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Technostress in Educational Digital Transformation: A Systematic Literature Review of Antecedents, Outcomes, and Institutional Responses

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ABSTRACT

Educational digital transformation expands access, flexibility, and data use, yet it also creates technology-related demands that can develop into technostress. This study synthesized empirical evidence on the antecedents, consequences, protective resources, and institutional responses associated with technostress in digitally transforming education. A systematic literature review was conducted in accordance with PRISMA 2020. Structured searches of multidisciplinary and education-focused databases covered publications from January 2016 to 23 July 2026. Of 137 initially identified records, 28 empirical studies met the inclusion criteria after deduplication, screening, full-text assessment, and methodological appraisal. The thematic synthesis identified six principal demand clusters: digital overload and acceleration, system complexity and poor usability, technology invasion into personal boundaries, continuous-change uncertainty, role insecurity, and privacy or reliability risks. Technostress was associated with anxiety, fatigue, burnout, lower engagement, motivation, satisfaction, productivity, and weaker continuance intention. Digital competence, self-efficacy, organizational support, integrated system design, autonomy, boundary protection, and adaptive coping reduced these effects and could support techno-eustress. The review concludes that technostress is not merely an individual skills deficit, it is a socio-technical misfit among people, tasks, technologies, and governance arrangements. Educational digital transformation should therefore be managed as human-centered organizational change and evaluated through well-being, learning quality, service quality, and equity indicators rather than technology adoption alone.

Keywords: digital competence, digital transformation, educational technology, technostress

ABSTRAK

Transformasi digital pendidikan memperluas akses, fleksibilitas, dan pemanfaatan data, tetapi juga menciptakan tuntutan teknologi yang dapat berkembang menjadi technostress. Penelitian ini bertujuan mensintesis bukti empiris mengenai sumber, konsekuensi, faktor pelindung, dan respons institusional terhadap technostress dalam transformasi digital pendidikan. Kajian literatur sistematis dilakukan dengan mengikuti PRISMA 2020. Penelusuran terstruktur pada basis data multidisipliner dan pendidikan mencakup publikasi Januari 2016 sampai 23 Juli 2026. Dari 137 rekaman awal, 28 studi empiris memenuhi kriteria inklusi setelah penghapusan duplikasi, penyaringan, telaah teks lengkap, dan penilaian kualitas. Sintesis tematik menunjukkan enam kelompok tuntutan utama: beban dan percepatan digital, kompleksitas serta rendahnya kegunaan sistem, invasi teknologi terhadap batas kehidupan, ketidakpastian perubahan, ketidakamanan peran, serta risiko privasi dan reliabilitas. Technostress berhubungan dengan kecemasan, kelelahan, burnout, penurunan keterlibatan, motivasi, kepuasan, produktivitas, dan keberlanjutan penggunaan teknologi. Namun, kompetensi digital, efikasi diri, dukungan organisasi, desain sistem yang terintegrasi, otonomi, perlindungan batas kerja, dan strategi koping dapat mengurangi dampak tersebut atau mengubahnya menjadi techno-eustress. Kajian ini menyimpulkan bahwa technostress bukan sekadar kekurangan keterampilan individu, melainkan ketidakselarasan sosio-teknis antara manusia, tugas, teknologi, dan tata kelola. Transformasi digital pendidikan perlu dikelola sebagai perubahan organisasi yang berpusat pada manusia dan dievaluasi melalui indikator kesejahteraan, mutu pembelajaran, kualitas layanan, serta keadilan akses.

Kata kunci: *technostress, transformasi digital, kompetensi digital, teknologi pembelajaran*

1. INTRODUCTION

Digital transformation in education extends beyond the substitution of paper-based processes with digital platforms. It restructures teaching, assessment, academic administration, communication, professional development, and institutional decision-making through learning management systems, analytics, cloud services, mobile applications, artificial intelligence, and hybrid forms of work and study. These technologies can widen access and improve flexibility, but they also redistribute workload, accelerate response expectations, expose users to continuous system changes, and make educational activity increasingly dependent on data and infrastructure [25], [26]. Consequently, adoption rates alone are insufficient indicators of successful transformation. A digitally mature institution must also determine whether its technological environment is usable, equitable, pedagogically meaningful, and psychologically sustainable.

