

## **Increased Academic Procrastination in Industrial Engineering Students: A Consequence of the Pandemic?**

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### **Introduction**

Academic procrastination is associated with academic performance dysfunction, 15 to 20 percent of adults and approximately half of medical students suffer from chronic and frequent procrastination, causing problems in their daily lives. Procrastination originates in two parts of the brain that compete for control. It is a battle between the limbic system and the prefrontal cortex. The limbic system is involved in basic adaptations for survival, such as sympathetic response, emotion and pleasure seeking, and is related to impulsive behaviors and the desire for immediate gratification. The prefrontal cortex is responsible for more complex behaviors, such as planning for the future. Students who procrastinate are more likely to suffer from depression and social anxiety than non-procrastinators. It is associated with persistent stress and negative emotions (anxiety, distress, depression and hopelessness)<sup>1,2</sup>. In the face of anxiety and fear, the limbic system takes over and it is then that we procrastinate by substituting the most daunting tasks in exchange for temporary relief. In the early days of the pandemic, fatigue and exhaustion occurred due to adaptation in social constraints, as the pandemic has prolonged, we suffer more stress. The need for social distancing and staying at home has modified the ability to do things that distract us from our task. Development of procrastinatory behaviors may be due to confinement and adaptation to confinement during the pandemic. Not only students were affected, but the groups also that presented more difficulties were older teachers, in which technical problems could be found in digital communication, more time dedicated to the preparation of classes, and lack of face-to-face communication and exchange of emotions with students, highlighting that the procrastination capacity could be due to a matter of adaptation to the new circumstances that were being experienced during the 2020-2022 academic cycles<sup>3-6</sup>. The increase in procrastination may be due to the overload of telecommuting in distance learning, which creates difficulties in differentiating work and relaxation spaces/times. Self-regulation is the motivational capacity that satisfies autonomous feelings, making individuals pursue and achieve their personal goals. Industrial Engineering students with procrastination tend to spend large amounts of time checking their inboxes of their applications to receive notifications, despite not having been alerted by the alert message of the arrival of an email or message, on many occasions, they do it automatically, as a conditioned motor behavior with their cell phone or computer. Neuroscience provides an explanation for the procrastinating behavior of university students on the Internet, since, according to theories of neurobiological brain function, it is stated that every time the university student receives a "like" for a publication, notifications of visits to your profile, receives or sends messages, among other forms of immediate gratification, the brain secretes dopamine, a neurotransmitter that provides pleasure, satisfaction and is associated with states of positive emotions. For this reason, Industrial Engineering students with high levels of procrastination spend a lot of time searching for this source of excitement, which increases the likelihood of developing an Internet addiction. In conclusion, procrastination is a volitional dysregulation despite being motivated, this volitional problem affects the individual's self-efficacy beliefs, motivation and goal setting through a vicious cycle that has increased significantly in this pandemic.

**Key words:**

Academic procrastination; COVID-19; University students; Pandemic

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The authors declare no conflict of interest.

**References**

- [1]. F. M. Sirois. Procrastination and stress: exploring the role of self-compassion. *Self and Identity*, (2014); 13: 128-45.
- [2]. J. Mohammadi-Bytamar, S. Zenoozian, M. Dadashi, O. Saed, A. Hemmat A, G. Mohammadi. Prevalence of academic procrastination and its association with metacognitive beliefs in Zanjan University of medical sciences. *Iran J Med Educ Dev.*, (2018); 10: 84-97.
- [3]. M. A. Kosycheva, T. E. Tuzhba, I. V. Gaydamashko, K. S. Yesaulova. Influence of poor digital competence on procrastination of university teachers. In *Proceedings of the 2020. The 4th International Conference on Education and Multimedia Technology*. (2020). 73–7.
- [4]. F. Valieva, S. Fomina, I Nilova. Distance learning during the corona-lockdown: Some psychological and pedagogical aspects. In *Lecture Notes in Networks and Systems*; Bylieva, D., Nordmann, A., Shipunova, O., Volkova, V., Eds.; Springer: Cham, Switzerland, (2021); 184: 289-300.
- [5]. M. Tezer, P. Ulgener, H. Minalay, A. Ture, U. Tugutlu, M. G. Harper. Examining the relationship between academic procrastination behaviours and problematic Internet usage of high school students during the COVID-19 pandemic period. *Glob J Guid Couns Sch Curr Perspect*. (2020); 10: 142-56.
- [6]. S. I. Arifiana, H. Rahmawati, F. Hanurawan, N. Eva. Stop academic procrastination during Covid 19: Academic procrastination reduces subjective well-being. *KnE Soc Sci*. (2020): 312-25.