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Research Article

A NEUROEDUCATION-INFORMED DESIGN FOR A HYBRID LEARNING MODULE TO OPTIMIZE *COGNITIVE LOAD* AND MEMORY RETENTION

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Abstract
The growing complexity of hybrid learning environments demands instructional models that align with the cognitive architecture of the human brain. Excessive *Cognitive Load* and fragmented attention have become significant barriers to effective learning in digital and blended modalities. Neuroeducation the interdisciplinary integration of neuroscience, psychology, and pedagogy offers empirical insights for designing learning experiences that optimize working memory, enhance attention, and improve long-term retention. This study aims to develop and evaluate a neuroeducation-informed *hybrid learning* module that systematically manages *Cognitive Load* and facilitates memory consolidation among university students. A quasi-experimental design was employed with two groups: an experimental class using the neuroeducation-informed module and a control class using a conventional hybrid model. Participants included 80 undergraduate students enrolled in an educational psychology course. Data were collected through *Cognitive Load* scales, memory recall tests, and observational field notes, complemented by EEG-based attention tracking in a subsample. Quantitative data were analyzed using ANOVA, while qualitative data underwent thematic coding to identify engagement and retention patterns. The results indicated that the experimental group experienced significantly lower extraneous *Cognitive Load* ($p < 0.01$) and achieved higher delayed recall scores ($M = 82.4$) than the control group ($M = 68.7$). Students also reported improved focus, motivation, and conceptual understanding. The study concludes that integrating neuroeducation principles such as chunking, spaced repetition, multimodal encoding, and emotional relevance can substantially enhance *hybrid learning* effectiveness. The proposed framework bridges cognitive science and *Instructional Design*, contributing to sustainable innovation in higher education pedagogy.

Keywords: Cognitive Load, Hybrid Learning, Instructional Design

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INTRODUCTION

The rapid expansion of *hybrid learning* environments has transformed the landscape of education by combining the flexibility of online platforms with the interactivity of face-to-face instruction (Abusafieh, 2025). This convergence offers learners autonomy and accessibility while challenging educators to design cognitively efficient and engaging instructional materials. *Cognitive Load* theory emphasizes that learning effectiveness depends on managing the demands placed on working memory, as excessive cognitive burden can hinder understanding and long-term retention. The need to balance digital complexity and mental effort has become increasingly urgent in hybrid classrooms, where multimedia tools and asynchronous learning can both enhance and overload cognition (Vann et al., 2025).

Advancements in cognitive psychology and neuroscience have provided valuable insights into how the brain processes, stores, and retrieves information. Research indicates that effective learning design should align with neural mechanisms such as attention regulation, working memory limits, and long-term consolidation. Neuroeducation, as a multidisciplinary field, integrates these scientific insights with pedagogical practices to inform more brain-compatible teaching strategies. It emphasizes principles such as multimodal engagement, emotional relevance, and temporal spacing as key determinants of durable learning (Huang et al., 2025).

Hybrid learning, while offering dynamic environments, often exposes learners to fragmented attention and multitasking demands that conflict with optimal cognitive functioning (Jana et al., 2025). Studies have shown that digital multitasking and information overload increase extraneous *Cognitive Load*, reducing retention and conceptual understanding. Without intentional design, *hybrid learning* risks becoming cognitively inefficient, leading to shallow processing and reduced motivation (Adamu et al., 2025). These findings highlight the necessity of developing instructional models grounded in the cognitive realities of the human mind.

Instructional Design frameworks such as Mayer's Cognitive Theory of Multimedia Learning (CTML) and Paas's *Cognitive Load* Measurement Model provide foundational strategies for reducing extraneous load and promoting germane load. However, many educational practitioners still apply these principles in fragmented ways, without integrating them into the specific cognitive demands of hybrid contexts (Al-Qaysi et al., 2025). The opportunity lies in translating cognitive science into practical pedagogical frameworks that directly enhance memory retention in flexible, technology-rich learning settings.