Technostress refers to stress arising when individuals perceive that technology-related demands exceed their resources or interfere with valued goals. Early organizational research identified techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty as recurring creators of technostress [21], [24]. Later work showed that technology characteristics such as unreliability, constant interruption, ambiguity, and rapid change become stressful through cognitive appraisal and person-environment misfit [1]. In education, this misfit can involve teachers who possess adequate subject knowledge but insufficient techno-pedagogical support, students who are digitally active but poorly prepared for self-regulated online learning, or administrative staff who must operate fragmented systems while remaining accountable for accurate and responsive services.

The expansion of educational technology preceded the COVID-19 pandemic, but emergency remote teaching intensified exposure to mandatory platforms and compressed years of organizational change into weeks. Evidence from teachers and students documented overload, privacy concerns, fatigue, reduced satisfaction, and performance difficulties [3], [7], [10]. These findings remain relevant beyond emergency conditions because hybrid teaching, digital assessment, analytics, and artificial intelligence have become structural components of educational systems. Nevertheless, emergency remote teaching should not be treated as identical to planned digital transformation. The former is characterized by crisis-driven substitution and limited preparation, the latter should involve strategy, participation, redesign, capability development, and continuous evaluation.

The literature has grown rapidly but remains fragmented. Teacher studies have emphasized TPACK, school support, burnout, work-family boundaries, and continuance intention [4], [9], [12], [17]. Student studies have focused on person-environment misfit, learning burnout, academic productivity, satisfaction, and persistence [27]–[33]. Recent reviews have mapped teacher technostress or student technostress separately [32], but a cross-stakeholder synthesis focused specifically on the organizational logic of digital transformation remains limited. In particular, there is insufficient integration of technological demands, personal appraisal, institutional resources, techno-distress, techno-eustress, and educational outcomes within one framework.

This review addresses that gap by examining technostress as a socio-technical risk of educational digital transformation rather than as an isolated psychological reaction. It answers four questions: (1) How has technostress been conceptualized and measured in educational research? (2) Which transformation-related demands generate technostress among educators and students? (3) What consequences and protective resources are supported by empirical evidence? and (4) What institutional response framework can support sustainable digital transformation? The review contributes an integrated demand-resource model and a practical action matrix suitable for universities, schools, and other education providers.

2. METHOD

2.1. Research Design

The study used a systematic literature review with qualitative thematic synthesis. Reporting followed the PRISMA 2020 statement [18]. The review was designed to integrate quantitative, qualitative, mixed-methods, and instrument-development studies because educational technostress is measured through heterogeneous constructs, populations, and outcomes. Meta-analysis was not performed because the studies differed substantially in stressor definitions, instruments, comparison groups, educational levels, and reported statistics.

2.2. Information Sources and Search Strategy

Searches were completed on 23 July 2026 and covered publications from January 2016 onward. The starting year was selected because the 2016 study by Joo, Lim, and Kim marked an influential shift from general workplace technostress to technology integration in teaching [12]. Searches were conducted across Scopus, Web of Science, ERIC, PubMed, Crossref-indexed records, and Google Scholar, supplemented by searches of publisher platforms and backward and forward citation tracking. The principal search expression was: (technostress OR techno-stress OR techno-distress OR techno-eustress) AND (teacher* OR lecturer* OR faculty OR educator* OR student* OR administrative staff OR school* OR universit* OR higher education) AND (digital transformation OR online teaching OR technology-enhanced learning OR e-learning OR digital education). Equivalent combinations and spelling variations were used when database syntax required adaptation.

2.3. Eligibility Criteria and Study Selection

Studies were eligible when they: (a) were peer-reviewed empirical journal articles, (b) examined teachers, lecturers, students, administrative staff, or mixed educational communities, (c) explicitly measured or qualitatively investigated technostress, techno-distress, technostrain, or techno-eustress, (d) addressed technology-mediated teaching, learning, administration, or institutional digitalization, and (e) provided sufficient methodological information to evaluate the evidence. Reviews, editorials, conference abstracts, non-educational workplace studies, and articles using general stress without an explicit technology-related construct were excluded. English-language studies were prioritized, Spanish-language studies were included when their methods and findings could be verified.

