

As the child grows, mnemonic memory increases slowly, or possibly not at all, while mnemotechnical memory increases rapidly.

The curves representing the coefficients therefore diverge rapidly, with the coefficient of mnemotechnical memory rising more rapidly.

Subsequently, the improvement in mnemotechnical memory slows down, and the coefficient may even remain static, while there is a rapid improvement in direct, or mnemonic, memory. Vygotsky describes the shape traced by the two coefficients over time as 'the parallelogram of the development of memory'.

Vygotsky offers an explanation of this shape in terms of what is known about the development of memory.

The initial rise in the development of mnemotechnical memory is relatively easy to account for, as the child learns to use cultural symbols (prompt-cards) to supplement her direct memory. Subsequently, the child is able to internalize the processes that were once cultural, and to gain control over her own memory. As a result, the mnemonic function improves rapidly.

Vygotsky states:

We are inclined to think that there is a kind of revolution of mnemotechnical devices for remembering, that the child turned from external to an internal use of a sign and that in this way, direct remembering actually became mnemotechnical remembering, but based only on internal signs.

(Rieber 1997: 186)

To a significant degree, this explains the fact that the curve of mnemotechnical memory exhibits continuous deceleration in rate of increase.

However, if we were to present more material for memorising consisting of several dozen or even hundreds of words, we would easily see, as our subsequent experiments will show, that the curve would exhibit a sharp upward trend. (Rieber 1997: 186)

Уггостны

[illegible]

RIEBER 1997-186

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သို့.ကော ~ သို့: ဒါဝဂ်ဂေါဝိ.မ္မာ: စာ | ဂေါဝိ.မ္မာ: စာ တော ကုသို: မ္မာ: နိဗ္ဗာန်စာ အဝိဇ္ဇာဝိသုဒ္ဓိ
 က ဟု: မ္မာ: စာ: သို့ ပါမီ အိ.ကော.မ္မာ. သို့။

The process of remembering involves information passing from our short-term memory into our long-term memory. Information may be stored in the short-term memory for as little as a few seconds.

The long-term memory can store information for a lifetime, but nearly all of what passes through our brain is promptly forgotten.

Our STM stores what we are thinking at the time, along with information that has come from our eyes, ears, etc. After storing and processing this information for a few seconds, the STM promptly forgets nearly all of it.

For example, if someone read out five telephone numbers one after the other, you might be able to remember the last one, but you would probably have forgotten the earlier numbers.

The content of the STM is short-lived, and is easily displaced by new information.

If a student is given new information too quickly, he or she will not have time to process it properly in the STM, so the information will not be retained.

Experimenters tried halving their normal speech rate to students with learning difficulties, and found that the students' retention was doubled.

This vital process of structuring or giving meaning to new information is demanding as well as time-consuming, so we must try to give our students as much help as we can. Learning activities that involve students in using the new ideas will aid clarification.

Once the STM has 'made sense' of the information, it is passed into the LTM where, unless it is subsequently used or recalled in some other way, it is again eventually forgotten! I remember finding my university lecture notes in the attic ten years after graduation.

If they had not been written in my own handwriting I would not have believed I had written them! I had not used this knowledge, so my brain appears to have judged it of no use, and thrown it out of my LTM.

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What we call 'forgetting' is the brain's built-in technique for ensuring that it is not cluttered up with useless knowledge.

Its aim is to remember nothing but useful information. Unfortunately, however, it tends to consider a fact or idea 'useful' in the long term *only if it comes across it regularly*.

Forgetting and remembering, then, are not under direct conscious control; they are automatic.

There is only one way to ensure that something is remembered: repetition.

As teachers we must make sure that any knowledge we want our students to remember is recalled and used frequently.

What learning experiences would you need, to be sure you had learned these skills? And in what order would you prefer to have these learning experiences? You are at liberty to choose any learning experiences you like. Here are a few examples for you to choose from.

Reading. Students are set relevant reading.

Test. A test may be simple or realistic, marked by the teacher.

Class practical or exercise. The students practise under supervision.

Note-taking. Notes or handouts are given to provide a permanent record.

Demonstration. Students watch a teacher show them how it should be done.

Explanation. Students listen to an explanation given by the teacher.

Discussion. The class discusses informally.

Question and answer. The class can ask questions of the teacher.

Watching a video. Students watch a relevant topic.

Summarising. Students are given a summary of the most important points.

Investigation. Students are asked to research a topic for themselves.

Role-play. Students take part in a realistic simulation.