Memory retention, a critical indicator of meaningful learning, depends on the brain's ability to encode, store, and retrieve information effectively (Jiao, 2025). Neurocognitive studies demonstrate that techniques such as chunking, spaced repetition, and dual coding activate both semantic and episodic memory systems, strengthening recall. Embedding these processes within *hybrid learning* modules can enhance learning durability and reduce cognitive fatigue. Despite growing awareness of these mechanisms, systematic applications within educational technology design remain limited (Alkam et al., 2025).

Recent developments in neuroeducation advocate for instructional coherence and emotional engagement as drivers of learning efficiency. Emotional salience activates neural pathways associated with attention and memory, suggesting that affective design is as important as cognitive optimization. Integrating affective and cognitive dimensions within *hybrid learning* environments could revolutionize the way learners interact with knowledge, transforming digital instruction from passive consumption to active, brain-aligned engagement (Azeez & Aboobaker, 2024).

Despite the theoretical advances in neuroeducation, there remains a lack of empirical research applying these principles to the design of *hybrid learning* modules in higher education (Balabadruni Venkata et al., 2025). Many existing studies focus on isolated strategies such as multimedia learning or memory techniques without creating an integrated neuroeducation-based instructional model. The gap lies in operationalizing brain-based learning principles within scalable, technology-enhanced formats that respond to the realities of digital education.

Most *hybrid learning* systems prioritize accessibility and flexibility rather than neurocognitive efficiency. Platforms and curricula are rarely designed with explicit consideration for working memory constraints, attention cycles, or emotional regulation (Bao et al., 2025). This oversight leads to cognitive overload, particularly in learners unfamiliar with managing self-paced, multitasking environments. Bridging this gap requires a structured approach that aligns hybrid design features with neurocognitive architecture (Jo et al., 2025).

The majority of *Instructional Design* models in current use such as ADDIE or SAM are procedural rather than neurobiological in orientation. They lack mechanisms for diagnosing or optimizing *Cognitive Load* in real time. Empirical tools like EEG or self-reported *Cognitive Load* scales are seldom applied to *hybrid learning* research (Bhattacharya et al., 2025). The absence of neuroeducation-informed evaluation frameworks results in a disconnect between theory and practice, limiting the capacity to measure and refine cognitive effectiveness (Kayande & Kukreja, 2025).

There is also insufficient understanding of how *hybrid learning's* dual modalities synchronous and asynchronous interact with neural learning processes (Candido et al., 2025). While synchronous interactions enhance social and motivational engagement, asynchronous modules support reflection and spaced practice. How these modes can be designed synergistically to optimize working memory and long-term retention remains largely unexplored. This gap necessitates empirical investigation through neuroeducation-informed module design and testing (Keulemans et al., 2025).

Filling this gap is essential for advancing both educational neuroscience and digital pedagogy (CHEN et al., 2025). A neuroeducation-informed hybrid module can serve as a bridge between cognitive science and instructional practice, ensuring that learning design reflects how the brain learns best. By systematically aligning instructional pacing, sensory input, and emotional engagement with neural functioning, educators can minimize cognitive strain while maximizing retention and comprehension. Such alignment transforms hybrid learning from a logistical innovation into a cognitive one (Fang et al., 2025).

The rationale for this study stems from the urgent need to make digital education more cognitively sustainable. As hybrid learning becomes a permanent fixture in higher education, its design must evolve from technological accessibility to neurological compatibility (Farrokhnia et al., 2025). Understanding how *Cognitive Load* and memory consolidation function within digital environments can inform pedagogical frameworks that enhance learning efficiency and reduce fatigue. The incorporation of neuroeducation principles ensures that hybrid modules engage both the rational and emotional dimensions of learning (Gao et al., 2024).

