

ID261 | MULTI-STRATEGY TEACHING AND LEARNING IN DRUG DELIVERY

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Introduction: Rapid scientific evolution requires adaptable teaching methods that promote deep learning and student autonomy. Multi-strategy Teaching and Learning in Drug Delivery (MsTL-DD) combines solid current scientific content with active student-centered methods to promote engagement, critical thinking, and problem-solving skills. Aligned with contemporary trends of maximum learning with minimum teaching, the practice shifts the focus from passive instruction to active participation, ensuring development of essential academic and professional skills. This study reports the practice and evaluates the effectiveness in improving knowledge retention, skill acquisition, and student engagement.

Methodology: MsTL-DD integrates flipped classrooms, guided independent study and peer assessment. The learning process is typically three-phase: (1) pre-class: students engage with research materials and self-study, supported by curated content; (2) class: interactive activities, including discussions, role-plays and problem-solving tasks, ensure active participation; (3) post-class: reflection, peer-assessment and multimedia resources reinforce learning. Assessment includes written reports, oral presentations and structured peer reviews. Data was gathered through an on-line Mentimeter survey (scale 0-10), performance and qualitative evaluation, with comparative analysis to traditional lecture-based courses.

Results: Students (n=47; 63.8%) recognized that MsTL-DD significantly improved research and content selection skills (8.58), learning responsibility (7.94), critical thinking (7.81), communication (7.42) and problem-solving skills (6.46). Application in professional context (6.77), interest in the subject (6.64), learning efficiency (6.46) and active involvement in the learning process (6.46), which became easier (6.27), were also positive aspects. Students perceived a higher time commitment (9.66), moderate satisfaction (6.02), interest in scientific matters (5.89) and study dedication (5.84). Despite these challenges, qualitative feedback highlighted the positive impact of the active learning strategies on students' confidence and autonomy.

Conclusions: By fostering autonomy, critical thinking and collaborative problem-solving, MsTL-DD prepares students for dynamic professional environments and drives continuous pedagogical innovation to meet evolving educational needs. Broad applicability across academic disciplines adds value to the practice.