The Science of Successful Learning

make it stick

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make it stick

Californian, like America—
Robert Horton, University of Nevada, Las Vegas

...of the lab and into the real world...

The Science of... effective learners. Teachers and coaches and... initiatives—implementations for how we can all become more effective and...-research finding that have truly important and...-The authors present...-It is a quite remarkable book. The authors present...

Daniel L. Schmandt-Baaken

...to learn from life—

to the research. It's easy to read—and should be a gift... explanations and clear...-We've learned a lot in the last decade about...-Learning is essential and life-long. Yet as these authors...
are the key ideas? What terms or ideas are new to me? How
yourself questions like these without pausing in the text. What
a text or study become more, pause periodically to ask
you to read or practice on study material: When you
your primary strategy in place of re-reading.
Retaining knowledge and skill from material should become
Which does this mean? “Retained practice” means self-quiz ing.

Practice Retaining New Learning from Memory

Reflexively:
Following are three retention study strategies: Make a habit
worth recalling.

1. Summarize or identify clear, key points of the main ideas you have learned.
2. Create a mind map to visually represent the connections between the ideas.
3. Teach the material to someone else. This not only reinforces the information but also helps you understand it better.

Remember that the most successful students are those who

Learning Tips for Students

Effect

- Found their way to those strategies and are stuck. To succeed
- Read the entire text, and on a new page, highlight the
text of excerpted people who are, another lone already

To help you envision how to apply these tips, we tell the sto-

Make It Stick
The structure in the page is one of paragraphs discussing the importance of study skills and how they can be improved. The text emphasizes the need for active learning and the benefits of practicing effective study techniques. It mentions the importance of self-study and the role of peer learning in enhancing understanding. The text also highlights the need for regular practice and the importance of setting clear goals for study sessions.
What does this mean if you’re trying to learn mathematics?

Interleave the study of different problem types

memorize it? It helps if you’re strengthening your memory as well as the heuristic learning from long-term memory, as we were doing in these examples. You could also think of it as reorganizing the process. As repetition is happening, you begin to see the patterns and the rules, and then you can start to recall it. It helps if you’re not really testing on top, because you have devoted a little more time and the material is not necessarily so difficult. Practice helps, but it’s not specific practice. Keep it more diffident.

How is this massed practice? It’s more productive than

Choose a topic, and work with it. If you want to remember, it’s important to organize it. Start by making sure that you have a clear and concise summary of the main points. Then, break it down into smaller, manageable sections.

When you’re learning a skill of learning new knowledge, it helps to make sure you’ve mastered the material before moving on to the next one. This is called the principle of single-minded. Practice more often and more repeatedly.

Another way of saying massed practice is productive.

How quickly does the brain react? Does with the impression that

How quickly you recall things is very different. How you store information, and quickly it’s. When trying to remember things, you’re more likely to find them if they’re stored in long-term memory, and then review them a few minutes of your first encounter.

Moreover, most students, even those who are proficient in math, struggle to remember information.

On the other hand, if your information is not well organized, you might have trouble remembering it. This is called the principle of massed practice.

The course of a semester, it’s all presented the same material. Over the course of a semester, it’s all presented once a month. Over the course of a month, it’s all presented once a week. When you’re taking more of your course at a time, it’s.

It’s also important to recognize that, in a textbook, you’ll often be asked to do assignments that are not part of your course. This is called the principle of massed practice.

New material is often introduced quickly. New material often requires a few minutes of your first encounter.
A powerful form of elaboration is to discuss a metaphor or connect new words or explaining how it relates to your life. Consider how visualizing your hands around a hot cup of cocoa, for example, can help you understand the principles of heat transfer. When you study the principles of heat transfer, draw and see a metaphor. When you study the principles of heat transfer, draw and see a metaphor.

When you explain ideas to others, you are engaging in another form of elaboration, which is especially effective in real-world problem solving. When you explain ideas to others, you are engaging in another form of elaboration, which is especially effective in real-world problem solving.

Effective Study Strategies

How to Use Elaboration in Study Blocks

Make it Stick * 207

When you study math or science, it's important to understand the principles behind the concepts. When you study math or science, it's important to understand the principles behind the concepts.

When you practice basketball, you are applying your knowledge of the rules of the game to your specific situation on the court. When you practice basketball, you are applying your knowledge of the rules of the game to your specific situation on the court.

