

The Role of Modern Teaching Methods and Educational Strategies in the Development of Practical and Diagnostic Skills of Oil and Gas Students

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Annotation:

The article analyzed educational strategies that can be used in higher education institutions to effectively educate students studying in the field of oil and gas, stimulate professional interest in them, and develop their professional skills and skills.

Keywords: method, strategy, interactive method, discussion method, active learning, differential instruction, project-based teaching, classroom technology, independent study.

“More important than the curriculum is the question of the methods of teaching and the spirit in which the teaching is given”

Bertrand Russell

Every profession has its own challenges and responsibilities. It is also important to have strong knowledge and skills to become an oil and gas engineer. It is necessary to arouse interest in technical subjects and ensure their active participation in classes. Because in order to work in the oil and gas sector, it is necessary for a student to have a good mastery of specialized subjects and, in addition, to have a broad outlook, critical thinking and creativity. For this purpose, the use of effective teaching methods and strategies for the formation of the necessary knowledge, skills and professional qualities of students in higher education institutions takes an important place. The right teaching methods and strategies will help the student to find a place and achieve success in the future professional activity. The art of teaching is very important in this.

To be a successful teacher, one should know all the possible teaching methods and strategies and use them correctly because students learn better when their teacher knows which teaching method will engage the students more and it develops more interest and love for their future profession, better acquires the knowledge and skills necessary to become a qualified specialist.

First of all, we need to understand the difference between teaching methods and strategies. Methods and strategies are two different terms, but both are necessary to fill a classroom with students at different levels and understand the same subject matter. A method is a process, procedure, or way of doing something or carrying out a plan. On the other hand, a strategy is a goal, set of actions or plans to achieve a single goal or something. This can be explained with an example: strategy is how the teacher makes a plan for the whole year to carry out a certain book or curriculum, and method is how the teacher delivers the lecture or the teacher completes the assignment. which way to choose.

This article highlights the types of effective teaching methods and educational strategies that can be used to teach oil and gas students.

Interactive or participative method

It is the type of learning method that is considered beneficial for both the learners and the teachers. The teacher's responsibility is to explain the key points or the importance of following the interactive or participating method during class in general so that students may not resist following it. Many strategies are used in this teaching method like writing exercises, think-pair-share, debate, problem-based learning, or situation analysis.

The discussion method

The discussion method can only be followed when the teacher is highly skilled and disciplined. Because in this two-way communication method, students are prepared to listen to their fellow's point of view and exchange ideas. The role of a teacher is to introduce disciplined group discussion techniques among students and clear the concept of the topic meanwhile. This method is mainly used to utilize the knowledge, experience, and creativity of each student. When the whole discussion ends, the teacher corrects the mistakes and clears the debatable concepts.

The study assignment method

It is one of those teaching methods that promote active learning. In this method, the teacher or an instructor assigns a task to students before the class. It can be a book or research paper reading, project analysis, or any relevant material review. This method enhances the research skill abilities of students, and the discussion part in class makes the teacher and students know different points of view of each other.

The demonstration method

The demonstration method is the kind of teaching method in which the teacher has to perform something or an operation to make its learner understand deeply and clearly. It can be the functioning of a tool or equipment, teaching troubleshooting, performing a certain job or an operation or anything. This teaching method can only be proposed when the instructor explains the why, how, where, what, and when. If the highly competent teacher will choose the method and rehearse well before teaching, it will save time, and the clarity of operation will help the students perform right. The demonstration teaching method is mostly used in laboratories.

Independent study or practice

Some teachers or an instructor follow the independent study or practice teaching method because this improves the self-learning or self-study abilities of the students. In such methods, teachers

mostly assign the same task to each student to practice or study it from home on their own, and then the other day, teachers evaluate the task and solve the students' queries.

Before moving to the teaching strategies, I would like to add a quote from Benjamin Franklin, which says:

'Tell me and I forgot. Teach me and I remember. Involve me and I learn.'

And this is how the teaching strategies work on students.

