

The Impact of Digital Stress on the Academic Performance of University Professors: A Theoretical Approach

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Abstract

The world in the third millennium has witnessed an increasing orientation toward digitalization, which has become a fundamental pillar in the management of social institutions. The university is considered one of these institutions, especially after the shift toward hybrid education and remote work brought about by the coronavirus pandemic. In this research paper, we will address one of the consequences of this transformation, namely the digital stress experienced by university professors as a result of the excessive and unorganized use of technological tools, with the aim of identifying the dimensions of this stress and its effects on the efficiency and quality of their academic performance.

Keywords: *Digital Stress, University Professor, Academic Performance, Impact.*

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Introduction

The 2019 coronavirus pandemic revealed the necessity for university institutions to adopt hybrid education, both in person and remotely, so that their activities would not come to a halt during times of crisis. Thus, there was a shift toward this type of education and an attempt to generalize and institutionalize it. In parallel with the rapid progress in digital technology, university professors found themselves compelled to keep pace with developments and become familiar with new digital tools and technologies, especially since digital tools and platforms have become an integral part of educational, research, and even administrative processes in universities.

Although this transformation has had positive repercussions in improving efficiency, facilitating access to knowledge, and presenting it in ways that are easy to understand and comprehend, it has also created new challenges, most notably the phenomenon of digital stress among university professors as a result of their inability to adapt to new digital technologies or their excessive use of them. Today's professor is obliged to deal with a huge amount of digital information and the constant expectation of being connected and available, in addition to the need to master and use learning management systems and fulfill other obligations. These pressures constitute psychological and physical stress that may extend to affect the quality of academic performance.

The problem of this study can be formulated in the following main question:

What are the effects of digital stress on the academic performance of university professors? And what solutions can reduce these effects?

1. The Conceptual Framework

In this part of the research, we will try to encompass the two main concepts around which the study revolves, namely digital stress of the university professor and academic performance, as follows:

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1.1 The concept of digital stress of the university professor

Digital stress is defined as a negative state resulting from an individual's inability to adapt to new digital technologies or from their excessive use, which leads to feelings of pressure, anxiety, and exhaustion (Boyer-Davis, 2020, pp. 42-58).

From this concept, we notice that the digital stress experienced by university professors is a state that arises from the accelerated digital transformation witnessed in the academic environment. It was described by Brod in 1984 as “a modern disease of adaptation resulting from the inability to deal with new computer technologies in a correct way (Brod, 1984, p. 242).”

The inability to adapt to anything creates a psychological state of tension and mental and physical pressure, making the individual feel overwhelmed and unable to perform at their full capacity as they would under normal conditions resulting from successful adaptation. This definition leads us to the conclusion that the inability of university professors to adapt to new digital developments makes them less effective as a result of the psychological pressure caused by non-adaptation.

In another definition, digital stress refers to the psychological pressure resulting from the demands of digital technology that exceed the individual's abilities or available resources. This pressure is aggravated by the continuous expectation of being connected and available, which leads to the blurring of the boundaries between professional and personal life and imposes on university professors the need for continuous adaptation to successive technological updates (Tarafdar, Tu, Ragu-Nathan, & Ragu-Nathan, 2007, pp. 301-328).

Keeping up with new developments, the huge number of references provided by digital sources, and the availability of information to students through these sources place professors under continuous pressure when preparing educational content. In addition, the accelerated development of technology places professors under constant pressure due to the need to master new tools and stay informed about them. This makes them stressed and distracted, which may negatively affect their academic performance.

