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BURNOUT IN ARCHITECTURE STUDENTS: THE ROLE OF STUDIO CULTURE NORMS

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Abstract
This systematic review investigates burnout among architecture students, with a focus on the influence of design studio culture, which often normalizes high stress and long working hours. Guided by PRISMA 2020 standards, it synthesizes existing research on burnout causes linked to studio norms and identifies common stressors, including excessive workloads, perfectionist expectations, and blurred boundaries between academic and personal life. The review highlights how these factors, combined with the central role of the design studio, can intensify mental strain and reduce overall well-being. It notes that addressing burnout requires shifts in both culture and pedagogy, including balanced workload policies, healthier work rhythms, and constructive critique practices. Additionally, the review emphasizes integrating mental health awareness, open communication, and resilience-building early in architectural education. Such measures can help foster a sustainable, supportive learning environment that values both academic achievement and the psychological well-being of students.
Keywords:burnout; mental well-being; design studio; academic pressure; architecture students; student well-being.

INTRODUCTION

Mental well-being enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community. It has intrinsic and instrumental value and is integral to our well-being (WHO, 2025a). The World Health Organization's International Classification of Diseases (ICD-11) provides the global standard for diagnosing and reporting health conditions, including those relevant to mental well-being and wellbeing. Key categories include "Mental, behavioural or neurodevelopmental disorders", encompassing mood disorders such as depression and bipolar disorder, as well as anxiety-related disorders like generalized anxiety, panic disorder and phobias. Additionally, the ICD-11 outlines stress-related disorders, which are typically triggered by external stressors. Two pertinent conditions are adjustment disorder, a short-term maladaptive response to life stressors, and burnout (WHO, 2025b). Burnout is defined as a syndrome resulting from chronic workplace stress that has not been successfully managed. It is characterized by three key dimensions: feelings of energy depletion or exhaustion; increased mental distance from one's job or feelings of negativism or cynicism related to one's work; and a reduced sense of professional efficacy. Importantly, burnout is specific to the occupational context and should not be used to describe experiences in other areas of life (WHO, 2025b). Higher education students experience rates of depression and burnout substantially higher than those found in the general population (Olson et al., 2025; Ibrahim et al. 2013). Scholars go as far as to suggest there is a 'Higher education mental well-being crisis' (Shek et al. 2017). A survey of students from five academic disciplines at a university in Germany found that 73.2% reported moderate to high stress levels, with female students experiencing higher stress than their male counterparts (Olson et al., 2025). According to a RIBA Education Statistics (2024) survey, 4% of 17,603 students enrolled in validated courses reported experiencing a disclosed mental well-being issue in the 2022/23 academic year. Behavioural changes such as sudden aggression, withdrawal from social interactions, or significant shifts in academic performance can be early indicators of mental well-being concerns among students (Souza, 2019). Emotional signs, including persistent sadness, anxiety, or frequent mood swings, may also suggest underlying emotional or psychological difficulties (Kim et al., 2022). In addition, physical symptoms like recurring headaches or stomach-aches without a clear medical cause can often be manifestations of stress or anxiety (Cavanagh et al., 2010). A

variety of external and internal factors can increase the risk of poor mental well-being and low wellbeing among students, including academic, financial, cultural, and societal pressures, all of which contribute to stress and may result in burnout, one of the major problems in higher education and is linked to a decline in students' academic performance and achievement (Reyes-de-Cózar et al., 2023).

Mental well-being among architecture students is a growing concern, with research indicating that they are 43% more likely to experience panic attacks than the average student (Kirkpatrick, 2018). A student survey conducted by the Architects' Journal in 2016, revealed that 52 percent of architecture students in England were concerned about their mental well-being (Waite & Braidwood, 2016). Another study indicates that one in four students in the built environment disciplines experienced depression, stress, or both, while an even more concerning finding is that four in ten reported symptoms of an anxiety disorder (Scott-Young et al., 2018). A study conducted by Loosemore et al. (2020) among construction management, civil engineering, and architecture students enrolled in one Australian university found that architecture students scored the highest on the University Student Depression Inventory (USDI), with female students exhibiting higher levels of depression than their male counterparts. In addition, architecture schools feature design studios as core learning environments where design thinking, feedback, and integration take place (Koch et al., 2002). The studio functions as a bridge between academic learning and professional practice (Hacıhasanoğlu, 2019). This environment presents unique and multifaceted challenges for architecture students, particularly due to the demanding nature of studio culture, which significantly contributes to heightened levels of burnout (Metinal& Ayalp, 2024; Casakin& Wodehouse, 2021). This systematic review aims to synthesize the existing research on burnout within the architecture studio context by examining its causes, consequences, coping strategies and effective interventions, in addition to identifying key research gaps and future directions. Consequently, the research questions addressed in this study are as follows:

Q1. What aspects of studio culture norms are associated with burnout?
Q2. What psychological issues are linked to burnout in the design studio?
Q3. What coping strategies or promising interventions mitigate burnout in the design studio?

METHODOLOGY

SEARCH STRATEGY

The literature search was conducted in March 2025, with the final data extraction completed in April 2025. This systematic review adheres to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses PRISMA 2020 guidelines (PRISMA, 2025) to ensure transparency and reproducibility. The PRISMA was divided into 4 phases: Identification, Screening, Eligibility, and then Inclusion.

Identification: Relevant studies were collected from major databases, including Google Scholar, ProQuest and PubMed. A supplementary hand search was performed to identify additional relevant publications by reviewing the reference lists of the included articles and by searching articles from key informatics journals. Studies were identified by the following search terms: (1) mental well-being, (2) burnout, (3) university students, (4) architecture, and (5) studio, to ensure comprehensive collection of relevant studies.

Screening: Retrieved articles were screened to ensure relevance to the theme of the study.

Eligibility: Full-text articles were assessed for methodological rigor and alignment with the research objectives, excluding those with low semantic relevance or insufficient data.

Inclusion: The final selection included only high-quality empirical studies, systematic reviews, and case studies.

The search strategy involved multiple targeted queries focusing on mental well-being challenges, burnout factors, and their consequences, as well as coping strategies and interventions among university students, with particular emphasis on architecture studio culture norms.

SELECTION CRITERIA

All included articles were peer-reviewed publications written in English between 2015 and 2025, along with three dissertations. Conference papers, single case reports, and small case series were excluded. This review focuses on university students, excluding studies on school-aged or postgraduate populations and on professions other than architecture. Only academic factors contributing to burnout are considered, while financial aspects, COVID-related studies, and other non-academic factors are excluded.

The publications were sorted into three categories based on the strength of their relevance to the topic of the review: (1) Strong relevance—studies directly examining the relationship between architecture studio

culture norms and burnout; (2) Medium relevance—studies focusing on architecture students or students in related built environment disciplines and their experiences with burnout; and (3) Low relevance—studies addressing university students in general in relation to burnout or other psychological issues.
The publications selected for this systematic research did not address some specific topics directly. Consequently, several specialized studies were consulted to provide supplementary insights; however, these sources fall outside the established selection criteria, as some were published before 2015 and others do not specifically focus on the design studio or architectural design context.

RESULTS

A total of 1,980 records were identified through database searches and registers. Before screening, 44 duplicate records were removed, along with 60 records excluded due to non-English records and 1,295 records removed for irrelevant reasons. The remaining 581 records underwent title, keywords and abstract screening, resulting in 473 exclusions. Of the 108 reports sought for retrieval, 40 could not be retrieved and were excluded. The 68-remaining full-text articles were assessed for eligibility, with 30 excluded for focusing on burnout among university students in general rather than architecture students, and 24 excluded for addressing architecture students without reference to the design studio. Ultimately, 14 studies were included in the final review, comprising 11 peer-reviewed papers and 3 theses. Figure 1 presents the PRISMA flowchart illustrating the study selection process.

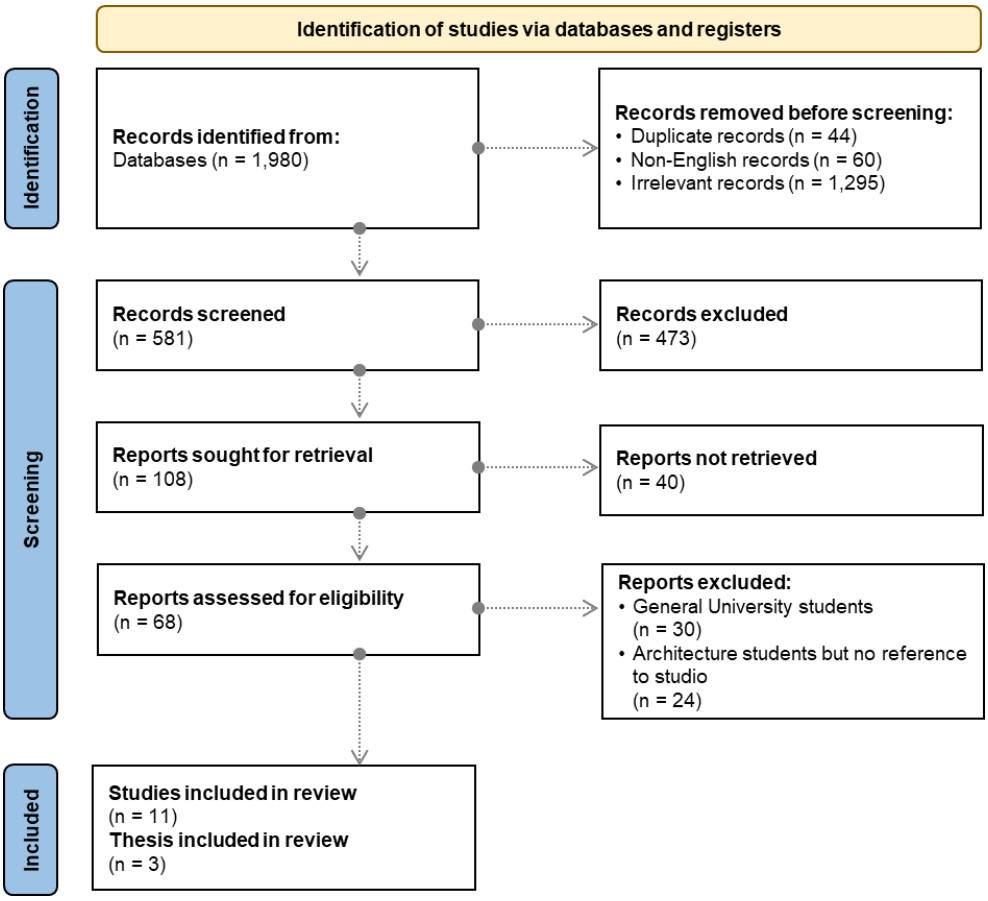

Figure 1
PRISMA flowchart illustrating the study selection process.