The review log contained 137 records. After 39 duplicates were removed, 98 titles and abstracts were screened. Fifty records were excluded at this stage. Forty-eight full texts were assessed, and 20 were excluded because they did not use an explicit technostress construct, examined non-educational populations, were review or conceptual papers, or lacked sufficient methods or represented a duplicate dataset. The final synthesis comprised 28 empirical studies. Figure 1 presents the selection flow.

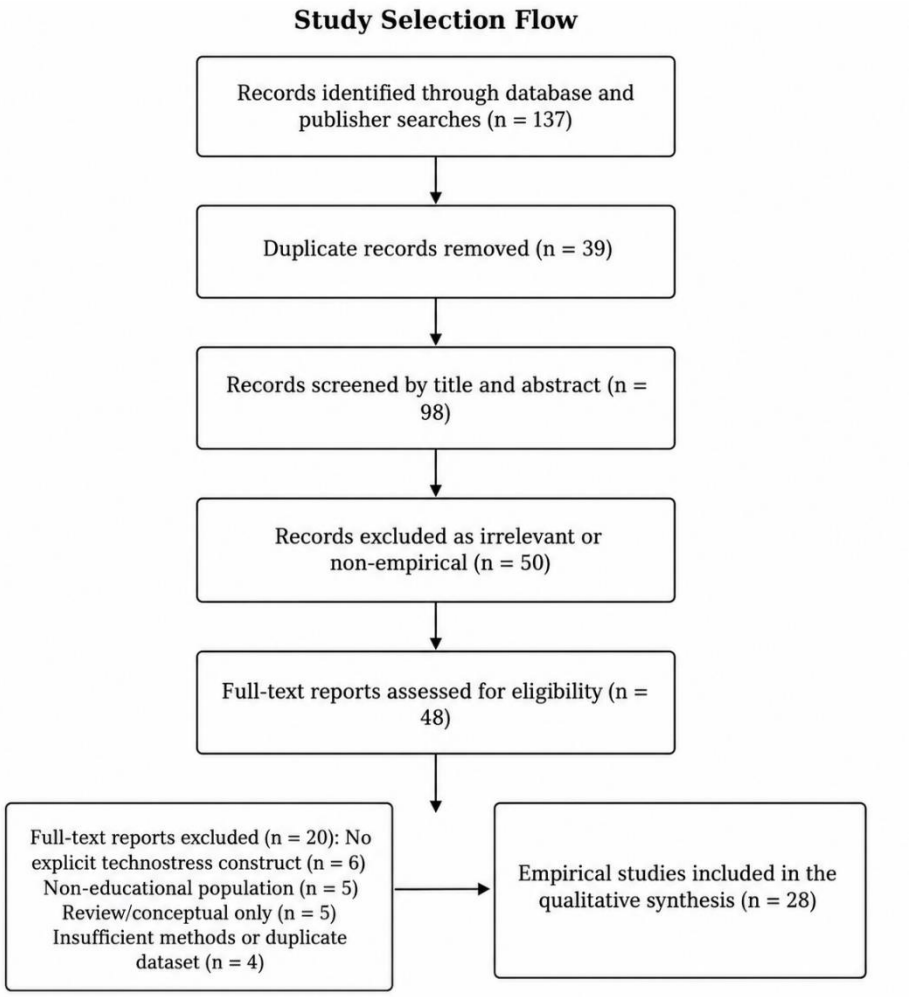


Figure 1. PRISMA-Informed Study Selection Flow

2.4. Data Extraction and Quality Appraisal

A structured extraction matrix recorded author, year, country, educational level, participant group, sample size, design, technostress construct, theoretical framework, antecedents, outcomes, moderators or mediators, and institutional implications. Methodological quality was assessed with design-appropriate criteria from the Mixed Methods Appraisal Tool [11]. Twenty-two studies met four or five relevant criteria and were classified as higher quality, six met three criteria and were retained as moderate-quality evidence because they addressed underrepresented contexts or constructs. No study was used to support a strong causal claim when its design was cross-sectional.