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১০ মার্চ,

[illegible]

ବନ୍ଧୁ ଯୋଗେ

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ନାମ: ଶ୍ରୀ. ରାମଚନ୍ଦ୍ର. ପଣ୍ଡା

১৯৭২ সালের ১২ জানুয়ারি তারিখের

မှတ်ချက် မှတ်တမ်းခြင်း၊

Page 1 Hand out of 10

20.6.60

1. $\frac{1}{x^2} = x^{-2}$

১৩:১৩:১৩

6. အကျိုးငှာလုပ်ငန်း: စွေးစွေး : ဂုဏ်တရားမရှိ

$$2n60: 12n60$$

၆ ကျပ်၊ ၁၈: ၂၇: ၁၁၆၆ စာပါ ကိရိမိ: ၃၃: ၆၆, ၃၆၆၆၆၆

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১৯৩৬-৩৭

6 May 1970
J. H. H. H.
H. H. H. H.

பிச்சுத்தல்

6. $\frac{1}{2}x^2 + 3x + 5$

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അനുഭവ

ကျဆင်းစေရန်

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Why do learners feel a need for a demonstration when they are learning a skill? It is because they want to know, preferably in concrete terms:

- what they are expected to do
- how they can best do it
- how they can tell when they have used the skill or ability correctly and perhaps:
- when and where it is appropriate to make use of their skill.

သင်္ကြာ: လေ့လာ သူ မှာ သည် ခုစီး ဥပဒေလွှဲ ဥပဒေလွှဲ လေ့လာ ရှေ့တွင် သတ္တဝါ ပြောင်းလဲ: စွယ်
လဲကပ်သည်။ အကယ်၍ တွေ့ရုံဆိုရင် -

- သူ့ကို မည်သည့် အရာ လူ လုပ် လုပ်ရန် လို တွေ့: သိရန် လိုသည်။
- မည်သည့် နည်း ဖြင့် အကောင်: ဆုံးလုပ် လုပ်ရန် လို နည်းလမ်း: သိရန် လိုသည်။
- သူ့ကို ဖော် အရာ အရာ: ခုစီး ဥပဒေ လွှဲ ကျန်ရှိစွာ အသုံးပြုခြင်း တွေ့: သူ့ကို မည်သည့် အရာ
လိုက်သည်။
- မည်သည့် အရာ လုပ်: မည်သည့် အရာ လုပ် သူ့ကို ဖော် အရာ အရာ: လူ သင်, လေ့လာ သုံးရန်
လိုမည်။

The 'teacher' has a diagram of a structure which is to be drawn by the 'student'.

The teacher tells the student how to draw the structure (without showing the student the diagram); however, one-way communication only is allowed. The teacher cannot look at the student's drawing, and the student cannot ask questions or even acknowledge any comment from the teacher.

This apparently simple task turns out to be extraordinarily difficult to complete successfully, and anyone watching is soon in fits of laughter.

It is not long before the student misinterprets at least one of the teacher's instructions, and as a result later instructions are often impossible to carry out. The student becomes paralysed by indecision, and by the relentless flow of apparently nonsensical instruction.

The 'teacher' may feel an overwhelming desire to check that instructions are being carried out properly.

The 'student' is desperate to ask questions to clarify the instructions, or is itching to tell the 'teacher' to slow down.

It is evident from the game that the process of learning is doomed to failure unless:

- the student can question the teacher to resolve ambiguities or clarify difficulties
- the teacher is given some feedback about the student's understanding.

If teaching were a one-way process, we would learn perfectly satisfactorily from books and videos, and teachers would just be an unnecessary irritation.

තන අදෙල්ලි, දූ ජුඤ්ඤා: ඉක්ක: ඒ ඉක්ක දාදි, හෙත්තා ඒක්ක දෙ ලොඨ: ඔතො: ඒ ඉක්ක දාදි,
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 දූ හෙත්තා: ඒ ඒ දාදි"

- හෙත්තා: තා: අදෙල්ලි, ඉක්ක: ඒ ඉක්ක දාදි, හෙත්තා ඒක්ක දෙ ලොඨ: ඔතො: ඒ ඉක්ක දාදි,
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- තන අදෙල්ලි, හෙත්තා: තා: ඒ ඉක්ක දාදි, දූ ජුඤ්ඤා: ඉක්ක: ඒ ඉක්ක දාදි, හෙත්තා ඒක්ක දෙ ලොඨ: ඔතො: ඒ ඉක්ක දාදි,
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Learning and memory

What was the weather like on 4 March last year? You knew once! Psychologists are still not sure how we remember and why we forget, but they believe the process of remembering involves information passing from our short-term memory into our long-term memory. Information may be stored in the short-term memory for as little as a few seconds. The long-term memory can store information for a lifetime, but nearly all of what passes through our brain is promptly forgotten.