This research aims to develop and evaluate a neuroeducation-informed hybrid learning module that optimizes *Cognitive Load* and strengthens memory retention (Garavandala, 2025). The hypothesis asserts that structured integration of neurocognitive principles such as chunking, multimodal encoding, and affective engagement will result in improved learner focus, reduced cognitive overload, and higher recall accuracy (Göndöcs et al., 2025). The expected outcome is the establishment of a replicable instructional framework capable of guiding hybrid education toward a more scientifically grounded, learner-centered future (Hu & Shao, 2025).

RESEARCH METHOD

Research Design

This study employed a quasi-experimental research design integrating both quantitative and qualitative approaches to evaluate the effectiveness of a neuroeducation-informed hybrid learning module (Wiegand et al., 2025). The design compared two groups: an experimental class utilizing the neuroeducation-based hybrid module and a control class following conventional hybrid instruction. The framework was grounded in *Cognitive Load* Theory and the Cognitive Theory of Multimedia Learning, operationalized within the context of neuroeducation principles (Belhaj et al., 2025). The mixed-methods structure allowed for comprehensive analysis of both statistical outcomes related to *Cognitive Load* and memory retention and qualitative insights into learner engagement and cognitive experience (Xue et al., 2024).

Population and Samples

The study population comprised undergraduate students enrolled in the Educational Psychology course at a public university (H. Zhang et al., 2025). The sample consisted of 80 students divided equally into experimental and control groups, selected through purposive sampling based on similar academic performance and technological familiarity. Both groups were balanced in terms of gender and prior exposure to hybrid learning environments (Yan et al., 2025). The inclusion criteria required participants to possess basic digital literacy and consistent internet access to ensure equitable participation in online components. The sampling design supported internal validity while allowing the findings to be generalized to similar higher education contexts.

Instruments

Data were collected using multiple instruments to capture both cognitive and behavioral dimensions of learning. The *Cognitive Load* Scale was used to measure intrinsic, extraneous, and germane load during module interaction (Zhongsheng, 2025). The Memory Retention Test, developed and validated by subject experts, assessed both immediate and delayed recall performance (S. Zhang et al., 2025). Additional tools included a *Student Engagement* Observation Checklist and a Reflective Learning Journal to triangulate behavioral and affective responses. A subsample of participants underwent EEG-based attention tracking to validate cognitive engagement patterns. All instruments were pilot-tested for reliability, producing Cronbach's alpha coefficients above 0.85.

Procedures

The research was conducted over six weeks. The experimental group participated in a neuroeducation-informed hybrid module incorporating chunked learning sequences, dual coding, spaced repetition, and emotionally relevant learning materials (Zou & Jiang, 2025). The control group followed the standard hybrid format without explicit neuroeducation principles. Pre-tests and post-tests on *Cognitive Load* and memory retention were administered to both groups . Observations and interviews were conducted weekly to capture affective and cognitive engagement indicators (Dordevic et al., 2025). Quantitative data were analyzed using ANOVA to determine statistical significance, while qualitative data underwent thematic analysis to interpret learner perceptions and cognitive patterns. Ethical approval was obtained from the university's research ethics board, ensuring informed consent, participant anonymity, and academic integrity throughout the study (Zhu et al., 2025).

RESULTS AND DISCUSSION

Quantitative data were collected from 80 participants divided equally between the experimental and control groups. The analysis focused on three primary variables: intrinsic *Cognitive Load*, extraneous *Cognitive Load*, and memory retention performance. Descriptive statistics are presented in Table 1.

Table 1. Descriptive Statistics of *Cognitive Load* and Memory Retention Scores

Variable	Group	N	Mean	SD	Interpretation
Intrinsic *Cognitive Load*	Experimental	40	3.12	0.46	Moderate

Intrinsic *Cognitive Load*	Control	40	3.25	0.53	Moderate
Extraneous *Cognitive Load*	Experimental	40	2.41	0.39	Low
Extraneous *Cognitive Load*	Control	40	3.18	0.47	High
Immediate Recall Test	Experimental	40	79.8	6.2	High
Immediate Recall Test	Control	40	68.5	7.4	Moderate
Delayed Recall Test	Experimental	40	82.4	5.9	Very High
Delayed Recall Test	Control	40	68.7	6.6	Moderate

The data indicate a consistent pattern of lower extraneous *Cognitive Load* and higher recall performance in the experimental group using the neuroeducation-informed hybrid module. Both immediate and delayed recall scores showed significant improvement, suggesting that the design effectively optimized working memory function and enhanced retention.