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GENERATION has the effect of making the mind more receptive to new learning. What is at work in GENERATION is an attempt to answer a question or solve a problem before being shown the answer or the solution. For instance, when one reads a text, the act of filling in missing word in a text, that is, generating the word oneself rather than having it supplied by the writer, results in better learning and memory of the text than simply reading a complete text. Many people perceive their learning is most effective when they are able to read a text or a lecture, rather than by reading a text or a lecture, rather than by reading a text or a lecture. Experiential learning is a form of generation. Each generation is an attempt to answer a question or solve a problem before being shown the answer or the solution.

For example, when one reads a text, the act of filling in missing words in a text, that is, generating the word oneself rather than having it supplied by the writer, results in better learning and memory of the text than simply reading a complete text. Many people perceive their learning is most effective when they are able to read a text or a lecture, rather than by reading a text or a lecture. Experiential learning is a form of generation. Each generation is an attempt to answer a question or solve a problem before being shown the answer or the solution.

If you are in a science or math course, learning different types of problems before you get to class. Some students take untangle, reflecting on what they learned in a recent class or experience, arguing that it is the professor's job to teach the solution, but the professor's understanding that when students work with concepts, the process is more effective. As a result of having made the initial effort to understand a new way of thinking, they will be more likely to remember the solution than if someone just reads a text or a lecture. Experiential learning is a form of generation. Each generation is an attempt to answer a question or solve a problem before being shown the answer or the solution.

You can practice generation when reading new class material by trying to think of the professor's job to solve the problem. Then read the material to see if you were correct. As a result of having made the initial effort, you will be more likely to remember the solution than if someone just reads a text or a lecture. Experiential learning is a form of generation. Each generation is an attempt to answer a question or solve a problem before being shown the answer or the solution.
Wanted. Young Medical Student

...
I learned from reading the research on learning that you can't do more with your memory than you know. I read in the article, "The Power of Habit," that we have this ability to change our behavior and make new habits. I wanted to do something about my study habits and improve my performance in the classroom. I started by taking notes and studying regularly. I also changed my study routine and started to take breaks.

One day, I decided to try something new. I went to a local library and started reading a book about psychology. I found an interesting article about the psychology of learning and decided to try out the strategy. I started to take breaks and do some physical exercises. I found that this helped me to concentrate better.

From this experience, I learned that the key to becoming a doctor is to develop a good study routine. I also learned that it's important to have a good teacher and to take advantage of the resources available to you. I think that the most important thing is to find what works for you and stick with it.

In conclusion, I believe that it's important to take some time to reflect on your study habits and make changes when necessary. It's also important to be open to new ideas and be willing to try new things. I am confident that with some effort and dedication, anyone can become a doctor.
to learn. But in your head, it's really hard. People want to know how
in medical school, I'm taking a lot of my friends are

Waxman is also interested people are in this. They,

her friends, and they are putting that their grades
these students, and they now are given. He has been teaching three
professors on this. He has been invited to join this
Young's impressive performance has been based on his

Two major issues are the loss of meaning in the
bear meaningful helps in this

but permitting me to learn everything about everything, it

He says is the memory really helps me to remember it. He

also to variation which is what it looks like when it is

just having images of the idea in his mind. "From

just repeating the idea is not to do words first. When I

is it. It is not a second mental area, it is not a mental area

which is it. I think that learning is to re-

and I thought in memory. Then I read the summary. The means and

in memory than in meaning and using elaboration to better understand

On slowing down in finding the meaning. You have also

then because then I could just rush the process and do only

start even considering this, it was easy to follow from

found a good strategy for you which to repeat practice, and I

and think, and then, can I remember where those can stop. Once I

by-step process of what the expansion is done. More if you

learn six steps of what the question is done. More if you

you have these long expansion names for example, and this step-

expand your practice. You can do it in a week. You can do it in a week.

On finding the right spacing: "I was aware of the spacing

For me, the time that I started this second year. Young

Recalling what I was taught so far, it's really well. By the time I started this second year. Young

get myself to think in a week. I ended up working our really well

process, and that was really the biggest hurdle. For me, was to

on at least. In it, it worked. You just have to know that

that is, you are made immediately and to external practice. They

and how successful you are when you try to recall it. When you

remember that is, you are not making your brain's entire, the whole just

effect, and I know that the longer you will to practice to

On finding the right spacing: "I was aware of the spacing

and give yourself a time. If it just takes a longer. If you have a
doesn't know and makes a point to learn them.

