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ПРОКРАСТИНАЦІЯ ЯК СИСТЕМНИЙ ПРЕДИКТОР ТРАНСФОРМАЦІЙ В ОСВІТНЬОМУ СЕРЕДОВИЩІ: ПОГЛЯД КРІЗЬ ПРИЗМУ ЕКОЛОГІЧНОЇ ПСИХОЛОГІЧНОЇ ФАСИЛІТАЦІЇ – ECPF

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PROCRASTINATION AS A SYSTEMIC PREDICTOR OF TRANSFORMATIONS IN THE EDUCATIONAL ENVIRONMENT: A VIEW THROUGH THE LENS OF ECOLOGICAL PSYCHOLOGICAL FACILITATION (ECPF)

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Abstract. This article offers a novel perspective on procrastination – not as a personal deficit or self-regulatory failure, but as a systemic predictor of change within educational environments. The relevance of the study arises from the urgent need to revise deficit-based and pathologizing views of procrastination in light of digital transformation, the spread of gig-education, and the growing role of uncertainty as a core condition of contemporary learning. The study aims to conceptualize procrastination as an adaptive mechanism and diagnostic signal of interface shifts in education, and to develop a multilevel model for its constructive integration at the micro-, meso-, and macro-levels of the educational system. The methodology is based on the principles of the School of Ecological Psychological Facilitation (ECPF), systemic thinking, post-nonclassical psychology, and over two decades of facilitative practice with educational transformation. Key findings include the development of a conceptual framework for the non-deficit approach to procrastination, empirical justification of its role as a bifurcation marker in educational ecosystems, and the creation of facilitative tools such as “rhythmic synchronization,” “pulsating architecture,” “windows of opportunity,” and “adaptive calendars.” Practical case studies from the ECPF School show how so-called “negative procrastination” can be transformed into creative incubation when supported by the individual’s developmental rhythm. Future research directions include developing diagnostic tools to assess constructive procrastination, investigating its role in innovative educational models, and exploring the synergy between ecological facilitation and AI-supported learning in flexible digital ecosystems.

Keywords: procrastination, non-deficit approach, ecological psychological facilitation (ECPF), systemic predictor, tolerance for uncertainty, bifurcation point, educational transformation, adaptive rhythm, ECPF school, homeostatic instability, self-regulation, motivational fluctuations, intolerance for certainty, interface shift, resilience, self-organization, educational environment, digital transformations, adaptive mechanism, digital environment.

Formulas:*0, fig.: 0, tabl.: 1, bibl.: 19*

Анотація. *У статті представлено нове бачення прокрастинації не як особистісного дефіциту чи порушення саморегуляції, а як системного предиктора змін в освітньому середовищі. Актуальність дослідження зумовлена необхідністю переосмислення традиційних патологізуючих підходів до прокрастинації в умовах цифрової трансформації освіти, поширення гіг-освіти та зростаючої невизначеності як базового контексту сучасного навчання. Метою дослідження є концептуалізація прокрастинації як адаптивного механізму та діагностичного сигналу переходу до нових освітніх інтерфейсів, а також розробка багаторівневої моделі її конструктивної інтеграції на мікро-, мезо- та макрорівнях освітньої системи. Методологія ґрунтується на принципах Школи екологічної психологічної фасилітації (ECPF), системному аналізі, постнекласичній психології та понад 20-річному досвіді фасилітативної роботи з освітніми трансформаціями. Наукові результати включають: створення концептуальної рамки недефіцитарного підходу до прокрастинації, емпіричне обґрунтування її ролі як маркера точок біфуркації в освітній екосистемі, а також розробку фасилітативних*

інструментів – таких як «ритмічна синхронізація», «пульсуюча архітектура», «вікна можливостей» та «адаптивні календарі». Практичні кейси з досвіду Школи ECPF демонструють, як так звана «негативна прокрастинація» може перетворюватися на продуктивну інкубацію за умови підтримки індивідуального ритму розвитку особистості. Перспективи подальших досліджень пов'язані з розробкою діагностичних інструментів для оцінки конструктивної прокрастинації, вивченням її ролі в інноваційних освітніх моделях, а також дослідженням взаємодії між екологічною психологічної фасилітацією та AI-асистованим навчанням у гнучких цифрових середовищах.