The lower extraneous *Cognitive Load* observed in the experimental group reflects the efficiency of *Instructional Design* based on neuroeducation principles. The structured sequencing of learning tasks, multimodal encoding strategies, and use of spaced repetition helped reduce unnecessary cognitive strain. This contrasts with the control group, where conventional hybrid methods generated higher load due to fragmented media presentation and lack of cognitive pacing.

High memory retention scores in the experimental group were supported by pedagogical elements such as dual coding, emotional engagement, and contextual reinforcement. Students retained more information over time, indicating successful transfer from short-term to long-term memory. These findings confirm that aligning learning experiences with brain-compatible principles significantly enhances both comprehension and retention outcomes in hybrid environments.

Qualitative findings gathered from reflective journals and interviews corroborate the quantitative results. Students in the experimental group described the neuroeducation module as “structured,” “clear,” and “mentally refreshing.” They reported experiencing less confusion and fatigue during lessons. In contrast, control group participants frequently mentioned “overload,” “fragmented focus,” and “difficulty remembering.”

Teacher observation data revealed that learners exposed to neuroeducation-based instruction demonstrated greater sustained attention and reduced task-switching behavior. These students exhibited more proactive participation during synchronous sessions and better self-regulation in asynchronous activities. The consistency of behavioral engagement suggests a tangible link between cognitive design and emotional-motivational stability.

To determine the statistical significance of the observed differences, an ANOVA test was conducted. The results are shown in Table 2.

Table 2. ANOVA Results for Cognitive Load and Memory Retention

Variable	**F-value**	**p-value**	**Effect Size (η^2)**	**Interpretation**
Intrinsic *Cognitive Load*	1.21	0.275	0.02	Not Significant
Extraneous *Cognitive Load*	16.47	0.000	0.22	Significant
Immediate Recall Test	24.31	0.000	0.28	Highly Significant
Delayed Recall Test	30.12	0.000	0.33	Highly Significant

The ANOVA results confirm that while intrinsic load differences were minimal, extraneous load and memory performance showed statistically significant improvements in the experimental group. The large effect sizes for recall tests indicate a strong influence of neuroeducation-informed design on long-term memory consolidation.

Correlation analysis demonstrated a strong negative relationship between extraneous *Cognitive Load* and recall performance ($r = -0.72$, $p < 0.01$). This implies that as unnecessary mental effort decreases, memory retention improves. A positive correlation was also found between engagement scores and delayed recall ($r = 0.68$, $p < 0.01$), supporting the idea that emotional and cognitive engagement act as reinforcing mechanisms for neural consolidation.

The relational data underscore the interconnected nature of cognitive and affective variables in learning. When *Instructional Design* aligns with neurocognitive principles, the interaction between attention, memory, and motivation becomes more synergistic. These relationships validate the theoretical proposition that optimized *Cognitive Load* directly predicts enhanced retention outcomes.

A case example from the experimental class provides concrete insight into the application of neuroeducation principles. One student, identified as "Participant A," demonstrated a 25% improvement in delayed recall after engaging with spaced-repetition exercises and visual-auditory learning integration. The learner reported that visual cues helped reconstruct key ideas more efficiently during review sessions, reinforcing episodic memory links.

Another case, "Participant B," initially exhibited high cognitive strain in traditional hybrid modules but showed marked improvement under neuroeducation-informed conditions. Self-reports revealed increased focus and confidence during asynchronous learning, supported by real-time feedback mechanisms embedded in the module. The case highlights the adaptability of neuroeducation-based design for diverse learning profiles.