2.5. Synthesis Procedure

The synthesis used three analytical stages. First, reported technology demands, personal appraisals, resources, and outcomes were coded inductively. Second, codes were grouped into cross-study categories aligned with the stressor-strain-outcome model, person-environment misfit, and the job demands-resources perspective. Third, contradictory findings and contextual differences were examined by stakeholder group, educational level, geography, and research design. Claims were classified as consistent when supported by several studies in different contexts, emerging when supported by a limited number of studies, and uncertain when findings were mixed or based primarily on crisis conditions.

3. RESULTS AND DISCUSSION

3.1. Characteristics of the Evidence Base

The 28 included studies were published between 2016 and 2026, with a sharp concentration after 2020. Sixteen examined educators, nine examined students, two included both students and educators, and one examined educational employees more broadly. Twelve studies were conducted in Asia, seven in Europe, four in Latin America, three in the Middle East, and two used multi-country or cross-regional samples. Twenty-two studies were cross-sectional surveys, three used mixed methods, two were qualitative, and one used a two-wave replication design. This profile demonstrates rapid international interest but also a strong dependence on self-reported, cross-sectional evidence.

Table 1 summarizes representative studies that were especially influential in the synthesis. It does not reproduce all 28 records, instead, it displays studies that collectively cover major stakeholder groups, regions, methods, and outcomes.

Study	Context and sample	Design	Principal contribution
Joo et al. [12]	South Korea, 312 secondary teachers	SEM survey	TPACK and school support reduced technostress, technostress lowered intention to use technology.
Wang et al. [29]	China, 740 university students	SEM survey	Multidimensional person-environment misfit predicted burnout and lower perceived TEL performance.
Panisoara et al. [19]	Romania, in-service teachers	SEM survey	Burnout and technostress mediated continuance intention toward online instruction.
Upadhyaya and Vrinda [27]	India, 673 university students	Survey and scale validation	Students experienced moderate technostress, which negatively affected academic productivity.
Penado Abilleira et al. [20]	Spain, 239 university teachers	Survey	Abrupt online teaching generated objective and subjective technostress associated with performance concerns.
Estrada-Muñoz et al. [10]	Chile, 3,006 teachers	CFA survey	11% reported techno-anxiety, 7.2% techno-fatigue, and 6.8% combined technostress, women scored higher.
Chou and Chou [7]	Taiwan, teachers across levels	SEM plus open response	Privacy concerns increased technostress, while online-pedagogy self-efficacy reduced it.
Dahabiyeh et al. [8]	Jordan, 217 faculty members	Survey	Technostress creators contributed differently to online teaching exhaustion and productivity.
Bravo-Adasme and Cataldo [3]	Chile, 189 students and 172 educators	Two-wave replicated PLS-SEM	Techno-overload reduced performance in both groups, explained variance was higher among students.
Solís et al. [23]	Spain, 771 teachers	Survey	Perceived organizational support was inversely related to technostress, gender and educational stage mattered.
Khlaif et al. [34]	Seven Arab countries, 692 academics	Sequential mixed methods	Identified schedule overload, complexity, uncertainty, uselessness, invasion, and compulsion.
Bourlakis et al. [2]	Educational work environments, 45 educators	Qualitative interviews	Institutional responses, workload, and technology design shaped how technostress affected performance.
Liang et al. [14]	United Kingdom, 332 university students	Survey	Technostress mediated effects of student-university misfit on performance, satisfaction, and motivation.
Nascimento et al. [15]	Higher education teachers, mixed-method sample	Sequential mixed methods	Usefulness, IT mindfulness, coping flexibility, and synergic literacy supported techno-eustress.
Nuutinen and Bordi [16]	Finland, 323 teachers	Regression survey	Technostrain predicted burnout and lower engagement, support and work detachment were relevant resources.
Levante et al. [13]	Italy, 388 female teachers	Mediation survey	Coping and online-teaching self-efficacy were associated with lower technostress and emotional exhaustion.

