



Adapting to Gen-Z: Micro-learning as a Strategy for Developing Writing Skills among Bangladeshi High Schools

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Abstract

As writing remains a complex and challenging task for students, adopting digital, student-friendly approaches has become essential, especially for Gen-Z learners, whose unique traits and short attention spans require more engaging and accessible instructions. This study investigates the effectiveness of micro-learning modules in enhancing writing skills among Bangladeshi high schools' Gen-Z students. Using a quasi-experimental design, 31 tenth graders were divided into experimental and control groups. The experimental group received short video-based lessons with teacher-led lectures, while the control group had traditional lectures only. Writing was assessed using Brown's rubric [1], with results showing significant improvement for the experimental group ($t=2.86$, $p<0.05$). A post-intervention survey revealed 70.6% favorable responses, citing greater engagement and reduced anxiety. Findings suggest micro-learning effectively enhances Gen-Z learners' writing skills by matching their cognitive traits.

Keywords: Gen-Z, e-learning, anxiety, motivation.

1. INTRODUCTION

Digital technology has reshaped education, exposing the limits of traditional methods. In language learning, micro-learning—short, targeted modules—offers flexibility, engagement, and aligns with Gen-Z's fast, visual learning style [2–4]. Yet writing remains the hardest skill, demanding grammar knowledge, creativity, critical thinking [5]. In Bangladeshi high schools, reliance on the Grammar-Translation Method (GTM) reduces writing to rote learning [6–7], leaving students disengaged [8]. This study tests whether micro-learning, combined with lectures, can strengthen writing proficiency and motivation. It addresses three questions:

1. Which approach better develops writing skills: traditional lectures or micro-learning with lectures?
2. What are students' perceptions of integrating micro-learning with traditional lecture-based teaching?
3. How does micro-learning align with Gen-Z students' cognitive (focus and retention) and psychological (anxiety and motivation) traits in Bangladeshi high-school classrooms in term of learning writing skills?

2. LITERATURE REVIEW

Writing is a challenging skill for English as a Foreign Language (EFL) learners, requiring proper grammar, vocabulary, and organization for effective communication [5]. In Bangladesh, despite shifts from GTM to Communicative Language Teaching (CLT) [10], secondary schools still rely on GTM [7], [11], creating a persistent gap between national objectives and classroom practices. This reliance on GTM has significant implications for Gen-Z learners, whose preferences lean towards dynamic, digital, and interactive environments [4]. Instead of fostering independent composition, writing instruction often reduces to copying, translating, or memorizing model texts, leaving students poorly equipped for authentic writing tasks.

In Bangladesh, first language (L1) interference compounds these issues. Sultana and Fang [12] observed that teachers' frequent use of Bangla encourages students to think in their L1 before translating into



English, marginalizing critical thinking and academic engagement. Hossain [7] noted that the same essays and paragraphs are recycled from classes 6 to 10, which discourages brainstorming, lexical cohesion, and structural awareness. Only 34% of students brainstorm before writing, while few can produce thesis statements or topic sentences independently [7, p.12]. The monotony of repetitive topics further diminishes motivation [13], while grammar and vocabulary difficulties remain persistent barriers [6], [12], [14]. These findings highlight a systemic failure in writing pedagogy that not only neglects higher-order thinking but also prevents learners from acquiring foundational competencies.

Teachers face challenges in teaching writing, particularly when students' short attention spans contribute to disengagement [15]. Many Bangladeshi teachers face inadequate training, weak grammar knowledge, and even poor handwriting, all of which undermine effective instruction [16]. Infrastructural challenges, such as limited access to technology and poor digital literacy, further exacerbate these issues [17]. As motivation—a decisive factor in learning [18]—declines, teachers face an uphill battle in sustaining students' interest and progress [6].

Given these challenges, researchers have advocated shifting to learner-centered strategies [12]. Micro-learning has emerged globally as a promising alternative. Defined as the delivery of short focused, focused, need-based segments, it sustains attention and facilitates quick knowledge assimilation [3]. Studies demonstrate its effectiveness: [19, p. 1523] reported gains of 31.08% in writing, 33.90% in sentence composition mastery when short video-based lessons were used, while [20] found that undergraduate students exposed to bite-sized video instruction outperformed peers in traditional classrooms.

Still micro-learning has limitations. Materials must be concise yet informative and grounded in real-world application [21]. Its effectiveness depends on infrastructure and digital literacy, both of which remain limited in Bangladesh [22]. Furthermore, complex topics may be difficult to address through brief content [23], and students lacking technological competence or self-directed learning skills may disengage [22]. Effectiveness can also vary depending on learners' background and preferences [24]. Nonetheless, studies show that when implemented effectively, micro-learning enhances retention, creativity, and engagement [25], underscoring its potential value in resource-constrained contexts.