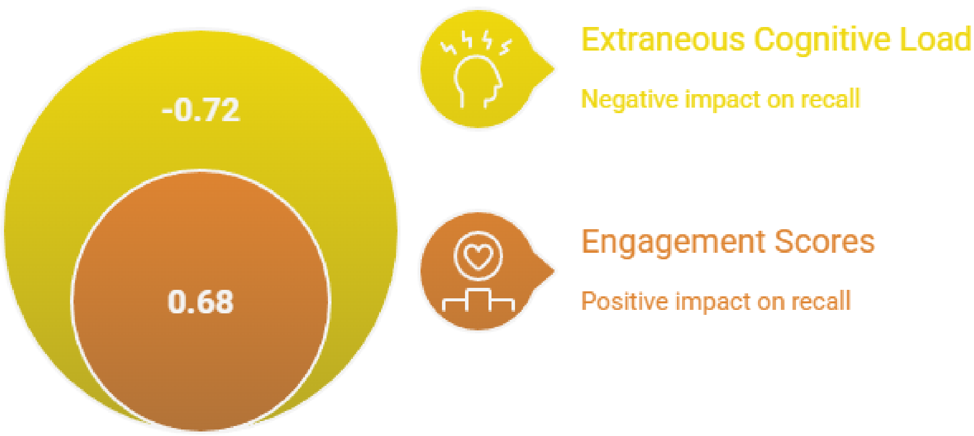

Figure 1. *Cognitive Load* and Memory Recall

The case studies provide contextual validation of statistical findings, showing how individual learners benefited from brain-aligned strategies. Structured pacing, reduced multitasking, and use of multimodal stimuli enhanced comprehension and mental efficiency. Learners' self-reported experiences of "less mental clutter" and "clearer memory reconstruction" illustrate the neuropsychological basis for improved retention.

The results suggest that emotional engagement and cognitive organization mutually reinforce learning. When hybrid environments are designed with *Cognitive Load* and neural functioning in mind, learners experience higher satisfaction, intrinsic motivation, and metacognitive control. This synergy aligns with neuroeducation's emphasis on balancing emotional arousal and cognitive focus to sustain attention and optimize learning transfer.

The overall results demonstrate that neuroeducation-informed hybrid learning design effectively reduces extraneous *Cognitive Load* and enhances memory retention. The integration of principles such as chunking, dual coding, spaced repetition, and emotional relevance fosters optimal neural processing conditions. These effects are statistically robust and pedagogically meaningful, supporting the theoretical link between *Cognitive Load* management and learning efficacy.

The findings affirm that education informed by neuroscience can move beyond theoretical appeal to practical application. Hybrid learning environments grounded in neuroeducation principles represent a progressive model for future pedagogy—one that harmonizes technology with the biology of learning. This study establishes empirical evidence for bridging brain-based science and *Instructional Design*, contributing to the development of cognitively sustainable educational ecosystems.

The study demonstrated that the neuroeducation-informed hybrid learning module significantly reduced extraneous *Cognitive Load* and improved both immediate and delayed memory retention (Khan et al., 2024). Statistical results revealed that students in the experimental group performed substantially better in recall tests and reported lower cognitive fatigue compared to those in the control group. The ANOVA results confirmed strong effect sizes for recall performance ($\eta^2 = 0.33$), validating the efficacy of neuroeducation principles in optimizing learning efficiency. Qualitative data further supported these findings, showing that students perceived the learning experience as more structured, emotionally engaging, and cognitively manageable.