The reviewed literature encompasses a diverse range of studies addressing key themes related to burnout among students. Approximately 39% of the studies focus on academic burnout and stress, highlighting the prevalence and impact of academic pressures. Another 25% explore student mental well-being and overall well-being, emphasizing the psychological challenges faced in higher education. Studies related to the

design studio and learning environments account for 16%, shedding light on the unique stressors in architecture and related built environment disciplines. Research on resilience and coping mechanisms comprises 4%, while curriculum and pedagogy-related factors represent 3% of the literature. The remaining 13% examine other factors influencing the student experience, offering additional context to the multifaceted nature of burnout in academic settings.

These studies employ a variety of methodologies including systematic reviews, mixed-method designs, surveys, and conceptual frameworks, with geographic coverage spanning Australia, Turkey, Hong Kong, Indonesia, and other contexts. Table 1 provides a summary of the reviewed literature, highlighting publications that demonstrate strong relevance to the focus of this review study and offering a comparative analysis aligned with the research questions.

TABLE 1A summary of the key reviewed literature.

Study	Norms of Design Studio	Psychological Mechanisms Behind Burnout	Coping Strategies
(Battisto et al., 2024a)	Submission deadlines, workload and work hours; Pedagogical and studio culture contribute to stress	High depression, anxiety, stress, neglect of self-care, inadequate sleep	Calls for addressing unhealthy habits and studio environment
(Ayalp &Çivici, 2021)	Academic inadequacy, evaluations, workload, interpersonal conflicts; Studio critiques, jury stress, poor faculty interaction	Stress symptoms include eating/sleep changes, nausea	Social support as coping
(Hussein & Mustafa, 2023)	Stress linked to studio environmental quality and interaction; Studio quality impacts student well-being	Paper does not specifically address psychological issues	Enhancing studio environment to improve well-being
(Winters & Snook, 2020)	Presentation and performance demands, long class contact hours; High-pressure nature of activities like 'the crit' in front of audiences	Self-examination and personal exposure that can be quite stressful; Emotional and psychological strain; Panic and anxiety	The need for staff to manage students' mental health issues.
(Ceylanli et al., 2020)	Long working hours and poor work-life balance; Design critiques and studio expectations; Fear of judgment or failure; Studio deadlines and all-nighters	Stress and anxiety levels; Perfectionism and obsessive thoughts; Self-censoring behaviors; Fatigue and chronic pain	Mindfulness-Based Stress Reduction (MBSR) program
(Souto, 2024)	Intense workload and long working hours; High expectations and pressure to succeed; Normalize stress	Stress and poor mental health; overwhelm and emotional exhaustion	Promoting awareness about mental health; Co-creation of curriculum to promote well-being; Promote resilience, community building, and a sense of belonging
(Makun et al., 2024)	Studio design affects stress in learning environments; Lack of coherence and clarity in space design	Stressful environment	Recommendations for user-centered, sustainable studio design
(ŞEKERCİ & Kahraman, 2024)	The paper does not explicitly mention this item; Longer hours or extended periods spent in uncomfortable environments; Limited social and emotional support	Studio spatial layout and emotional impact influence stress	Student involvement in space design as coping

Study	Norms of Design Studio	Psychological Mechanisms Behind Burnout	Coping Strategies
(Pollard, 2023) *	Workload is not the primary focus; Coursework and social pressures in studio environments	Increased stress and prolonged mental fatigue; Feelings of isolation	Framework for mental well-being focused design strategies
(Burton, 2018) *	Heavy workload with long hours; The high volume of face-to-face contact hours; Critique environments; Master-apprentice relationships	Anxiety; Feelings of vulnerability, defensiveness, and emotional distress; Feelings of intimidation, isolation, and exclusion	Framework for transformational architectural education
(Kirkpatrick, 2018) *	Intensity of work, tight deadlines, all-nighter culture, and overlapping subjects; Harmful environment of overwork; Sleep deprivation, and peer pressure; Unrealistic expectations	Anxiety; Hopelessness; A harmful pride in overwork and mental health struggles	Improving time management and raising awareness of mental health; Addressing and solving studio issues
(Ibrahim & Hasan, 2019)	Heavy workload; Tight deadlines for design studio projects	Low self-esteem, stress, social relationship issues, and, in extreme cases, suicidal thoughts or actions.	Developing and implementing a Self-Management Model
(Stead et al., 2022)	Heavy and constant workloads; Intense, competitive, and sometimes hostile	Mental distress, stress, and poor well-being outcomes	Specific coping strategies are not explicitly outlined
(Ibrahim, 2018)	Stressful workload	Late nights, extreme dedication, social and cultural deprivation, and personal sacrifices	Promoting social connections; Encouraging activities; Psychology integration into studio teaching

** Thesis*

DISCUSSION

Aspects of studio culture norms associated with burnout

Rooted in the 17th-century traditions of the École des Beaux-Arts, the design studio has long been the primary space for developing the creative and professional identities of architecture students (Salama & Wilkinson, 2007). Unlike the curricula of many other disciplines, which typically consist of a set of core courses supplemented by electives, architecture programs are primarily cantered on the design studio. All core courses function as supporting resources for students' work within the studio. In the studio, students apply knowledge gained from other courses to design projects, developing their work through regular critiques from tutors and peers. At the beginning of each semester, students are assigned a design task. Over the course of the term, they engage in one-on-one discussions with their tutor, typically two to three half-day sessions each week. Interim critiques are held monthly or bi-monthly, allowing students to present their work-in-progress in a group setting. The semester concludes with a final jury, in which students present their completed projects to a panel of four to five critics in a public forum. Final grades are based on their performance in this jury as well as the quality of their portfolio. In this context, architectural education emphasizes autonomous and active learning, resembling professional practice more than traditional, passive classroom instruction.

Studio culture is a fundamental aspect of design education, significantly contributing to students' epistemic and cognitive development (Walker et al., 2019). It refers to the distinctive learning environment and social dynamics that emerge within architectural design studios, encompassing the interactions, behaviours, and shared norms among students and tutors (Hacıhasanoğlu, 2019). This culture holds considerable influence over the educational experience (Wong, 2023), shaping not only students' learning but also their emerging professional identities. Importantly, studio culture operates through a combination of explicit practices and

a “hidden curriculum”, unstated values, attitudes, norms, and habits (Ibrahim, 2018), that are implicitly taught within architecture and adopted by students as a rite of passage (Stead et al., 2022). These implicit elements can be as influential as the formal academic content, yet the ritualized practices they involve may be confusing or opaque to newcomers entering the studio environment, making integration challenging and sometimes disorienting (McClean, 2020). However, studio culture is recognised as having attributes that are harmful to students’ mental and physical health (Kirkpatrick, 2018). Critics of studio culture argue that it is a leading cause of unhealthy work habits, as students immersed in this environment often spend excessive time within the studio cocoon, resulting in elevated stress levels (Wong, 2023). While the studio culture fosters creativity among students, often reinforced by studio norms (Williams et al., 2010; Sidawi, 2013; Zain, 2025), the continual pressure to be creative and innovative can lead to stress, fear, and resistance, becoming an unintended consequence that ultimately inhibits further creative expression (Campbell, 2015).The core norms that shape the work and culture within the design studio can have psychological consequences when taken to extremes or left unmanaged. These norms include:

EXCESSIVE WORKLOAD

Architecture education is widely recognized for imposing significantly heavier workloads on students compared to other academic disciplines (Bachman & Bachman, 2006; Kirkpatrick, 2018). This elevated demand stems from its unique dual structure, which combines intensive, open-ended design studios with a wide range of theoretical coursework—including history, technology, and law (Ayalp &Çivici, 2021). Unlike modular or lecture-based programs, the design studio emphasizes iterative, project-based learning that often extends beyond formal class hours. Students are typically required to manage overlapping design projects, theoretical assignments, and presentations, resulting in sustained and cumulative academic pressure.

The volume and intensity of these academic tasks foster a culture of overwork, as highlighted by Hegenauer (2018) and Xie et al. (2019), who describe how the continuous expectation to produce innovative and original design solutions intensifies students’ emotional and cognitive burdens. As a result, architecture students often experience higher levels of stress and time-related strain, making their educational experience particularly demanding. Abdulwahhab et al. (2024) emphasize that workload in this context is not merely a matter of time management but a profound psychological factor influencing students' motivation, perception of the curriculum, and overall academic well-being.