Ключові слова: *прокрастинація, недефіцитарний підхід, екологічна фасилітація – ECPF, системний предиктор, толерантність до невизначеності, точка біфуркації, трансформація освіти, адаптивний ритм, Школа екопсихологічної фасилітації, гомеостатична нестабільність, саморегуляція, мотиваційні флуктуації, інтолерантність до визначеності, інтерфейсний зсув, резильєнтність, самоорганізація, освітнє середовище, цифрові трансформації, адаптивний механізм, цифрове середовище.*

Формул: *0; рис.: 0, табл.: 1, бібл.: 19*

Problem Statement. In the current era of rapid globalization and the information revolution, procrastination is still predominantly viewed as a "self-regulatory failure" (Steel, 2007) – a pathological delay in completing important tasks that requires immediate correction. Popular literature abounds with strategies for "overcoming" and "combating" this so-called "harmful habit." However, recent research presents a more complex picture that challenges the dominant pathologizing paradigm. The COVID-19 pandemic catalyzed profound changes in the educational landscape, creating unique conditions for rethinking traditional approaches to teaching and learning. Within this context, procrastination acquires a new meaning – as a potential systemic predictor signaling the educational system's readiness for deep transformation.

Review of Recent Research and Publications. *Traditional Approaches and Their Limitations.* Traditional approaches to procrastination tend to focus on individual-level factors and strategies for overcoming the behavior. A meta-analysis by van Eerde and Klingsieck (2018) showed that although cognitive-behavioral therapy does reduce levels of procrastination, its effects are not universal. The effect sizes varied significantly, indicating the need for a more nuanced approach. Steel (2007), in his large-scale meta-analysis, found only a weak correlation between procrastination and academic achievement, challenging conventional assumptions about their direct causal relationship.

Positive Procrastination as an Alternative perspective. The concept of "positive procrastination" proposed by Chu and Choi (2005) suggests that delaying tasks may be a strategic choice. Ferrari (1995) identified various types of procrastination, emphasizing its multidimensional nature. A study by Shin and Grant (2020) demonstrated a nonlinear relationship between procrastination and creativity – participants who were given time for "incubation" produced results that were 28% more creative.

Contemporary Studies on Psychological Factors reveal complex relationships between procrastination and various personality traits. Ragusa et al. (2023) found that higher academic self-regulation is associated with lower levels of procrastination, as well as reduced academic stress and anxiety among high school students; at the same time, resilience functions as a protective buffer. Rahimi, Hall, and Sticca (2023), in a longitudinal study, identified a reciprocal relationship between procrastination and emotions: among undergraduate students, anxiety tends to promote procrastination, whereas among graduate students, procrastination tends to provoke boredom and emotional exhaustion. Sagone and Indiana (2023) demonstrated that intolerance of uncertainty acts as a mediator in the relationship between academic self-efficacy and decisional procrastination tendencies. Muñoz-Olano and Hurtado-Parrado (2017) showed that clear goal formulation reduces impulsivity and procrastination among college students.

The Systemic Context and Deeper Personal Consequences of Procrastination Have Become a Focus of Separate Research Efforts. Grunschel et al. (2013), in a qualitative

study involving 36 students, found that the emotional consequences of procrastination – such as anger, anxiety, and shame – may reflect not personal failure but a conflict between systemic demands and individual needs. Nik Andam Kermanshahi et al. (2021) discovered that academic boredom, linked to negative perfectionism, difficulties in emotional regulation, and self-perceived helplessness, can indirectly influence procrastinatory behavior. Özer and Saçkes (2011) established that academic procrastination is negatively associated with overall life satisfaction, highlighting its deeper personal consequences. Odacı (2011) demonstrated that academic self-efficacy – not procrastination – is the key buffer against problematic Internet use among university students.

Intervention Approaches demonstrate new opportunities for working with procrastination. Jalili et al. (2024) confirmed the effectiveness of self-determination training based on Deci and Ryan's theory, which reduces levels of academic procrastination and self-sabotage among adolescents.

The National Research Context. Despite its long-standing presence, procrastination became the subject of systematic psychological research only in the 1980s. An analysis of Ukrainian studies (Zhuravlova & Zhuravlov, 2018) shows that in recent years diagnostic tools for assessing procrastination have begun to emerge. However, a critically important issue remains the lack of a systemic understanding of this phenomenon in the context of a transformed educational environment.

Research Aim. The aim of this study is to conceptualize procrastination as a systemic predictor of transformations within the educational environment through the lens of the non-deficit approach developed by the School of Ecological Psychological Facilitation (ECPF) founded by Professor P.V. Lushyn. The research also seeks to develop a multilevel model for the constructive integration of procrastination under the conditions of gig-education and the digital-AI transformation of learning environments.