1.2 Academic performance of the university professor

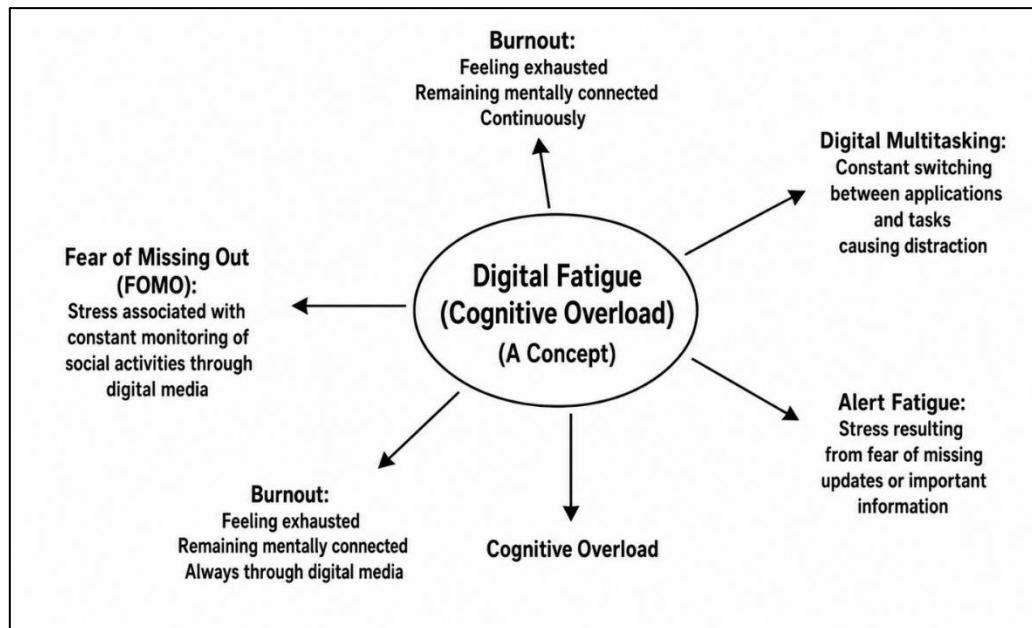
Academic performance is considered one of the important indicators for measuring the performance of higher education institutions, especially that of university professors, who are considered the cornerstone of the educational process in these institutions. The academic performance of university professors has been defined as “the way in which university professors carry out their tasks with the aim of disseminating knowledge through scientific research and teaching, as well as contributing to the development of society (Taher & Tamri, 2025, pp. 185-194).”

The academic performance of university professors includes their teaching tasks inside the classroom with students, research published in scientific journals and books, and the supervision of graduation dissertations. It also includes administrative duties such as attending pedagogical and deliberation committee meetings, supervising examinations, and assigning grades.

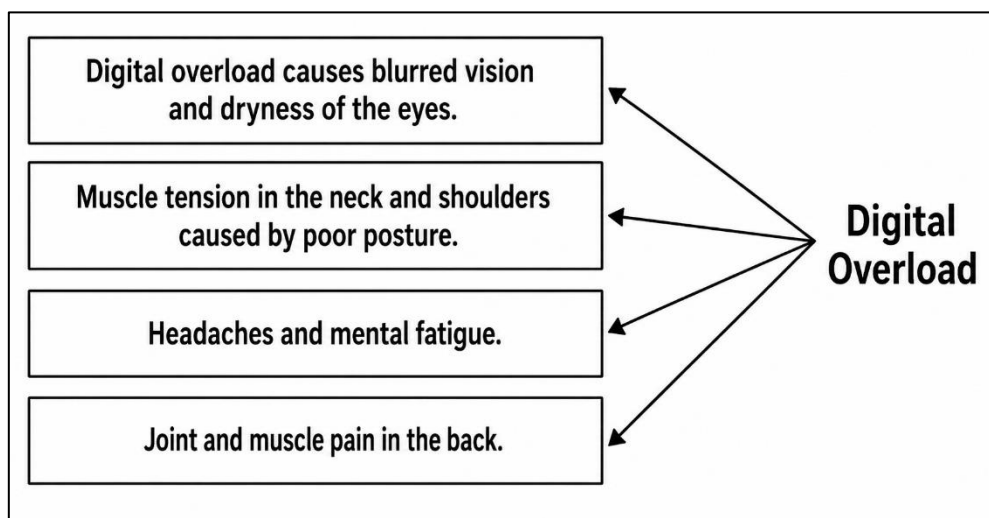
Academic performance has also been defined as determining the actual value of all the activities and roles that faculty members perform inside and outside their colleges in order to bring about the desired changes in students' personalities in light of the objectives and nature of the college, while also achieving society's objectives and fulfilling its expectations regarding the social functions performed by university professors. The level of quality and efficiency of this performance represents the key to the quality of university education in general (Morsafi, 1990, p. 150).

The academic performance of university professors is centered on their pedagogical or teaching performance, which includes a set of interrelated educational activities that form the instructional system. This system consists of three elements: the teacher, the learner, and the course content. Its purpose is to enable learners to acquire knowledge, attitudes, values, and skills (Ali, 2005).