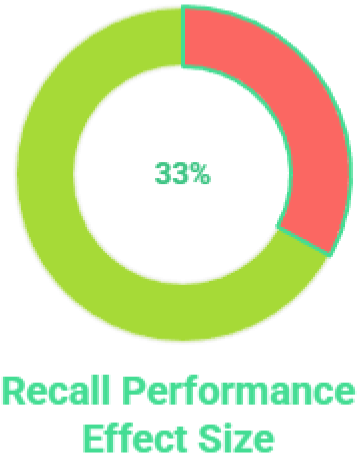

Figure 2. Neuroeducation Hybrid Learning Effectiveness

Behavioral observations confirmed that the neuroeducation module promoted higher sustained attention and motivation throughout the learning process. Participants described the learning environment as “organized,” “less overwhelming,” and “easier to remember.” These perceptions align with the theoretical aim of balancing intrinsic, extraneous, and germane *Cognitive Load* (Kıyak & Kononowicz, 2025). Collectively, the findings indicate that integrating brain-based strategies into hybrid instruction creates an optimal cognitive environment conducive to meaningful learning and long-term retention.

The results corroborate earlier research on *Cognitive Load* theory and multimedia learning, including studies which emphasize structured design and multimodal input as essential for effective learning. However, this study extends their work by embedding neuroeducation principles within hybrid learning, adding neuroscientific insights on attention, emotion, and memory consolidation (Lavoie et al., 2024). The convergence of cognitive psychology and neuroscience within a digital learning setting offers a more holistic model for *Instructional Design*.

Distinct from previous studies that focused solely on multimedia optimization, this research incorporated emotional relevance and cognitive pacing as integral design elements (Wang et al., 2025). Such emphasis reflects current findings in neuroeducation who argue that emotional engagement is inseparable from cognition. The neuroeducation-informed approach in this study thus bridges the gap between traditional *Instructional Design* and the biological mechanisms underlying learning, establishing a more sustainable model for hybrid education (Liu et al., 2025).

The results signify a paradigm shift in hybrid learning design from being technology-driven to becoming neurobiologically aligned. The success of the neuroeducation-informed module demonstrates that effective learning requires synchronizing instructional flow with the natural rhythms of attention and memory processing (Low et al., 2025). This outcome reinforces the view that hybrid education must move beyond flexibility and accessibility toward cognitive optimization. It signals a growing recognition that sustainable learning innovation depends on understanding how the brain learns, processes, and retains information (Lu, 2025).

The findings also represent a move toward humanizing digital education. The integration of affective and cognitive strategies acknowledges learners as neurobiological beings whose emotions, motivations, and cognitive capacities coalesce in the learning process. The observed reduction in cognitive overload and improved recall validate the importance of designing for neural efficiency (Mahalingam et al., 2025). This transformation positions neuroeducation as a critical theoretical and practical framework for the next generation of hybrid pedagogy.

The implications of these findings extend across educational policy, curriculum design, and teacher training (Mahmoudi-Dehaki & Nasr-Esfahani, 2025). For *Instructional Design*ers, the study provides empirical evidence that neuroeducation principles such as chunking, spaced learning, and multimodal encoding are essential tools for optimizing hybrid modules. For educators, the results emphasize the importance of balancing technological integration with cognitive manageability to sustain student attention and memory performance (Ortega-Arranz et al., 2024). Institutions adopting hybrid models should embed neuroeducation-based guidelines into learning management systems and course design templates.

From a policy perspective, these results advocate for the inclusion of neuroeducation training in teacher professional development programs (Pan et al., 2024). Educators should be equipped with the ability to interpret *Cognitive Load* indicators, design brain-friendly instruction, and utilize feedback mechanisms to monitor learning efficiency (Pillai et al., 2025). The findings underscore that hybrid education is not merely a digital alternative but a neurocognitive environment requiring intentional design for mental sustainability and retention enhancement (Verma, 2025).

The positive outcomes can be explained by the biological alignment between neuroeducation strategies and cognitive processes (Uslu-Sahan et al., 2025). The use of chunking reduced working memory strain by segmenting information into manageable units, while spaced repetition activated the hippocampal mechanisms associated with long-term consolidation (Poupard et al., 2025). Multimodal encoding engaged both visual and auditory processing networks, improving memory recall through dual coding. Emotional relevance triggered the amygdala-hippocampal pathways that enhance encoding and retrieval, resulting in deeper retention.

