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PAPER

# Generation Z and digital learning: preference or assumption? A narrative synthesis of contemporary literature

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## ABSTRACT

Generation (Gen) Z represents the first cohort to have grown up with continuous access to digital technology, making it the first 'always-connected' generation. Its very presence challenges traditional pedagogical models and calls for a rethinking of how knowledge is accessed, delivered and co-created in Higher Education Institution (HEI) spaces. Meeting the expectations and addressing the needs of the Gen Z learner lie at the heart of contemporary educational provision. This narrative synthesis critically examines contemporary literature regarding Gen Z learning preferences, focusing on how technology supports the learning environment. The findings highlight that Gen Z learners are highly responsive to multimedia technologies in the educational setting and demonstrate a clear preference for learning environments which strike a balance between independent learning and meaningful interpersonal interaction. These findings offer some empirical insights and pose some important considerations for HEI educators.

**KEYWORDS:** Gen Z, learning preferences, digital curricula, higher education.

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## Introduction

A significant proportion of learners in Higher Education (HE) today are from Gen Z, typically born between 1995 and 2012 (Twenge, 2023). This cohort, also referred to as 'iGen', 'GenZers' or 'Zoomers' (Pichler et al., 2021; Twenge, 2023; Wiedmer, 2015) have grown up with digital

technology, unlike Generation X (1965–1980) and Millennials (1981–1994) (Twenge, 2023). Gen Z is characterised by its unparalleled diversity and digital fluency, having never known a world without the internet (Mohr & Mohr, 2017). As 'digital natives' (Dimock, 2019), Gen Z reportedly spend up to nine hours daily on digital media (Shorey et al., 2021), using platforms such as Snapchat, Instagram, TikTok and YouTube for entertainment, communication, and information (Claveria, 2017; Rue, 2018). They have been observed to expect instant access to information and quick feedback (Center for Generational Kinetics, 2018), often preferring digital dynamic content over traditional pedagogical resources such as textbooks (Twenge, 2023). Gen Z values authenticity and relatability, often seeking content that resonates with personal experiences and perspectives (Tirocchi, 2024; Twenge, 2023). However, academic discourse suggests that the concept of authenticity amongst this cohort is complex and multifactorial. The tension lies in whether this 'relatability' is a true expression or a curated response to the demands of social media (Bialas, 2025). This tension may be navigated through a distinct communicative paradigm of playfulness; engagement with humour through platforms like TikTok and the affinity for memes underscores a more playful and candid approach to communication compared to previous generations (Gabrielova & Buchko, 2021).

It is worth noting that the 'digital native' label can be misleading as it often conflates recreational digital fluency with academic competency. Baxter and Hinton (2025) challenge the notion of the digital-native archetype, suggesting that whilst many learners may well navigate general digital technologies such as social media effortlessly, they often possess only superficial proficiency with educational technologies. Helsper and Eynon (2010) argue that educators often assume that familiarity with tools like Google equates to advanced digital literacy. In reality, such skills are rudimentary and highlight a disparity between Gen Z's recreational digital fluency and the rigorous demands of academic and technological proficiency. Reliance on this assumption risks creating pedagogical mismatches, where instructional design fails to explicitly foster critical thinking, information evaluation, and deep learning competencies. The assumption is further challenged with the rapid integration of Artificial Intelligence (AI) in the learning environment. Consequently, assuming innate mastery of technology by Gen Z ignores the diverse tiers of digital capital required to navigate today's complex pedagogical landscape (Baxter & Hinton, 2025).

Bridging this gap requires educators to move beyond assumptions and conduct a deeper investigation into the pedagogical expectations and preferences of these learners. Only by understanding the digital lived experiences can institutions successfully adapt their pedagogical strategies to meet the unique and diverse preferences of the Gen Z learner.

### *Aim and research questions*

Since the Gen Z cohort are currently in or joining the HE space, the aim of this paper is to present a comprehensive contextual overview of literature concerning the learning preferences of Gen Z undergraduate learners and the factors that influence technology-enhanced learning. Specifically, the review seeks to answer the following questions:

1. How do Gen Z learners prefer to learn in HEIs?
2. How does technology support the learning environment from the perspective of Gen Z?

### *Theoretical framework*

This study employed Self-Determination Theory (SDT), a motivational framework that explains how learning is influenced by the satisfaction of three basic psychological needs: competence (the ability to master tasks), autonomy (control and choice in learning), and relatedness (connection with others and the learning environment) (Deci & Ryan, 2000). While SDT has been well validated in traditional educational contexts (Chen & Jang, 2010; Milyavskaya & Koestner, 2011), its application to Gen Z in digital learning environments remains limited. Nonetheless, the use of SDT in this study has contextual benefits as it aligns closely with Gen Z's characteristics, such as valuing independence, technology integration, and social connection. It also has analytical benefits, as it provides a structured lens from which to interpret how these needs influence learning preferences, technology use, and engagement. This dual value enables the framework to both situate the research within relevant theory and guide the thematic analysis, addressing the first and part of the second research questions.

## Methods

This study utilised a narrative review as the primary method of data collection and employed thematic analysis for the data analysis. The following section below outlines the procedural steps undertaken to implement both approaches.

### *Narrative review*

A narrative review is a flexible form of knowledge synthesis that critically interprets and integrates findings from a broad body of published literature. Rather than applying narrowly predefined protocols, narrative reviews aim to develop conceptual understanding and theoretical insight across diverse evidence bases (Greenhalgh, 2018). Unlike systematic reviews, which typically address tightly focused questions through excessively rigorous search strategies (e.g. inclusion criteria) and formal quality appraisal, narrative reviews allow for iterative searching, interpretive analysis, and the inclusion of heterogeneous study designs (Sukhera, 2022). Narrative reviews are especially appropriate for synthesising complex educational phenomena where evidence is fragmented and not yet amenable to meta-analysis or tightly bounded systematic synthesis (Ferrari, 2015; Greenhalgh, 2018). In contrast, systematic reviews prioritise replicability and minimisation of bias but may risk oversimplifying dynamic or context-dependent constructs. This makes narrative review particularly valuable when a field is conceptually emergent, multidisciplinary, or rapidly evolving, which fits into the study context about Gen Z and its learning experience.

However, the method's flexibility does not outweigh the quality of outcomes. Recent methodological guidance emphasises that high-quality narrative reviews remain rigorous when authors clearly justify scope, boundaries, and analytic approach (Sukhera, 2022). The rationale behind using this type of review is explained in the following section.

Firstly, narrative reviews offer flexibility to include quantitative, qualitative, and mixed-methods studies, as well as grey literature (e.g. conference papers and reports), without being constrained by rigid inclusion criteria. Secondly, it allows for a broad scope across multiple disciplines (e.g. engineering, nursing) and contexts (e.g. Global South, Global North) (Greenhalgh, 2018). Narrative reviews permit researchers to examine what is known about a particular topic and, through careful synthesis, offer new perspectives (Sukhera, 2022). This is important because narrative reviews enable researchers to move beyond simple aggregation of findings to develop deeper conceptual insights, identify emerging patterns, and highlight gaps in the literature, thereby advancing theoretical understanding in rapidly evolving or complex fields.

