



Micro and Nano Learning: Concept, Need, and Scope

GAURAV SINGH
Professor (Educational Technology)
CIET-NCERT

Objectives for Today's Session

By the end of this session, you will be able to:



1

Understand the Concepts

Grasp the core ideas of micro and nano learning.



2

Identify the Need

Recognise their relevance in school education.



3

Explore Practical Applications

Discover how to apply them in the classroom.

The Changing Landscape of Education

Education is evolving rapidly.

Understanding these shifts is crucial for effective teaching.

Digital Shift

Rapid transition to digital learning environments and resources.

Diverse Learners

Varied learning styles and individual student needs.

Shorter Attention Spans

Learners exhibit reduced sustained attention in classrooms.

Personalized Education

Growing emphasis on tailored learning experiences.

Emerging Pedagogies

- Modern teaching moves beyond traditional methods, embracing innovative approaches to engage students.
- From traditional chalk-talk to **tech-integrated learning**, the classroom is transforming.
- This shift includes the rise of flipped classrooms, gamification, and microlearning.



Why Rethink Learning Strategies?

Focused Inputs

Learners require quick, targeted information.

Information Overload

Students face an overwhelming amount of data.

Time Constraints

Limited time for both teachers and students.

Modern Needs

Micro/Nano learning addresses current classroom demands effectively.

What is Microlearning?

- Small, digestible units of learning content.
- Each unit covers a single concept or skill.
- **A self-contained course which focuses on a specific learning objective**
- Typically takes 2–15 minutes to complete.
- Delivered via videos, quizzes, short texts, or audio clips.

Quick: Target
LEARNING



What is Microlearning?

"Personally, I am always ready to learn; although I don't always like being taught"

– Winston Churchill

- Microlearning is not about chunking large pieces of content into smaller pieces.
- Anchored to its learning objective, it is a complete and holistic learning experience.
- It is objective-driven.
- It focuses only on tasks and not history.
- It can be implemented before, during, and after formal training.

Quick: Target LEARNING



What is Nano Learning?

- To educate learners on a topic through short, informal learning particles.
- Small, highly targeted nuggets of information with a single objective.
- A brief video tutorial or infographic that teaches a specific skill or concept in just a few minutes..





What is Nano Learning?

- Ultra-short, "bite-sized" learning interventions.
- Focuses on a very specific learning objective or fact.
- Duration is typically less than 2 minutes.
- Aims to provide "just-in-time" knowledge or reminders.

Key Characteristics

- Bite-sized and brief.
- Focused on a single learning outcome.
- Easy to consume and recall.
- Can be digital or physical.
- Ideal for repetition and reinforcement.



Everyday Examples

- YouTube "how-to" videos for quick solutions.
- 1-minute Instagram tutorials for new skills.
- WhatsApp infographics for rapid information sharing.
- Flashcards and tip sheets for quick reviews.





Aligning with the NEP-2020

Competency-Based Learning

Emphasises measurable learning outcomes over rote memorisation, a core tenet of micro-learning.



Flexibility and Tech Integration

Promotes the use of technology to provide adaptable learning experiences, aligning with micro-learning's digital nature.

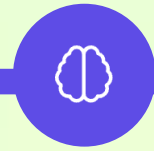


Personalised Learning Approaches

Advocates for tailored education paths that cater to individual student needs, a strength of modular content.



The Science Behind Micro-Learning



Reduces Cognitive Overload

Delivers information in digestible chunks, preventing mental fatigue and improving comprehension.



Enhances Retention and Recall

Short, focused bursts of content aid long-term memory formation and easier retrieval of information.



Encourages Active Learning

Promotes engagement through interactive elements, prompting learners to apply concepts immediately.



Boosts Learner Motivation

Achievable short-term goals foster a sense of accomplishment, encouraging continued learning.

Addressing Traditional Classroom Challenges



- **Long Lectures Reduce Focus**
Traditional lengthy sessions often lead to decreased attention spans and information fatigue.
- **Uneven Learning Pace**
It's challenging for teachers to accommodate varied learning speeds within a single classroom setting.
- **Difficulty in Addressing All Needs**
Large class sizes make it hard to provide personalised attention to every student's learning gaps.

