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PERCEPTIONS AND EXPERIENCES OF GENERATION Z BSN STUDENTS REGARDING CONTEMPORARY TEACHING AND LEARNING STRATEGIES: A LITERATURE REVIEW

Hina Jabeen[1], Pamela Marshall[*2], Badil[3]

[1]*MSN Scholar, Ziauddin University Faculty of Nursing and Midwifery, Karachi, Pakistan*
[*2]*Dean, Ziauddin Faculty of Nursing and Midwifery, College of Nursing and Midwifery.*
[3]*Associate Professor, Ziauddin University Faculty of Nursing and Midwifery, Karachi, Pakistan.*

[*2]pamela.marshall@zu.edu.pk

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Corresponding Author: *
Pamela Marshall

Abstract

Background: *Generation Z (Gen Z) BSN students demonstrate distinct learning preferences, including a strong reliance on digital technologies, a favor for interactive learning, and a need for conceptual-based learning. These preferences should be understood within a learner-centered pedagogical framework.*

Methodology: *A systematic search was conducted in Google Scholar, CINAHL, ScienceDirect, and PubMed using database-specific keywords and controlled vocabulary. Boolean operators (AND/OR) were applied to refine results.*

Studies were filtered by year, language, and relevance, followed by title and abstract screening. Non-relevant articles, duplicates, and non-empirical papers were excluded. Initially 4,980 studies were identified, a total of 31 articles were selected from 2016 to 2026 and included in the review.

Key findings: *The findings indicate that Gen Z BSN students prefer multimodal and interactive teaching strategies. They also favor technology-driven learning methods which result in higher level of engagement and understanding e.g. flipped classes, simulation-based learning, problem-based learning. Nevertheless, excessive reliance on digital tools and artificial intelligence were discouraged as they may reduce critical thinking and contribute social isolation.*

Conclusion: *A shift to student-centered and technology-based teaching strategies in nursing education is needed. By aligning teaching methods preferred with the Gen Z learning features, there is a possibility to improve the engagement, concept- based learning, critical thinking, and clinical preparedness.*

INTRODUCTION

Background: The paradigm shift in modern nursing education is driven by the emergence of a new generation of Gen Z BSN students. Although global organizations such as the United Nations report population by age groups (15-24) rather than generational cohorts, secondary analyses estimate that Generation Z comprises approximately 1.9 billion individuals worldwide (Visual Capitalist, 2025). These digital natives have distinct cognitive processes and learning expectations than their predecessors. The common traditional, teacher-centered, lecture-based method of teaching increasingly ineffective

in engaging Gen Z student because it focuses on passively presenting the material and memorizing it (Betihavas et al., 2016). Rather, these students perform well in interactive, flexible, and stimulating environments (Chicca & Shellenbarger, 2018; Seemiller and Grace, 2017). As a result, the world is shifting towards Constructivist Theory-oriented models that emphasize active knowledge co-construction (Bond et al., 2020).

Review Purpose. This literature review is sought to synthesize and critically analyze the current evidence on perceptions and experiences of Generation Z Bachelor of Science in Nursing (BSN) students of contemporary classroom teaching and learning strategies.

Table of 31 Studies Aligned with Cognitive Engagement

S#	Author(s) & Year	Study Design	Focus Area	Cognitive Engagement as Key Variable	Setting / Country	Key Findings
1	Shorey et al. (2021)	Scoping Review	Gen Z learning preferences	Partially (Engagement)	Singapore	Prefer digital, visual, flexible, and interactive learning environments.
2	Park & Park (2018)	Quasi-experimental	FC & Motivation (SDT)	Yes (Intrinsic Motivation)	South Korea	FC improved critical thinking and engagement compared to traditional methods.
3	Dehghanzadeh & Jafaraghaee (2018)	Quasi-experimental	FC vs. Traditional	Yes (Autonomous Learning)	Iran	FC significantly increased motivation and autonomous learning.
4	Cant & Cooper (2020)	Systematic Review	Simulation-Based Learning	Partially (Confidence)	Australia	Simulation enhances clinical competence and confidence.
5	Naz et al. (2021)	Quasi-experimental	Problem-Based Learning	Partially (Engagement)	Pakistan	PBL was superior to lectures in enhancing critical