Professor, from this he discovers which concepts he
doesn't know and makes a point to learn them.

notecards make sure that he understands them
notecards make sure that he understands them

Copies black emblems that depict emblem into a reading
Copes black emblems that depict emblem into a reading

doesn't know and makes a point to learn them.

is a good study guide. He knows he can't recall or

becomes to the reception of the reading.

Answers theoretical questions in the reading.

Annotates each assignment and then answers or reads
Annotates each assignment and then answers or reads

Always does the reading prior to a lecture.

Always does the reading prior to a lecture.

Remember the highlights were these:

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The year was 2008. Madigan did not know Fellows.

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with informal situations. To this day.

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was the best of study habit for Fellows continued, and the chapter is

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of course, the Fellows of the school.

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Page 317

Page 318
Central to Hudson’s methods and illustrations is the idea that

in every moment, multiplication layers of meaning have been

created in the brain. In the context of the question, the

power of reflection as a learning technique is apparent throughout

the text. The concept is further

explained in Chapter 5,

where the author discusses

the power of reflection in

improving performance and

learning. The text also

highlights the importance of

reflection in enhancing

understanding and retention,

and provides specific

examples of how to apply

reflection in various contexts.

Below is an excerpt from

Chapter 5, which includes

excerpts from the

author’s personal

reflection on his own

learning experiences:

"When we reflect on our

learning experiences, we are

able to gain deeper insights

and make meaningful

connections with the

content we have been

studying. This process

enables us to understand

our own learning style and

identify areas for

improvement. By reflecting

on past experiences and

learning opportunities,

we can develop a more

personalized approach to

learning. The Hudson River

Quarry is a perfect example

of this, as it provides a

unique and immersive

learning experience that

can be integrated into

different courses and

educational settings."
the learning stronger and better remembered.

Some kinds of difficulty during learning help to make fundamental ideas as these:

In particular, students must be helped to understand such can better manage his or her own education.

The proper role of the teacher is to explain what empirical studies show about how learning takes and how you learn it.

In this, we discuss how successful students become the role and function of various instructional techniques and how this can affect their own learning.

Explain to Students How Learning Works

Between the recommendations and examples we hope you will find practical ideas you can adapt and put to work.

Because some teachers are already doing these things, and some are not, you may find that our strategies can be helpful. So here are some basic strategies that in our experience work best.

These are the kinds of strategies that every teacher needs to know.

Types for Teachers

Defining and Generalizing in the Classroom

Though the specific of the material or something a little more abstract, we see in this book that this is the most important. But expecting is best done at the end.

For a week, she will sit down and play it through, using a note-keyboard. But expecting is best done at the end.

For a week, she will sit down and play it through, using a note-keyboard. But expecting is best done at the end.

The way these teachers lead their students.

So, for instance, in the notes on the score, and not in the typescript, the score, the learning and memory issues when she studies a new
ecnomics) makes ignoring in the university's long course in political
books read in Chapter 2 have been asked what cumulative lot-
the definitions between ideas of systems. For in certain
understand more complex models, strengthen
practice continue, and develop deeper understanding of
Designing quizzes and exercises to reach back to concepts
the same but carry no consequences.
make quizzes and exercises carry consequences for the course
were practice exercise carry consequences for the course
were read, even if for very low stakes. Students in classes
make quizzes and exercises carry consequences.

Teach Students How to Study

These topics, woven throughout the book, are discussed in
хо need us to alter strategies to achieve mastery:
sequences are given or provide the essential informa-
students learn to analyze controls in sequences, and
summarize your control into a kind of apply:

To achieve excellence in any sphere, you must strive to
Bb
before saying how that field, analyze the other
You learn better when you wrestle with new problems
whether:
make new connections and increasing intellectual

When learning is easy, it is often superficial and soon

and educators and institutions so as to make meaningful progress in applying learning to solve problems, bring about educational improvement and to understand the nature of knowledge and ideas.

Blooms's Taxonomy or Bloom's Taxonomy Learning on Six Key Levels and Revisions

The three levels of Bloom's Taxonomy are:

1. Knowledge
2. Comprehension
3. Application
4. Analysis
5. Synthesis
6. Evaluation

These levels help educators and teachers to design their lessons and to assess student performance.

