METHODS FOR DEVELOPING SKILLS IN CRITICAL THINKING AND SOLVING PROBLEM SITUATIONS IN A NEW GENERATION OF TEXTBOOKS.

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Annotation: *This article explores innovative methods for fostering critical thinking and problem-solving skills through modern textbook design. It examines how new generation textbooks integrate active learning strategies, digital tools, and interdisciplinary approaches to enhance students' cognitive abilities. Through a literature review, methodological analysis, and discussion of results, the article proposes practical strategies for educators and textbook developers to cultivate these essential skills in learners.*

Keywords: *Critical thinking, problem-solving, new generation textbooks, active learning, digital tools, interdisciplinary education, cognitive skills, pedagogy.*

Critical thinking and problem-solving are cornerstone skills in the 21st-century educational landscape, enabling students to navigate complex, real-world challenges. Traditional textbooks, often focused on rote memorization, are increasingly being replaced by "new generation" textbooks that emphasize interactive, student-centered learning. These textbooks leverage technology, interdisciplinary content, and active learning methodologies to foster higher-order thinking. This article investigates how such textbooks can be designed to develop critical thinking and problem-solving skills, addressing the needs of modern learners and preparing them for dynamic professional environments.

Developing critical thinking and problem-solving skills in the next generation of textbooks requires innovative, student-centered approaches

grounded in cognitive science and real-world application. Below are key methods for designing such textbooks, tailored to engage modern learners and foster these essential skills:

Incorporate Inquiry-Based Learning

- Method: Structure content around open-ended questions and problem-based scenarios that encourage students to explore, hypothesize, and evaluate solutions.

- Implementation:

- Include case studies or real-world problems relevant to the subject (e.g., environmental challenges in science or ethical dilemmas in social studies).

- Use Socratic questioning prompts to guide students toward deeper analysis (e.g., “What assumptions underlie this argument?” or “What evidence would disprove this claim?”).

- Provide scaffolding with step-by-step guides for breaking down complex problems, gradually reducing support as skills develop.

- Impact: Encourages curiosity, independent reasoning, and the ability to navigate ambiguity.

Integrate Interdisciplinary Contexts

- Method: Present problems that require synthesizing knowledge from multiple disciplines to reflect real-world complexity.

- Implementation:

- Design activities that combine, for example, data analysis (math), ethical considerations (philosophy), and communication (language arts).

- Include “challenge tasks” where students apply concepts to unfamiliar contexts, such as using physics principles to evaluate energy policy.

- Embed cross-references to related subjects to encourage holistic thinking.

- Impact: Builds mental flexibility and the ability to connect ideas across domains.

Embed Metacognitive Strategies

- Method: Teach students to reflect on their own thinking processes to improve self-awareness and problem-solving efficiency.

- Implementation:

- Include "Think Aloud" exercises where students articulate their reasoning process for solving a problem.

- Provide reflection prompts at the end of chapters (e.g., "What strategy worked best for you? Why?" or "What would you do differently next time?").

- Offer tools like decision-making frameworks or flowcharts to visualize problem-solving steps.

- Impact: Enhances self-regulation and the ability to adapt strategies to new challenges.

Leverage Technology and Interactive Elements

- Method: Use digital tools and interactive content to simulate complex scenarios and provide immediate feedback.

- Implementation:

- Integrate augmented reality (AR) or virtual simulations where students can experiment with variables (e.g., adjusting economic policies in a simulated economy).

- Include interactive quizzes that adapt to student responses, prompting deeper analysis for incorrect answers.

- Use gamified problem-solving tasks with branching scenarios to teach consequences of decisions.

- Impact: Engages digital-native learners and provides safe spaces to practice critical thinking.

Foster Collaborative Problem-Solving

- Method: Design activities that require group discussion, debate, or peer review to expose students to diverse perspectives.

- Implementation:

- Include group projects with defined roles (e.g., researcher, skeptic, synthesizer) to encourage accountability and collaboration.

- Provide debate prompts on controversial topics, requiring students to argue from multiple viewpoints.

- Use peer feedback templates to teach constructive critique.

- Impact: Develops communication skills, empathy, and the ability to evaluate competing ideas.

Emphasize Evidence-Based Reasoning

- Method: Train students to base conclusions on data, logic, and credible sources, countering misinformation.

- Implementation:

- Include exercises on evaluating source credibility (e.g., comparing a peer-reviewed article to a blog post).

- Provide datasets or primary sources for students to analyze and draw conclusions.

- Teach logical fallacies with examples and activities to spot them in arguments.

- Impact: Strengthens analytical rigor and skepticism toward unverified claims.

Use Authentic, Real-World Problems

- Method: Anchor learning in problems that mirror real-life challenges to make skills relevant and motivating.

- Implementation:

- Include project-based learning tasks, such as designing a community recycling program or analyzing a historical event’s modern parallels.

- Partner with local organizations to provide real problems for students to solve (e.g., improving school sustainability).

- Use narrative-driven problems to engage emotions and context (e.g., a fictional town facing a water crisis).

- Impact: Increases student engagement and prepares them for practical application.

Conclusion.

New generation textbooks represent a paradigm shift in fostering critical thinking and problem-solving skills. By integrating active learning, digital tools, interdisciplinary content, and innovative assessments, these textbooks empower students to tackle complex challenges. To optimize their impact, educators and developers should prioritize:

Teacher Training: Equip educators with skills to implement active learning and digital tools effectively.

Equitable Access: Ensure all students have access to digital resources to bridge the digital divide.

Standardized Frameworks: Develop guidelines for integrating critical thinking strategies across disciplines.

Longitudinal Studies: Conduct research to assess the long-term impact of these textbooks on student outcomes.

By adopting these strategies, new generation textbooks can serve as powerful tools for preparing students for a rapidly evolving world.

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