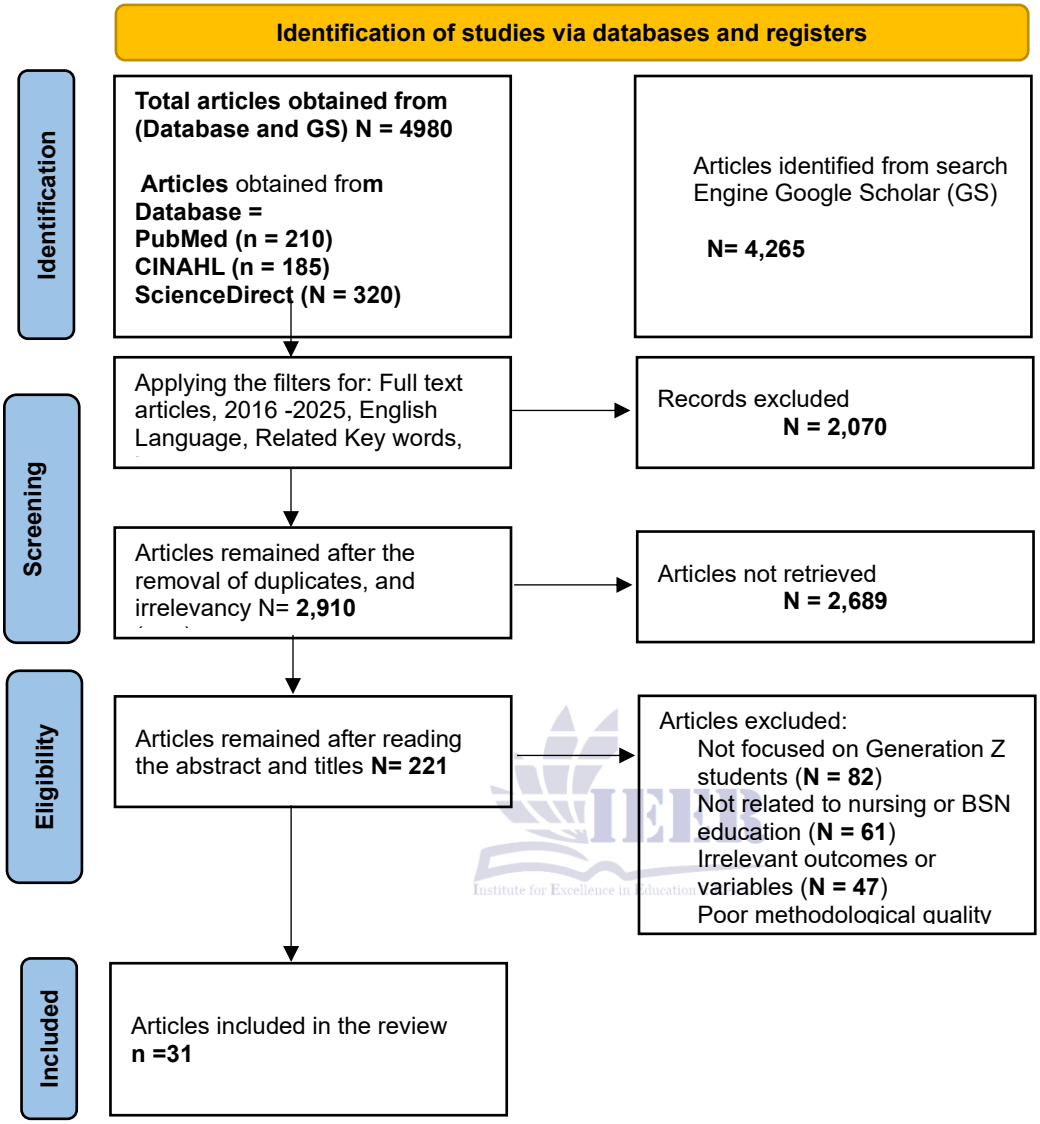
						thinking and performance.
6	Kasneci et al. (2023)	Review	AI in Education	Yes (Decision-making)	Germany	AI supports decision-making but requires faculty guidance to avoid passivity.
7	Zou et al. (2024)	Review	Self-Directed Learning	Yes (Autonomy)	China	Technology-based settings enhance motivation and autonomy of Gen Z.
8	Koukourikos et al. (2021)	Review	Simulation in Nursing	Partially (Confidence)	Greece	Simulation improves psychomotor abilities, clinical judgment, and confidence.
9	Teresa-Morales et al. (2023)	Qualitative	Motivation & Engagement	Yes (Intrinsic Motivation)	Spain	Motivation in nursing students is directly connected with engagement and choice.
10	Zhao et al. (2023)	Cross-sectional	Mobile Learning	Yes (Flexibility)	China / Global	Mobile Learning improves accessibility and flexibility for Gen Z BSN students.
11	Tang et al. (2021)	Cross-sectional	Online Readiness	Partially (Readiness)	China	Student digital readiness is linked with superior academic performance.