Thirdly, the narrative review approach aligns well with the study's theoretical framework, Self-Determination Theory (SDT), as it supports the interpretive exploration of complex constructs

such as learning agency, identity, and digital preferences within its socio-context. Narrative reviews are particularly suited to theory-building and conceptual integration across diverse evidence bases (Baumeister & Leary, 1997; Ferrari, 2015; Sukhera, 2022). However, this approach also has limitations, including greater susceptibility to selection bias and reduced reproducibility compared to systematic reviews, which necessitates transparent reporting of search and synthesis decisions to maintain rigour (Sukhera, 2022). To mitigate these limitations, multiple iterative search rounds were conducted across key databases to maximise coverage and relevance of the included studies. In addition, the review process involved repeated cross-checking and team discussions to refine article selection and thematic interpretation, thereby reducing individual bias. Where appropriate, an audit trail of search terms, decisions, and revisions was maintained to strengthen transparency and reproducibility.

### *Framework to define study scope*

Given the flexibility and potential inconsistency of narrative reviews, a guiding framework was essential to structure the search strategy and apply inclusion and exclusion criteria consistently. The Population, Concept, and Context (PCC) framework, recommended for narrative and scoping reviews by the Joanna Briggs Institute, was selected over alternatives such as Sample, Phenomenon of Interest, Design, Evaluation and Research type (SPIDER) which is more appropriate for qualitative evidence synthesis and Population, Intervention, Comparison and Outcome (PICO), which is primarily designed for clinical and experimental research focused on measuring intervention effects, better suited for quantitative studies. Hence, the literature on Gen Z and technology engagement is highly heterogeneous, spanning quantitative, qualitative, mixed-methods, and conceptual papers. Therefore, authors found that PCC is more suitable in identifying key concepts, ensuring no criteria were overlooked and validated against best practice guidance for narrative reviews (Pollock et al., 2023).

- **Population**: Gen Z learners (born ~1995–2010) enrolled in HE.
- **Concept**: Learning preferences, experiences, and digital engagement (technology use, digital environments, instructional methods).
- **Context**: HEIs in diverse global settings, excluding highly country-specific or non-generalisable contexts.

### *Search strategy*

A literature search was conducted to identify studies on Gen Z's learning preferences in HE. Databases searched included EBSCOHOST (ERIC, Education Research Complete, Teacher Reference Center) and Web of Science. EBSCOHOST provided targeted education research, while Web of Science ensured access to high-impact, cross-disciplinary studies and grey literature. The search used keywords, Boolean operators, and truncation: TITLE (student OR learn* OR learners OR undergraduate OR undergraduates) AND TITLE (Gen Z OR generation z OR iGen OR post-millennials OR youths OR teenagers OR young people) AND TITLE ('higher education' OR tertiary OR university OR HEI OR 'Higher Education Institution').

### *Inclusion criteria*

The inclusion and exclusion criteria were designed to ensure conceptual clarity, relevance, and generalisability to mainstream higher education contexts. Restricting studies to peer-reviewed journal articles published between 2014 and 2024 ensured that the review captured contemporary research reflecting the emergence of Gen Z within higher education.

### *Exclusion criteria*

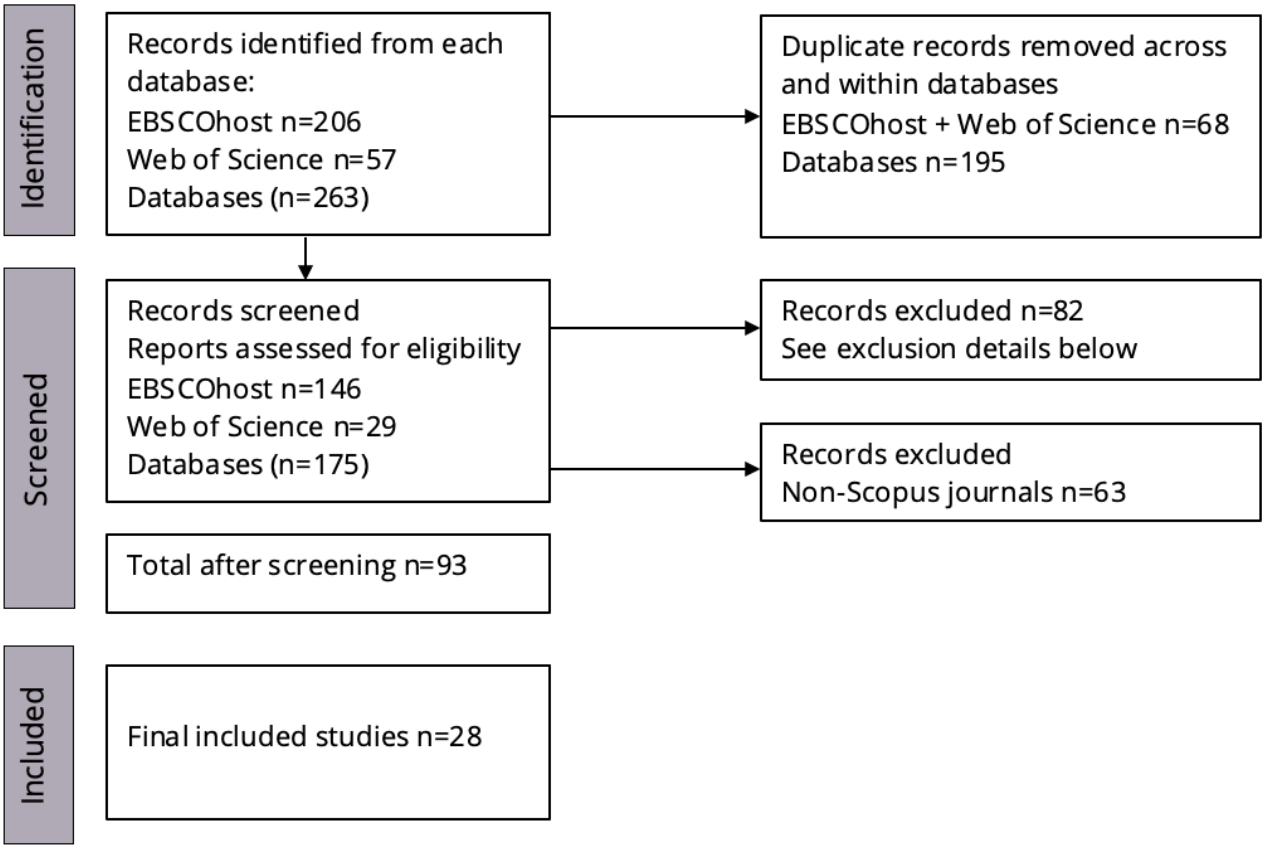
Studies with limited generalisability such as highly country-specific systems or specialised professional training contexts were excluded to avoid over-contextualised findings that may not transfer to general HE environments. Similarly, studies that focused primarily on the broader psychology of Gen Z, rather than on learning preferences in educational contexts, were excluded from the review. This helped maintain analytical coherence and ensure direct relevance to the research questions. It is also important to note that discipline-specific studies were included in the review where they provided insights into GenZ learners' preferences and experiences within particular academic fields.

## Results

The initial search yielded 263 articles. After manual removal of duplicates, 195 full-text articles were retrieved. Titles and abstracts were screened against the predefined inclusion and exclusion criteria, narrowing the selection to 175 articles. An additional screening for relevance to the specific focus of the review further reduced the pool to 93 articles. Subsequently, 60 non-Scopus indexed articles were excluded, as Scopus is a large abstract

and citation database of peer-reviewed academic literature that indexes journals meeting recognised quality and editorial standards. Non-Scopus indexed articles were excluded to ensure the review included reliable, peer-reviewed sources and maintained the overall academic rigour and consistency of the study. This exclusion resulted a final total of 28 papers included in the review (see Appendix A). Figure 1 below illustrates the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) model, outlining the process of identification, screening, eligibility assessment, and inclusion of studies. It is worth noting that while PRISMA was originally designed for systematic reviews, its flow diagram and reporting items are increasingly used in narrative reviews to improve transparency, reproducibility, and rigour (Ferrari, 2015).