The relationship between academic workload and mental well-being is well-documented. Jagodics et al. (2024) found a strong correlation between workload intensity and burnout levels among Hungarian university students. A study by Gil-Mastalerczyk and Jagieła (2023) found that the most reported factor affecting Poland architecture students was overwork, identified by 83.91% of all respondents, as an environmental factor, negatively impacting mental well-being. Similarly, Ibrahim (2018) observed that nearly half of Malaysian architecture students reported feeling overwhelmed by their semester workload, particularly due to the demands of design studio projects. These high expectations can erode intrinsic motivation and self-efficacy, replacing them with stress-induced behaviors and decreased academic satisfaction (Bachman & Bachman, 2006; Li et al., 2021). Ultimately, unmanaged academic workload not only impairs mental well-being but also diminishes the quality of student learning outcomes.

A major source of academic stress in architecture education lies in the accumulation of tight deadlines, prolonged studio hours, overlapping assessments, and poorly coordinated academic schedules (Battisto et al., 2024a). While studio culture is often praised for fostering creativity and collaboration, it also normalizes excessive work habits and obscures the boundaries between formal learning and personal time (McClean, 2020). This cultural norm encourages students to adopt inefficient and unsustainable time management patterns. According to Bachman and Bachman (2006), the design studio itself is the primary contributor to students’ time-related stress, with its constant demands for innovation under pressure. The lack of structural support and insufficient time for rest fosters a psychologically taxing environment marked by chronic fatigue and emotional strain.

These excessive academic demands carry serious implications for both mental and physical well-being. High workloads frequently lead to sleep deprivation, poor nutrition, and a sedentary lifestyle, which exacerbate anxiety, depression, and social withdrawal (Bachman & Bachman, 2006; Ibrahim & Hasan, 2019). The cumulative effect of these conditions undermines students’ resilience, resulting in emotional exhaustion, reduced academic motivation, and in some cases, learned helplessness. Over time, such environments may foster intentions to drop out, as indicated by Reyes-de-Cózar et al. (2023). Furthermore, when academic tasks become overwhelming, students are less likely to engage meaningfully with their studies, which diminishes both the quality and outcomes of their educational experience.

Students' perceptions of workload are often influenced by unclear project requirements and inconsistent expectations from teaching staff (McClean, 2020). Miscommunication regarding the scope and assessment of tasks exacerbates students' stress levels and creates a sense of disempowerment. The lack of clarity can cause students to be overcompensated, devoting more time than necessary to assignments, thereby intensifying the workload. These perception-based challenges further complicate academic experience, leading to dissatisfaction and disengagement, despite students' potential or interest in the field.

TIME-DEVOTION

Studio courses hold the highest academic importance in architecture education, requiring the greatest number of credit hours, the heaviest workloads, and the most intensive time commitments from both educators and students (Koch et al., 2002). The time allocated to studio work can comprise up to one-third or even one-half of the total educational experience. As project deadlines approach, both students and tutors frequently spend additional hours in the studio beyond regularly scheduled sessions, often extending to weekends, nighttime, and even holidays (Wong, 2023). Extended time commitments to studio work frequently limit students' ability to engage in leisure activities, pursue personal interests, or sustain meaningful social relationships. This scarcity of free time can also restrict opportunities for paid employment, thereby intensifying the financial pressures experienced by some students (Gil-Mastalerczyk&Jagieła, 2023).

A defining characteristic of studio culture is the culturally embedded "time-devotion" norm, which reflects the pervasive expectation that students dedicate excessive and often unregulated hours to studio work. This commitment routinely extends far beyond official timetables, becoming an implicit measure of dedication and competence. The norm is reinforced within both academic and professional settings, perpetuating the belief that relentless engagement in design-related activities—such as analysis, modeling, and drawing—is essential for success (McClean, 2020).

While the "time-devotion" culture can foster creativity and immersive learning experiences, it also imposes substantial personal and academic costs. Prolonged working hours, often driven by heavy workloads, tight deadlines, and high-pressure environments, have been linked to feelings of helplessness and inadequacy (Ibrahim, 2023). These conditions are further associated with heightened stress, anxiety, and depression, which can impair academic performance and pose significant risks to overall well-being (Samaratunga&Kamardeen, 2025).

GLORIFICATION OF ALL-NIGHTERS

The "all-nighter" is an unwritten expectation within many architecture and design studios, where working through the night is perceived as a badge of dedication and seriousness. This behavior is often praised or admired by both peers and tutors, reinforcing its acceptance as a cultural norm. While linked to other aspects of studio life, the glorification of all-nighters is distinct in that it specifically celebrates extreme, last-minute effort (Koch et al., 2002; Kirkpatrick, 2018). Students frequently boast about the number of consecutive nights they have worked without sleep, perceiving those who spend the most time in the studio as the most committed or "cool" (Koch et al., 2002).

The myth embedded in studio culture promotes a romanticized notion that staying up all night is an essential part of the architecture student experience, with the belief that the most innovative designs emerge in the early hours of the morning (Koch et al., 2002; Abdullah et al., 2011). This perception shapes student mindsets, encouraging behaviors and patterns that may be counterproductive in the long term. Practice persists more as a cultural badge of honor than as a genuine academic requirement (Kirkpatrick, 2018).

All-nighters are a common practice in architecture studio culture, often justified by the perception that time spent sleeping is time lost from project work (Koch et al., 2002). Pressure to engage in this behavior is driven by both peer influence and, in some cases, tutors' expectations (Kirkpatrick, 2018). The prevalence of such practices contributes to the promotion of a 24-hour work ethic within the studio (SONA, 2022).

Quantitative data highlights the scale of this phenomenon. A large survey of 6,000 respondents revealed that architecture students are more likely to "pull all-nighters" than students in any other discipline, with 88% reporting working through the night— the highest proportion among the 25 subjects surveyed (Jenkin, 2017). Similarly, a SONA (2018) survey found that 86% of architecture students reported sometimes or always going without sleep to complete a project. RIBA Education Statistics (2018) further linked the high prevalence of overnight work to increased mental distress among students.

Underlying this trend are challenges in time management, which often lead students to resort to all-nighters as a coping mechanism for their workload (SONA, 2022). Over time, these behaviors become normalized, embedding themselves as a standard part of studio culture and shaping students' professional habits after graduation (Kirkpatrick, 2018).

The consequences of frequent all-nighters are significant, impacting both mental and physical health. Persistent sleep deprivation contributes to fatigue, slower reaction times, and impaired cognitive functions such as memory and concentration (SONA, 2022). The cumulative stress associated with these factors can diminish emotional resilience and overall well-being (Bachman & Bachman, 2006).

Borson (2012) notes that students who engage in repeated all-nighters may also neglect proper nutrition, further exacerbate fatigue and potentially trigger or worsening mental well-being conditions. The resulting patterns, poor time management, disregard for personal health, and chronic overwork, often persist in professional life (Kirkpatrick, 2018). These effects create a cycle of competing priorities and constant pressure, fostering a sense that there is always more work to be done (SONA, 2022).

PERSONAL AND PHYSICAL SACRIFICE

Personal and physical sacrifice represent two distinct, yet interrelated phenomena commonly observed within architecture education particularly within studio culture (Koch et al., 2002). Personal sacrifice refers to the relinquishment or compromise of individual aspects such as time, social relationships, mental well-being, hobbies, or overall life balance to achieve academic or professional goals. In contrast, physical sacrifice involves forgoing bodily comfort or health, as exemplified by enduring long hours without sleep, experiencing physical exhaustion, or neglecting self-care due to external pressures or personal commitments (Holding et al., 2019).

Personal and physical sacrifices are central myths perpetuated within architecture and design education, particularly in studio culture (Koch et al., 2002). These sacrifices are not merely incidental but have become normalized expectations that shape student behavior and identity. They are not only a prevalent expectation but also a vivid and defining memory for many who have undergone architectural education (Koch et al., 2002). Both personal sacrifice and extended working hours have been commonly identified as significant contributors to student distress (Hohenadel, 2018; Kirkpatrick, 2018).

A survey by the AIAS Studio Culture Task Force (Koch et al., 2002) revealed that many students believe that increased time spent in the studio correlates with better academic performance, thus reinforcing a pervasive culture of personal sacrifice. This culture exerts implicit pressure on students to prioritize studio work above their personal life and well-being. Although rarely codified in formal policy, these norms become internalized as necessary markers of dedication and success. As a result, students routinely forgo sleep, social interactions, and health without critically questioning the sustainability or consequences of such behavior.

The repercussions of these sacrifices extend beyond physical exhaustion to emotional and mental well-being domains. German psychologist Freudenberger defined emotional burnout as a state of physical and emotional exhaustion that arises from chronic self-sacrifice, particularly when such efforts fail to produce expected results (Doğan, 2024). In architectural education, students often grapple with guilt when engaging in activities outside their studies, reflecting the internal conflict between personal needs and academic demands. Battisto et al. (2024a) highlighted these struggles, noting that students face significant challenges balancing social life with intense academic workloads.