12	Harari et al. (2023)	Review	Digital Behavior	Partially (Dependency)	Global	Technology enhances access but carries a risk of digital dependency.
13	Mayer (2020)	Review (Theory)	Multimedia Learning	Partially (Cognitive Load)	USA	Cognitive load in digital settings affects learning effectiveness.
14	Ahmad et al. (2022)	Quantitative	Student-Centered Learning	Yes (Ownership)	Pakistan	Student-Centered Learning increases student engagement, satisfaction, and learning ownership.
15	Youhasan et al. (2021)	Systematic Review	FC Effectiveness	Yes (Educational Outcomes)	International	FC has a positive impact on nursing education outcomes and motivation.
16	Busebaia & John (2020)	Systematic Review	Class Engagement	Yes (Reducing Fatigue)	Saudi Arabia	FC improved participation, engagement, and reduced academic fatigue.
17	Sullivan (2022)	Narrative Review	Theory-Practice Integration	Partially (Clinical Reasoning)	USA	Theory-Practice Integration through FC strategies help develop clinical reasoning skills and bridge gaps.
18	Panicker (2018)	Survey Study	Student Perception	Partially (Readiness)	India	Positive perception of FC, but self-directed

						readiness was mixed.
19	Zhang et al. (2022)	Qualitative	Online Learning	Yes (De-motivation)	China	Online learning Flexible but can lead to isolation and de-motivation.
20	Chicca & Shellenbarger (2018)	Review	Gen Z Characteristics	Partially (Interactivity)	USA	Prefer technology-based and collaborative learning over lectures.
21	Seemiller & Grace (2017)	Review	Gen Z Learning Traits	Partially (Hands-on)	USA	Strong preference for hands-on, active, and technology - based learning.
22	Hernandez-de-M. (2020)	Review	Innovative Teaching	Partially (Engagement)	Global	Traditional strategies no longer capture Gen Z; need of active learning.
23	Bond et al. (2020)	Systematic Review	Student Engagement	Yes (Link to Outcomes)	Global	Engagement strongly linked with outcomes in constructivist models.
24	Szymkowiak et al. (2021)	Review	Tech in Education	Partially (Cooperation)	Global	Digital tools enhance Gen Z experiences and academic cooperation.
25	Xie et al. (2021)	Quantitative	Interaction	Partially (Performance)	USA	Interactive environments have a beneficial impact on performance.

26	Panadero (2018)	Meta-analysis	Self-Regulated Learning	Yes (Autonomy)	Spain	Self-regulation strategies improve student autonomy and achievement.
27	Al-Mugheed & Bayraktar (2021)	Intervention	FC Effectiveness	Yes (Learning Outcomes)	Turkey	FC interventions significantly improved learning outcomes.
28	Betihavas et al. (2016)	Systematic Review	FC in Nursing	Yes (Participation)	Global	FC model enhances participation, collaboration, and retention.
29	Sultan et al. (2023)	Mixed-methods	FC Perception	Yes (Engagement)	Pakistan	Positive student perception of FC for enhancing interactive engagement.
30	Jiang et al. (2024)	Systematic Review	Emotional stress in SBL	Partially (Emotional engagement & Anxiety)	Inter-national	SBL enhances clinical competence but may induce temporary emotional stress.
31	Theobald et al. (2020)	Meta-analysis	Active learning & academic performance	Yes (Engagement & achievement outcomes)	USA / Global	Active learning improves academic performance and reduces achievement gaps.

