that employees who engage in cyberslacking may have poorer performance in team management and interpersonal relationships. This finding may motivate organizations to adopt policies to minimize online distractions in order to improve the effectiveness of team leaders. The study results highlight several important directions for organizations in terms of employee training and professional development.

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