Table 1. Representative Empirical Evidence Included in the Review

3.2. Conceptualization and Measurement of Technostress

Most educational studies adapted the five technostress creators originally validated in organizational research: overload, invasion, complexity, insecurity, and uncertainty [21]. These dimensions are useful but not exhaustive. Education-specific studies added privacy concerns, unreliable connectivity, platform uselessness, compulsory use, schedule overload, pedagogical inadequacy, and person-organization or person-technology misfit [7], [14], [29], [34]. The resulting evidence indicates that educational technostress is generated not by technology in isolation but by the relationship among technology features, role expectations, pedagogical tasks, institutional rules, and user resources.

Measurement was inconsistent across studies. Some used the Tarafdar or Ragu-Nathan technostress creator scales, others used the RED-TIC model of anxiety, fatigue, skepticism, and inefficacy, while student studies developed TEL-specific misfit or burnout instruments [10], [22], [30]. This heterogeneity explains why prevalence estimates cannot be combined meaningfully. It also creates a conceptual risk: creator scales measure demands, RED-TIC captures psychological experience, and burnout measures strain. Treating these as interchangeable obscures the process through which demands are appraised and converted into outcomes.

A stronger measurement architecture should therefore distinguish four levels: objective digital conditions, perceived techno-demands, psychological strain, and educational outcomes. Objective conditions include platform numbers, change frequency, downtime, notification volume, help-desk response, and time spent outside scheduled hours. Perceived demands include overload, complexity, invasion, uncertainty, insecurity, and privacy concerns. Strain includes anxiety, fatigue, inefficacy, and burnout. Outcomes include engagement, satisfaction, learning quality, service quality, performance, and continuance intention.

3.3. Transformation-Related Antecedents

3.3.1. Digital Overload and Acceleration

Techno-overload was the most consistent stressor across stakeholder groups. It arose when technology increased the volume, speed, or simultaneity of tasks rather than replacing existing work. Teachers were expected to redesign materials, monitor multiple channels, respond rapidly, document activity, and maintain ordinary teaching obligations. Students had to navigate synchronous sessions, asynchronous tasks, digital assessment, messages, and self-regulation. The two-wave study by Bravo-Adasme and Cataldo found that techno-overload transmitted the effect of techno-distress to performance for both educators and students [3]. Overload therefore reflects work and study design, not simply screen time.

3.3.2. Complexity, Fragmentation, and Poor Usability

Complexity increased when institutions introduced multiple platforms with inconsistent interfaces, duplicate authentication, weak interoperability, or inadequate guidance. In such settings, users spent time learning systems, transferring data, recovering from errors, and constructing informal workarounds. Student-university misfit studies showed that stress emerged when platform expectations exceeded digital confidence or when learning design did not fit students' needs [14], [29]. Complexity should consequently be assessed at the ecosystem level. A single application may be usable while the combined system remains burdensome.

3.3.3. Invasion and Boundary Erosion

Technology blurred boundaries between school, university, work, and private life. Notifications, asynchronous discussion, remote assessment, and digital availability normalized responses beyond formal hours. Among students, study-family conflict predicted technostress and dissatisfaction with university life [6]. Among teachers, ICT availability demands and insufficient detachment were associated with poorer well-being [16]. The evidence challenges policies that frame permanent connectivity as responsiveness. Availability is a workload decision and should be governed accordingly.

3.3.4. Uncertainty, Insecurity, Privacy, and Reliability

Continuous upgrades, unstable procedures, and unclear institutional decisions generated techno-uncertainty. Insecurity appeared as fear of being judged digitally incompetent, losing professional autonomy, or becoming less valuable as automation expanded. Privacy concerns were particularly relevant in online teaching because educators and students exposed homes, identities, conversations, and assessment data through digital platforms [7]. Reliability risks, poor connectivity, and unequal access intensified these demands, especially in regions where infrastructure was inconsistent [34]. With generative artificial intelligence, uncertainty is likely to expand to role redesign, assessment integrity, data governance, and accountability for automated decisions.