Figure 1: PRISMA Flow Chart



Search Strategy:

This review was carried out in accordance with the PRISMA 2020 guidelines. A thorough search of PubMed, CINAHL, ScienceDirect, and Google Scholar was conducted using the predetermined Boolean operators. The number of records that were identified was 4, 980, and the number of records that were removed was 2, 070.After screening 2,910 records, 221 full-text articles were assessed, and 31 studies were included in the final qualitative synthesis. ("Generation Z" OR "Gen Z" OR "digital natives") AND ("nursing students" OR "BSN students") AND ("teaching strategies" OR "learning strategies" OR "flipped classroom" OR "simulation-based learning" OR "problem-based learning" OR "active learning") AND ("motivation" OR "engagement" OR "learning outcomes").

Literature Review

Gen Z Learning Characteristics and Digital Fluency

Gen Z BSN students exhibit a strong reliance on digital technologies and a strong preference for multimodal learning (Shorey et al., 2021).

Additionally, Panadero (2018) emphasized that self-regulated learning enhances learners' autonomy and academic achievement. They favor experiential learning where concepts are applied in real-time rather than passive observation. However, research indicates that while they are tech-savvy, their "digital readiness" for academic purposes varies significantly (Tang et al., 2021; Zou et al. (2024). This discrepancy suggests that despite their familiarity with technology, structured faculty guidance is still necessary to prevent passive dependency and ensure meaningful engagement (Kasneci et al., 2023 Szymkowiak et al. 2021). However, Zhang et al. (2022) suggested although online learning is flexible, it may lead to isolation and reduced motivation

Active Learning and Critical Thinking

Accordingly, to Hernandez-de-M. (2020) predicted that traditional lecture-based learning no longer meets the learning needs of Gen Z BSN students

. Active learning strategies have been proven to bridge the gap between theoretical knowledge and clinical practice. Meta-analyses show that these methods significantly improve academic performance while decreasing achievement gaps (Theobald et al., 2020). Naz et al. (2021) reported that Problem-Based Learning (PBL) was significantly superior to traditional lectures in enhancing the critical thinking skills of Pakistani nursing students. Similarly, interactive environments positively influence overall learning ownership and satisfaction (Ahmad et al., 2022; Xie et al., 2021).

Simulation and Clinical Readiness

Simulation-based learning is recognized as a powerful approach for developing clinical judgment and confidence (Cant & Cooper, 2020; Koukourikos et al., 2021). It provides the hands-on, realistic experiences that Gen Z learners value most (Serafin et al., 2020). While students often report high satisfaction with the realism of simulation, as it bridges theory practice gap Sullivan (2022) it can also cause temporary anxiety and emotional stress (Park et al., 2020; Jiang et al., 2024).

The Flipped Classroom (FC) Model

The **Flipped Classroom** model inverts traditional instruction by moving content delivery out of the classroom, allowing class time for active application and enhance learning outcomes Al-Mugheed & Bayraktar (2021). Research consistently demonstrates that the FC model enhances student participation, improve outcome of nursing education and enhance motivation Youhasan et al. (2021) Sultan et al. (2023) promotes engagement (Sultan et al. 2023), collaboration, and knowledge retention (Betihavas et al., 2016). Students often perceive the FC as more engaging, though it increases demands for self-regulation and workload (Dehghanzadeh & Jafaraghaee, 2018). In contrast Busebaia & John (2020) emphasized that although FC is more engaging but it reduces academic fatigue.

Discussion

This theoretical framework provides a foundation for understanding how contemporary teaching and learning strategies influence Gen Z BSN students' motivation and engagement.