**Figure 1. PRISMA model showing the flow of study selection in the review.**




## Analysis and findings

Thematic analysis was employed to synthesise, interpret, and identify patterns across existing literature or data. Thematic analysis helps researchers to clearly explain and interpret the deeper meaning of the findings using theory, rather than just listing or summarising results from different studies. One limitation of thematic analysis is that it can become descriptive

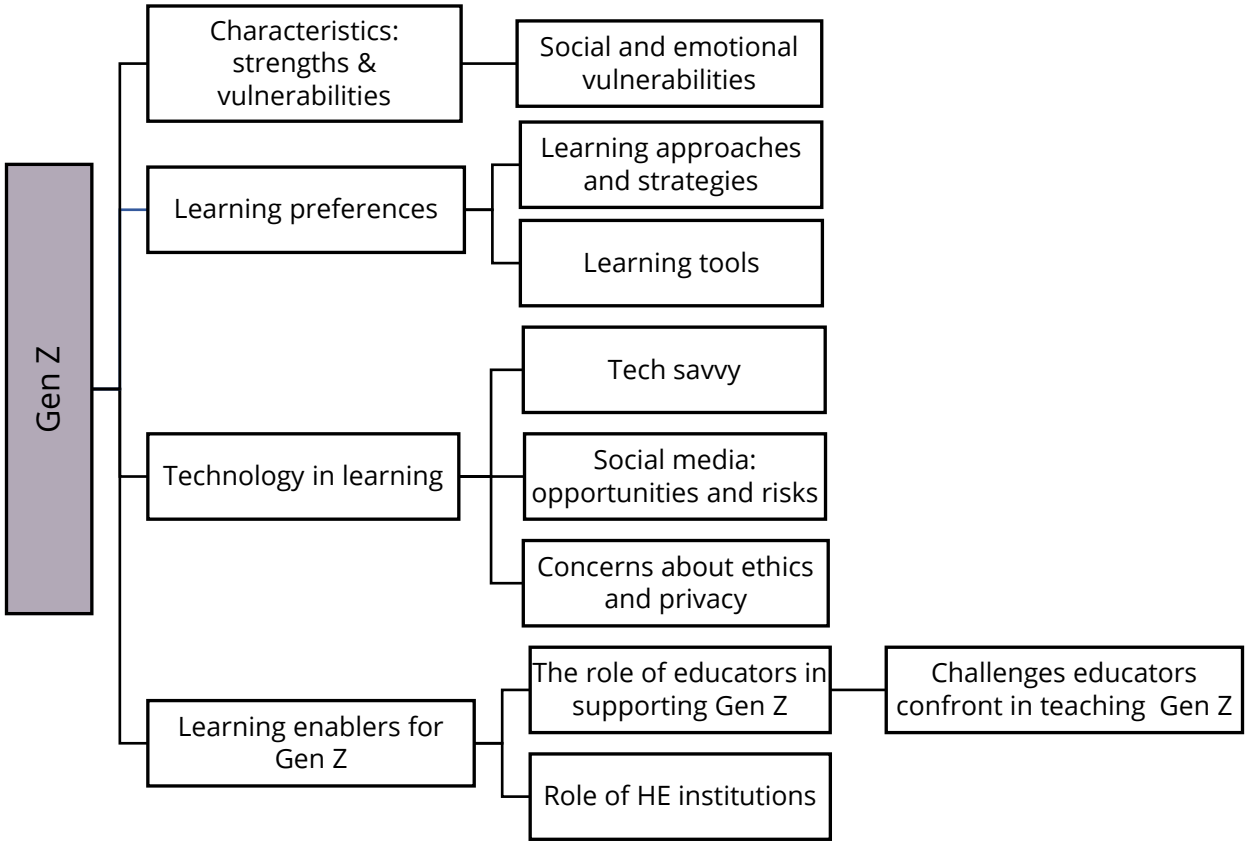
rather than analytical, particularly when the frequency of codes is overemphasised or when themes are treated as isolated units (Braun & Clarke, 2006; Nowell et al., 2017). To mitigate this limitation, the analysis moved beyond simple code frequency to focus on interpreting the meaning and significance of patterns in relation to the research questions and the SDT framework. Constant comparison across studies, iterative team discussions, and maintaining an audit trail supported analytic depth and reduced bias, while thematic maps were developed to illustrate relationships between themes and ensure conceptual richness. For example, rather than capturing the frequent preference for video-based learning, the analysis examined the underlying tension between Gen Z's desire for multimodal, fast-paced content and the risk of superficial engagement and reduced critical thinking.

Another value of employing SDT as the theoretical framework for this review is that thematic analysis served as the analytical approach to examination of the resulting articles. Rather than treating themes as standalone descriptions, SDT enabled and guides the analysis to examine how identified patterns reflected the interplay between autonomy, competence, and relatedness. For example, the theme of learner autonomy was interpreted alongside the simultaneous need for structured support and real-time feedback, revealing a motivational paradox consistent with SDT. This theoretically guided interpretation ensured the analysis moved beyond surface description to generate deeper, conceptually grounded insights into Gen Z learning behaviours. According to Braun and Clarke (2006), thematic analysis is often unbound by theoretical commitments which can result in incoherent or superficial findings without clear interpretive direction. Figure 2 below summarises the identified themes from thematically analysing the 28 articles.

Thematic analysis was conducted inductively to identify recurring patterns related to Gen Z learning preferences and the role of technology, in alignment with the research questions. Themes were then iteratively reviewed and conceptually mapped onto SDT's three psychological needs of autonomy, competence, and relatedness, to deepen interpretation rather than predetermine findings. For example, preferences for flexible and self-paced learning informed autonomy, the demand for immediate feedback reflected competence support, and the emphasis on interpersonal and socially embedded learning aligned with relatedness. Through constant comparison and team discussion, organising themes were refined to ensure coherence with both the research questions and SDT. Further details of the

coding process are provided in Appendix B, and Figure 2 below illustrates the analytical pathway on how inductive thematic analysis informed by the reviewed studies was subsequently interpreted through the Self-Determination Theory (SDT) lens to generate theory-informed insights addressing the research questions.

**Figure 2. Summary of identified themes.**




### *Theme 1: Gen Z characteristics (strengths and vulnerabilities)*

The inclusion of Gen Z characteristics as a theme was data-driven rather than predetermined. During inductive coding, many included studies explicitly focused on Gen Z traits, making this a recurrent pattern across the literature. As outlined in the analytical pathway, the analysis first captured common patterns before moving to higher-level interpretation. These characteristic insights were later interpreted through the SDT lens to provide theoretically meaningful understanding of learning preferences and technology engagement.

Gen Z, as discussed previously, are often described as 'digital natives' (Lerchenfeldt et al., 2021; Šnýdrová & Petrů, 2020; Zorn, 2017), reflecting both fluency with technology and immersion in a digitally mediated culture. While this label captures technological ease of this cohort, it risks oversimplifying diverse behaviours and learning preferences.

