Chapters 10,14,17 and 18 from

THE KEY TO STUDY SKILLS

SIMPLE STRATEGIES TO DOUBLE YOUR READING, MEMORY, AND FOCUS

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With Suraj Sharma

www.KeyToStudy.com

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The Key to Study Skills: Simple Strategies to Double Your Reading, Memory, and Focus

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Chapter 10: Your First Training

Ready! Set! Go! After a brief introduction to the Tachistoscope principle, you will find several training exercises you can start right away! You can begin learning to speedread without further delay! Remember to work the training exercises into your training schedule.

Tachistoscope Principle

Tachistoscope is the device that launched the speedreading training in the late 1930s. The word *tachistoscope* is derived from the Greek words '*tachys*' meaning swift and '*skopion*' meaning instrument for viewing or observing.

The device projects a series of images onto a screen at rapid speed to test visual perception, memory, and learning. Visual recall is enhanced as the flashed images are increased in number or complexity as exposure duration times are decreased.

Often numbers are used as the visual targets. Research has shown humans have the capability of recalling correctly, and in the proper sequence, eleven numbers exposed for a 0.5-second flash duration. Tachistoscopes were used during the late 1960s in public schools as an aid to increase reading comprehension for speedreading.

There were two types. In the first type, the student would look through a lens similar to an aircraft bombsight viewfinder and read letters, words and phrases using manually advanced slide film. The second type projected words and phrases on a screen in sequence. Both types were followed up with comprehension and vocabulary testing.

While the device produces high improvement after some training, the skill level decreases rapidly. The rapid decline occurs when practice is not continued at the baseline level (before exposure). Only very few professions (i.e., law enforcement) may require continuous training of visual recall. The tachistoscope is not used outside of a small circle of professionals.

Training Similar To Tachistoscope

As you can surmise, the KeyToStudy System includes several training exercises, which by their nature are very similar to the Tachistoscope. This is one of the reasons our training ALWAYS works,

but it is also one of the reasons the training should focus on a comprehensive set of skills.

The protocol I use involves a grading system, which provides feedback to the trainee concerning the accuracy of the responses. When at least 70 percent accuracy is achieved, the next level of difficulty is displayed for recall and response. **The goal of the training is to increase the number and/or complexity of the visual targets while maintaining accurate recall.**

While some of the training exercises require a high level of skill, other exercises may be started as soon as you want. Below are some skills you can begin to train right away.

Linking Markers

Creating short stories that include given words is a very simple way to remember things. Practice the linking markers exercise in several ways.

http://www.KeyToStudy.com/linking-markers-exercise/

Level 1: Create stories with words

Level 2: Make visual animations. Try to make them extremely fast

Level 3: Make the first and last words incredibly vivid. Then, travel the visualization backward.

Level 4: Train with chunking 4 words per chunk. Improve memorization speed times 4!

Short-Term Visual Memory

The more letters you can see and remember at once, the faster you will read. This exercise trains both working memory and eye speed.

http://www.KeyToStudy.com/short-term-visual-memory-training/

Level 1: Two letters, deduce one letter from other

Level 2: Try to remember all letters at once and then recreate them from memory

Level 3: Now use 4 letters. You cannot deduce anymore, need to remember everything

Level 4: Same thing, but with saccades and chunking. Divide the screen into quadrants

Sliding Words

This exercise enhances visual angle and teaches saccades. When the speed increases you can no longer subvocalize and vocalization is suppressed.

http://www.KeyToStudy.com/sliding-words/

Level 1: 5 words per line, 250 wpm

Level 2: 5 words per line, 500 wpm

Level 3: 7 words per line, 700 wpm

Level 4: 11 words per line, 1000 wpm

Find The Differences

The fundamental quality of accuracy is the ability to notice minute differences at high speed. Rather than one exercise, we have several exercises here.

Level 1: Find mimicry in nature

Level 2: Find differences between images

Level 3: Find differences between texts

Level 4: Find differences between character strings (fast)!

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These four exercises you can do at any level of the course. You will not be bored or disappointed!