Research Tasks: to develop a conceptual framework for the non-deficit approach to procrastination, grounded in the experience of the ECPF School; to justify the role of procrastination as a systemic predictor of educational transformation in the context of gig-education and the digital-AI era; to explore the role of tolerance for uncertainty in the transformation of procrastination; to design a multilevel model of procrastination integrating the principles of ecofacilitation; to systematize practical case studies from the ECPF School; to develop practical recommendations for implementing ECPF principles into educational practices using methods such as "rhythmic synchronization" and "pulsating architecture" of learning.

Research Results. *Theoretical Foundations of the School of Ecological Psychological Facilitation.* The concept of Ecological Psychological Facilitation (ECPF), developed by Professor P.V. Lushyn (2020), offers a radically different perspective on crises in education. According to this approach, crisis or rupture is not a malfunction of the system but a transition to a new interface of interaction. The School of Ecofacilitation, founded by Professor Lushyn, represents a unique scientific and practical movement that integrates post-nonclassical psychology, systems thinking, and the practice of psychological assistance. Over more than 20 years of its existence, the School has trained more than 1,500 ecofacilitators, now working in Ukraine, the United States, Canada, Israel, and other countries.

The key principles of the School of Ecological Psychological Facilitation are as follows:

1. The Principle of Tolerance for Uncertainty – Uncertainty is not seen as an obstacle, but as a developmental resource. In the context of procrastination, this means that a "pause" before action may not be a failure of willpower, but rather a natural preparatory stage before a qualitative leap.

2. The Principle of "Rupture as Transition" – Every crisis, including procrastination, is considered a bifurcation point where the system (i.e., the individual) selects a new developmental trajectory. Professor Lushyn refers to this as an "interface

shift" – a moment when the old modes of interacting with the world cease to work and new ones must be discovered.

3. Hybrid Assistance – Instead of either directive intervention or total non-interference, the ecofacilitator creates conditions for the client's self-organization. In the case of procrastination, this implies not "curing" it, but helping the individual understand its function and transform it into a productive force.

4. Ecological Change – Any transformation must occur at a pace and rhythm that is natural for the individual. Attempts to force the overcoming of procrastination often result in increased resistance and the deepening of the problem.

Gig-Education as a New Paradigm of Educational Transformation. The COVID-19 pandemic demonstrated that the traditional educational system is capable of undergoing radical transformation within a matter of weeks. Formal education was compelled to "de-formalize" and shift toward self-managed, remote learning environments. This experience revealed that many objectives of contemporary educational reforms were not as radical as they once seemed: competency-based learning, the encouragement of intrinsic motivation, institutional autonomy, and partnership-based pedagogy were all rapidly implemented under extreme conditions. By analogy with the gig economy – built on temporary, flexible forms of organizing labor such as outsourcing and freelancing – education is now moving toward a "gig-education" model. This model is characterized by short-term educational projects, temporary learning communities, and highly informal modes of instructional organization. Much like gig-medicine, which proved effective during the pandemic through mobile hospitals and spontaneous knowledge sharing, gig-education offers flexible and adaptive solutions. In the context of gig-education, procrastination takes on new meaning. Rather than being viewed as a pathology requiring correction, it becomes an indicator of the mismatch between rigid educational structures and the need for variability. The primary focus shifts from the content of learning to the formation of readiness for tolerating uncertainty and living amid ongoing transformations and challenges of the modern world. Tolerance for uncertainty is complemented by what may be called "intolerance for certainty" – a paradoxical phenomenon in which stability is perceived as a threat to development. This principle generates the productive tension necessary for continuous educational innovation. Gig-education, with its fluidity and variability, is not an alternative to traditional education but a new reality tailored to the conditions of persistent uncertainty (Лушин, 2020).

Procrastination as a Systemic Predictor: The Dialectic of "Negative" vs "Positive" Procrastination. In a broad sense, a predictor is an indicator that allows one to forecast the development of events. As Lushyn (2024) noted, radical changes can render traditional predictors obsolete, necessitating more flexible and adaptive scientific methods. In the educational context, procrastination can be viewed as a marker indicating the need for systemic change. Rather than interpreting procrastination merely as an individual issue, a systemic approach sees it as an indicator of fluctuations in the motivational and value-based environment.

The relationship between procrastination and tolerance for uncertainty is clarified through the principle of systemic homeostatic instability. From this perspective, procrastination is not a matter of task avoidance, but a natural fluctuation within a system approaching a bifurcation point. When an educational system enters a phase of increased uncertainty, procrastination can manifest as a process of self-organization, signaling the system's readiness for qualitative change. Tolerance for uncertainty, in this sense, transcends the boundaries of a personal psychological trait and becomes a systemic quality – one that supports the dynamic instability required for transformation.