2. Dimensions of digital stress (Korean Society for Sexual Medicine and Andrology, n.d.)



Dimensions of physical pain resulting from stress



3. The Reality of Digital Stress Among the University Professor

Technological changes have cast their shadows over social life and the social structure of societies around the world, where dealing with technological tools has become inevitable for functioning in contemporary society. The university is considered one of the first social institutions whose reliance on these tools has increased, and they have become an integral part of its tasks and management systems, especially the educational process, which has witnessed remarkable development and a shift toward digital education.

This has added extra tasks to university professors that require dealing with digital technology and, before that, learning how to use these tools. University professors thus found themselves between two realities: educational practice, which constitutes their primary task, and the necessity of learning and becoming familiar with new technological innovations in order to use them in the teaching function. This has caused many professors to experience a great deal of stress because of the increased workload and the fear of inadequacy resulting from the multiplicity of tasks.

University professors found themselves facing major challenges such as time management, setting boundaries, and using technology effectively, which placed them under psychological pressure that had repercussions for their educational role, such as a decline in the quality of their teaching. Stress often negatively affects professors' performance, regardless of how strong their teaching abilities or professional competence may be.

Likewise, the anxiety associated with becoming familiar with technological tools and employing them effectively in teaching affects the academic research process because of the reduction in time allocated to research as a result of directing more time toward the learning process, which has become a priority. This includes learning how to use technological tools in the educational process, mastering them, and participating in workshops and training courses on the use of technology.

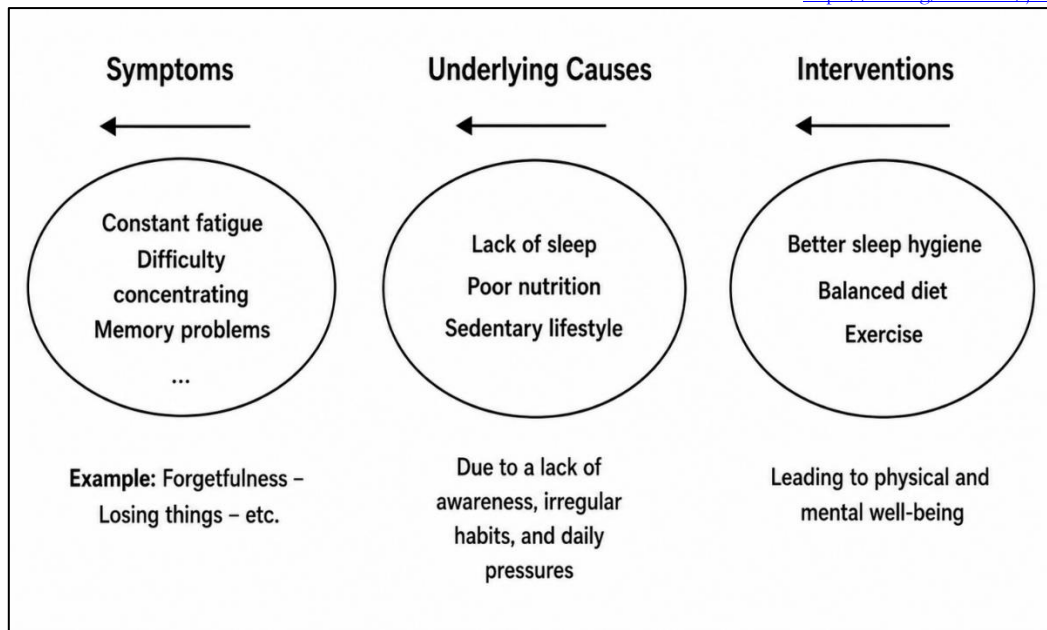
Also, conducting research under unsuitable psychological conditions (stress, anxiety, and fatigue) harms the quality of research, and this is another problem from which the professor suffers. Continuous stress may also have undesirable repercussions on the professor, such as various psychological problems (stress, self-esteem, depression, anxiety...), which may be reflected in the professor's interaction with students and in his academic performance. In addition to this, digital multitasking through opening multiple windows on the internet, along with simultaneous correspondence from the administration, colleagues, and even students, distracts the professor's attention and weakens his concentration, which is negatively reflected in his academic performance. Studies have revealed that 72% of professors suffer from high levels of stress and acute tension after comprehensive digitalization.

Not to mention the physical symptoms resulting from the digitization process, such as eye strain and neck and joint pain due to sitting for long periods in front of a computer screen, as well as general physical fatigue caused by prolonged screen use and the high level of concentration required to process an endless amount of data and information.