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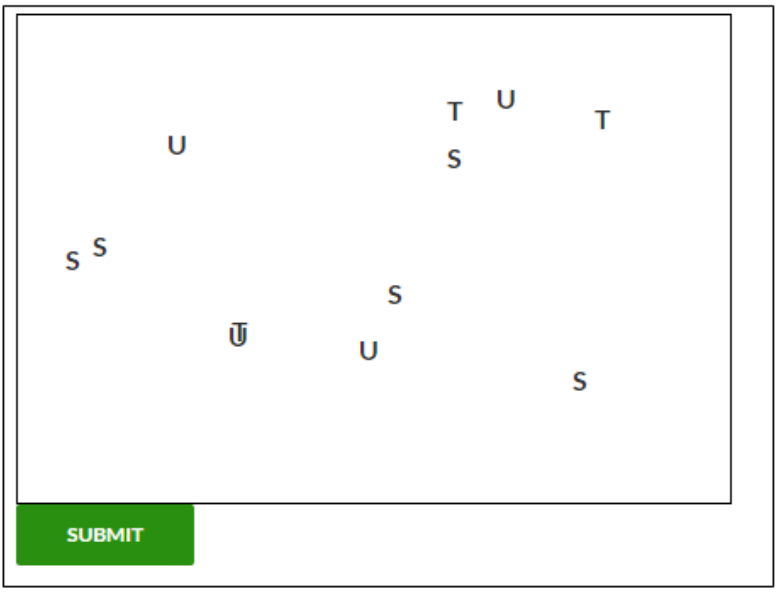
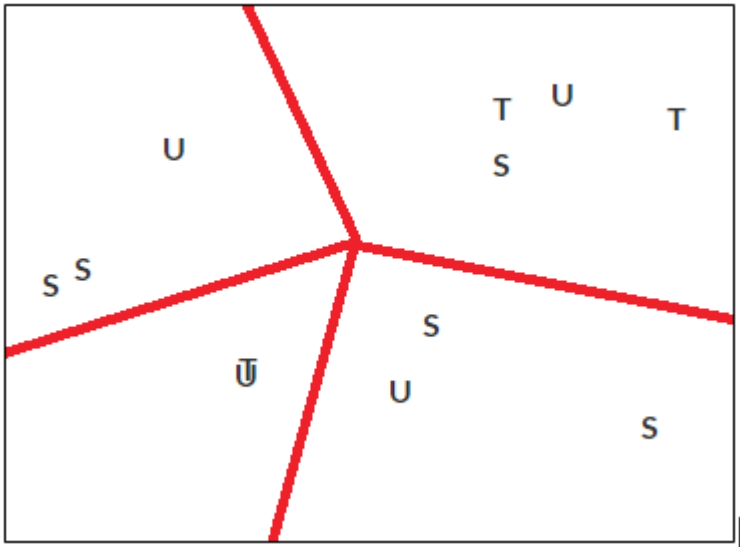
STVM Example

Go to:
http://www.KeyToStudy.com/short-term-visual-memory-training/
Choose S/T/U (intermediate) with 12 symbols
You can both increase and decrease difficulty, but this is the primary training mode after you get proficient.

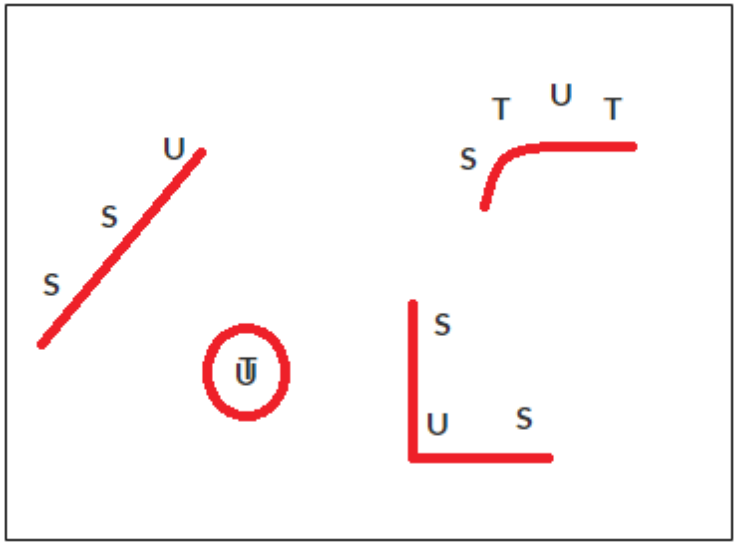


Try to divide the screen into four quadrants since quadrants are quite easy to remember.



If a beginner, scan the quadrants one by one. If advanced, look at the middle of the visual field try to get the quadrants using peripheral vision.

Try to remember each quadrant in visual working memory noticing geometry. It is OK to reorder the objects a bit to remember better.



At this point, the objects disappear and you need to recollect them.

SSU diagonal
UT merged
STUT rounded corner
SUS quad corner

Sometimes we have enough time to subvocalize each. This improves retention. Other times we do not subvocalize and improve speed.