The relevance of micro-learning becomes clearer when considered alongside the traits of Gen-Z. Born between the mid to late 1995s and early 2012s [26], Gen-Z are digital natives immersed in online platforms and social media [27]. They favor quick, visually rich, and interactive content, while research shows their attention span averages just eight seconds online and seven to 10 minutes in the classroom [8, p. 405], [28]. Traditional lectures rarely align with these preferences. At the same time, Gen-Z learners demonstrate critical and analytical thinking skills and thrive in environments that support autonomy, motivation, and goal orientation [27], [29]. In educational settings, they prefer “demand-learning,” or immediate access to self-chosen resources [30–31]. Bite-sized digitally accessible content directly matches these traits, offering opportunities for engagement and faster learning outcomes [3], [32], [33].

Theoretical perspectives reinforce the potential of micro-learning. Cognitive load theory [34] suggests learners' working memory can only process limited information at once, while Hug [2] argued that smaller, tailored lessons are easier to digest. Vygotsky's [35] socio-constructivist concepts of scaffolding and the Zone of Proximal Development (ZPD) align with micro-learning's scaffolded tasks and collaborative activities [36]. Schmidt's [37] Noticing Hypothesis emphasizes learners' awareness of linguistic features, which micro-learning supports through short, targeted input [3–4]. Paivio's [38] Dual Coding Theory confirms that combining verbal and visual inputs strengthens retention, while Krashen's Affective Filter Hypothesis [39] highlights how micro-learning lowers anxiety and increases motivation through brevity, interactivity, and personalization. Together, these theories frame micro-learning as cognitively efficient and affectively supportive, particularly for Gen-Z learners.

Despite this promise, Bangladeshi ELT research has largely described the difficulties of writing instruction without adequately considering generational learning shifts. Studies focusing on micro-learning in secondary schools are scarce, leaving unanswered questions about whether it can mitigate the entrenched effects of GTM, address learners' declining attention spans, or promote authentic writing practices in resource-limited classrooms.



This study seeks to fill the gap by examining the effectiveness of micro-learning in improving the writing proficiency of Bangladeshi high school students. Beyond measuring outcomes such as coherence, cohesion, and grammatical accuracy, it also investigates learners' attitudes toward this approach, thereby providing insights into both effectiveness and feasibility. By aligning instructional constraints of Bangladeshi classrooms, the study aims to contribute both theoretically and practically to the development of contextually grounded, student-centered writing pedagogy. The following section outlines the research design adopted to address this aim.

3. METHODOLOGY

This study used a quasi-experimental design to assess micro-learning in two Class 10 sections of a rural Bangla-medium high school [40]. The experimental group received micro-learning plus teacher-led instruction, and the control group followed traditional methods, with baseline writing proficiency confirmed via teacher assessments. Participants, aged 14–16, engaged voluntarily in classrooms with multimedia projectors, though a personal laptop replaced a malfunctioning projector in the experimental group. Of 40 initial students, 31 completed all sessions (17 experimental, 14 control). A survey captured experimental students' perceptions, analyzed quantitatively and qualitatively, situating the study within a mixed-methods framework. Both groups completed identical assessments on the *Argumentative Essay* [41]. The experimental group had four 45-minute sessions, accessed 5-minute researcher-produced videos via a monitored Facebook group before class, and viewed the videos again in class with lectures. The control group had five 45-minutes lecture-only sessions.

TABLE I
LESSON PLAN DISTRIBUTION AMONG GROUPS

Day	Experimental Group	Controlled group
Day 1	Intro about 10 min; ~4-min video on brainstorming + lecture ~8–10 min; peer activity about 12 min.	Intro ~10 min; lecture on brainstorming ~15-18 min; peer activity about 18-20 min.
Day 2	Revision ~5 min; + video on essay intro (5 minutes) + short lecture around 10 min; group activity about 15-16 min; video + lecture on body paragraph about 15-17 min. (lecture remained unfinished)	Revision + lecture on essay intro around 20-22 min; group activity 25-30 min.
Day 3	Revision + remaining lecture on body paragraph about 15–18 min; solo activity about 18–20 min; 3-minutes video on 'conclusion part'.	Revision + lecture on body paragraph about 25 min; solo activity (incomplete, assigned as homework)
Day 4	Revision + lecture about conclusion 15–18 min; final exam (argumentative essay) about 30 min.	Revision + lecture on conclusion around 20 min; lecture on brainstorming and topic sentence at around 20–25 min.
Day 5	Not applicable	Revision around 10 min + final exam (argumentative essay) about 35–40 min.

Note: Summary of the four-day experimental and five-day control group lesson sequences

The final argumentative essay, scored via Brown's [1] rubric (content, organization, grammar, vocabulary, mechanics) and validated by two English teachers, served as the primary data, analyzed in SPSS with t-test. The experimental group's survey response analyzed quantitatively (Likert-scale items in descriptive statistics) and qualitatively (open-ended questions in thematic analysis). Ethical standards were upheld through informed consent and confidentiality.