3.4. Consequences for People and Educational Performance

3.4.1. Psychological and Occupational Outcomes

Across studies, technostress was associated with anxiety, fatigue, inefficacy, emotional exhaustion, burnout, and lower work engagement. The Chilean national sample provided a rare prevalence estimate, identifying techno-anxiety in 11% of teachers, techno-fatigue in 7.2%, and the combination in 6.8% [10]. Spanish and Italian studies similarly linked low self-efficacy and abrupt digital demands with exhaustion [13], [20]. These associations were not uniform by gender, age, or experience, and the direction of demographic effects varied across contexts. Demographics should therefore be treated as contextual indicators rather than universal risk factors.

3.4.2. Teaching, Learning, and Continuance Outcomes

Technostress affected teaching and learning through reduced concentration, lower motivation, exhaustion, resistance, and inconsistent technology use. For teachers, technostress lowered intention to adopt or continue online teaching and contributed to productivity loss [7], [8], [12]. For students, it predicted burnout, dissatisfaction, reduced academic productivity, and weaker perceived performance [6], [27], [29]. The evidence does not imply that technology necessarily reduces performance. Rather, performance deteriorates when demands are poorly aligned with skills, task structure, support, and system quality.

3.4.3. Institutional and Equity Consequences

At institutional level, technostress may produce parallel manual processes, delayed responses, inconsistent data, avoidance of advanced features, and symbolic rather than meaningful adoption. These effects undermine the business

case for digital transformation: a platform may be technically implemented while users continue to rely on spreadsheets, private messaging, or duplicated records. Equity is also implicated. Students with limited devices, bandwidth, private study space, disability support, or digital confidence face higher adaptation costs. Teachers in under-resourced institutions may receive greater mandates without equivalent technical or pedagogical support.

3.5. Protective Resources and the Possibility of Techno-Eustress

3.5.1. Digital Competence, TPACK, and Self-Efficacy

Digital competence and self-efficacy were among the most frequently supported protective resources. TPACK reduced technostress when it enabled teachers to align technology with pedagogy rather than merely operate tools [9], [12], [17]. For students, competence was beneficial when it improved fit and self-regulation, but competence alone did not consistently eliminate burnout [33]. Training must therefore be role-based and task-authentic. Generic platform demonstrations are weaker than guided practice using actual teaching, assessment, data, or service cases.

3.5.2. Organizational Support and Participatory Governance

Organizational support reduced technostress when users perceived that institutions provided timely assistance, realistic expectations, recognition, and influence over implementation. School support predicted lower teacher technostress in several studies [12], [17], [23]. However, support was not consistently strong enough to overcome poor technology-task fit [7]. This distinction is critical: help desks can assist users, but they cannot compensate indefinitely for fragmented architecture, excessive workload, or unstable policy.

3.5.3. Boundary Protection, Autonomy, and System Design

Protective job design included clear communication windows, protected recovery time, workload adjustment during implementation, and autonomy to select appropriate tools. System-level resources included single sign-on, interoperability, stable workflows, accessible interfaces, meaningful notifications, and transparent data governance. These measures reduce demands at their source and are therefore more sustainable than interventions that focus only on individual coping.

3.5.4. From Techno-Distress to Techno-Eustress

A smaller but important literature identifies techno-eustress: positive activation arising when technology is appraised as challenging but manageable. Among higher education teachers, usefulness, IT mindfulness, coping flexibility, and synergic literacy were associated with techno-eustress, which in turn related positively to satisfaction and performance [15]. This finding should not be used to normalize excessive demands. Positive stress is most plausible when individuals possess resources, agency, recovery opportunities, and confidence that effort will produce meaningful educational value.

3.6. Integrated Framework

The synthesis supports an integrated demand-resource framework shown in Figure 2. Educational digital transformation generates demands through platform proliferation, datafication, hybrid work, automation, and unequal infrastructure. These conditions create techno-demands that are appraised through person-technology-task fit. When demands exceed resources, techno-distress produces psychological and educational strain. When demands are meaningful, bounded, and supported, they may generate techno-eustress. Resources and governance act at every stage rather than only after stress appears.