Beyond digital skills, Gen Z's worldview has been shaped by post-9/11 socio-political and cultural contexts, including economic uncertainty, climate change discourse, and global movements for social justice (Seemiller & Grace, 2017). Continuous exposure to these issues through digital media and education has normalised civic awareness and value-driven engagement with community, helping to explain why Gen Z learners are both digitally fluent and socially conscious. For example, many expect curricula to address real-world challenges such as sustainability and social justice and may critically question the environmental impact of GenAI data centres, particularly their electricity and water consumption. However, these traits can conflict with traditional education, where hierarchical systems, delayed feedback, and standardised assessments often hinder learners' preference for autonomy and immediate application, leading to disengagement (Gilbert et al., 2022; Wilkins, 2021). While studies portray Gen Z as hardworking, creative, and loyal (Grigoryev et al., 2019; Seemiller & Clayton, 2019), such qualities may remain untapped if teaching approaches fail to align with Gen Z's values and learning styles (Cickovska, 2022).

Adversely, other literature frequently labels Gen Z as lazy, tech-dependent, and unwilling to work hard, reflecting persistent intergenerational tensions in workplace expectations (Bedford, 2025; Krishna & Agrawal, 2024). However, emerging scholarship cautions that such deficit narratives may oversimplify a complex cohort whose behaviours are shaped by shifting labour markets, wellbeing priorities, and digital work cultures (Krishna & Agrawal, 2024). In relation to this study's research questions, these contrasting portrayals are significant because they complicate assumptions about Gen Z learning preferences and technology engagement in higher education, reinforcing the need to examine how technology meaningfully supports learning rather than relying on generational stereotypes. Overall, Gen Z learners are not a uniform group of tech-savvy youth, but a generation balancing strengths and vulnerabilities shaped by digital immersion, socio-political awareness, and emotional sensibilities. Understanding them requires moving beyond stereotypes to consider the broader ecological, technological, and institutional systems influencing their development.

### *1.1. Social and emotional vulnerabilities*

Similarly, claims regarding short attention spans and fragmented information processing (Chan & Lee, 2023; Szabó et al., 2021; Wajda et al., 2022) should be interpreted cautiously. These patterns are often reported in studies examining high digital-media exposure and

multitasking environments, suggesting that learners may be contextually nurtured by fast-paced, platform-driven information ecosystems rather than being stable generational traits. Moreover, the generalisability of these findings is limited, as much of the evidence comes from specific disciplines, cultural contexts, or highly digital environments. As a result, what is often described as a cognitive deficit may instead be an adaptive response to today's digitally intensive learning environments. For example, learners who frequently switch between multiple digital platforms may appear to have short attention spans (Opara et al., 2025); however, this behaviour may reflect an adaptive skill developed through navigating fast-paced, multimodal online environments rather than an inherent cognitive weakness. This distinction is important for HEIs, as it shifts the focus from remediating presumed learner weaknesses toward critically examining how pedagogical design and digital environments shape Gen Z learning behaviours.

## *Theme 2: Gen Z learning preferences*

The learning preferences of Gen Z learners are often portrayed as radically different from those of prior cohorts, largely due to their upbringing in a hyper-digital environment (Lerchenfeldt et al., 2021). However, while the literature broadly agrees on Gen Z's tech fluency and demand for digital learning, a deeper reading reveals a more complex interplay between technological preference, pedagogical expectations, and psychosocial needs.

### *2.1. Learning approaches and strategies*

A consistent finding across the literature is Gen Z's preference for multimodal, interactive, and visually rich learning, particularly video-based resources, simulations, gamified platforms, and hands-on tasks (Genota, 2018; Gilbert et al., 2022; Seemiller & Clayton, 2019). These preferences reflect a cognitive orientation toward non-linear information processing (Szabó et al., 2021). Rather than reading a full chapter sequentially, learners may move between a video, infographic, and quick searches, constructing understanding from fragmented inputs. This challenges traditional didactic models reliant on sustained reading, lectures, and abstract theorising (DiMattio & Hudacek, 2020; Gilbert et al., 2022) and signals the need for strategies that accommodate such habits without eroding depth.

The attention span debate is closely linked to Gen Z's non-linear information processing and multimodal learning behaviours. Engagement often occurs in short bursts, shaped by multi-

screen use and rapid switching (Chan & Lee, 2023; Huss, 2023). While framed as a deficit, this pattern opens opportunities for microlearning, modular content, and interactive tools such as Kahoot! or YouTube (Drnach-Bonaventura et al., 2024; Yeşilyurt & Karaduman, 2024). However, equating engagement with entertainment risks undermining critical thinking and reflective learning because highly stimulating, fast-paced content may encourage surface interaction rather than sustained cognitive processing (DiMattio & Hudacek, 2020; Gilbert et al., 2022). When learning is driven primarily by novelty and visual appeal, learners may prioritise speed and completion over analysis, synthesis, and deeper conceptual understanding. This tension highlights the need for pedagogical designs that leverage multimodal engagement while deliberately scaffolding opportunities for reflection and higher-order thinking.

Such designs are critical given that autonomy is a defining trait of Gen Z. This cohort values control over the pace and direction of its learning journey, favouring flexibility, personalisation, and asynchronous access (Hrdy et al., 2024; Jang & Chiang, 2024). Yet independence is often coupled with a need for emotional connection; learners respond positively to empathic, responsive, and digitally competent instructors (Chunta et al., 2021; Gilbert et al., 2022; Licas & Torres, 2024). Without relational pedagogy, autonomy risks disengagement.

Similarly, feedback plays a central role amongst the Gen Z learner who prioritises immediacy, quality, and clarity, not only for evaluation but also for motivation and self-regulation (DiMattio & Hudacek, 2020; Licas & Torres, 2024). Real-time, personalised guidance boosts outcomes and emotional investment, though over-reliance on instant responses may weaken patience and resilience. Real-world relevance is also critical. Applied, experiential, and problem-based learning is most effective when tied to issues such as climate change, social justice, and public health (Ahmed & Fatah, 2024; Muhammad et al., 2021; Seemiller & Grace, 2017; Weber & Keim, 2021). This effectiveness stems from Gen Z's strong orientation toward purpose-driven learning and career pragmatism, where perceived authenticity increases motivation, engagement, and knowledge transfer. However, many institutions have been slow to embed such authentic learning opportunities (Ishak et al., 2022), often due to curriculum rigidity and resource constraints, creating a persistent gap between learner expectations and educational provision.

In summary, the literature suggests a growing misalignment between prevailing higher education pedagogies and the evolving learning preferences reported among the Gen Z cohort. While many learners demonstrate strong interest in flexible, multimodal, and purpose-driven learning, institutional practices often remain constrained by traditional delivery models and uneven digital integration (Gilbert et al., 2022; Hrdy et al., 2024; Ishak et al., 2022). This creates tensions between autonomy and support, immediacy and depth, and engagement and rigour. Addressing these tensions requires more than the addition of digital tools; it calls for critically informed pedagogical redesign that balances responsiveness to learner preferences with the preservation of intellectual challenge and reflective learning.

### *2.2. Learning tools*

The advent of Gen Z learners in HE has prompted a re-examination of learning tools and environments. Their immersion in digital culture shapes how they process information, interact socially, and invest emotionally in learning. As shown in Table 1, the literature consistently positions technology as an enabler of flexibility, interactivity, and personalisation, but also highlights risks of superficial engagement, distraction, and learner isolation when pedagogical integration is weak.