Theoretical Grounding: Self-Determination Theory (SDT)

effectiveness of contemporary pedagogical approaches is largely attributed to its alignment with **Self-Determination Theory**. This theory posits that motivation is enhance when three psychological needs are met:

- **Autonomy:** Pre-class preparation and self-directed modules allow Gen Z students to control their own learning pace.
- **Competence:** Active in-class activities and simulations reinforce the application of knowledge, building clinical confidence.
- **Relatedness:** Peer collaboration and social interaction during class sessions foster professional socialization and psychological safety (Teresa-Morales et al., 2023).

Fulfilling these needs converts passive learners into active agents, leading to deeper cognitive engagement and long-term intrinsic motivation.

Integration of Technology and AI:
The inclusion of technology is making nursing education more adaptable and flexible (Zhao et al., 2023). Current technologies such as Artificial Intelligence (AI) can potentially support personalized learning experiences, but must be used carefully (Kasneci et al., 2023) As per Harari et al., (2023) and Mayer, (2020), over-reliance on digital tools
on digital tools can result digital fatigue thus a proper guideline and teaching strategy is required to achieve the learning outcomes.

Institutional and Contextual Barriers
The effectiveness of these strategies is often limited by institutional factors such as faculty readiness, infrastructure, and culture. (Panicker, 2018).
Pedagogical change is resisted in resource-limiting or traditionally teacher-centered settings because of lack of training, inadequate infrastructure, and cultural demands of passive learning.

Limitations:
This review is limited to studies published in English and may not capture all relevant global evidence. Additionally, variations in study design and context may affect the generalizability of findings.

Recommendations
1. **Multi-Modal & Scenario-Based Education:** Combine various learning strategies such as simulations and real-life instances to develop learners' interest for clear, and thorough knowledge.
2. **Training of the faculty in modern teaching**: Educate and train teachers about digital teaching strategies and student-centered learning to adjust to the learning requirements of Gen Z.
3. **Context-Sensitive Implementation Teaching strategies:** Should be adapted to local resources, culture and institutional capabilities to achieve good results.
4. **Strengthen Digital Infrastructure:** Make technology and other learning resources equally available to facilitate uniform and positive learning environment.
5. **Encourage Experimental and Longitudinal Research**. Support long-term and experimental research about Gen Z to produce more compelling evidence about teaching practice.
6. **Psychologically safe learning environment**. Develop positive and supportive classrooms where the students feel secure enough to engage, raise questions and make mistakes.
7. **Ongoing Formative Assessment:** Include frequent tests to evaluate the learning and give timely and constructive feedback to improve.

Conclusion: This literature review is a synthesis of research about the educational preferences and learning experiences of BSN students of Gen Z. They prefer multimodal, interactive, and technology-rich learning environments over the traditional, teacher centered lectures. Some of the effective strategies identified are the use of flipped classrooms, simulation-based learning, and problem-based learning, which enhance critical thinking and clinical readiness. The results are based on the Self-Determination Theory, which emphasized the importance of autonomy, competence, and interpersonal relatedness to promote student motivation to achieve their learning goals. Although digital tools and artificial intelligence can be used to offer personalized benefits, the sources emphasize the need to guide students through the faculty in order to avoid isolating students or creating over-dependence on technology. Finally, the findings highlight a paradigm shift in nursing education to make it more consistent with the particular cognitive characteristics of contemporary students. These findings underscore the importance of aligning teaching and learning strategies with learner characteristics to enhance motivation, engagement, and academic outcomes.

REFERENCES

Ahmad, S., Ahmad, N., & Shah, S. (2022). Impact of student-centered learning on academic performance and engagement among nursing students. *Nurse Education Today, 112*, 105325.

Al-Mugheed, K., & Bayraktar, N. (2021). Effectiveness of flipped classroom among nursing students: A quasi-experimental study. *Nurse Education Today, 98*, 104742.

Betihavas, V., Bridgman, H., Kornhaber, R., & Cross, M. (2016). The evidence for 'flipping out': A systematic review of the flipped classroom in nursing education. *Nurse Education Today, 38*, 15–21.

Bond, M., Bedenlier, S., Marín, V. I., & Händel, M. (2020). Emergency remote teaching in higher education: Mapping the student engagement literature. *Educational Technology Research and Development, 68*, 1–28.