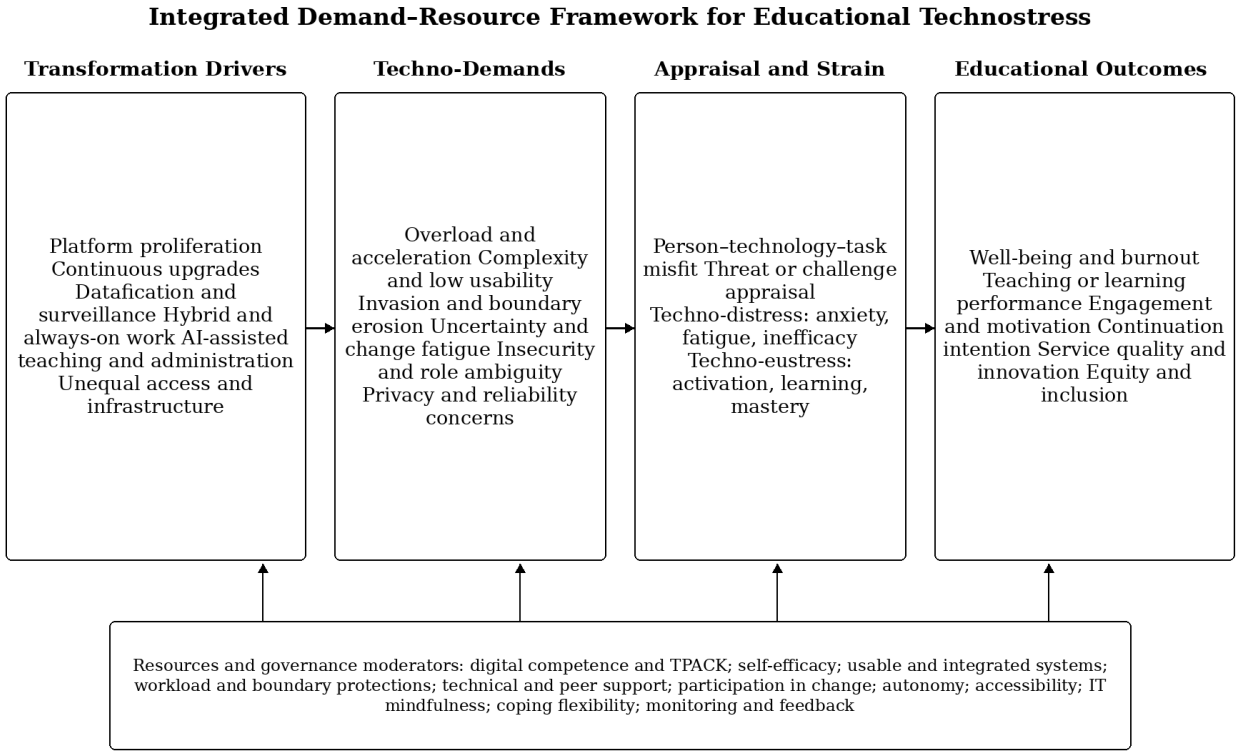


Figure 2. Integrated Demand–Resource Framework for Educational Technostress

3.7. Institutional Response Matrix

The practical implication is that institutions should treat technostress as a transformation-governance issue. Table 2 translates the synthesis into a staged response model. The sequence begins with diagnosis because interventions should address the dominant demand rather than assume that all users need the same training.

Response domain	Required actions	Suggested indicators
1. Diagnose demands	Map platforms, tasks, notifications, after-hours activity, change frequency, accessibility barriers, and user journeys. Combine surveys with system and service data.	Technostress dimensions, number of platforms per task, after-hours activity, downtime, repeated complaints.
2. Simplify technology architecture	Remove duplicate tools, integrate authentication and data flows, establish usability and accessibility standards, and pilot changes with end users.	Login steps, duplicate entry, task completion time, accessibility defects, error and rework rates.
3. Redesign workload and boundaries	Allocate transition time, define communication windows, protect recovery, clarify digital roles, and avoid adding platforms without retiring prior processes.	Workload hours, response-time expectations, leave-time contacts, task backlog, role clarity.
4. Build role-based capability	Use diagnostic assessment, authentic scenarios, supervised practice, peer coaching, and differentiated pathways for teachers, students, leaders, and staff.	Task-based competence, transfer to practice, support requests, confidence, error reduction.
5. Provide layered support	Combine technical help, pedagogical design support, mental-health referral, peer networks, and manager follow-up.	Resolution time, first-contact resolution, perceived support, referral uptake, recurring incidents.
6. Govern AI and data responsibly	Define permitted uses, privacy safeguards, human oversight, validation procedures, audit trails, and escalation for high-risk decisions.	Privacy incidents, unverified AI output, audit completeness, appeal cases, policy compliance.
7. Evaluate transformation outcomes	Track well-being, engagement, learning, service quality, equity, and operational performance alongside adoption.	Burnout and engagement, satisfaction, learning outcomes, service-level performance, differential access.