A cross-cutting pattern in the literature is that the pedagogical value of digital tools is highly contingent on intentional instructional design rather than the technology itself. Table 1 guides the answer to the second research question, as it synthesises how different categories of digital tools reported in the literature support (and potentially constrain) Gen Z learning in higher education contexts. Ultimately, the priority is not tool popularity but tools that sustain socially embedded, critically reflective learning. Technological fluency must be matched by pedagogical fluency to ensure depth, dialogue, and authentic engagement.

**Table 1. Digital tools and platforms for Gen Z in HE.**

| Tool/platform type | Examples | Pedagogical value | Risks/limitations | References |
|---|---|---|---|---|
| **Simulation tools & interactive media** | Kahoot!, Mentimeter, VoiceThread | Supports immersive, visual learning; encourages interactivity, autonomy, and real-world | Effectiveness depends on clear learning objections and integration into broader pedagogy | Drnach-Bonaventura et al., 2024; Hrdy et al., 2024; Gilbert et al., 2022 |

| | | | | |
|---|---|---|---|---|
| | | replication; aids decision-making, reflection, and feedback | | |
| **On-demand, non-linear media** | YouTube, podcasts, social media | Flexible, accessible, learning-paced; supports varied learning styles | Risk of shallow processing, echo chambers, and uncritical consumption | Genota, 2018; Grigoryev et al., 2019; Muhammad et al., 2021 |
| **Gamified & adaptive platforms** | Game-based learning tools, adaptive quizzes | Meets Gen Z's need for immediate feedback; enhances motivation | Should complement–not replace–meaningful instructor interaction | Gilbert et al., 2022; Licas & Torres, 2024; Seemiller & Clayton, 2019 |
| **Informal peer-learning spaces** | Instagram, TikTok | Supports peer learning, social connection, and engagement | Misinformation, distraction; requires educator curation to develop critical literacies | Yeşilyurt & Karaduman, 2024 |
| **Personalised & AI-driven platforms** | Adaptive learning systems, AI tutors | Enhances learner autonomy, customises learning paths | Can lead to learner isolation without community and mentorship | Jang & Chiang, 2024; Seemiller & Grace, 2017 |
| **Trend-sensitive tools** | Various emerging platforms | Keeps content relevant, aligns with evolving digital habits | Rapid tool preference changes require constant curricula adaptation | Ishak et al., 2022 |

### *Theme 3: Gen Z and technology*

According to the findings from the narrative review, Gen Z interaction with technology is not merely a preference but a default orientation. However, the challenge lies not in affirming this tech-savviness but in designing pedagogies that critically leverage it. Although Generative AI (GenAI) is not the focus of this study, its revolutionary and rapidly evolving nature cannot be disregarded. The rise of GenAI tools, such as ChatGPT, marks a significant shift in how Gen Z learners engage with knowledge production. Chan and Lee (2023) highlight that Gen Z tends to be more receptive to adopting GenAI than its Gen X and Millennial instructors, viewing such

tools as facilitators of immediate feedback, personalisation, and academic productivity. However, this enthusiasm can mask concerns about over-reliance, misinformation, and academic integrity. The speed and convenience of GenAI may encourage learners to accept GenAI-generated outputs uncritically or substitute them for their own cognitive effort. Without sufficient AI literacy, learners may struggle to evaluate the accuracy, bias, or originality of generated content. For example, a student may use ChatGPT to draft an assignment response and submit it with minimal verification, potentially reproducing inaccuracies or unintentionally breaching academic integrity policies. Schwieger & Ladwig (2021) highlight the growing need to educate learners not only in how to use AI tools but how to engage with them critically and ethically.

### *3.1. Tech savvy*

Gen Z learners' comfort with digital tools, platforms, and non-linear information structures underpins a preference for visual, interactive, and self-paced learning (Gilbert et al., 2022; Szabó et al., 2021). Their ability to multitask across multiple screens (Yeşilyurt & Karaduman, 2024) is often viewed as an asset, but it can also fragment attention and compromise depth of engagement. Tools such as learning management systems, simulations, and platforms like YouTube, Kahoot!, and Mentimeter are particularly effective in delivering dynamic content when used intentionally. However, the literature warns against conflating tool use with learning: technology needs to be pedagogically purposeful, not merely entertaining (Hrdy et al., 2024; Seemiller & Clayton, 2019).

### *3.2. Social media: opportunities and risks*

Gen Z learners demonstrate a strong preference for socially conscious and community-oriented learning experiences (Muhammad et al., 2021), often drawing influence from social media figures and online networks (Jang & Chiang, 2024; Wilkins, 2021). They favour learning environments that incorporate social media integrations and collaborative projects, which mirror their everyday digital interactions and support their need for peer connection (Wilkins, 2021). As Šnýdrová and Petrů (2020) argue, social learning environments foster peer support and promote a sense of belonging within the academic community. This aligns closely with the relatedness component of SDT, which posits that learners are more motivated and engaged when they feel connected to others. For Gen Z, fostering this sense of connectedness through digitally mediated collaboration and social engagement is not only effective—it is

essential for sustaining intrinsic motivation and academic wellbeing. However, the dominance of Gen Z's use of social media is potentially a double-edged sword. On the one hand, it offers collaborative and participatory learning opportunities through platforms like Instagram, TikTok, and Reddit (Hrdy et al., 2024; Muhammad et al., 2021). On the other hand, it risks reinforcing superficial engagement and distraction. Yeşilyurt and Karaduman (2024) observe that second-screen behaviour such as simultaneous engagement with multiple devices is common but may undermine sustained focus. As such, educators must balance integrating social media for engagement while fostering reflective, deeper learning.

### *3.3. Concerns about ethics and privacy*

While tech-immersed, Gen Z is not naïvely optimistic about its implications. There are concerns about over-reliance, misinformation, ethical challenges, and potential negative impacts on social interaction and academic integrity (Chan & Lee, 2022). Many express cautions about their digital identity and privacy (Wilkins, 2021). This is especially significant in professional disciplines, such as healthcare, where concerns about social media professionalism and permanent digital records shape behaviour and stress levels. Seemiller and Grace (2017) also highlight how Gen Z learners are often aware of cyber threats, indicating a more complex relationship with online presence than earlier digital adopters. Pedagogical designs must therefore include critical digital literacy, helping learners to navigate ethical and professional issues online.

## ***Theme 4: learning enablers for Gen Z***

While educators and HEIs can broadly act as enablers of learning, this dynamic appears particularly pertinent for Gen Z learners due to their stronger expectations for immediacy, personalisation, and digitally mediated support reported in the literature. When institutional practices are misaligned with these expectations, the risk of disengagement may be amplified. Thus, although the enabling barrier tension is not unique to Gen Z, it warrants specific attention in this cohort given its distinct learning patterns and technology-shaped educational experiences.

### *4.1. The role of educators in supporting Gen Z*

Educators play a pivotal role in developing meaningful learning experiences for Gen Z, who are characterised by their digital nativeness, preference for immediacy, and desire for

personalised engagement. As highlighted by Gilbert et al. (2022) and Wilkins (2021), effective educators for Gen Z are not only subject-matter experts but also empathetic mentors who foster connection and trust. Gen Z value relationships with mentors to foster professional identity.

