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TEACHING TO SUPPORT DEEPER LEARNING

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ABSTRACT

If you want to learn more deeply, you need to be able to transfer your knowledge from one scenario to another, which can only be accomplished through the process of deeper learning. It's not enough for students to just memorise information and processes; they must also know when, how, and why to use what they've learned in order to be proficient in their chosen field. To address new challenges or circumstances, people can apply their knowledge and abilities that they've gained in the past. Using the educational ideas outlined below will help pupils better understand any subject topic. Education should be based on these ideas from the very beginning of schooling and continue through all stages of schooling, from "kindergarten through college and beyond."

KEYWORDS: Deeper learning, discipline, Memory, knowledge, self-explanation etc.

INTRODUCTION

When teaching in this manner, it is more probable that students will learn how to apply their knowledge to new situations in the same field of study and comprehend the underlying concepts of what they are learning. The ability to retain more information a person's ability to use a skill or method in a new setting is greatly influenced by how well it is "stored in long-term memory" so that it can be retrieved by working memory when needed. Working memory is a "conscious system that gets input from the sensory systems as well as from the long-term memory"; it processes and acts on information that is immediately available.

Working memory, in contrast to long-term memory, is restricted in its ability to keep and process large amounts of data. As a result of learning more deeply, pupils may better organise the information they retain in their long-term memory so that it is easier for them to recall and put into practise later on. Experts, on the other hand, store their information in a similar fashion. Based on cognitive research, these concepts and behaviours are in place. However, it is possible that they can be used to enhance interpersonal and intrapersonal competences, even if no research has been done on the topic.

1. **Use multiple and varied representations of concepts**

Assist pupils in making connections between diverse ways of expressing the same idea. Studying how a mechanical or biological system works through the use of diagrams or animations might improve "students' performance on a subsequent problem-solving transfer" exam, according to research. Furthermore, it has been found that students who are allowed to utilise concrete items to depict mathematical operations do better on transfer examinations. Both conventional studies employing bundles of sticks to signify two-column subtraction and an interactive computer-based lesson in which students move a bunny along a number line to symbolise addition and subtraction of numbers have shown this result to be correct.

2. **Encourage elaboration, questioning, and self-explanation.**

Self-explanation, elaboration and questions urge students to actively interact with the subject in order to absorb the topic in their own terms, rather than just remembering it. For example, research shows that asking students to explain what they read aloud and in their own words, as well as asking them specific questions about what they've just read or been taught, can all help students learn more deeply. Other proven methods for helping students learn more deeply include: establishing classroom norms that encourage students to challenge each other by questioning and justifying one another's answers.

3. **Engage learners in challenging tasks, with supportive guidance and feedback.**

Asking students to tackle difficult issues in science and other subjects without proper direction and assistance is unsuccessful at generating deeper learning, according to over 40 years of study. As a contrary, challenging pupils to tackle difficult tasks while giving them with particular cognitive advice does encourage deeper learning. Beginners may not be able to gain a thorough understanding of scientific concepts and processes by simply exploring a science simulation or game; however, they are more likely to do so "if they receive guidance in the form of advice, feedback, and prompts" — such as having to complete part of the task to satisfy the learner.

4. **Teach with examples and cases**

With the use of examples and case studies, students may better understand how a basic concept or procedure can be applied to a wide range of circumstances. In one example, a teacher demonstrates how to solve a probability problem step-by-step while explaining it to students.

When students are learning a new procedural skill, providing them with worked-out examples can help them comprehend the skill more deeply. When a difficulty is broken down into conceptually understandable steps and described clearly, greater understanding is made possible, and the explanations are gradually removed as practise increases.

5. **Prime student motivation.**

It is possible to encourage pupils to put in the effort necessary to study by priming their motivation. Student learning is more profound when they: believe they can succeed at a task at hand; attribute their performance to effort rather than ability; have the goal of mastering the subject rather than performing at a high level or not; believe that they can succeed in an educational challenge; and have an enthusiasm for that subject.

Such tactics like peer modelling have shown promising results in the development of motivating approaches in learners. After observing a peer do subtraction problems with strong self-efficacy (saying, "I can do that one" or "I like doing these"), primary school pupils demonstrated enhanced self-confidence (an intrapersonal competency) and increased test performance.