Table 2. Institutional Response Matrix for Sustainable Digital Transformation

3.8. Critical Gaps and Future Research

First, the evidence base is dominated by cross-sectional self-report studies. These designs identify associations but cannot establish whether technostress causes burnout or whether already-exhausted participants perceive technology more negatively. Longitudinal, diary, quasi-experimental, and intervention studies are needed to observe adaptation over time and determine whether changes in system design, workload, or training produce measurable improvement.

Second, pandemic-related research remains overrepresented. Emergency remote teaching generated unique conditions, including compulsory use, health anxiety, home confinement, and abrupt role change. Future research should distinguish crisis technostress from routine hybrid education, planned digital transformation, and artificial-intelligence adoption. Comparative designs should examine institutions with different levels of digital maturity.

Third, research has focused more on teachers and university students than on administrative staff, school leaders, instructional designers, librarians, support personnel, and vulnerable learner groups. These actors shape service continuity, data quality, accessibility, and technology governance. Their exclusion narrows understanding of institutional risk.

Fourth, intervention evidence is weak. Many studies recommend training, technical support, or mindfulness, but few test these measures. Multi-level trials should compare individual training with system simplification, workload redesign, participatory implementation, and combinations of these strategies. Outcomes should include objective performance and service indicators, not only perceived stress.

Fifth, generative artificial intelligence creates new stressors that existing five-factor scales only partly capture. Future instruments should assess algorithmic uncertainty, verification burden, surveillance, academic-integrity pressure, role displacement, prompt and model changes, data-security concerns, and accountability for automated outputs. At the same time, research should examine conditions under which AI reduces routine workload and supports techno-eustress.

3.9. Limitations of the Review

This review has four limitations. The search was limited primarily to peer-reviewed journal literature and may have excluded relevant dissertations, reports, and non-English studies. The heterogeneity of constructs and instruments prevented meta-analysis. Database coverage and indexing vary across regions, which may underrepresent locally published work. Finally, study quality and evidence strength were constrained by the predominance of cross-sectional designs. The framework should therefore be interpreted as an evidence-informed model requiring empirical testing rather than a confirmed causal structure.

4. CONCLUSION

Technostress is a material risk within educational digital transformation because technology changes not only tools but also workload, temporal boundaries, professional roles, learning expectations, data practices, and organizational accountability. Across 28 empirical studies, the most consistent demands were overload, complexity, invasion, uncertainty, insecurity, privacy concerns, and unreliable or poorly integrated systems. These demands were associated with anxiety, fatigue, burnout, lower engagement, reduced satisfaction, weaker performance, and resistance or discontinuation.

The evidence also shows that adverse outcomes are not inevitable. Digital competence, TPACK, self-efficacy, organizational support, autonomy, work-life boundaries, usable system architecture, and adaptive coping can reduce techno-distress. Under supportive and meaningful conditions, technology-related challenge may contribute to techno-eustress and professional growth. The central conclusion is that technostress should not be individualized as a failure to adapt. It is usually produced by misalignment among people, tasks, technology, and governance.

Educational institutions should therefore evaluate digital transformation through a balanced set of indicators: technology adoption, task efficiency, teaching and learning quality, academic service performance, well-being, accessibility, and equity. Sustainable transformation requires early diagnosis, participatory design, simplified architecture, protected workload, role-based capability development, layered support, and responsible AI and data governance. These measures reposition human well-being as an operating condition of digital quality rather than an optional consequence of implementation.

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