Sleep sacrifice, as a critical form of physical sacrifice, has been documented to have detrimental effects on students' cognitive and creative capacities. Chronic sleep deprivation negatively impacts attention, participation, and creativity—all essential components of effective learning in studio-based courses (Bachman & Bachman, 2006). The problem is exacerbated by irregular sleep patterns, which contribute to long-term impairments that cannot be remedied by compensatory sleep on weekends, often the only opportunity for uninterrupted studio work (Bachman & Bachman, 2006). Supporting sleep sacrifice issue, Gil-Mastalerczyk and Jagieła (2023) found that a lack of sleep was the second most frequently reported environmental factor adversely affecting the mental well-being of architecture students in Poland, with 73.5% of respondents identifying it as a significant issue.

Ultimately, sleep sacrifice can result in feelings of burnout, thereby impairing overall academic performance and the ability to meet project requirements effectively (Ibrahim & Hasan, 2019).

CRITIQUE AS CENTRAL LEARNING TOOL

The critique, also referred to as a "crit," "jury," or "review", is a signature pedagogy in architectural studio education, in which students present their designs and receive feedback (Xie et al., 2019; Burton, 2018). It is a long-established practice in studio-based learning (Wong, 2023), with common formats including desk crits, juries, and peer reviews. These typically involve the public presentation and defence of projects before tutors, peers, and sometimes external critics (Kuhn, 2001; Goldschmidt et al., 2010; Cennamo & Brandt, 2012; Burton, 2018). Such sessions usually take place in open settings, subjecting students to audience scrutiny (Sara & Parnell, 2014; Winters & Snook, 2020; Olweny, 2019).

Critiques are widely regarded as essential in architectural education for developing students' presentation, communication, and verbal articulation skills (McClean, 2020; Kirkpatrick, 2018). They foster reflection-in-action, support knowledge construction, and contribute to the development of professional competencies (Cennamo & Brandt, 2012; Pedgley& Sener, 2022). A central rationale for their use is to prepare students for professional practice, where critical client feedback is common; thus, exposure to critique is intended to build resilience and strengthen the ability to defend work under pressure (Stead et al., 2022; McClean, 2020). When conducted productively, critiques function as a powerful component of the learning process (Quam et al., 2022). As a formative assessment tool, they are considered a significant and necessary rite of passage within architectural education (Burton, 2018). However, many architecture programs follow a "one-size-fits-all" formal jury model that emphasizes defending work rather than fostering dialogue or supporting early-stage design exploration (Koch, 2002; Kirkpatrick, 2018). The lack of training for tutors and visiting critics often results in reliance on outdated or ineffective feedback methods learned from their own education (Anthony, 1991; Koch et al., 2002). Furthermore, inconsistencies in evaluation criteria, such as differences between tutor and external critic assessments, can undermine trust in the process (Jia, 2009).

Despite its pedagogical value, the crit is frequently described as emotionally charged and stressful, with some students perceiving it as adversarial or even humiliating (Wong, 2023; Hussein & Mustafa, 2023; Olweny, 2020; Turner et al., 2016). In particular, stress levels tend to escalate when critiques are unconstructive, overly harsh, or delivered in a public forum (Olweny, 2019; Ceylanli et al., 2020). Moreover, female students consistently report more negative experiences than their male counterparts (Sara & Parnell, 2014). Such chronic fear during crits has been linked to reduced creativity, diminished mental well-being, and, in extreme cases, withdrawal from the course (Gil-Mastalerczyk&Jagieła, 2023; Kirkpatrick, 2018). Furthermore, personally directed criticism can exacerbate feelings of worthlessness and contribute to burnout, while some students respond recklessly to tutor feedback, a reaction that may serve as a predictor of cynicism (Xie et al., 2019; Rauf et al., 2020). Critiques are also associated with self-censorship, whereby students deliberately withhold or alter ideas to avoid negative judgment (Ceylanli et al., 2020). On the other hand, group critiques can be particularly challenging, with students reporting higher stress when their designs are critiqued by teammates compared to working independently (Gomez-Lanier, 2018). Public criticism, especially in a group setting, may be perceived as demeaning, leading to social isolation for the targeted student (Gil-Mastalerczyk&Jagieła, 2023).

PERFECTIONISM AND OVERCOMMITMEN*t*

Perfectionism is a deeply ingrained norm within architectural education, where students' work is regularly benchmarked against elite standards, creating unrealistic expectations that intensify the inherent challenges of the discipline (Battisto et al., 2024a). As a personality trait, perfectionism exhibits both adaptive and maladaptive forms, influencing student behavior positively or negatively depending on context (Hegenauer, 2022). Students are socialized into this culture of perfectionism early on, adopting one of architecture's unhealthy cultural norms that demand flawlessness in all work (Battisto et al., 2024a; Kirkpatrick, 2018).This perfectionist mindset is cultivated in architectural programs where the curriculum fosters a highly competitive environment with rigorous achievement standards (Xie et al., 2019). The studio review process, a central and combative aspect of architectural education, often reinforces performance pressure, contributing to an atmosphere where only near-perfect work is deemed acceptable (Stead et al., 2022). Architects are frequently 'taught' perfectionism at university, a tendency that then translates into their professional practices (Stead et al., 2022).The consequences of this culture are significant. Perfectionism has been widely identified as a major barrier to creativity and productivity, as the constant pressure to meet elite standards can stifle innovative thinking and lead to excessive self-criticism (Ceylanli et al., 2020; Battisto et al., 2024a). Frequent, often overly critical feedback from tutors and peers exacerbates maladaptive perfectionism, pushing students toward unrealistic goals that may not align with their own definitions of success (Hegenauer, 2022). This environment often leads students to prioritize perfectionism over self-compassion, negatively impacting their well-being (Hegenauer, 2022).

Psychologically, maladaptive perfectionism is strongly associated with anxiety, chronic self-criticism, low self-esteem, and academic burnout due to relentless internal demands (Yusof et al., 2024). It may also contribute to obsessive thought patterns characterized by repetitive and intrusive cognition, further disrupting students' mental well-being (Ceylanli et al., 2020). Combined with the pressures of architectural education, these factors contribute to difficulties in maintaining a healthy work-life balance (Battisto et al., 2024a).

COMPETITION OVER COLLABORATION

A prevailing norm within many architectural studios is a competitive atmosphere that prioritizes outperforming peers rather than fostering mutual growth. Students frequently report discomfort in such environments, where they feel compelled to constantly measure themselves against others (Gil-Mastalerczyk&Jagieła, 2023). This competitive mindset can undermine interpersonal relationships and contribute to heightened stress levels, fear of failure, and self-doubt (Samaratunga&Kamardeen, 2025). The constant comparison inherent in such settings promotes perfectionism, which in turn elevates the risk of burnout (Husna et al., 2025).

The negative implications extend beyond mental strain. Students often respond to competition by overworking and sacrificing rest, leading to mental and physical exhaustion. This cycle of overexertion erodes well-being and reduces the quality of academic engagement. Moreover, competition can diminish collaboration and peer support, fostering isolation and eroding the sense of community within the studio. A focus on outperforming others rather than pursuing personal learning goals can reduce intrinsic motivation and contribute to disengagement.

Research by Gil-Mastalerczyk and Jagieła (2023) further highlights that this competitive climate can make it difficult for students to find supportive friendships or engage in cooperative efforts. Some respondents described an atmosphere in which peers would even undermine each other's work. Those unable to showcase high academic achievement reported feelings of social isolation, compounding the psychological toll of constant competition.

Collaboration, on the other hand, is widely recognized as a positive and essential norm in architectural education. It fosters peer-to-peer and student–tutor interaction, nurtures teamwork, and supports co-creation in the learning process (Kuhn, 2001; Vyas et al., 2013; Ashton, 2000). A culture of teamwork reinforces a sense of belonging, shared responsibility, and collective problem-solving, which positively enhances learning experiences (Mariotti & Niblock, 2023; McClean, 2020; Osborne et al., 2015).

Well-structured collaboration can promote the co-evolution of project quality, learning progression, and design outcomes within the studio (Safin et al., 2019). It has also been shown to improve student engagement; for instance, Reyes-de-Cózar et al. (2023) found that collaborative and teamwork methodologies in the classroom increase students' involvement in their studies. Similarly, Park (2020) observed that while collaboration can advance learning, its impact depends on the group's approach and internal dynamics.

Despite its benefits, collaboration can also pose challenges. Teamwork can be a source of stress when personality clashes, unequal participation, and group conflict occur (Karimi &Farivarsadri, 2024). Students may face difficulties in achieving consensus, coordinating contributions, and ensuring reliable participation from all members (Gomez-Lanier, 2018). Additional pressures include dependence on teammates to meet deadlines, uncertainty over others' commitment, and the need for timely, coordinated action. These challenges can create stress in areas such as communication, planning, and interpersonal relationships (Gomez-Lanier, 2018).Furthermore, constant exposure to peers' work, while intended to stimulate learning, can foster unhealthy comparisons. Students may perceive others' ideas as superior, which can undermine self-confidence and contribute to imposter syndrome (Hargrove, 2012; Vyas et al., 2013). Interestingly, Gomez-Lanier (2018) found that working in teams with friends was perceived as the least stressful arrangement, both at the beginning and end of the semester, suggesting that interpersonal trust and familiarity can mitigate some collaborative challenges.