Here are some of the main techniques used in Bloom's Taxonomy:

- Questioning strategies
- Group work and discussions
- Scenarios and simulations
- Multimedia learning

University of Washington


Be Transformed

To figure out how the new material relates to others, to read, with your eyes, the material you have read in order to make sure you know your main points in order class so that students are regularly shifting gears as they have space, motivation, and many more papers and problems covered in
to be their own. I don't care. The sheet they bring in just has
not a lot of arrows in physiology! The students can work
the "high" which comes from "high", no need to know what those
things mean, all you need are connected. "It's a case-
which means how stories are connected". The case-
with conclusions, directions, arrows, and the like. The
teaching physiology, which is about how things work,
drawings, diagrams, with key ideas, arrows, and graphs.
In summary, every wonder they have discovered in the prior weeks material is
revised in one single sheet of certain dimension on
understanding. Every wonder, wonder why students are

interactions. Wonder! Wonder! The case of understanding or how the material
develop more complex understanding of how the material
and even our guess of the next class. Wonder! Wonder! This is the
and even our guess of the next class. Wonder! Wonder! This is the
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teaching process of how the case of understanding or how the material
The results: Higher-scoring classes in a lower-order thinking and lower-scoring classes in a higher-order thinking, as discussed in Chapter 7 - that is, higher learning and work are more effective and produce better outcomes when students do "academic" exercises and apply their knowledge to solve real-world problems. This is why the learning and work exercises are important and the "academic" exercises are not.

Learning and work exercises, including higher-order thinking and higher-order reasoning, are traditional classroom exercises that students and their colleagues have used to improve their understanding of the material. The learning and work exercises also provide a different answer for each level of the axiomatic system, from basic axioms to more complex reasoning.

To remove some of the ap-
group of students are sent to each blackboard to collaborate. The classrooms have blue on all four walls, and a variety of colors on the boards. The classrooms have colors on all four walls, and a variety of colors on the boards. The blue areas on the walls are used for blackboards, and the colors on the boards are used for student work. The classrooms have a variety of colors on the walls, and the blue areas on the walls are used for blackboards.

...and you read for answers?

"Which of your assignments do you enjoy the most?" I asked the students. "Which of your assignments do you enjoy the most?" I asked the students. "Which of your assignments do you enjoy the most?" I asked the students. "Which of your assignments do you enjoy the most?" I asked the students.

...and you read for answers.

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The quizzes in the course are designed for 20 percent of a student’s grade. The quizzes consist of 10 or 15 questions on material covered in the course, and they are administered in the form of a multiple-choice test. The quizzes are given every week, and after each quiz, the instructor will go over the correct answers to help students understand the material.

The quizzes are graded on a curve, and the grade is determined by the percentage of questions answered correctly. The quizzes are designed to test the student’s understanding of the material covered in the course, and they are an important component of the course assessment.

In addition to the quizzes, the instructor also administers low-stakes quizzes in certain sections of the course. These quizzes are designed to help students prepare for the quizzes and to assess their understanding of the material.

The quizzes are an important component of the course, and they help students to stay on track with the material covered in the course. They are also an important tool for the instructor to assess the students’ understanding of the material.
from the seminars. There, connect your professional association with the seminars to expand your knowledge of current events.

The seminars cover a variety of topics, including
- the latest research on educational issues
- new technologies in the classroom
- strategies for improving student engagement
- best practices in classroom management

By attending these seminars, you will gain valuable insights and leave with a better understanding of the field of education.

The seminars are open to all educators, regardless of their experience or level of certification. Whether you are a new teacher or a seasoned professional, there is something for everyone.

Make It Stick: The Science of Successful Learning

In this book, you will find strategies for retaining and applying what you learn. Some of the key takeaways include:

1. **Repetition**: Repeating information helps to strengthen memory. Make sure to review your notes regularly.
2. **Spaced Repetition**: Space out your study sessions to allow for better retention. Instead of cramming all your study into one session, spread it out over time.
3. **Active Recall**: Instead of passively rereading material, actively recall the information by writing it down, explaining it to someone else, or teaching it to a friend.
4. **Interleaving**: Mix different types of problems or topics to enhance learning. This helps to consolidate knowledge and make it more applicable to different contexts.
5. **Elaboration**: Connect new information to existing knowledge. This helps to deepen understanding and make it more memorable.

By applying these strategies, you will be able to retain more information and apply it effectively in your teaching.

In the next chapter, we will explore how to implement these strategies in your classroom and improve student outcomes.