Inclusive and Adaptive Learning



Accessibility

Content can be easily adapted into audio, text, or video formats, catering to diverse learning needs.



Customisable Content

Teachers can tailor micro-lessons to suit individual student requirements or learning styles.



Special Needs

Microlearning's bite-sized nature is highly effective for children with disabilities, providing manageable chunks of information.

Blended Learning Synergy

Microlearning modules seamlessly integrate into blended learning models, enhancing both online and offline educational experiences.

Flipped Classrooms

Perfect for delivering pre-class content, allowing in-class time for deeper discussion and activities.

Digital Platform Complement

Supplements existing digital learning platforms, adding focused, digestible content.

Bridging Gaps

Effectively bridges the gap between traditional classroom teaching and online learning environments.

Connecting with Today's Digital Natives (Gen Z)



Digital Natives

Learners who have grown up with technology are naturally comfortable with digital content and platforms.



Short Attention Spans

They prefer quick, concise information that respects their limited focus duration.



Prefer Interactive, Visual Formats

Engage best with dynamic, multimedia content that allows for active participation.



Learn Best Through Examples and Practice

Hands-on application and real-world scenarios solidify their understanding more effectively.

Addressing Learning Gaps and Remedial Learning

Micro-Lessons for Revision

Utilise short, targeted modules for quick review of previously taught concepts, reinforcing memory.

Nano Modules for Remedial Learning

Create ultra-short, highly focused modules to address specific areas where students struggle, providing immediate support.

Quick Tests for Feedback and Adjustment

Incorporate short, frequent assessments to gauge understanding, allowing for timely feedback and curriculum adjustments.



Subject-Specific Micro-Modules



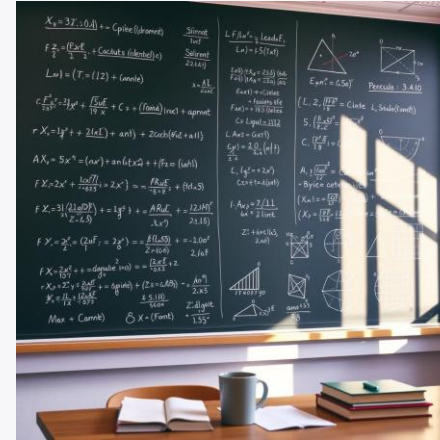
English Language

Grammar Bytes:
Focused lessons on common grammar rules and usage.



Science

Concept Snapshots:
Brief explanations of complex scientific concepts, often with diagrams.



Mathematics

Formula Tips:
Quick refreshers on key mathematical formulas and their applications.



Social Science

Timeline Recaps:
Concise overviews of historical events or geographical facts.

Microlearning in Assessment



Instant Quizzes

Short, focused quizzes immediately after lessons for quick checks on understanding.



Visual Recall Charts

Summaries presented as charts or infographics aid in visual memory retention.



Flashcard Revision

Utilising digital or physical flashcards for efficient and targeted revision sessions.

Applications for Teachers

Simplifying Content Delivery

- Break down complex topics into smaller, manageable micro-lessons.
- Utilise concise videos, infographics, and interactive quizzes.
- Facilitate asynchronous learning, allowing students to access content at their own pace.