In addition, the shift toward technology in universities has led to the disappearance of the boundaries between work and personal life, causing professors to work without clearly defined time for their personal lives. This creates significant pressure and a feeling of reduced personal freedom.

4. Manifestations Of Stress Resulting from Dealing with Technology

Dealing with the technological machine itself (the computer, the phone, the algorithms) creates stress in itself that negatively affects the university professor and his academic performance, which can be illustrated in the following diagram:



Also, what can be read from the above diagram is that the excessive abundance of information hinders the effectiveness of making the correct scientific decision, as the professor finds difficulty in distinguishing between information with original sources and non-original information. Thus, some professors resort to avoiding information as a result of the inability to comprehend all the data provided by the Internet and as a result of their ignorance of the sources of this information.

5. The Theoretical Approach to The Repercussions of Digital Stress on the Academic Performance of the University Professor

The roots of digital stress go back to Brod (1982), who called it technostress and defined it as a modern disease resulting from the individual's inability to adapt to modern information technology, which has spread and become an inseparable part of the daily lives of countless individuals around the world.

As a result of the ambiguity surrounding why many users of information technology willingly expose themselves to exhausting and stressful communication patterns, several theoretical perspectives emerged to explain the phenomenon of digital stress among users of information technology. One of these is the neurological theory, which attributes digital stress to the interaction between specific aspects of cognitive neural development and the characteristics of portable media that increase fatigue. According to this theory, neural development within the frontal lobe and the parietal cortex is not fully completed until several years after adolescence, which may leave some individuals relatively less capable of emotional regulation in response to stress (Steele, Hall, & Christofferson, 2020, pp. 15-26).

Likewise, the limited capacity theory holds that some activities require greater effort and therefore demand more mental resources than others. It also suggests that there are rules and strategies that determine how resources are allocated across different activities and stages of information processing. This theory argues that human information-processing capacities are limited, and that an individual's ability to perform one or more tasks depends on both the resources available to the individual and the resources required by the task itself. Accordingly, excessive cognitive load occurs when the cognitive resources required by simultaneous tasks exceed the individual's limited cognitive capacities (Bryua & Tang, 2018, p. 1133).

And both (Lazarus & Folkman, 1987) proposed the transactional model of stress, where this considers that digital stress is a reaction to the interaction of personal variables and environmental variables as a result of an inappropriate relationship between them, and it is perceived when the environment imposes demands that exceed the individual's resources. Cognitive appraisal is considered a central mediator between environmental demands and exhaustion responses. With regard to the current topic, according to this model, digital stress can be explained based on the reaction resulting from environmental demands

associated with the use of communication media and information technology, such as receiving large quantities of e-mail messages, text messages, and phone calls, working for long periods with a computer device, and continuous communication through websites, in addition to the professor's perception that he is required to be always available in a vigilant manner online, which are considered challenges to the individual's cognitive and psychological resources, as well as a threat to his psychological well-being (Alzoghby, 2022, pp. 1-44).

The bottleneck theory sees that individuals have a limited amount of attention resources that they can use at one time, therefore information and stimuli are filtered in some way so that only the most prominent and important information is perceived. Accordingly, the processing operation occurs for only one task at a time, and processing of the second task cannot begin until processing of the first task ends. Consequently, when there is a need to process two tasks at the same time, one of them should be placed in a waiting queue, which leads to weakened performance (Meyer, et al., 1995, pp. 163-190).

6. Manifestations Of Digital Stress on The Performance of the University Professor

Socio-psychological theories agree that the individual has limited capacities and energy, and when certain conditions exist such as digital stress, these resources and energies are depleted, which is reflected negatively on the quality of performance.

As stated in the definition of digital stress, it includes what the individual perceives as manifestations of dissatisfaction, distress, anguish, and subjective exhaustion resulting from the inability of their latent cognitive adaptation resources to meet the use of digital information and communication technology. This state (digital stress) has its repercussions on individual performance, and in the case of the university professor, the following repercussions of the state of digital stress on the academic performance of the university professor can be observed.