6. **Use formative assessment.**

As a formative evaluation is utilised throughout the learning process to evaluate student progress and alter instruction as necessary, it helps to ensure that student learning is always improving. As a result, it differs from typical "summative" assessments, which focus on assessing the amount of knowledge that a student has gained over time. Using formative assessment to help students better understand their learning objectives, track their progress, provide them feedback, and respond to what they've learned helps them learn more deeply. Formative assessment may also be used to help students evaluate their own and each other's development.

Learning and skill development can only take place via practise, but the study shows that feedback is crucial for this process to take place.

SYSTEMS TO SUPPORT DEEPER LEARNING

With the release of new standards papers in English language arts, mathematics, and science, an opportunity has emerged to emphasise deeper learning and the development of cognitive talents. Many areas of the educational system, such as curriculum, assessments, and

professional development, will need to be rethought in order to help students develop the full range of 21st-century skills, including interpersonal and intrapersonal capacities.

- **Curriculum**

Transferable skills can only be developed via further investigation and development of instructional materials and methodologies. Learning should be integrated across all three domains: cognitive, interpersonal, and intrapersonal – in any method that is acceptable for the learning objectives. As indicated in this guidebook, research-based teaching practises that enhance deeper learning should be supported and implemented by funding organisations and governments.

- **Assessment**

It is a significant factor in how much time instructors devote to helping children build 21st century skills if these abilities are included in district, state and national examinations. Education "policies and accountability systems" are now based on tests that prioritise recollection of facts and processes, creating a barrier to teaching and developing 21st century skills. This difficulty can be addressed by recent policy advancements. New tests associated with Common Core State Standards are being developed by two big consortia of states with the backing of the US Department of Education. There will be a significant incentive for states, districts, schools, and instructors to highlight components of the Common Core State Standards contained in these exams and those later established based on new science standards.

- **Teacher education and professional development**

Current teaching approaches will need to be rethought if they are to enable teaching that encourages deeper learning and the development of transferable knowledge and skills. Educators need to improve their own knowledge of their subject matter, their understanding of how their pupils acquire it, and their awareness of frequent misunderstandings students have about it, according to researchers. Learning environments presented in this booklet will help instructors create and execute these sorts of learning and teaching settings themselves in their own classrooms, and teachers across the disciplines will benefit from this experience.

INCREASE THE DEPTH OF UNDERSTANDING IN YOUR CLASS

- **Students should be viewed as your apprentices**

By immersing students in the art or science of their profession, the teachers featured through Mehta and Fine allow students to learn by working in that field themselves. In place of multiple choice assessments, an exceptional philosophy instructor let his pupils work with him as fellow academics to examine books. Rather than relying on established formulae, a team of math teachers had teachers build their own ideas for topics like how many breaths it would take to blow up a balloon. Apprenticeship and the idea that one might use one's knowledge in whatever way one wished paved the way for students to take their education to the next level. For Fine and Mehta, students should be able to acquire mastery (knowledge and competence), identity (connection to a topic), and creativity in this context (using their understanding for work they find meaningful).

- **The depth of your knowledge**

The depth of your knowledge should always take precedence over the breadth of your knowledge. When observing exceptional teachers, Fine and Mehta noticed that they prioritised in-depth study above generalisation. Of course, that's easier said than done when it comes to disciplines like history or math, which have a tight end-of-year test deadline. Students were more concerned with adopting the behaviours of inquirers in their fields than than speeding through lectures and fretting about falling behind, Mehta and Fine observed. Teachers were able to achieve this by separating themselves from the demands of testing, according to the study. In some cases, instructors had to take unconventional paths, such as teaching an elective or relocating to a school with a similar philosophy. A compelling argument to administrators supported by happy students and parents may occasionally grant instructors the flexibility they need for greater learning.

- **Give away part of your power.**

Fine and Mehta discovered that speaking from the front of the classroom for the duration of a lesson seldom results in more in-depth learning. Teachers may help students understand the value in their education by enabling them to choose the topics they study and the techniques they employ.

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