Classroom management

The very first strategy to engage all the students of a class is its management. The etiquette of a class matters, and so does the management of the whole class. If you start listing down the classroom management strategies, the list will go on because it has its own set of techniques and different strategies to keep the class managed. Before moving to the teaching method, the teacher or an instructor should acknowledge the whole class management rules in dos and don'ts.

Develop an atmosphere of learning

The atmosphere of learning matters the most because no matter how well the teacher or an instructor delivers the lecture, it's futile if the atmosphere does not support that all students are willing to learn or excited to start the new chapter or topic. So, to develop a learning atmosphere, the expert should get the whole class's attention and inform them of the facts and purpose of reading the lecture. The more they will show interest in learning a subject, the more they will learn.

Active learning

Active learning strategy is one of those strategies that not only help the students but the teachers too. The discussion break between the lecture and asking students to submit the clearest point after the lecture keeps the whole class attentive, and it's called active learning. Their participation makes the teacher understand which part of the lecture has gotten more attention. Such smart tactics or quick questions in between lectures make the student learn better and faster.

Focus on student's interests

When teachers focus on a student's interests, it helps them understand the nature of their students way better, and ultimately, they follow the teaching method that can be more effective. And the constructive feedback on what students have done and what they have not mastered helped them determine how they could improve that mastery. This strategy makes the bond of student and teacher strong and improves the learning environment.

'There is no failure. Only feedback.'—Robert Allen

Differentiated instruction

One of the most useful teaching strategies is differentiated instruction. In this strategy, the teacher assigns tasks to each student based on abilities and interests. Doing so the students who are struggling will get the proper support or help, and the students with academic skills or capabilities will be assigned tasks that match their caliber. It ensures the dedicated behavior of teachers after knowing everyone's learning gaps, and no student remains left behind.

Personalized learning

Teachers should focus on personalized learning strategy a bit too much. Students should review their content once learned. Sometimes, students' queries remain unanswered and make all the students master their studies. Teachers should assign tasks to each individual according to their learning capability and style. This teaching strategy will help students develop reliability, motivation, self-learning, self-advocacy, and self-reflective abilities.

Project-based learning

Experienced teachers agree on the importance of getting students to recap the information learned during the lesson. And when it comes to project-based learning, it is important to educate students about what they need to learn to complete the assigned project. It is also crucial to get them to engage with the content actively. So, to foster their engagement, it is important to promote project-based learning in groups. Teachers should make the groups of students quite carefully and selectively as each student's learning style and ability vary.

Classroom technology

Classroom technology is the best teaching strategy a teacher can use to keep the whole class engaged. This strategy can be used at any level or year of education because students get excited when they have to experience something new for the first time. Video lessons, virtual trips in geography or history class, animations to help kids learn basic skills, and many more adapt to this teaching strategy. Moreover, smart whiteboards, projectors should be used in classrooms.

Inquiry-based teaching

Interactive teaching enables students to be instructed by actively involving them in their learning process through regular teacher-student interaction, student-student interaction. And taking some time out of the class for inquiry-based questions helps improve students' life skills like communication and problem-solving. The quality of questions matters a lot, and a teacher should ask the students to inquire with subject-based questions or other appropriate questions. However, the inquiry-based teaching strategy has guided inquiry, structured inquiry, open inquiry, and confirmation inquiry. These all promote the use of long-term memory of both teachers and learners.

Class gamification

It is observed that lessons learned while playing stays long in the student's mind. This teaching strategy keeps the students more engaged and active in the class. Play and learn techniques should be in each teacher's teaching method list. Age requirement shouldn't be the barrier because class Gamification builds and improves the essential skills. A teacher can play any games to teach the basics like mind games, math multiplication games, problem-solving games, language learning games like ESL games, and many more.

Gamification has a future in education, and teachers or instructors should effectively use this strategy.

Convergent and divergent thinking

One of the main teaching strategies that all teachers should be aware of is two thinking methods: convergent thinking methods and divergent thinking methods. Teachers should educate their students about its difference as convergent thinking means there are multiple ways to reach one solution. On the other hand, the divergent teaching method makes the students learn and understand the base concepts to solve the given question or problem.

If the teachers and students know these differences, learning will be easier and better.