Therefore, there is a paradigm shift in the educator's role. Seemiller and Clayton (2019) argue that educators need to rethink and redesign content and teaching strategies to meet Gen Z's unique needs. For example, they are expected to adopt learner-centred pedagogies, integrate multimedia and simulation tools, and personalise instruction to maintain engagement. Similarly, Hrdy et al. (2024) emphasise the importance of immediate, actionable feedback and autonomy-supportive environments, while Muhammad et al. (2021) and Weber and Keim (2021) advocate for hands-on, socially conscious projects that connect classroom learning to real-world relevance. In this context, educators serve not just as transmitters of knowledge, but as facilitators of curiosity, community-building, and career readiness, guiding learners in navigating complex information ecosystems and nurturing both their academic and psychosocial development. A key question raised by this study and one that warrants further research is how educators can identify the needs of their learners using evidence-based approaches, such as surveys and learning profiles.

#### *4.1.1. Challenges educators confront in teaching Gen Z*

Despite their enthusiasm for innovation, educators face several challenges when teaching Gen Z. A major hurdle is adapting traditional pedagogical approaches to meet Gen Z's expectation for fast-paced, visually stimulating, and tech-integrated content (Gilbert et al., 2022). The shift toward active and experiential learning requires significant institutional support, yet its success is often challenged by the evolving habits of Gen Z. Educators today must adapt to learners defined by shorter attention spans and fragmented processing styles (Hrdy et al., 2024; Yeşilyurt & Karaduman, 2024), necessitating more than just a change in curriculum.

In addition, many learners also present with increased mental health concerns and reduced face-to-face communication skills, requiring instructors to balance academic content delivery with emotional support and relational trust-building (DiMattio & Hudacek, 2020; Wilkins, 2021). Furthermore, resistance to educational reform and limited digital fluency among some faculty members can hinder the effective implementation of Gen Z-aligned teaching

strategies. These complexities underline the need for institutional support, continuous professional development, and cross-generational dialogue to close the pedagogical gap between educators and digital-native learners.

### *4.2. Role of HE institutions*

The rise of Gen Z in HE demands a structural not merely an individual response. Born into a digitally saturated world, Gen Z expect dynamic, interactive, and technology-rich learning (Gilbert et al., 2022; Hrdy et al., 2024). Meeting these expectations requires institutions to invest in robust digital infrastructure, effective learning management systems, integrated multimedia, and rapid feedback mechanisms, while ensuring these tools are embedded within coherent pedagogical strategies (Muhammad et al., 2021; Zorn, 2017).

Yet, digital adoption is often undermined by uneven implementation and the absence of an evidence-based vision. Without a clear understanding of learner profiles, innovation risks misalignment (Ishak et al., 2022). HEIs should equip staff with learner analytics, diagnostic tools, and targeted feedback systems to move from intuition to strategic, data-informed design. Staff development is equally critical. Current professional development often mirrors transmissive teaching models Gen Z rejects, creating a gap between policy rhetoric and practice. Institutions must model interactive, scaffolded, and applied pedagogy in their own training to prevent educator disengagement and burnout (Gilbert et al., 2022; Hrdy et al., 2024).

Student wellbeing should be treated as foundational, not peripheral. The digital and socio-cultural pressures Gen Z faces heighten the need for small, supportive learning communities and mentorship structures (Gilbert et al., 2022). Embedding empathy, community-building, and psychological safety into curricula and services should be a strategic priority, not an optional add-on.

In essence, HEIs must shift from service providers to ecosystem enablers, aligning infrastructure, staff capability, wellbeing initiatives, and pedagogical design. Without such integration, the rhetoric of Gen Z engagement risks remaining aspirational, exposing institutional inertia and widening the gap between educational provision and learner realities.

## Discussion

### *Research question 1: how do Gen Z learners prefer to learn in HEIs?*

The findings reaffirm Gen Z's preference for technology-mediated, interactive learning; however, this preference must be critically examined rather than simply accommodated. Gen Z learners gravitate towards video-based and experiential learning (Genota, 2018; Szabó et al., 2021), for instance, a student may consistently choose YouTube summaries over full lectures. Their inclination may stem less from pedagogical effectiveness and more from habituation to fast, visually stimulating content, a pattern shaped by years of short-form video consumption on platforms like TikTok and Instagram. The danger lies in interpreting these preferences as indicators of deeper engagement or learning without scrutinising cognitive outcomes and long-term retention.

Social media platforms and digital tools are frequently praised for fostering creativity, collaboration, and communication skills (Lerchenfeldt et al., 2021; Muhammad et al., 2021). Yet, such claims are often based on anecdotal or surface-level indicators of engagement. For example, while YouTube is widely preferred over traditional materials (Zorn, 2017), the passive consumption of video content does not guarantee critical thinking or knowledge synthesis especially when content is peer-generated and lacks academic rigour.

Furthermore, the integration of social media into pedagogy must be viewed with caution. While familiar platforms increase student comfort, they can blur the line between academic and social spheres, creating potential distractions or reducing academic formality (Yeşilyurt & Karaduman, 2024). The literature also notes the uneven capacity of educators to effectively manage and update these tools, raising concerns about sustainability and pedagogical coherence (Jang & Chiang, 2024).

Learner agency emerged as a crucial factor, but its effectiveness depends on institutional and educator responsiveness. While Gen Z learners value autonomy, they also expect structured support and real-time feedback, an apparent contradiction that challenges traditional models of self-directed learning (Hampton et al., 2020). Academic institutions and educators need to carefully balance giving learner independence while also keeping them engaged. In tech-heavy learning environments, it is easy for learners to feel disconnected from their learning if not supported properly. For example, if a course is fully online with little educator interaction,

some learners may stop participating, even if they have the freedom to learn at their own pace.

### *Research question 2: how does technology support the learning environment from the perspective of Gen Z?*

Technology is often framed as an enabler of Gen Z learning, but its impact is far from neutral. While tools like language management systems, Kahoot! and simulations can enrich the learning experience, their effectiveness depends on intentional integration and pedagogical clarity. Without this, technology risks becoming a superficial engagement tool rather than a transformative educational asset (Hrdy et al., 2024; Seemiller & Clayton, 2019). The literature often assumes a homogenous level of digital competence among Gen Z, portraying them as 'digital natives'. However, this assumption has been increasingly challenged. Several studies (e.g. Chunta et al., 2021; Cickovska, 2022) highlight notable gaps in practical digital skills such as cybersecurity awareness or proficiency in productivity tools. These gaps are particularly problematic in professional preparation and risk exacerbating inequalities if unaddressed.

Moreover, while technology offers flexibility and access, it can also fragment attention and hinder deep learning especially for learners accustomed to multitasking across platforms (Yeşilyurt & Karaduman, 2024). The capacity to manage information overload and maintain focus remains a significant cognitive challenge, often overlooked in the design of tech-based curricula (Opara et al., 2025; Schwieger & Ladwig, 2021). While technology offers opportunities to align education with Gen Z's preferences and career goals, its pedagogical integration must be intentional and critically informed. However, Gen Z's enthusiasm for technology does not equate to uniform digital competence or deep engagement with learning content (Huss, 2023). For example, a student may be highly active on platforms like TikTok or Instagram but still struggle to use learning management systems effectively or evaluate the credibility of online information. The question to be asked should not be what they do to learn, but how and what is the impact on their learning?