PHYSICAL PRESENCE EQUALS PRODUCTIVITY (EXPECTATIONS OF AVAILABILITY)

The norm of "expectations of availability," encapsulated in the belief that physical presence equates to productivity, is deeply ingrained in many design studios, shaping students' experiences and perceptions of success. The physical studio environment facilitates spontaneous communication, complex idea exchange, and collaborative learning, which are less easily replicated in virtual settings (Pelman & Zoran, 2025). Expectations of being physically present, reinforced by both physical and administrative factors, are

significant drivers of productivity and are closely linked to students' educational level, influencing their confidence, learning experience, and well-being (Alhusban et al., 2024). However, productivity is not solely determined by presence; comfort, flexibility, and autonomy in deciding when and how to engage in studio activities are equally critical. Flexible workspaces and control over one's schedule are associated with greater satisfaction, perceived productivity, and well-being (Candido et al., 2018; Chadburn et al., 2017; Hanc, 2019).

While physical presence can foster collaboration and spontaneous interaction, rigid expectations for constant availability may not enhance productivity and can harm well-being. Such expectations can lead to stress, reduced autonomy, and feelings of overwhelm, particularly when they limit students' ability to manage their own time or balance other commitments (Kirkpatrick, 2018; Alhusban et al., 2024; Hanc, 2019).

TUTOR AS AUTHORITY

The set of studies selected for this systematic research did not directly address the specific topic under investigation. The set of studies selected for this systematic research did not directly address the specific topic under investigation.

Consequently, several specialized studies were consulted to provide supplementary insights; however, these sources fall outside the established selection criteria, as some were published before 2015 and others do not specifically focus on the design studio or architectural design context.

The close interaction between students and tutors is pivotal for the development of design proficiency and critical thinking (Şekerci & Kahraman, 2024). Such engagement fosters confidence and competence, primarily through the socialization processes integral to architectural education (Olweny, 2020). Within the design studio context, this relationship serves not only as a channel for knowledge transfer but also as a foundation for shaping students' professional identities and creative capabilities.

Tutors employ a range of authority styles, each influencing the learning environment in distinct ways. Lodson et al. (2020) identify three primary roles: the "hegemonic overlord" (assertive and controlling), the "entertainer" (engaging but potentially superficial), and the "liminal servant" (supportive and facilitative). Student feedback indicates that the "liminal servant" style—characterized by guidance, encouragement, and motivation without domination—most effectively fosters creativity and sustained learning. In contrast, the "hegemonic overlord" approach can create a rigid and hierarchical dynamic, limiting students' willingness to experiment or question established norms.

Within the design studio, tutors are often regarded as unquestionable experts, making challenges to their opinions rare or even discouraged. This authority can be beneficial when used to scaffold learning, provide expert critique, and maintain academic rigor. However, when authority is misapplied, it can hinder student autonomy, stifle creative development, and negatively affect mental well-being. In such cases, the studio environment risks becoming less of a collaborative learning space and more of a top-down instructional model, which may not align with the open-ended, exploratory nature of design education.

The attitudes and behaviors of tutors play a significant role in shaping the studio climate. Negative behaviors, such as antagonism or dismissiveness, have been identified as contributors to student distress (Ojeda-Hecht, 2022). Poorly managed tutor–student interactions may lead to diminished perceptions of course value, heightened burnout, and reduced perceived immediacy in communication. In particular, authoritarian or "hegemonic overlord" tutor styles have been associated with increased student anxiety, feelings of repression, and a reduced capacity to express ideas freely (Lodson et al., 2020; Webster, 2004). Under such conditions, students often refrain from taking creative risks, which can suppress innovation and reduce both academic performance and psychological well-being.

In addition, when tutors dominate the learning process, students' opportunities to develop independent learning skills, critical thinking, and self-confidence are significantly reduced (Harahap&Atmodiwirjo, 2021). Over-reliance on tutor approval can trap students in a passive learning mode, impeding their ability to self-direct their work. Furthermore, a lack of negotiation and mutual trust within feedback processes can undermine students' engagement and satisfaction, ultimately leading to frustration or disengagement (Yorgancıoğlu&Tunalı, 2020; Webster, 2004). A balanced approach—where authority is paired with openness to dialogue—appears essential for cultivating autonomous, reflective, and resilient learners.

EMOTIONAL DETACHMENT

Psychological detachment from demanding work environments, such as design studios, helps reduce emotional exhaustion and psychosomatic complaints. It acts as a buffer, protecting students from the

negative effects of high workload and long hours, which are common in design studios. It helps maintain engagement and academic performance over time (Lu & Chou, 2020).

Within studio culture, students are expected to demonstrate emotional resilience, maintaining composure under pressure and refraining from internalizing critique on a personal level, although achieving such detachment can be highly challenging. Students who are able to mentally "switch off" after studio hours are less likely to experience burnout and chronic stress (Fritz et al., 2010; Sonnentag et al., 2010).

While moderate detachment can be beneficial, excessive or prolonged emotional detachment may result in disengagement, reduced motivation, and diminished creative output. Optimal performance is often associated with a balanced level of detachment—too little can lead to exhaustion, while too much can foster apathy. Moreover, high levels of detachment can make it difficult for students to re-engage in creative or collaborative work, potentially reducing their studio participation and negatively affecting learning outcomes (Fritz et al., 2010).

SHARING WORK-IN-PROGRESS

Sharing work-in-progress encourages students to critically reflect on their creative process, leading to deeper learning and continuous self-improvement. Public sharing work-in-progress also fosters a collaborative environment in which students can exchange ideas, receive peer feedback, and develop a sense of belonging within a creative community, thereby enhancing motivation and alleviating feelings of isolation (Rojek-Adamek, 2021). Moreover, the open sharing of ideas and progress empowers students by increasing their willingness to engage in dialogue and knowledge exchange, which has been linked to greater psychological empowerment and higher rates of project success (Khan et al., 2020).

However, students may feel exposed or anxious about sharing unfinished work, fearing negative judgment or criticism. This apprehension can be particularly pronounced in competitive or highly evaluative studio cultures. Additionally, the public nature of sharing can create pressure to present work that meets perceived standards, potentially resulting in increased stress or reluctance to share less-developed ideas (Tafahomi, 2021).

PRODUCT OVER PROCESS

The prevailing norm of prioritizing polished final outcomes ("product") over the creative journey ("process") is common in many design studios. Emphasizing final products over the learning process can create high-pressure environments where students feel compelled to deliver flawless work, often at the expense of their mental well-being. Such conditions may lead to emotional exhaustion, anxiety, and burnout, as students neglect self-care and reflection in pursuit of perfection. When the process is undervalued, opportunities for experimentation, risk-taking, and iterative learning are diminished, discouraging exploration and potentially resulting in superficial understanding or creative stagnation (Gollihue, 2019). Exposure to product-centric cultures can also leave students feeling unprepared for real-world challenges that demand adaptability and process-oriented thinking, leading to disorientation and a lack of readiness for system reworking or problem-solving beyond the studio (Sipahi, 2020).

COPING WITH BURNOUT AMONG ARCHITECTURE STUDENTS IN THE DESIGN STUDIO

To mitigate workload-induced burnout, several interventions have been proposed. Samaratunga et al. (2025) advocate for redesigning academic assessments by incorporating more applied, group-based projects and spreading deadlines throughout the semester. Ayalp and Çivici (2021) suggest that practice-based learning and streamlined module content can reduce overlaps and redundancies in the curriculum. Universities should also support freshmen with training in time management, planning, and self-regulation (Asikainen et al., 2022). Effective workload management includes setting non-overlapping deadlines, breaking large tasks into manageable parts, and increasing communication about flexibility options (Boman et al., 2025; Kirkpatrick, 2018). In broader terms, Ibrahim and Hasan (2019) propose a Self-Management Model that encourages students to adopt healthy habits and self-directed coping mechanisms as part of a sustainable academic routine.

Discouraging the "culture of all-nighters," which challenges the stereotype that architecture must be a life without balance (Waite & Braidwood, 2016), is essential for coping with burnout. Shifting towards healthy rhythms emphasizes effective time management, adequate rest, and maintaining quality work hours. Such practices can help mitigate burnout by promoting sustainable work habits that protect both mental well-being and creative performance. A survey by RIBA Education Statistics (2018) found a high prevalence of

overnight work as a trigger for mental distress, though awareness of its harms has grown, leading some schools to restrict 24-hour studio access.

A study by Gomez-Lanier (2018) found that time management and managing distractions, such as taking breaks, stepping back, exercising, eating, using social media, listening to music, reflecting, and brainstorming, are valuable coping mechanisms throughout the semester, regardless of whether students worked alone or with others.

Burton (2018) emphasizes that the first step toward improving the critique process is for all academic staff, including casual tutors and guest critics, to acknowledge the significance of emotional factors in the learning environment. By intentionally fostering positive emotional experiences and minimizing negative ones, critiques can become more supportive, inclusive, and effective as learning tools. In addition, architecture schools and tutors must critically evaluate and reconsider the methods used to prepare educators for teaching and critiquing studio projects (Koch et al., 2002). The pedagogical training of tutors plays a decisive role in shaping studio culture and influencing students' learning experiences. Koch et al. (2002) advocate rethinking the social organization of criticism to foster environments that are constructive, democratic, and reflective, ensuring that critique practices align with students' developmental needs. Within such a framework, juries should function as platforms for celebrating student achievements and guiding future growth, rather than as settings that demean or discourage students.

Striking a balance between healthy peer challenge and supportive teamwork is essential to sustaining both academic performance and student well-being.

Studies in both academic and professional environments highlight that providing options for remote or flexible participation, as well as spaces for both collaboration and focused work, supports better psychological outcomes and productivity (Candido et al., 2018; Chadburn et al., 2017; Indergård & Hansen, 2024; Hanc, 2019).

