STRATEGY FOR ACHIEVING HIGH RESULTS IN THE PROCESS OF TEACHING MATHEMATICS IN SECONDARY SCHOOLS.



Pirimqulova Nafisa Maratovna
Jizzax Sambhram universiteti NTM

Annotation

This article contains a solution to problems aimed at improving the relationship between teachers and students in secondary schools. In addition, what is High Impact Teaching Strategies and their application methods are presented in the article. These High Impact Teaching Strategies (HITS) have been brought together here to support the thousands of increasingly collaborative and evidence-based conversations taking place between teachers in

schools each day. These strategies provide teachers and teams with opportunities to observe, reflect on and improve a range of fundamental classroom practices.

Key words: Effective teachers, Framework for Improving Student Outcomes, professional learning communities, school leaders, setting goals, structuring lessons, explicit teaching, worked examples, collaborative learning, multiple exposures, questioning, feedback, metacognitive strategies, differentiated teaching.

Annotatsiya

Ushbu maqola umumta'lim maktablarida o‘qituvchilar va o‘quvchilar o‘rtasidagi munosabatlarni yaxshilashga qaratilgan muammolarning echimini o‘z ichiga oladi. Bundan tashqari, yuqori ta'sirli o‘qitish strategiyalari nima va ularni qo‘llash usullari maqolada keltirilgan. Ushbu Yuqori Ta'sirli O‘qitish Strategiyalari (HITS) bu yerda har kuni maktablarda o‘qituvchilar o‘rtasida bo‘lib o‘tadigan minglab hamkorlik va dalillarga asoslangan suhbatlarni qo‘llab-quvvatlash uchun yig'ilgan. Ushbu strategiyalar o‘qituvchilar va jamoalarga bir qator fundamental sinf amaliyotlarini kuzatish, mulohaza yuritish va yaxshilash imkoniyatini beradi.

Kalit so‘zlar: Samarali o‘qituvchilar, o‘quvchilar natijalarini yaxshilash asoslari, kasbiy ta'lim jamoalari, maktab rahbarlari, maqsadlarni belgilash, darslarni tashkil qilish, aniq o‘qitish, ishlangan misollar, hamkorlikda o‘rganish, ko‘p ta'sir qilish, so‘roq qilish, fikr-mulohazalar, metakognitiv strategiyalar, tabaqalashtirilgan o‘qitish.

Аннотация

Данная статья содержит решение проблем, направленных на улучшение взаимоотношений между учителями и учащимися в общеобразовательных школах. Кроме того, в статье представлено, что такое высокоэффективные стратегии преподавания и методы их применения. Эти высокоэффективные стратегии преподавания (HITS) были собраны здесь, чтобы поддержать тысячи все более совместных и основанных на фактических данных бесед, происходящих между учителями в школах каждый день. Эти стратегии предоставляют учителям и командам возможность наблюдать, размышлять и совершенствовать ряд фундаментальных практик в классе.

Ключевые слова: эффективные учителя, система улучшения результатов учащихся, профессиональные учебные сообщества, руководители школ, постановка целей, структурирование уроков, подробное обучение, рабочие примеры, совместное обучение, множественное воздействие, анкетирование, обратная связь, метакогнитивные стратегии, дифференцированное обучение.

When teachers work together to improve their practice, students learn more. This simple yet powerful idea is at the heart of effective schools. Collaboration builds collective responsibility for constantly improving teaching practice and so student learning. The challenge for teachers and schools is to develop a shared understanding of what excellent practice looks like. While it will not look the same in every classroom, there are some instructional practices that evidence suggests work well in most.

Since 2016, school leadership teams have drawn on the Framework for Improving Student Outcomes (FISO) to drive strategic and annual planning at the whole school level. By clearly and insistently directing that planning toward student learning, FISO is helping to identify and address persistent challenges for individual teachers and to build collective teacher efficacy. The HITS provide a clear link between the ‘Evidence Based High Impact Teaching Strategies’ dimension of FISO and classroom practice. Teachers can plan and adjust their practice in response to one or more of the HITS and monitor the impact on student engagement and learning outcomes. This resource provides a focus for the professional development efforts of individual teachers, which can be linked to the goals and feedback components of their own Performance and Development Plans. Teachers in all schools are encouraged to use the HITS to challenge themselves and their colleagues as part of our collective and ongoing commitment to improving learning outcomes for every school child.