Technology also intersects with Gen Z's social and career aspirations, acting as a double-edged sword. While it supports the development of career-relevant skills and aligns with values such as passion and purpose, it also raises concerns about the limited development of analytical and synthetic skills among some learners which necessitates more intentional and critically informed approaches to digital education (Grigoriev et al., 2019). Lastly, Gen Z's

enthusiasm for digital learning environments should not be mistaken for unconditional approval. Their increasing awareness of privacy, digital fatigue, and screen overexposure signals a need for institutions to embed critical digital literacy into their frameworks, not only as a technical skillset but as a civic responsibility (Gilbert et al., 2022).

## Conclusion

As Gen Z transforms the student demographic across the HE sector, educators are compelled to reimagine their roles, expectations, and pedagogical strategies. HEIs play a crucial role in preparing Gen Z learners for academic success, professional readiness, and social integration. In presenting this narrative synthesis of the literature this paper not only summarises the characteristics of the Gen Z learner in HE but also provides a nuanced insight into effective pedagogical strategies. By synthesising empirical evidence and theoretical frameworks, this review elucidates the distinct characteristics and needs of Gen Z learners; from their distinct digital-era habits and preference for immediate feedback and desire for practical, career-relevant learning to a shift away from passive lecture formats towards hybrid, student-centred, and socially connected learning. These approaches foster autonomy, community, and relevance while mitigating digital distraction. By mapping these trends, the review aims to support educators in realigning instructional design and HE practices to better serve the contextual and behavioural needs of Gen Z learners.

## Disclosure statement

The authors used the following generative AI tools in the preparation of this manuscript: Gemini (Google) and ChatGPT (OpenAI). The tasks performed by Gemini were limited to checking grammar and syntax. ChatGPT was used to check for grammar and typological errors in the final draft. The authors have complied with the journal's principles of AI use.

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Nashwa Ismail is an academic researcher in Digital Education including Generative AI with an MSC, PhD, and FHEA. She is a SIG Convenor for Digital Education within the British Educational Research Association (BERA). Her work includes GenAI-assisted feedback research at Imperial College London, as well as earlier projects in game-based learning and learning science in online settings. Moreover, she leads a series of GenAI academic capacity-building workshops across the Global South.

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## Appendix A: Summary of narrative review articles and main findings

| No. | Paper reference | Main findings |
|---|---|---|
| 1 | Ahmed, A. A., & Fatah, S. N. (2023). The assessment of self-directed learning readiness among Gen Z Kurdish EFL undergraduates. *Journal of University of Human Development, 9*(1), 1–10. https://doi.org/10.21928/juhd.v10n1y2024.pp1-9 | Gen Z undergraduates' self-directed learning readiness varies more by year level and institutional/city context than by gender; targeted support may be needed where readiness is lower. |
| 2 | Chan, C. K. Y., & Lee, K. K. W. (2023). The AI generation gap: Are Gen Z students more interested in adopting generative AI such as ChatGPT in teaching and learning than their Gen X and Millennial generation teachers? *Smart Learning Environments, 10*(1), 1–15. https://doi.org/10.1186/s40561-023-00269-3 | Gen Z learners show high optimism and intention to use GenAI for learning, while teachers express greater ethical/pedagogical concern; the 'AI generation gap' points to the need for guidelines, digital literacy, and balanced integration. |
| 3 | Chunta, K., Shellenbarger, T., & Chicca, J. (2021). Gen Z students in the online environment: Strategies for nurse educators. *Nurse Educator, 46*(2), 87–91. https://doi.org/10.1097/NNE.0000000000000872 | In online learning, Gen Z may prefer independent learning yet still need social connection and rapport; effective teaching involves engagement strategies and intentional instructor presence. |
| 4 | Cickovska, E. (2022). Influence of educators' perception of Gen Z students in higher education. *Horizons – International Scientific Journal*, *31*(2), 53–64. https://doi.org/10.20544/HORIZONS.A.31.2.22.P04 | Educator misperceptions of Gen Z can create a 'vicious circle' of dissatisfaction, weakened communication, and reduced engagement; improving staff understanding and adopting student-centred communication can enhance learning outcomes. |
| 5 | DiMattio, M. J. K., & Hudacek, S. S. (2020). Educating Gen Z: Psychosocial dimensions of the clinical learning environment that predict student satisfaction. *Nurse Education in Practice, 49,* Article 102901. https://doi.org/10.1016/j.nepr.2020.102901 | Gen Z satisfaction increases in environments that support autonomy, pace control, and frequent direction/feedback; psychosocial learning conditions shape engagement and satisfaction. |
| 6 | Drnach-Bonaventura, G. M., Hoffman, B. L., & Koperwas, M. L. (2024). Growing curiosity: Three strategies to foster engagement in large classroom settings among Generation Z public health | In large classes, Gen Z engagement is strengthened by technology integration, real-world skill emphasis, and clear rubrics—helping scale quality teaching in mass settings. |

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|---|---|---|
| | undergraduate students. *Journal of Public Health Education, 11*(1), 37–43. https://doi.org/10.1177/23733799241269961 | |
| 7 | Genota, L. (2018, September 11). Why Generation Z learners prefer YouTube lessons over printed books. *EducationWeek*. https://www.edweek.org/teaching-learning/why-generation-z-learners-prefer-youtube-lessons-over-printed-books/2018/09 | Gen Z often prefers video-based learning (e.g. YouTube) over print due to accessibility and learning fit, but this raises educator concerns about privacy and content quality. |
| 8 | Gilbert, B. G., Mathis, D. P., Henry, B., Gibbs, A., & Lee, V. (2022). 'The professor I like!' Gen Z learner and their teachers. *The Association of Black Nursing Faculty Foundation Journal*, *3*(1), 22–28. https://abnf.net/wp-content/uploads/2024/10/ABNFF-Journal-December-2022.pdf | Gen Z learners value teachers who are subject experts, caring, learner-centred, and highly supportive—highlighting the continuing centrality of teacher relational qualities beyond technology. |
| 9 | Grigoriev, S. G., Shabunina, V. A., Tsarapkina, Y. M., & Dunaeva, N. V. (2019). An electronic library system as a means of self-development of Generation Z students (based on the course 'fundamentals of campus leadership'). *Scientific and Technical Libraries, 7*, 78–99. https://doi.org/10.33186/1027-3689-2019-7-78-99 | Digital systems can support Gen Z self-development, but "clip thinking" and low sustained attention can limit deep learning; effective design requires new pedagogies and cross-professional collaboration. |
| 10 | Hampton, D., Welsh, D. & Wiggins, A. T. (2020) Learning preferences and engagement level of Generation Z nursing students. *Nurse Educator*, *45*(3), 160–164. https://doi.org/10.1097/NNE.0000000000000710 | Gen Z nursing learners find interactive lectures (e.g. clickers) and visual/participatory teaching more engaging than heavy reading; practical, skills-focused activities drive engagement. |
| 11 | Hrdy, M., Tarver, E. M., Lei, C., Moss, H. C., Wong, A. H., Moadel, T., Beattie, L. K., Lamberta, M., Cohen, S. B., Cassara, M., Hughes, M. D., De Castro, A., Sahi, N., & Chen, T. H. (2024). Applying simulation learning theory to identify instructional strategies for Generation Z emergency medicine residency education. *AEM Education and Training, 8*(1), 56–69. https://doi.org/10.1002/aet2.10981 | Gen Z learners benefit from individualised/self-paced learning, visual/interactive environments, immediate actionable feedback, and combined academic + personal support; educators as facilitators aligns with these preferences. |