Problem-based learning

One of the essential teaching strategies a teacher or an instructor should follow is problem-based learning. They should prepare a list of problem-based open-ended questions before a class and ask the class to solve them in groups or teams. This technique helps in developing and improving the transferable and teamwork skills of students, respectively

Visualization

Introducing visualization in class is the most advanced teaching strategy that institutions and teachers can use to make the students understand the textbook content with visuals and the real world. It lets the students experience the world while sitting in their classrooms. But again, it is just another strategy to keep the class engaged. The teacher has to play the main role, Bill Gates has said it too:

“Technology is just a tool. In terms of getting the kids to work together and motivating them, the teacher is the most important.”

Cooperative learning

Teachers should work on cooperative learning strategies in class, once a week at least. There are many ways to follow this strategy, such as solving mathematical puzzles, quick fraction questions, performing science experiments, short drama sketches, group presentations, or frequently asked question-answer sessions among students of the same class. This teaching strategy improves the verbal skills of students.

Behavior management

Just like teaching methods, teachers should be acknowledged properly about the behavior management teaching strategy. Mutual respect of teachers and students is important to keep the class's productive learning and disciplined environment. Institutions or teachers should reward students based on their behavior during class and overall interaction with their teachers and fellow mates. Teachers should be strict with this strategy because a noisy, disturbed, or undisciplined class cannot promote productive learning.

Being an oil and gas engineer is one of the most responsible professions. A single mistake can put people's lives in danger and cause great damage to nature. Therefore, the quality of education provided to them is considered important in the preparation of representatives of this field. Students studying oil and gas should develop theoretical knowledge as well as practical skills. For this, it is recommended to widely use the above-mentioned teaching methods and strategies. The use of the demonstration method gives good results in the development of practical diagnostic skills in students. The use of models of devices and tools used in the oil and gas industry during the lesson will help students to have a broader understanding and imagination of the subject. In addition, using the project-based educational method, students can make models of devices or tools in a group and conduct independent research on their working principles. It develops creativity and critical thinking skills in them. Using teaching methods and strategies based on the nature of the subject in each lesson, it is possible to increase students' enthusiasm for learning and to form professional knowledge, skills and competences in them.

Conclusion

Here, we've learned about teaching strategies that all teachers should know. Knowing these teaching strategies makes technical universities which has oil and gas faculty more creative and dynamic place to study.

In this rapidly changing world, it is necessary for teachers to use the most effective teaching methods and strategies in the development of practical and diagnostic skills of students who have chosen the oil and gas field. This, in turn, should inspire the teacher's personality to inspire students to learn from them and become good professionals who benefit this society. The truth is teaching is the profession that teaches all the other professions, so educational institutions should invest in providing proper guidelines on types of teaching methods and teaching strategies from time to time to keep their teachers updated to the modern world.

'Education is our passport to the future, because tomorrow belongs to the people who prepare for it today.' - Malcolm X

References:

1. J.G'.Yo'ldoshev, S.A.Usmonov. Pedagogik texnologiya asoslari. T- O'qituvchi, 2004.
2. R.J.Ishmuhamedov Innovatsion texnologiyalar yordamida ta'lim samaradorligini oshirish yo'llari. T- 2006.
3. Utemov V.V., Zinovkina M.M., Gorev P.M. Ijodkorlik pedagogikasi: ilmiy ijodkorlikning amaliy kursi: darslik. - 2013. - 212 p.
4. Bobrikov, V.N. Nauchno-teoreticheskiye osnovi neprerivnogo texnicheskogo professionalnogo obrazovaniya / V.N. Bobrikov: Monogr. / Kuzbass, gos. texn. un-t. Kemerovo, 2002. – 127 s.
5. Kojevnikova, T.V. Osobennosti innovatsionnogo obucheniya v sisteme DPO (na primere perepodgotovki spetsialistov dlya neftyanoy i gazovoy promishlennosti) / T.V. Kojevnikova // Ucheniye zapiski AGNI. – Almet'yevsk: Izd-vo AGNI, 2005. T. III. – S. 168 – 178.