Teachers: The HITS will support teachers at every career stage. Each strategy is accompanied by two examples. The examples show teachers how to adapt the HITS to different

learning goals and needs, and to respond to different school contexts. For beginning teachers, the HITS are a bank of reliable instructional practices they can use with confidence. For experienced teachers, this resource can add to their understanding of the HITS they are already using, and suggest new ways to use them in the classroom. Even teachers highly familiar with the HITS will benefit from this resource as they pursue mastery of these valuable instructional practices through practice, reflection, shared observation and feedback.

- Effective teachers set and communicate clear lesson goals to help students understand the success criteria, commit to the learning, and provide the appropriate mix of success and challenge.
- Effective teachers plan and deliver structured lessons, which incorporate a series of clear steps and transitions between them, and scaffold learning to build students' knowledge and skills.
- Effective teachers use explicit teaching to provide instruction, demonstrate concepts and build student knowledge and skills. In explicit teaching practice, teachers show students what to do and how to do it, and create opportunities in lessons for students to demonstrate understanding and apply the learning.
- Effective teachers use worked examples to reduce student cognitive load, enabling them to focus on understanding a process, which leads to an answer, not the answer itself.
- Effective teachers provide opportunities for students to participate in flexible groups that collaborate on meaningful tasks, and respond to questions that support achievement of learning goals.
- Effective teachers regularly use questioning as an interactive means to engage and challenge students, and use it as a tool to check student understanding and evaluate the effectiveness of their teaching.
- Effective teachers use two-way feedback to gather information about a student understands, to assist students to advance their own learning, and to verify the impact of their own practice.
- Effective teachers use metacognitive strategies to help students develop awareness of their own learning, to self-regulate, and to drive and sustain their motivation to learn.
- Effective teachers use evidence of student learning readiness, learning progress, and knowledge of individual student learning profiles, to make adjustments for individuals so all students experience challenge, success and improved learning.

Professional Learning Communities: Confined to individual teachers and classrooms, the HITS will not contribute to the collective efficacy that marks out high-performing schools. In these schools, teachers come together to pool their knowledge of effective teaching into a collaborative approach to planning, implementing and monitoring teaching interventions.

By using the HITS to build their pool of knowledge, these professional learning communities can anchor their interventions in evidence-based practices and so increase the likelihood of those interventions being effective.

School leaders: For school leaders the HITS are a professional learning opportunity. The HITS are linked to each other, and connected to a broader repertoire of teacher skills and knowledge. They can be connected to collaboration between teachers in professional learning communities and integrated into classroom and school planning around curriculum, instruction and assessment.

Understanding the interdependencies and developing a whole of practice approach is complex work for teachers that requires classroom embedded professional learning and a supportive high performance learning culture in a school. A sustained focus on HITS can be supported by coaching, modeling, observation and feedback to ensure widespread use of successful teaching practices.

Setting Goals: Lessons have clear learning intentions with goals that clarify what success looks like. Lesson goals always explain what students need to understand, and what they must be

able to do. This helps the teacher to plan learning activities, and helps students understand what is required

Key elements

• Based on assessed student needs
• Goals are presented clearly so students know what they are intended to learn
• Can focus on surface and/or deep learning
• Challenges students relative to their current mastery of the topic
• Links to explicit assessment criteria

Structuring Lessons: A lesson structure maps teaching and learning that occurs in class. Sound lesson structures reinforce routines, scaffold learning via specific steps/activities. They optimize time on task and classroom climate by using smooth transitions. Planned sequencing of teaching and learning activities stimulates and maintains engagement by linking lesson and unit learning

Key elements

• Clear expectations
• Sequencing and linking learning
• Clear instructions
• Clear transitions
• Scaffolding
• Questioning/feedback
• Formative assessment
• Exit cards

Explicit Teaching: When teachers adopt explicit teaching practices, they clearly show students what to do and how to do it. The teacher decides on learning intentions and success criteria, makes them transparent to students, and demonstrates them by modelling. The teacher checks for understanding and at the end of each lesson revisits what was covered and ties it all together (Hattie, 2009).