In contrast to traditional approaches that emphasize the "deficiencies" or "weaknesses" of students, the non-deficit perspective views procrastination not as a pathology but as a signal indicating the need

for an interface shift. This aligns with critiques of the deficit model in Western literature, which argues that such approaches fail not only to recognize individual strengths but also to consider the interaction between students facing learning challenges and the systems they operate within. The concept of positive procrastination opens up new avenues for understanding this phenomenon. Contemporary research shows that procrastination may serve an adaptive function by providing individuals with time for internal processing and idea generation.

Practical Cases from the School of Ecofacilitation.

Case 1: "Creative Procrastination of a Design Student". A design student persistently postponed working on her course project. Instead of combating her procrastination, the facilitator helped her recognize that during those "delays," she was in fact accumulating visual impressions that later transformed into innovative design solutions. Result: the project was completed 48 hours before the deadline with exceptional quality.

Case 2: "Systemic Procrastination in an IT Group" A group of computer science students collectively procrastinated on their group project. The ecofacilitation approach revealed that the root cause was a mismatch between the proposed project architecture and current technological trends. After revising the technical specifications, the group re-engaged enthusiastically.

Case 3: "Transformational Procrastination of a PhD Student". A doctoral student postponed writing his dissertation for two years. Work with an ecofacilitator revealed that his procrastination was signaling the need to change the focus of his research. After reorienting to a more relevant topic, the dissertation was completed within one year.

A Multilevel Model of Procrastination. The proposed model, developed based on the experience of the School of Ecofacilitation, includes three levels:

− Micro-level – individual fluctuations in motivation associated with circadian rhythms, emotional states, and cognitive load. At this level, procrastination represents a natural oscillation in the activity-rest continuum.

− Meso-level – the structure of a course or academic program, which can foster either productive or destructive forms of procrastination. Flexible formats enable procrastination to function as an incubation period, whereas rigid structures tend to turn it into a source of stress.

− Macro-level – the educational ecosystem and labor market. A mismatch between labor market demands and educational offerings leads to systemic procrastination – such as the deferral of career choices due to uncertainty about the future (Table 1).

Table 1

Multilevel Model of Procrastination in the Context of Ecofacilitation

Time Scale	Factors	Manifestations of Procrastination	Interventions	Ecofacilitation Tools
Micro-level (Minutes–Hours)	Circadian rhythms	Short-term delays	Rhythmic check-ins, mindfulness	"Breathing practices", "ecological synchronization"
Meso-level (Days–Weeks)	Course structure, pedagogical design	Academic procrastination	Flexible deadlines, modularity	"Pulsating architecture", "adaptive windows"
Macro-level (Months–Years)	Labor market, educational policy	Career uncertainty	Systemic reforms, credit stacking	"Bridges of uncertainty", "transformational projects"

Procrastination as a Buffer of Uncertainty and a Mechanism of Adaptation. Theoretical analysis and practical experience within the ecofacilitative framework suggest that procrastination can function as an "uncertainty buffer" – a mechanism that enables the system to accumulate sufficient potential for a qualitative leap. Rather than being a form of task avoidance, it represents a natural oscillation of the system at bifurcation points, when existing modes of interaction cease to be effective. A striking example is the behavior of students under intense pre-examination conditions, where they often demonstrate peak creativity and intrinsic motivation. What is typically perceived as an academic crisis, under ecofacilitative guidance, is transformed into the emergence of new creative dimensions of personality – confirming that procrastination may serve as an incubation phase for meaningful change.

Systemic analysis indicates that tolerance for uncertainty extends beyond the scope of an individual psychological trait – it becomes a property of the educational ecosystem itself. Procrastination is precisely what sustains a state of dynamic instability necessary for transformation. The system's ability to endure uncertainty, without rushing to reduce it into familiar organizational structures, becomes critical for qualitative change. In this context, constructive procrastination proves especially valuable in creative and innovative processes. Research shows that participants who were given time for "incubation" demonstrated 28% higher creative output (Shin & Grant, 2021).

In the context of modern education – focused on the development of critical thinking and innovation – such "productive delay" may function as a strategic resource. Moreover, resistance to change and procrastination serve as indicators of the need for educational reform, especially when the widespread postponement of traditional academic tasks signals overload or a misalignment between students' expectations and the system's demands. The transformational potential of procrastination is realized through the development of educational models grounded in principles of self-organization. These models acknowledge the nonlinear nature of the educational process and create conditions for the constructive integration of "uncertainty periods" (Lushyn, 2024).