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|---|---|---|
| 12 | Huss, J. A. (2023). Generation Z students are filling our online classrooms: Do our teaching methods need a reboot? *InSight: A Journal of Scholarly Teaching, 18*, 101–112. https://doi.org/10.46504/18202306hu | Gen Z in online classrooms expects high-quality digital experiences plus meaningful connection; teaching approaches should be redesigned to better match Gen Z attention patterns and engagement needs. |
| 13 | Ishak, N. M., Ranganathan, H., & Harikrishnan, K. (2022). Learning preferences of Generation Z undergraduates at the University of Cyberjaya. *Journal of Learning for Development, 9*(2), 331–339. https://doi.org/10.56059/jl4d.v9i2.584 | Most Gen Z undergraduates prefer multimodal learning, with strong preference for kinesthetic elements; instructional design should offer flexible, mixed-mode approaches. |
| 14 | Jang, Y.-T., & Chiang, I.-T. (2023). Incorporating desire and persistence into understanding Gen Z learners' continuance intention toward using YouTube for learning in digital learning context. *Educational and Information Technologies*, *29*, 10043–10068. https://doi.org/10.1007/s10639-023-12202-9 | Continued use of YouTube for learning is driven by hedonic + utilitarian value, which builds desire and persistence, leading to satisfaction and sustained intention—useful for designing motivating digital learning experiences. |
| 15 | Lerchenfeldt, S., Attardi, S. M., Pratt, R. L., Sawarynski, K. E., & Taylor, T. A. H. (2020). Twelve tips for interfacing with the new generation of medical students: iGen. *Medical Teacher*, *43*(11), 1249–1254. https://doi.org/10.1080/0142159X.2020.1845305 | Gen Z health-profession learners seek immediate access to information and may have reduced face-to-face interaction; educators should intentionally adapt pedagogy to support success and lifelong learning. |
| 16 | Licas, P. Z. T., & Torres, G. C. S. (2024). Feedback preferences of Generation Z nursing students: A conjoint analysis. *Teaching and Learning in Nursing, 19*(4), 449–454. https://doi.org/10.1016/j.teln.2024.01.012 | Gen Z learners prefer feedback that is immediate, constructive, and guided, and the type/timing of feedback matters most; feedback approaches should align educator practices with learner expectations. |
| 17 | Muhammad, A. J., Arrington-Slocum, A., & Hughes, L. (2021). Capstone courses and major projects for enhancing Generation Z career readiness through general higher-education classroom curriculum. *Journal of Higher Education Theory and Practice, 21*(7), 63–75. https://doi.org/10.33423/jhetp.v21i7.4487 | Gen Z career readiness can be strengthened through capstone/major projects using cross-disciplinary, high-impact strategies; structured design processes help align curriculum with workforce needs. |

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| 18 | Pânişoară, G., Berceanu, D. C.-A., Popovici, A.-F., & Ghiţă, C. M. (2023). Exploring the relationship between the Generation Z consumers' desire to learn and openness to technology. *Journal Plus Education, 33,* 131–154. https://doi.org/10.24250/jpe/SI/2023/GP/DCB/FP/CMS/ | Gen Z's engagement/desire to learn links to perceived usefulness and attitudes toward technology; motivation-related factors shape openness and future intentions to use digital tools. |
| 19 | Schwieger, D., & Ladwig, C. (2021). Using a modified understanding by Design® framework to incorporate social media tools in the management information systems curriculum for Generation Y and Z students. *Journal of Information Systems Education*, *32*(3), 166–175. https://jise.org/Volume32/n3/JISE2021v32n3pp166-175.html | Curriculum design can be improved by integrating social media tools within a structured framework to build both disciplinary learning and soft skills aligned with how Gen Y/Z learner communicate and learn. |
| 20 | Seemiller, C., & Clayton, J. (2019). Developing the strengths of Generation Z college students. *Journal of College and Character*, *20*(3), 268–275. https://doi.org/10.1080/2194587X.2019.1631187 | Strengths-based education should be redesigned to align with Gen Z characteristics and motivations, using activities that leverage Gen Z capacities rather than assuming 'one-size-fits-all' approaches. |
| 21 | Seemiller, C., & Grace, M. (2017). Generation Z: Educating and engaging the next generation of students. *About Campus: Enriching the Student Learning Experience*, *22*(3), 21–26. https://doi.org/10.1002/abc.21293 | Large-scale evidence shows Gen Z differs meaningfully from prior cohorts; campus teaching and support systems designed for earlier generations may not meet Gen Z needs, requiring institutional redesign. |
| 22 | Šnýdrová, M., & Petrů, G. J. (2020). E-learning as an opportunity for education of Generation Y and Generation Z: Its potential and limits. *Lifelong Learning – celoživotní vzdělávání*, *10*(2), 231–249. https://doi.org/10.11118/lifele20201002231 | E-learning offers real opportunities for Gen Y/Z, but it also has limits; effectiveness depends on aligning technology and content with learner characteristics and expectations. |
| 23 | Szabó, C. M., Bartal, O., & Nagy, B. (2021). The methods and IT-tools used in higher education assessed in the characteristics and attitude of Gen Z. *Acta Polytechnica Hungarica*, *18*(1), 121–140. https://doi.org/10.12700/aph.18.1.2021.1.8 | Engineering learners' satisfaction and attitudes depend on how far educators actually apply contemporary methods (e-learning, BYOD, gamification, MOOCs); technology can increase motivation and employability skills when meaningfully implemented. |

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| 24 | Wajda, T., Gias, S., & Chatterjee, A. (2022). Giving Generation 'Z' marketing learner a 'voice'. *Marketing Education Review*, *32*(2), 105–112. https://doi.org/10.1080/10528008.2022.2038631 | Tools like VoiceThread can increase Gen Z engagement by creating authentic social presence and enabling meaningful multimedia interaction, which can support satisfaction, persistence, and potentially retention. |
| 25 | Weber, K. M., & Keim, H. (2021). Meeting the needs of Generation Z college students through out-of-class interactions. *About Campus*, *26*(2), 10–16. https://doi.org/10.1177/1086482220971272 | Gen Z learners benefit from relationship-based faculty interactions beyond the classroom; out-of-class engagement supports success, especially given preferences for practical, relevant, collaborative learning. |
| 26 | Wilkins, E. B. (2021). Fostering professional identity formation in Generation Z health sciences students. *New Directions for Teaching and Learning*, *168*, 29–36. https://doi.org/10.1002/tl.20465 | For Gen Z health sciences learners, educators should be intentional in supporting professional identity formation, linking learning experiences to becoming a practitioner. |
| 27 | Yeşilyurt, A., & Karaduman, S. (2024). Current cases of and motivations for second screen use by Generation Z: University students. *Atlantic Journal of Communication*, *32*(2), 198–220. https://doi.org/10.1080/15456870.2024.2397957 | Gen Z commonly multitasks using smartphones as a second screen; this reflects attention patterns and media habits that may shape learning engagement, suggesting future study of 'second screen' use in education contexts. |
| 28 | Zorn, R. L. (2017) Coming in 2017: A new generation of graduate students – the Z Generation. *College and University, 91*(1), 61–63. https://www.proquest.com/scholarly-journals/coming-2017-new-generation-graduate-students-z/docview/1901673866/se-2 | Gen Z is described as internet-reliant and oriented toward hybrid/blended learning; online tools in blended courses can increase engagement and collaboration through web-connected learning. |

## Appendix B: Pathway from literature corpus (n=28) to answering research questions