Effective design studios require a careful balance between tutor authority and student autonomy. Tutors must uphold their role as knowledgeable guides while providing students with the space to develop independent thinking and creative confidence. Excessive tutor dominance can suppress student initiative, limiting opportunities for self-directed exploration. Conversely, insufficient guidance may leave students feeling unsupported and uncertain in their learning journey (Harahap&Atmodiwirjo, 2021). Establishing this balance is crucial to fostering an environment in which students can thrive both creatively and academically.

Tutor–student interactions should aim to balance authority with a peer-like relationship, a dynamic often referred to as "dialogic status." This approach allows tutors to maintain a position of expertise while fostering open dialogue and collaborative learning. By encouraging two-way communication, tutors can create a more inclusive and responsive studio environment. Such interactions have been shown to effectively promote creativity while simultaneously reducing burnout by enhancing student engagement and ownership of the learning process (Sawyer, 2019).

For novice architecture students, tutors adopting a coaching role, offering consistent guidance, constructive feedback, and encouragement rather than dictating solutions, can be highly effective. This approach builds skills and confidence, enabling students to tackle complex design challenges with independence and resilience (Mehrad et al., 2021), while fostering long-term professional growth.

Faculty and institutions should promote soft skills such as emotional intelligence to support student well-being and help them manage stress effectively (Hegenauer, 2022).

CONCLUSION

The architectural design studio remains the cornerstone of architectural education. Studio-based learning is central to discipline and stands apart from conventional university teaching methods by emphasizing hands-on, project-based work. The issue of burnout within this setting is particularly concerning, given the growing demands placed on architecture students. Burnout among these students is a multifaceted problem shaped by various studio culture norms, including excessive workload, extreme time commitments, glorification of all-nighters, personal and physical sacrifice, and critique practices, among others. Such norms often foster an environment where stress, anxiety, depression, and other social-emotional challenges contribute to burnout, which in turn can severely impact students' well-being and their capacity to fully engage in learning.Table 2 presents a summary of problematic studio norms that contribute to burnout, along with suggested healthier alternative practices for coping.

TABLE 2
Problematic studio norms contributing to burnout and suggested healthier alternative practices for coping.

Problematic Norm	Why It Contributes to Burnout	SuggestedHealthier Alternative
1. Excessive workload	Creates sustained academic pressure, fostering overwork, and causing chronic stress, fatigue, and emotional exhaustion that undermine motivation and well-being.	*Balanced Workload Management:* Implement realistic deadlines, coordinate schedules effectively, provide clear and detailed project requirements, and foster a healthy studio culture that prioritizes rest, effective time management, and quality of work over sheer quantity.
2. Time-devotion	Excessive and unregulated working hours increase stress, anxiety, and depression, while limiting rest, personal life, and overall well-being.	*Incorporate Regular Breaks:* Use methods like Pomodoro, a time-management method using 25-minute work intervals with short breaks to boost productivity and reduce fatigue, or scheduled rest periods to maintain energy.
3. Glorification of All-Nighters	Normalizes poor time management and chronic sleep deprivation, leading to cognitive decline, emotional exhaustion, and decreased productivity.	*Healthy Rhythms:* Prioritize sleep, effective time management, and quality work hours by encouraging realistic deadlines and implementing scheduling methods such as time-blocking.
4. Personal and physical sacrifice/ "Studio = Life"	Causes chronic exhaustion, sleep deprivation, and emotional strain.	*Sustainable work habits*: Value breaks, pacing, and long-term thinking over short bursts of unsustainable effort. *Encourage Self-Care:* Promote healthy eating, hydration, and physical activity as part of studio culture.
5. Critique as Central Learning Tool	Cause stress, anxiety, and fear of judgment. If delivered harshly, it may erode self-confidence, discourage risk-taking, and lead to emotional exhaustion.	*Balanced critique:*Train tutors to implement a model that focuses on collaborative dialogue and constructive, specific feedback rather than personal judgment.
6. Perfectionism – Every detail must be flawless	Promotes obsessive overwork, fear of failure, and heightened stress, often leading to procrastination, self-criticism, and decision paralysis, which further exacerbate stress levels.	*Progress Over Perfection*: Encourage iteration, prototyping, and learning from mistakes.
7. Competitiveness Over Collaboration	Leads to isolation, fear of sharing ideas, and toxic peer relationships.	*Collaborative Growth*: Promote team critique, skill-sharing, and collective problem-solving. *Build Community:* Organize group work, social events, and peer support systems.
8. Expectations of Availability	Reduces autonomy, increase stress, and create feelings of overwhelm.	*Balanced work habits:*Adopt sustainable work practices that support both productivity and well-being. *Flexible working hours:* Encourage flexible working hours and the use of digital collaboration tools.
9. Tutor as Authority	Overly controlling or authoritarian styles limit student autonomy, increase anxiety, suppress creativity, and reduce opportunities for independent learning, leading to stress, frustration, and disengagement.	*"liminal servant" approach:*Where tutors provide guidance, encouragement, and constructive feedback while fostering dialogue, student autonomy, and creative risk-taking.
10. Emotional Detachment from Wellbeing	Treats mental well-being as secondary to studio success.	*Whole-Person Value*: Normalize vulnerability, rest, and self-care as essential to creativity.

Problematic Norm	Why It Contributes to Burnout	SuggestedHealthier Alternative
11. Sharing Work-in-Progress	Creates anxiety, pressure to meet perceived standards, and fear of negative judgment, which increase stress.	*Supportive, low-stakes feedback:* Such as small peer groups or anonymous sharing platforms.
12. Product Over Process	Pressures students to deliver polished final outcomes at the cost of mental well-being and learning.	*Process-Focused Learning*: Reward exploration, reflection, and creative risk-taking, not just the end result.

REFERENCES

1. Akande, O. K., Obi-George, C. L., Anikor, E. M., & Makun, C. Y. (2024). Evaluation of interactive spaces for enhanced learning in architecture department buildings in Niger State, Nigeria. *Journal of Architecture, Engineering & Fine Arts*, *6*(1), 96–110. http://dergipark.org.tr/artgrid
2. Alhusban, S., Alhusban, A., Sqour, S., Shawabkeh, R., Labin, A., &Alhusban, M. (2024). Examining the factors influencing students' productivity in architectural design studio of governmental Jordanian universities. *Facilities*. https://doi.org/10.1108/f-12-2023-0109
3. Anthony, K. H. (1991). *Design Juries on Trial*. Van Nostrand Reinhold Company.
4. Ashton, P. (2000). Collective Action for Design Learning: An Investigation in the Design School Studio. In: Scrivener, S.A.R., Ball, L.J., Woodcock, A. (eds) *Collaborative Design*. Springer, London. https://doi.org/10.1007/978-1-4471-0779-8_48
5. Asikainen, H., Nieminen, J. H., Häsä, J., & Katajavuori, N. (2022). University students' interest and burnout profiles and their relation to approaches to learning and achievement. *Learning and Individual Differences*, *93*, 102105. https://doi.org/10.1016/j.lindif.2021.102105
6. Ayalp, G. G., &Çivici, T. (2021). Critical stress factors influencing architecture students in Turkey: A structural equation modelling approach. *Open House International*, *46* (2), 281-303. https://doi.org/10.1108/OHI-10-2020-0150
7. Bachman, L., & Bachman, C. (2006). Student perceptions of academic workload in architectural education. *Journal of Architectural and Planning Research*, *23*(4), 271–304.
8. Battisto, D., Hambright-Belue, S., Browning, L., Hall, L., Blouin, J., Dong, J., Li, X., & Price, K. (2024a). Mental health challenges in architecture and landscape architecture students. *Building healthy academic communities journal, 8* (2), 53-73. https://doi.org/10.18061/bhac.v8i2.9767
9. Burton, L. O. (2018). *Experimentations in transformational pedagogy and space: The architecture students' experience* [PhD]. https://eprints.qut.edu.au/121543/1/Lindy-Lou_Burton_Thesis.pdf
10. Campbell, K. D. (2015). Fear Becomes the Unintended Consequence of Creativity/Innovation. *Journal of Leadership Studies*, *9*(3), 60–61. https://doi.org/10.1002/jls.21407
11. Candido, C., Thomas, L., Haddad, S., Zhang, F., Mackey, M., & Ye, W. (2018). Designing activity-based workspaces: satisfaction, productivity and physical activity. *Building Research & Information*, 47, 275- 289. https://doi.org/10.1080/09613218.2018.1476372
12. Casakin, H., & Wodehouse, A. (2021). A Systematic Review of Design Creativity in the Architectural Design Studio. Buildings. https://doi.org/10.3390/BUILDINGS11010031
13. Cavanagh, S., Lawrence, J., & Hirst, M. (2010). Recognising mental health problems and seeking support. *Every Child*, *16*(2), 8.
14. Cennamo, K., & Brandt, C. (2012). The "right kind of telling": knowledge building in the academic design studio. *Educational Technology Research and Development*, *60*(5), 839–858. https://doi.org/10.1007/s11423-012-9254-5
15. Ceylanli, Z., Engin, E., &Uluengin, M. (2020). Mind the T-Square: Mindfulness-Based Stress Reduction for Design Students and Its Modes of Action on Studio Performance and Critique Anxiety. *The International Journal of Design Education*, *15*(1), 57–74. https://doi.org/10.18848/2325-128x/cgp/v15i01/57-74
16. Chadburn, A., Smith, J., & Milan, J. (2017). Productivity drivers of knowledge workers in the central London office environment. *Journal of Corporate Real Estate*, 19, 66-79. https://doi.org/10.1108/JCRE-12-2015-0047
17. Chu, T., Liu, X., Takayanagi, S., Matsushita, T., & Kishimoto, H. (2022). Association between mental well-being and academic performance among university undergraduates: The interacting role of