Busebaia, T. J., & John, B. (2020). Can flipped classroom enhance class engagement and academic performance? A systematic review. *Education and Information Technologies, 25*, 4565–4590.

Cant, R. P., & Cooper, S. J. (2020). Simulation-based learning in nurse education: Systematic review. *Journal of Advanced Nursing, 66*(1), 3–15.

Chicca, J., & Shellenbarger, T. (2018). Connecting with Generation Z: Approaches in nursing education. *Teaching and Learning in Nursing, 13*(3), 180–184.

Dehghanzadeh, S., & Jafaraghaee, F. (2018). Comparing the effects of traditional lecture and flipped classroom on nursing students' critical thinking. *Nurse Education Today, 71*, 151–156.

Harari, G. M., et al. (2023). Technology use and student well-being: A review of digital dependency in education. *Computers in Human Behavior Reports, 9*, 100251.

Hernández-de-Menéndez, M., et al. (2020). Active learning in engineering education: A review. *Education Sciences, 10*(6), 156.

Jiang, Z., et al. (2024). Emotional responses and stress in simulation-based nursing education. *Nurse Education Today, 130*, 105925.

Kasneci, E., et al. (2023). ChatGPT for good? On opportunities and challenges of AI in education. *Learning and Individual Differences, 103*, 102274.

Koukourikos, K., et al. (2021). Simulation in clinical nursing education. *Acta Informatica Medica, 29*(1), 15–20.

Mayer, R. E. (2020). *Multimedia learning* (3rd ed.). Cambridge University Press.

Naz, F., et al. (2021). Effectiveness of problem-based learning in nursing education in Pakistan. *Pakistan Journal of Medical Sciences, 37*(2), 1–5.

Page, M. J., McKenzie, J. E., Bossuyt, P. M., et al. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ, 372*, n71.

Panadero, E. (2018). A review of self-regulated learning: Six models and four directions for research. *Frontiers in Psychology, 9*, 422.

Panicker, J. (2018). Nursing students' perception of flipped classroom. *International Journal of Nursing Education, 10*(4), 1–5.

Park, S., & Park, S. (2018). Effect of flipped learning on motivation using self-determination theory. *Nurse Education Today, 65*, 91–96.

Ryan, R. M., & Deci, E. L. (2020). *Intrinsic motivation and self-determination in human behavior* (Expanded ed.). Springer.

Seemiller, C., & Grace, M. (2017). *Generation Z goes to college*. Jossey-Bass.

Shorey, S., et al. (2021). Learning styles and preferences of Generation Z nursing students: A scoping review. *Nurse Education in Practice, 57*, 103247.

Sullivan, N. (2022). Bridging theory and practice in nursing education. *Journal of Nursing Education, 61*(4), 200–205.

Sultan, S., et al. (2023). Perceptions of flipped classroom among nursing students in Pakistan. *BMC Nursing, 22*, 45.

Szymkowiak, A., et al. (2021). Information technology and Gen Z learning. *Education and Information Technologies, 26*, 1–15.

Tang, B., et al. (2021). Online learning readiness among students. *Computers & Education, 168*, 104211.

Teresa-Morales, C., et al. (2023). Motivation and engagement among nursing students. *Nurse Education Today, 119*, 105573.

Theobald, E. J., et al. (2020). Active learning narrows achievement gaps. *PNAS, 117*(12), 6476–6483

Visual Capitalist**. (2025).** Data-driven visual storytelling on global trends and markets. *Visual Capitalist*.

Xie, K., et al. (2021). Interaction and learning outcomes in online education. *Computers & Education, 168*, 104206.

Youhasan, P., et al. (2021). Flipped classroom in nursing education: Systematic review. *Nurse Education Today, 102*, 104922.

Zhang, Q., et al. (2022). Online learning and student motivation. *Education Sciences, 12*(3), 145.

Zhao, Y., et al. (2023). Mobile learning in higher education. *Education and Information Technologies, 28*, 1–20.

Zou, D., et al. (2024). Technology-enhanced self-directed learning. *Computers & Education, 194*, 104698.