Key elements

• Shared learning intentions
• Relevant content and activities
• New content is explicitly introduced and explored
• Teacher models application of knowledge and skills
• Worked examples support independent practice
• Practice and feedback loops uncover and address misunderstandings

Worked Examples: A worked example demonstrates the steps required to complete a task or solve a problem. By scaffolding the learning, worked examples support skill acquisition and reduce a learner's cognitive load. The teacher presents a worked example and explains each step. Later, students can use worked examples during independent practice, and to review and embed new knowledge.

Key elements

• Teacher clarifies the learning objective, then demonstrates what students need to do to acquire new knowledge and master new skills

• Teacher presents steps required to arrive at the solution so students' cognitive load is reduced and they can focus on the process

• Students practice independently using the worked example as a model

Collaborative Learning: Collaborative learning occurs when students work in small groups and everyone participates in a learning task. There are many collaborative learning approaches. Each uses varying forms of organization and tasks. Collaborative learning is supported by designing meaningful tasks. It involves students actively participating in negotiating roles, responsibilities and outcomes.

Key elements

• Students work together to apply previously acquired knowledge

• Students cooperatively solve problems using previously acquired knowledge and skills
• Students work in groups that foster peer learning
• Groups of students compete against each other

Multiple Exposures: Multiple exposures provide students with multiple opportunities to encounter, engage with, and elaborate on new knowledge and skills. Research demonstrates deep learning develops over time via multiple, spaced interactions with new knowledge and concepts. This may require spacing practice over several days, and using different activities to vary the interactions learners have with new knowledge.

Key elements
• Students have time to practice what they have learnt
• Timely feedback provides opportunities for immediate correction and improvement

Questioning: Questioning is a powerful tool and effective teachers regularly use it for a range of purposes. It engages students, stimulates interest and curiosity in the learning, and makes links to students' lives. Questioning opens up opportunities for students to discuss, argue, and express opinions and alternative points of view. Effective questioning yields immediate feedback on student understanding, supports informal and formative assessment, and captures feedback on effectiveness of teaching strategies.

Key elements
• Plan questions in advance for probing, extending, revising and reflecting
• Teachers use open questions
• Questions used as an immediate source of feedback to track progress/understanding • Cold call and strategic sampling are commonly used questioning strategies

Feedback: Feedback informs a student and/or teacher about the student's performance relative to learning goals. Feedback redirects or refocuses teacher and student actions so the student can align effort and activity with a clear outcome that leads to achieving a learning goal. Teachers and peers can provide formal or informal feedback. It can be oral, written, formative or summative. Whatever its form, it comprises specific advice a student can use to improve performance

Key elements
• Precise, timely, specific, accurate and actionable
• Questioning and assessment is feedback on teaching practice
• Use student voice to enable student feedback about teaching

Metacognitive Strategies: Metacognitive strategies teach students to think about their own thinking. When students become aware of the learning process, they gain control over their learning. Metacognition extends to self-regulation, or managing one's own motivation toward learning. Metacognitive activities can include planning how to approach learning tasks, evaluating progress, and monitoring comprehension.

Key elements
• Teaching problem solving
• Teaching study skills
• Promotes self-questioning
• Classroom discussion is an essential feature
• Uses concept mapping

Differentiated teaching: Differentiated teaching are methods teachers use to extend the knowledge and skills of every student in every class, regardless of their starting point. The objective is to lift the performance of all students, including those who are falling behind and those ahead of year level expectations. To ensure all students master objectives, effective teachers plan lessons that incorporate adjustments for content, process, and product.

Key elements
• High quality, evidence based group instruction
• Regular supplemental instruction
• Individualized interventions

Resources:

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