lifestyle behaviors. *International Journal of Methods in Psychiatric Research*, *32*(1). https://doi.org/10.1002/mpr.1938
18. Chuanchuan, H. (2025). Examining influential factors of students' academic burnout: A case study at a university in Yunnan, China. *Journal of Interdisciplinary Research, 10*(1), 93–101.
19. Fritz, C., Yankelevich, M., Zarubin, A., & Barger, P. (2010). Happy, healthy, and productive: the role of detachment from work during nonwork time. *The Journal of applied psychology*, 95 5, 977-83. https://doi.org/10.1037/a0019462.
20. Goldschmidt, G., Hochman, H., & Dafni, I. (2010). The design studio "crit": Teacher–student communication. *Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, *24*(3), 285–302. https://doi.org/10.1017/s089006041000020x
21. Gollihue, K. (2019). Re-Making the Makerspace: Body, Power, and Identity in Critical Making Practices. *Computers and Composition*. https://doi.org/10.1016/J.COMPCOM.2019.05.002.
22. Hacıhasanoğlu, O. (2019). Architectural Design Studio Culture. *Journal of Design Studio, 1*(1), 5–15.
23. Hanc, M. (2019). *Productivity and wellbeing in the 21st century workplace: implications of choice* [Doctoral dissertation]. https://discovery.ucl.ac.uk/id/eprint/10073396/1/MH_Final-thesis-approved_26April2019.pdf
24. Harahap, M., & Atmodiwirjo, P. (2021). Virtual learning platform in architecture design studio for maintaining autonomy and authority. *Modul*, 21, 37-42. https://doi.org/10.14710/mdl.21.1.2021.37-42.
25. Hargrove, R. (2012). Fostering creativity in the design studio: A framework towards effective pedagogical practices. *Art, Design & Communication in Higher Education*, *10*(1), 7–31. https://doi.org/10.1386/adch.10.1.7_1
26. Hegenauer, J. S. (2018). *Stress, depression, and anxiety in undergraduate engineering and architecture students*. American Society for Engineering Education Northeast Section Conference, University of Hartford, Hartford, CT, April 27–28, pp. 1–6.
27. Hegenauer, M. (2022). *Perfectionism and self-compassion in the design studio* [Dissertation]. https://www.proquest.com/openview/551a1e78fc10514f413147e75855a898/1?pq-origsite=gscholar&cbl=18750&diss=y
28. Hohenadel, K. (2018). *How architecture builds a profession of stress*. Wellcome Collection. https://wellcomecollection.org/articles/XBdyexEAAKsb72Tb
29. Holding, A. C., St-Jacques, A., Verner-Filion, J., Kachanoff, F., & Koestner, R. (2019). Sacrifice—but at what price? A longitudinal study of young adults' sacrifice of basic psychological needs in pursuit of career goals. *Motivation and Emotion*, *44*. https://doi.org/10.1007/s11031-019-09777-7
30. Hussein, A. Y., & Mustafa, F. A. (2023). Architecture students self-report wellbeing assessment based on quality learning environment in design studio. *Cihan University-Erbil scientific journal*, *7* (1), 21-28. https://doi.org/10.24086/cuesj.v7n1y2023.pp21-28
31. Ibrahim, A. K., Kelly, S. J., Adams, C. E., & Glazebrook, C. (2013). A systematic review of studies of depression prevalence in university students. *Journal of Psychiatric Research*, *47*(3), 391–400. https://doi.org/10.1016/j.jpsychires.2012.11.015
32. Ibrahim, K., Adebowale, O. J., Dodo, M., Zailani, B. M., Lukman, O., & Kajimo-Shakantu, K. (2023). Challenges and Coping Strategies of Built Environment Students During Students Industrial Work Experience Scheme (SIWES): Perspective from Nigeria. *International Journal of Construction Education and Research*, *20*(2), 157–176. https://doi.org/10.1080/15578771.2023.2203957
33. Ibrahim, M. (2018). Surviving architecture: an exploration of the design studio's hidden curriculum. *Bau journal - health and wellbeing*, *1*(3), Article 66. https://doi.org/10.54729/2789-8288.1118
34. Ibrahim, N., & Hasan, A. (2019). Challenges in Design Studio Project Work Among Malaysian Architecture Students. *International Journal of Innovative Technology and Exploring Engineering*, *9*(2), 4500–4504. https://doi.org/10.35940/ijitee.b7279.129219
35. Ibrahim, N., & Hasan, A. (2019). Challenges in Design Studio Project Work Among Malaysian Architecture Students. *International Journal of Innovative Technology and Exploring Engineering*, *9*(2), 4500–4504. https://doi.org/10.35940/ijitee.b7279.129219
36. Indergård, K., & Hansen, G. (2024). The impact of workplace design on academic staff: a systematic literature review. *Building Research & Information*, 53, 479 - 491. https://doi.org/10.1080/09613218.2024.2419868
37. Jenkin, T. (2017, March 24). *Revealed: The courses which have to pull the most all nighters to get work done*. The Tab. https://archive.thetab.com/uk/2017/03/24/revealed-courses-pull-nighters-get-work-done-36112
38. Jia, Y. (2009). *Burnout and its relationship with architecture students' job design in Hong Kong* [Doctoral dissertation]. The University of Hong Kong Institutional Repository.

39. Karimi, H., & Farivarsadri, G. (2024). Investigating collaborative learning in architectural design studios from the instructors' perspective. *Higher Education, Skills and Work-Based Learning*, *15*(1), 130–157. https://doi.org/10.1108/heswbl-12-2023-0329
40. Khan, J., Javed, B., Mubarak, N., Bashir, S., & Jaafar, M. (2020). Psychological Empowerment and Project Success: The Role of Knowledge Sharing. *IEEE Transactions on Engineering Management*, PP, 1-12. https://doi.org/10.1109/TEM.2020.3026093.
41. Kim, J., Kim, D., & Kamphaus, R. (2022). Early Detection of Mental Health Through Universal Screening at Schools. *Georgia Educational Researcher*, *19*(1). https://doi.org/10.20429/ger.2022.190104
42. Kirkpatrick, M. (2018). *Mental wellbeing and the architecture student* [MArch Architecture Dissertation]. Sheffield School of Architecture, University of Sheffield. https://absnet.org.uk/wp-content/uploads/2021/01/Dissertation-Melissa-KirkpatrickV3.pdf
43. Koch, A., Schwennsen, K., Dutton, T. A., & Smith, D. (2002). *AIAS Studio Culture Task Force report*. American Institute of Architecture Students.
44. Kuhn, S. (2001). Learning from the architecture studio: implications for project-based pedagogy. *International Journal of Engineering Education*, *17*(4), 349–352.
45. Li, C., Zhang, L. J., & Jiang, G. (2021). Conceptualisation and measurement of foreign language learning burnout among Chinese EFL students. *Journal of Multilingual and Multicultural Development*, *45*(4), 1–15. https://doi.org/10.1080/01434632.2021.1931246
46. Li, H. (2022). Classroom Enjoyment: Relations With EFL Students' Disengagement and Burnout. *Frontiers in Psychology*, *12*. https://doi.org/10.3389/fpsyg.2021.824443
47. Lodson, J., Bauchi, F., & Ogbeba, J. (2020). The Effect of Teacher-Student Relationships On Student Creative Performances in Architectural Design Studio. *The Educational Review, USA*. https://doi.org/10.26855/er.2020.02.002.
48. Lotfabadi, P., & Iranmanesh, A. (2023). Evaluation of learning methods in architecture design studio via analytic hierarchy process: a case study. *Architectural Engineering and Design Management*, *20*(1), 47–64. https://doi.org/10.1080/17452007.2023.2237054
49. Lu, L., & Chou, C. (2020). Protecting Job Performance and Well-Being in the Demanding Work Context: The Moderating Effect of Psychological Detachment for Chinese Employees. *Applied Psychology*. https://doi.org/10.1111/APPS.12216.
50. Makun, C. Y., Anikor, E. M., Emechebe, L. C., & Akande, O. K. (2024). Evaluation of interactive spaces for enhanced learning in architecture department buildings in Niger state, Nigeria. *ArtGRID - Journal of Architecture Engineering and Fine Arts*, *6* (1), 96-110. https://doi.org/10.57165/artgrid.1387692
51. McClean, D., Holgate, P., & Bloice, L. (2020, February 17). *Mental well-being in UK architecture education: An analysis of contemporary student wellbeing – An initial study*. RIBA Research Grant.
52. Mehrad, S., Dezhdar, O., & Talischi, G. (2021). Training in Basic Design Studio: Analysis of Tutor & Novice Students Interactions, Using Linkography Method. *Ontology space*, *10*(2), 33–44. https://doi.org/10.22094/soij.2021.1920548.1396
53. Metinal, Y. B., & Ayalp, G. G. (2024). Modeling the critical factors affecting the success of online architectural education to enhance educational sustainability. *Sustainability*, *16* (9), 3803-3803. https://doi.org/10.3390/su16093803
54. Ojeda-Hecht, E., Kelly, S., Goke, R., & Christen, N. (2022). Perceived Immediacy and Burnout as Mediators of Instructor Misbehaviors and Students' Task Value. *Southern Communication Journal*, *87*(4), 373–385. https://doi.org/10.1080/1041794X.2022.2099567
55. Olson, N., Oberhoffer-Fritz, R., Reiner, B., & Schulz, T. (2025). Stress, Student Burnout and Study Engagement – a cross-sectional Comparison of University Students of Different Academic Subjects. *BMC Psychology*, *13*(1). https://doi.org/10.1186/s40359-025-02602-6
56. Olweny, M. R. (2019). Students' views of the architectural design review: The design crit in East Africa. *Arts and Humanities in Higher Education*, *19*(4), 147402221983359. https://doi.org/10.1177/1474022219833595
57. Osborne, L., Franz, J., Davis, J., Lyndal O'Gorman, Ellis, J., & Caldwell, G. (2015). *Caught in the act of collaboration: Students' experiences of collective learning within a real-world design studio context.*
58. Park, S. (2020). Rethinking design studios as an integrative multi-layered collaboration environment. *Journal of Urban Design*, *25*(4), 523–550. https://doi.org/10.1080/13574809.2020.1734449
59. Pedgley, O. & Şener, B. (2022). The redesign studio: an intensive evidence-based approach for ideating product and UX/UI improvements. *DS 117: Proceedings of the 24th International Conference on*