Applications for Teachers

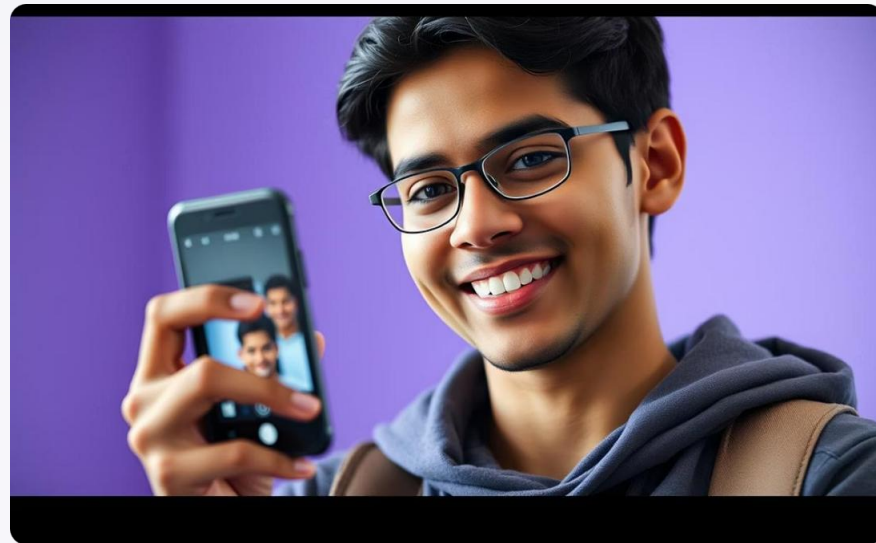
Supporting Inclusive Education

- Offer varied formats to cater to diverse learning styles and needs.
- Provide quick, targeted interventions for students requiring extra support.
- Enable flexible learning pathways for all including those with special needs.



Empowering Student-Led Microlearning

Foster a dynamic learning environment by encouraging students to take the lead in creating and sharing micro-content, building confidence and deeper understanding.



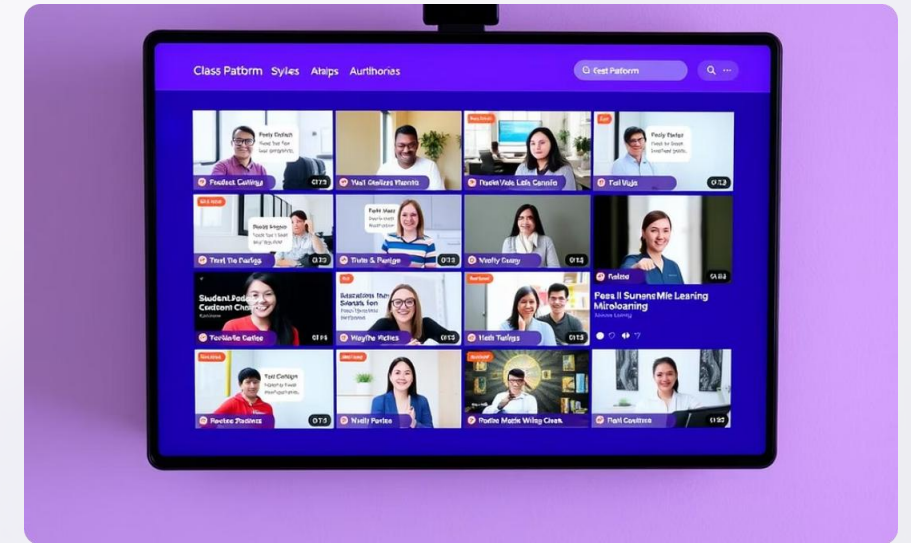
Content Creation

Encourage students to create their own 1-minute educational content, like explainer videos or short presentations, on a chosen topic.



Peer Teaching

Student-led content promotes peer teaching, which enhances understanding for the creator and builds confidence in public speaking.



Class Platforms

Utilise class-specific platforms or school websites to share student-created content, making it accessible to all and fostering a sense of community.

Addressing Challenges with Practical Solutions

Microlearning offers flexible solutions to common classroom hurdles, ensuring effective implementation regardless of constraints.

Time Constraints

Use 'spare minutes' (e.g., between classes, during transitions) for quick micro-lessons or review sessions.

Lack of Technology

Leverage printed micro-cards, flashcards, or group discussions for bite-sized learning without digital tools.

Insufficient Training

Implement peer mentoring within your school; experienced teachers can guide others in microlearning best practices.

Key Takeaways and Next Steps

Time-Efficient Strategy

Micro-learning fits perfectly into short periods, ideal for transitions, substitutions, or quick, on-the-go learning.

Fosters Continuous Learning

Small, daily doses of learning build habits, encouraging curiosity, self-directed learning, and a growth mindset.

Integrate into Lesson Planning

Break chapters into subtopics, assign one module per objective, and plan daily 5-10 minutes recap sessions.

Transform Homework & Revision

Assign 3-minute topic reviews, encourage students to create 1-minute video summaries, and use micro-quizzes for assessment.

Let's unlock engagement and efficiency in education, one small step at a time.

Microlearning is the future of Indian Classrooms.