4. FINDINGS AND DISCUSSION

This section presents findings and discussion on micro-learning impact on writing, including statistical tests and survey (quantitative and qualitative analysis) insights. Qualitative analysis is highlighted by four themes.

4.1 RESPONSE FROM THE QUASI-EXPERIMENTAL DESIGN

TABLE II
SCORE OF DESCRIPTIVE STATISTICS

Class	Number of students	Mean Score	Maximum Score	Minimum Score
Experiment	17	77.76	94	65
Control	14	70.21	77	61

Note: The experimental group scored higher overall than the control group.

TABLE III
WRITING PERFORMANCE INDICATORS

Indicator	Experimental class (%)	Control class (%)
Content	82.06	74.52
Organization	77.94	70.46
Grammar	75.21	66.5
Vocabulary	71.53	63.67
Mechanics	73.92	69.14

Note: The experimental group outperformed the control group across all indicators

TABLE IV
RESULT OF NORMALITY TESTING (SHAPIRO-WILK TEST)

Class	Asymp. Sig. (2-tailed)	a (Significance level)	Distribution
Experimental	0.273	0.05	Normal
Control	0.169	0.05	Normal

Note: P-values above 0.05 (both groups), confirming normal distribution and allowing parametric tests.

TABLE V
RESULT OF HOMOGENEITY TESTING (LEVENE'S TEST)

Data	a (significance level)	Asymp. Sig.	Distribution
Significant value	0.05	0.58	Homogeneous

Note: The levene's test result ($p=0.058 > 0.05$) confirms homogeneity of variances between the groups

TABLE VI
INDEPENDENT T-TEST RESULT

Data	Observed t- value	Critical t-value	Conclusion
Argumentative essay	2.86	2.405	Observed t > Critical t

Note: The t-test results confirm a significant improvement from micro-learning ($t=2.86$)

Hypothesis testing is a key step in determining whether a measurable impact exists between the two groups. Therefore, to assess whether micro-learning is truly impactful, hypothesis testing was carried out.

H1: Micro-learning teaching has a notable impact on the writing skills of high school students.

H0: Micro-learning teaching does not have a notable impact on the writing skills of high school students.

The quasi-experimental results showed that the experimental group consistently outperformed the control group in writing performance. Descriptive statistics revealed higher mean (77.76), maximum (94), and minimum (65) scores for the experimental group. Across all the indicators— content, organization, grammar, vocabulary, and mechanics— the experimental group scored 6–9% higher. Normality ($p>0.05$) and homogeneity tests ($p=0.58$) confirmed the validity of parametric testing. The independent t-test yielded an observed t-value of 2.86, exceeding the critical t-value of 2.405, leading to the acceptance of H1: Micro-learning teaching has a notable impact on the writing skills of high school students. These findings align with [20], which advocates the effectiveness of micro-learning in improving writing skills across multiple dimensions. Collectively, these descriptive trends confirm that micro-learning not only elevated accuracy and coherence but also cultivated a more advanced command of academic writing, clearly outperforming traditional GTM-driven methods.

4.2 SURVEY RESPONSE

4.2.1 QUANTITATIVE RESPONSE

TABLE VII
THE RESPONSE OF LIKERT SCALE QUESTIONNAIRES

Survey Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Videos + lectures more effective	7	5	3	2	
Micro-learning boosts retention	7	5	3	2	
Videos aid strategy recall	7	5	3	2	
Videos were easy and clear	7	5	3	2	
Videos before classes help preparedness	7	5	3	2	
Want more micro-learning lessons	7	5	3	2	
Videos match my learning style	7	5	3	2	
Micro-learning reduces writing anxiety	7	5	3	2	

Note: About 70.6% agreed, 11.8% disagreed, and 17.7% were neutral on micro-learning effectiveness.



Survey results show ~70.6% of students agreed that short videos with lectures improved writing skills, supporting Paivio's Dual Coding Theory [38] and prior evidence [20]. Gains in retention and strategy recall align with Sweller's Cognitive Load Theory [34]. Gen-Z learners, preferring brief digital input [3], [4], [27], found five-minute videos engaging. Reduced anxiety validates Krashen's Affective Filter Hypothesis [39], countering rote GTM instruction [7], while motivation increased [3], [18]. Neutral (17.68%) or negative (11.76%) responses reflected familiarity, cognitive style, or technology exposure [22].