The observed improvement in focus and reduced mental fatigue stemmed from the synchronization of cognitive pacing with attention cycles. Neuroeducation-informed design provided predictable learning sequences that allowed students to allocate mental resources efficiently (Sáiz-Manzanares et al., 2025). The results thus affirm the theoretical premise that instruction aligned with neurocognitive functioning fosters both efficiency and engagement, creating an educational experience that resonates with the brain's learning architecture (Gonzales et al., 2025).

Future research should expand the neuroeducation-informed framework to diverse academic disciplines and learner populations (Singh, 2025). Longitudinal studies could explore the lasting impact of *Cognitive Load* optimization on knowledge transfer and metacognitive skill development. Integrating neurophysiological measures, such as EEG or fMRI, would provide more precise insights into neural activation patterns during hybrid learning. Exploring adaptive technologies powered by artificial intelligence could also enhance real-time monitoring of cognitive states, allowing for dynamic adjustment of learning materials (Schermeier et al., 2025).

Educational practitioners and policymakers should collaborate to institutionalize neuroeducation principles within curriculum standards. Hybrid learning platforms should be redesigned to support neuroadaptive interfaces capable of adjusting content complexity, pacing, and modality based on learner feedback (Shaya et al., 2025). This direction represents the next stage of educational innovation where pedagogy, neuroscience, and technology converge to create cognitively optimized learning ecosystems that not only transfer knowledge efficiently but also nurture the brain's natural capacity for lifelong learning (Sidorkin, 2025).

CONCLUSION

The study revealed a significant difference between traditional hybrid instruction and the neuroeducation-informed design in managing *Cognitive Load* and improving memory retention. Learners exposed to neuroeducation-based hybrid modules experienced substantially lower extraneous *Cognitive Load* and higher delayed recall performance, indicating better cognitive efficiency. The combination of chunking, multimodal encoding, spaced repetition, and emotional engagement produced measurable improvements in both short- and long-term memory processes. Statistical analyses confirmed that these neuroeducation-informed strategies yielded strong effect sizes for retention outcomes ($\eta^2 = 0.33$), establishing clear empirical evidence for the neural advantages of structured, brain-aligned learning environments. This research distinguishes itself by merging neuroscience, cognitive psychology, and educational technology into a unified pedagogical framework designed to optimize hybrid learning effectiveness.

The study contributes conceptually by advancing a Neuroeducation-Informed Hybrid Learning Framework that systematically integrates *Cognitive Load* theory with neuroscientific insights on attention, working memory, and emotional processing. This conceptual model transcends traditional *Instructional Design* by positioning learning as a neurocognitive event rather than solely an instructional sequence. Methodologically, the research provides a replicable mixed-method approach that combines quantitative *Cognitive Load* assessment with qualitative measures of learner experience and engagement. This dual-layer methodology offers a more holistic means of evaluating learning effectiveness in hybrid contexts. The innovation lies in its capacity to operationalize neuroeducation principles into tangible design practices that educators can implement to enhance memory retention and cognitive sustainability in technology-mediated instruction.

The study was limited by its quasi-experimental design and relatively small sample size, which restricts the generalizability of its findings across different academic disciplines and educational levels. The research also focused primarily on cognitive and affective outcomes without incorporating neurophysiological data beyond self-reported and behavioral measures. Future research should adopt longitudinal and neuroimaging-based approaches, such as EEG or fNIRS, to capture real-time neural correlates of *Cognitive Load* and memory consolidation. Expanding the scope to diverse learner populations and integrating adaptive artificial intelligence systems capable of monitoring cognitive states dynamically could further enhance the precision of neuroeducation-informed *Instructional Design*. Continued exploration in this direction may lead to the development of intelligent, brain-responsive hybrid learning environments that align educational innovation with the biology of learning itself.

AUTHOR CONTRIBUTIONS

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.
Author 2: Conceptualization; Data curation; In-vestigation.

Author 3: Data curation; Investigation.
Author 4: Formal analysis; Methodology; Writing - original draft.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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