- Availability stress: (Steele, Hall, & Christofferson, 2020) Steele et al. defined it as: "a distress or discomfort that includes a feeling of guilt and anxiety resulting from the individual's beliefs about others' expectations that they will respond to them and be continuously available to communicate with them through digital media" (Steele, Hall, & Christofferson, 2020), and these others known to the university professor, namely the students he teaches or the university administration, expect an immediate digital response from the professor, which creates for him a state of constant distress and psychological anguish. This negative psychological state prevents the professor from carrying out his academic performance in the best way, since one of the conditions of good performance is a moderate psychological state.
- Communication overload: This refers to the professor going through a subjective experience that makes him feel a heavy burden as a result of the increase in the amount of information he receives through digital technology media at rates exceeding his ability to process it efficiently, and it is positively associated with the degree of feeling stress (Misra & Stokols, 2012, pp. 737-759), and this matter has negative repercussions on performance.
- Boredom: This occurs when the professor finds himself driven to carry out more and more parts of the work relying on information and communication technology, which leads him to a great degree of boredom as a result of sitting for long periods with computer devices, browsing many sources and selecting from them, and dealing with a large number of digital platforms to which his work has become linked, and this feeling of boredom makes him practice his work without passion and creativity.
- Weak control: With regard to his daily life, prolonged dealing with technological devices limits the individual's independence and the degree of his control over the course of his ordinary day.
- Insecurity: Information and communication technology, its rapid spread, and the daily developments in it mean an increase in the requirements for responding to it, which constitutes an excessive informational burden on the professor who is always rushing to become familiar with the requirements of

this technology. There is another aspect in this manifestation represented in the lack of informational security of the algorithms in their generation of applications such as artificial intelligence applications, which makes the professor always live in a state of doubt about the reference of the information obtained, especially since what he obtains is a copy of a copy copied from another.

– Role stress: It can be summarized in that the increased spread of technology increases ambiguity among individuals regarding the role required of them to perform because of the competition among many demands. Among the stresses surrounding the role of the university professor is adapting the use of information and communication technology in the educational process, becoming familiar with the latest technological developments in this field, and mastering their use. All of this requires education and training on these technologies before employing them, which places the professor under the burden of acquiring technical skills that are accelerating in change in an uncontrolled manner, for example, artificial intelligence programs and applications that are countless.

7. Proposals To Reduce the Digital Stress of the University Professor To Enhance Academic Performance

One of the most prominent problems faced by university professors today is digital stress resulting from the adoption of information technology in the professional life of university institutions, which has led to an overlap between work and personal life, especially for university professors. Below, we present practical proposals to reduce this problem, which has repercussions for the academic performance of university professors.

– Establishing a communication charter with students: Since students are the group that interacts most frequently with professors through digital means, it is advisable at the beginning of the academic year to determine the official communication channels between students and professors and to define the expected response times. This would reduce the anxiety associated with students' expectations of an immediate response from professors.

– Using automatic grading tools and ready-made templates for responses to common and repeated questions: Many artificial intelligence applications provide such tools, and their use would reduce anxiety and save mental effort for university professors.

– Simplifying institutional procedures and regulating the use of digital tools: This can be achieved by clearly defining the use of digital platforms for managing lectures and communication, since an abundance of information can lead to information fatigue due to the dispersion of content across multiple applications. It is also necessary to set limits on the digital demands placed on university professors, such as e-mail and learning platforms, and to provide them with periods free from digital obligations by respecting rest days and holidays.

– Relying on the batching technique by allocating specific time periods for digital tasks and communication instead of responding instantly to every notification. This would reduce the mental distraction experienced by university professors.

– Providing digital administrative support: This can be done by assigning technical assistants to carry out routine digital tasks and allocating quiet workspaces in universities that help professors with research and lesson preparation and protect them from the mental distraction resulting from working at home.

Conclusion

There is no doubt that the digital environment offers advantages for the quality of university professors' academic performance, such as the availability and diversity of information, facilitated interactions, time savings, and many others. However, the widespread integration of digitization into the educational function

has also brought about some negative consequences, such as digital stress, which directly affects the productivity of university professors and the quality of their academic performance.

Beyond that, the burden of technology may create a gap between professors and the educational function, causing them to develop negative attitudes toward it and experience alienation from this role. This weakens the quality of their performance and limits their creativity and research abilities. This calls for a closer examination of the phenomenon of digital stress among professors, especially university professors, with the aim of developing practical mechanisms to reduce and manage it, since a mind freed from digital burdens and the noise of notifications is more capable of building deep educational relationships with students, enhancing research productivity, and ensuring professional sustainability.

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