Experience of the School of Ecofacilitation in Pedagogical Practice. Our teaching experience in psychology demonstrates that under the pressure of pre-examination conditions, some students not only attempt to manipulate outcomes to achieve higher grades, but also exhibit heightened creativity and intrinsic motivation to learn. Although a decline in engagement is typically observed toward the end of the semester, if the instructor utilizes this moment as a stimulus to unlock student potential, some individuals truly discover new creative dimensions within themselves – which later manifest in other academic disciplines (Лушин & Сухенко, 2021).

Within the activities of the School of Ecological Psychological Facilitation, founded by Professor P.V. Lushyn, there is ongoing research into the adaptation of ecofacilitation principles to contemporary educational formats:

− "Micro-rhythms of learning" – replacing traditional semester-based courses with modular structures that allow entry and exit at any time.

− "Pulsating communities" – learning groups formed around specific projects and disbanded upon their completion.

− "Adaptive trajectory" – an individualized learning path that is dynamically adjusted in real time based on feedback.

Conclusion. Procrastination in today's educational environment requires radical rethinking. Instead of treating it as a "bad habit" to be eliminated, educational systems must adopt a design-oriented mindset – one in which procrastination is recognized as a marker of interface disruption. The non-deficit approach of the School of Ecofacilitation reveals procrastination not as a pathology but as an adaptive mechanism and a systemic predictor of misalignment between environmental demands and individual needs.

The School's experience confirms that procrastination serves as an indicator of systemic change and a navigational tool within a complex landscape of emerging possibilities. Facilitation within the non-deficit paradigm does not aim to eliminate delays, but rather to convert them into intentional "incubation," thereby creating conditions for the productive use of periods of uncertainty. The concept of "rupture as transition" reframes procrastination not as a problem, but as an opportunity.

Practical Implications. The reconceptualization of procrastination as a systemic predictor and adaptive mechanism opens new opportunities for transforming educational practices across all levels. Rather than relying on traditional methods of "combating" procrastination, the non-deficit approach advanced by the School of Ecological Psychological Facilitation (ECPF) offers concrete tools for working with the natural rhythms of learning and for creating conditions that allow periods of uncertainty to be used productively. The practical implementation of these principles entails differentiated strategies tailored to the needs of distinct groups within the educational process.

For universities. A shift from "deadline pressure" to "adaptive rhythm calendars" can be achieved by introducing flexible deadlines that allow students to select their own pacing, creating "windows of opportunity" rather than enforcing rigid cutoffs, and recognizing diverse temporal learning styles among students. This approach includes applying the methodology of "pulsating architecture," developed by the ECPF School. Other strategies involve replacing large semester-long assignments with microprojects, breaking down major tasks into manageable units, supporting iterative work with feedback, and incorporating achievement stacking to foster a sense of continuous progress. All of these are integrated within the framework of Lushyn's "micro-rhythms of learning."

For students and instructors. The method of "rhythmic check-ins" (adapted from ECPF practice) includes regular but optional meetings to discuss learning progress, emphasizing process over product, legitimizing periods of "incubation," and employing techniques of ecological synchronization. The Adaptive Postponement Journal, developed by the ECPF School, supports self-reflection on the causes of delay as a form of self-knowledge, helps distinguish productive from unproductive procrastination patterns, enables planning aligned with one's personal productivity rhythms, and reframes "procrastination guilt" as a form of bodily wisdom.

For psychologists and coaches. The eco-facilitative protocol for working with procrastination includes diagnosing its type (defensive, creative, or systemic), identifying bifurcation points within the postponement process, guiding the transformation of unproductive forms into constructive ones, and teaching clients the principles of hybrid support.

Supervisory support for professionals should include regular supervision groups for sharing experiences, analyzing complex cases through the lens of the non-deficit paradigm, and preventing burnout through deeper awareness of one's own functional rhythms.

Implementing the non-deficit approach to procrastination can lead to substantial positive changes: improving the quality of education through synchronization with students' natural rhythms; reducing stress and anxiety associated with academic demands; preparing professionals who are better adapted to contemporary challenges and capable of self-organization amid uncertainty; and increasing the creativity and innovative potential of graduates by legitimizing periods of incubation.

Prospects for Further Research. The future of education lies not in eliminating procrastination, but in creating systems that work with the natural rhythms of human motivation – transforming periods of perceived inactivity into productive incubation for new ideas and solutions. Future research should focus on developing valid diagnostic tools to assess constructive procrastination and its transformational potential; conducting longitudinal studies on the effectiveness of non-deficit educational models across diverse cultural and institutional

settings; investigating the synergy between ecofacilitation principles and modern digital educational technologies in AI-integrated learning environments.

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