Engineering and Product Design Education (E&PDE 2022), London South Bank University in London, UK. 8th - 9th September 2022. https://doi.org/10.35199/epde.2022.105
60. Pelman, B., & Zoran, A. (2025). The Impact of Sociomaterials on Architectural Learning Processes in Virtual and Physical Design Studios. *Education Sciences*. https://doi.org/10.3390/educsci15020240
61. Pollard, A. (2023). Wellness Through Design: A framework for wellness-focussed architecture within the context of the tertiary education environment (Version 1). Te Herenga Waka-Victoria University of Wellington. https://doi.org/10.26686/wgtn.22210609
62. PRISMA. (2025). *Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA)*. PRISMA. https://www.prisma-statement.org/
63. Rauf, H. L., Gunce, K., & Ozersay, M. O. (2020). Self-advocacy for first-year students in interior architecture design studios. *Open House International*, *45*(4), 465–479. https://doi.org/10.1108/ohi-05-2020-0041
64. Reyes-de-Cózar, S., Merino-Cajaraville, A., & Salguero-Pazos, M. R. (2023). Avoiding academic burnout: Academic factors that enhance university student engagement. *Behavioral science*null,. https://doi.org/10.3390/bs13120989
65. *RIBA Education Statistics*. (2024). RIBA Education Statistics; Mirza & Nacey Research. https://www.architecture.com/knowledge-and-resources/knowledge-landing-page/education-statistics?srsltid=AfmBOorQJGnE6W-KZTyzgQj8ziulgfW2IV-h83NTcuyNtcjsLgzO5inh
66. Rojek-Adamek, P. (2021). The role of sharing creative ideas: professional designers about their work. *Creativity Studies*. https://doi.org/10.3846/cs.2021.14723.
67. Safin, S., Détienne, F., Burkhardt, J. M., Hébert, A. M., & Leclercq, P. (2019). The interplay between quality of collaboration, design project evolution and outcome in an architectural design studio. *CoDesign*, *17*(4), 392–409. https://doi.org/10.1080/15710882.2019.1699935
68. Salama, A. M., & Wilkinson, N. (2007). *Design Studio Pedagogy: Horizons for the Future*. The Urban International Press.
69. Samaratunga, M., Kamardeen, I., & Chathurangi, B. N. M. (2025). Work–Study Conflict Stressors and Impacts: A Cross-Disciplinary Analysis of Built Environment Undergraduates. *Buildings*, *15*(6), 973. https://doi.org/10.3390/buildings15060973
70. Sara, R., & Parnell, R. (2014). Fear and learning in the architectural crit. *Field Journal*, *5*(1), 101–125.
71. Sawyer, R. (2019). Dialogic Status in Design Education: Authority and Peer Relations in Studio Class Conversations. *Social Psychology Quarterly*, 82, 407 - 430. https://doi.org/10.1177/0190272519867100.
72. ŞEKERCİ, Y., & Kahraman, M. U. (2024). Dreaming of better spaces: Environmental psychology in students' redesign of interior architecture studios. *Journal of design studio, 6* (1), 5-30. https://doi.org/10.46474/jds.1427149
73. Shek, L., Yu, L., Wu, Y., Zhu, X., & Chan, Y. (2016). A 4-year Longitudinal Study of Well-being of Chinese University Students in Hong Kong. *Applied Research in Quality of Life*, *12*(4), 867–884. https://doi.org/10.1007/s11482-016-9493-4
74. Sidawi, B. (2013, April 4-5). *Rethinking architectural education: A focus on creativity* [Paper presentation]. Association of Architectural Educators (AAE) First International Conference on Architectural Education, Nottingham, United Kingdom.
75. Sipahi, E. (2020). Authentic high school research experiences: A meta-synthesis. *Socialsci Journal, 6*, 129–139.
76. Smith, K. (2011). Curiositas and Studiositas: Investigating Student Curiosity and the Design Studio. *International Journal of Art & Design Education*, *30*(2), 161–175. https://doi.org/10.1111/j.1476-8070.2011.01691.x
77. SONA. (2018). *The Mental Wellbeing of Architecture Students*. https://www.architecture.com.au/wp-content/uploads/SONA-Mental-Health-Project-FOR-WEBSITE-3.pdf
78. SONA. (2022). *The Mental Wellbeing of Architecture Students*. https://www.architecture.com.au/wp-content/uploads/SONA-Mental-Health-Project-FOR-WEBSITE-3.pdf
79. Sonnentag, S., Binnewies, C., & Mojza, E. J. (2010). Staying well and engaged when demands are high: The role of psychological detachment. *Journal of Applied Psychology*, *95*(5), 965–976. https://doi.org/10.1037/a0020032
80. Souto, A. (2024). Learning from the new European Bauhaus: Co-creating the curriculum with wellbeing at its core. https://doi.org/10.1007/978-3-031-40188-6_14
81. Souza, R. P. P. (2019). Strategies for early identification of risk behaviors in children and adolescents. *Revista Ft*, *24*, 29–30. https://doi.org/10.69849/revistaft/ch10201911180729

82. Stead, N., Gusheh, M., & Rodwell, J. (2022). Well-Being in Architectural Education: Theory-building, Reflexive Methodology, and the "Hidden Curriculum." *Journal of Architectural Education, 76*(1), 85–97. https://doi.org/10.1080/10464883.2022.2017699
83. Tafahomi, R. (2021). Effects of the Wall-Faced Seating Arrangement Strategy on the Behavioural Patterns of the Students in the Architecture Thesis Design Studio. *Asian Journal of Assessment in Teaching and Learning*. https://doi.org/10.37134/ajatel.vol11.1.8.2021.
84. Vyas, D., van der Veer, G., & Nijholt, A. (2012). Creative practices in the design studio culture: collaboration and communication. *Cognition, Technology & Work, 15*(4), 415–443. https://doi.org/10.1007/s10111-012-0232-9
85. Waite, R., & Braidwood, E. (2016, July 28). *Mental well-being problems exposed by AJ Student Survey 2016*. The Architects' Journal. https://www.architectsjournal.co.uk/news/mental-health-problems-exposed-by-aj-student-survey-2016
86. Walker, B. (2009). New Twists on an Old Problem: Preventing Plagiarism and Enforcing Academic Integrity in an Art and Design School. *Art Documentation: Journal of the Art Libraries Society of North America, 28*(1), 48–51. https://doi.org/10.1086/adx.28.1.27949510
87. Walker, E., Boyer, D., & Benson, L. (2019). Using Studio Culture to Foster Epistemic Change in an Engineering Senior Design Course. *IEEE Transactions on Education*, *62*(3). https://doi.org/10.1109/te.2019.2898151
88. Webster, H. (2004). Facilitating critically reflective learning: excavating the role of the design tutor in architectural education. *Art, Design and Communication in Higher Education*, 2, 101-111. https://doi.org/10.1386/ADCH.2.3.101/0.
89. Williams, A., Ostwald, M., & Askland, H. H. (2010). The design studio, models of creativity and the education of future designers. In *Proceedings of the 1st DESIRE Network Conference on Creativity and Innovation in Design (DESIRE '10)* (pp. 131–137).
90. Winters, T. M., & Snook, B. H. (2020). Towards an understanding of student stress and mental health in the studio classroom: A lecturer's changing role in a modern society. *Journal of Artistic and Creative Education*, *14*(2).
91. Xie, Y., Yaqoob, A., Mansell, W., & Tai, S. (2019). A qualitative investigation of stress related to studying architecture at degree level in the UK. *Arts and Humanities in Higher Education*, *20*(1), 3–20. https://doi.org/10.1177/1474022219871001
92. Yorgancıoğlu, D., & Tunalı, S. (2020). Changing pedagogic identities of tutors and students in the design studio: Case study of desk and peer critiques. *Art, Design and Communication in Higher Education*, 19, 19-32. https://doi.org/10.1386/adch_00011_1.
93. Zain, M. (2025). Creativity in architecture design education from Islamic perspective: a narrative review. *International Journal of Creative Future and Heritage (TENIAT)*, *13*(1), 159–168. https://doi.org/10.47252/teniat.v13i1.1273