4.2.2 QUALITATIVE INSIGHTS

4.2.2.A. ENHANCED FOCUS AND ENGAGEMENT

Brief, five-minutes videos helped students maintain attention and reduce cognitive overload:

"I did not feel bored or distracted. In traditional lectures, my mind would drift after a while, but the videos were short and to the point". (Student A)

"Since they were only 3-5 minutes long, I stayed engaged the entire time". (Student B)

Micro-learning modules effectively enhanced student focus and engagement. Students reported that (3–5) minute videos sustained attention and reduced boredom, unlike longer lectures (Student A and B). The concise format minimizes cognitive overload and boosts motivation [25], [3], aligning with Gen-Z's eight-second attention span [8, p.405] and preference for fast, interactive learning [27], [28], [31]. In Bangladesh, where traditional methods limit writing interest [6], micro-learning offers a digitally driven approach that improves engagement, self-efficacy, and persistence.

4.2.2.B. BETTER UNDERSTANDING THROUGH SIMPLIFIED AND STRUCTURED CONTENT

Concise, stepwise explanations made complex topics manageable:

"The step-by-step explanations showed exactly how to write each part of an argumentative essay, making the writing process clearer for me". (Student C)

"Breaking the topic into small, clear sections improved my understanding. In a regular lecture, the information sometimes felt too dense". (Student D)

Simplified, structured content enhanced EFL learners' writing proficiency. Students noted that stepwise explanations and segmented topics clarified the writing process (Student C and D) and facilitated handling complex tasks. This aligns with Vygotsky's ZPD [35], as scaffolded micro-learning progressed from topic sentences to thesis statements, with tasks slightly beyond learners' capacity to promote critical thinking. It also reflects Schmidt's Noticing Hypothesis [37], as micro-learning draws attention to key features [3], unlike rote-focused GTM. In Bangladesh, where GTM has long hindered writing [6–7], micro-learning's segmentation and clarity foster deeper understanding, critical thinking, and long-term language acquisition.

4.2.2.C. IMPROVED LEARNING AUTONOMY AND CONTROL

Students valued pausing, replaying, and reviewing content

"I could rewatch them whenever I needed to clarify something, which made these sessions best and exceptional to me." (Student E)

"I could focus on specific parts that I found difficult and replay videos anytime". (Student F)

The intervention enhanced learners' autonomy by allowing them to pause, replay, and review content at their own pace. Students reported clearer understanding of difficult concepts and greater focus (Student E and F). This flexibility reduced cognitive load, fostered independent learning, and aligns with evidence that Gen-Z prefers on-demand, personalized, and self-regulated learning [4],[27],[30],[31],[32], making micro-learning well-suited to increase motivation and engagement.



4.2.2.D. LIMITATIONS OF MICRO-LEARNING

A minority preferred detailed explanations in traditional lectures:

"The videos felt too fast, and I did not have enough time to absorb the content". (Student G)

"The videos were very short. I did not like them". (Student H)

While most learners supported micro-learning, Students G and H felt micro-learning videos were too short to grasp complex writing aspects like grammar and structure, preferring lectures for detailed guidance. Such concerns echo findings that micro-learning, though effective for simple tasks, lacks depth for complex skills [5], [23], [24].

4.3 OVERALL DISCUSSION ABOUT MICRO-LEARNING

Integrating micro-learning with teacher-led lectures improved writing proficiency, motivation, focus, engagement, and autonomy. Students found brief, structured videos clarified concepts, reduced anxiety, and supported independent learning. Minor concerns about depth highlight the need to address cognitive and individual differences. Careful implementation with clear objectives, collaborative tasks, scaffolding, and interactive activities—supported by feedback [24], [36], [2], [25]—can maximize micro-learning's impact.

5. OBSERVATION FROM BOTH GROUPS

Observations revealed clear differences between groups. The control group faced absenteeism, disrupted learning, and difficulty with brainstorming and topic sentences, often needing extra classes. In contrast, the experimental group showed regular attendance, enthusiasm, and efficient learning, aided by revisiting short videos. Some even read English newspapers independently. Their writing displayed better focus, coherence, grammar, richer vocabulary, and frequent transitions, while the control group's work lacked depth and precision. These findings suggest micro-learning significantly enhances overall writing skills.

6. CONCLUSION

This study shows that combining micro-learning with teacher-led instruction significantly improve Bangladeshi high school students' writing proficiency in content, grammar, organization, vocabulary, and mechanics, while also enhancing engagement and reducing anxiety. Limitations include short intervention, small sample, single-genre focus, and digital reliance, possibly skewed by novelty. Enthusiasm may reflect technology's novelty rather than sustained impact, yet findings suggest restructuring writing lessons into micro-units, embedding QR-linked videos into textbooks, and training teachers in digital pedagogy with low-tech rural solutions. Future research should adopt longitudinal, comparative designs across diverse contexts and language skills to test scalability. Overall, micro-learning offers a promising, context-sensitive framework for modernizing EFL writing instruction in Bangladesh.

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