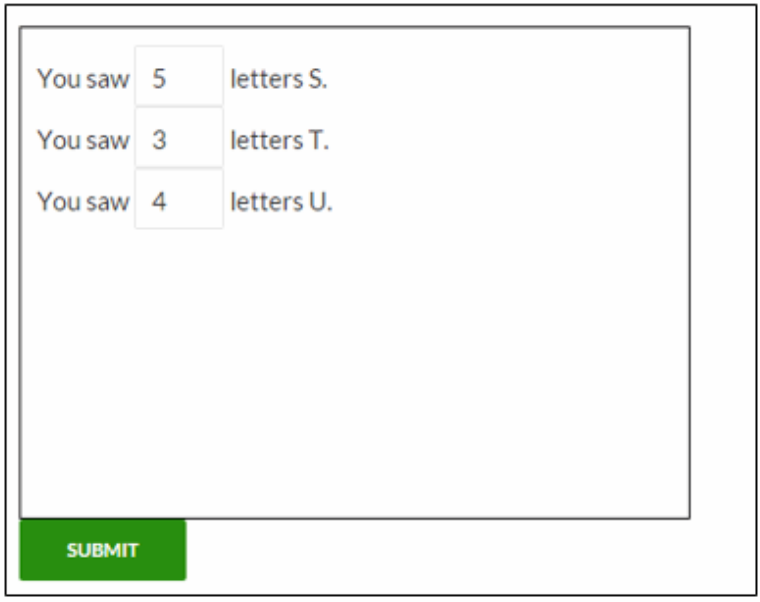
Now count each letter. For example:

4*S
4*U
2*T

You get 10 letters, but you know you need 12 letters!

Count again….

5*S
3*T
4*U
Now this is 12…
Using *a priori* knowledge to check yourself is not cheating!



Accuracy in S: (5/5),
Accuracy in T: (3/3),
Accuracy in U: (4/4),
Total accuracy: 100%

OKAY!
Now repeat the exercise.

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An excellent working memory is required for great speedreading. If you do not train your working memory, you will not be able to process what you read.

Skill Degradation

How can you resist gradual skill degradation?

1. **Speedread every day at least 20 minutes**. You do not have to train anything special, just read any book or blog you like.

2. **Focus on strategies**, rather than specific exercises. The specific exercises are just crutches that support you until the strategies become your second nature.

3. **Understand the principles**. If your reading speed decreases for some reason, you can ramp it up quickly using the correct principles.

4. **Use the community to support your training**. Others will provide you motivation to read further and better.

For Further Research

Tachistoscope:

http://www.oepf.org/sites/default/files/journals/jbo-volume-14-issue-2/14-2%20Godnig.pdf

https://en.wikipedia.org/wiki/Tachistoscope

ow I have the image in my mind vividly, but how do I link it to the word itself "Aberrant?"

Dr. Lev Goldentouch:

a.i.1.a.i.1. *Search Google "aberrant etymology"*
a.i.1.a.i.2. *ab=away, errare=stray*
a.i.1.a.i.3. *ab sounds like "Abe," errare sounds like "error"*
a.i.1.a.i.4. *"Honest Abe was so tall he made errors large and small"*

EY:

So, just to be clear I have to connect the image (i.e., visual marker) to the word by some kind of a phrase that contains the word itself – so when I read the word I remember the phrase with the marker. BTW, I tried the "etymology technique" (yeah, that's what I'll call it) and it is really easier to create visual markers now.

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The basic idea I use is very simple: rather than trying to create visual markers from scratch, **use the actual factual details of the subjects you are learning to create a stronger marker**. Not only will such a marker be more accurate and memorable, but you will also learn a thing or two. The question of new definitions comes up very often.

EAY:

Is there an easy to way to memorize definitions?

This is a problem I stumbled upon. I'm just starting Section 3 in this course, and the way you guys propose to memorize is to make a story or an image and link it. And I tried it. It helped me in some things. But, how does this work for scientific definitions, especially word-by-word.

For example, if we take the word hypothesis. Hypothesis is a proposed explanation for a phenomenon. How may I take the definition and turn it into an image or a story?

Dr. Lev Goldentouch:

*Step 1: Go to the **etymology**. From Greek hupothesis 'foundation,' from hupo 'under' +thesis 'placing'*

*Step 2: **Learn each part**. Hippo loves water and is always under it. Thesis is your place in science.*
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Step 3: ***Rationalize****. Hypothesis is the foundation under your scientific theory.*

Step 4: ***Reread the accurate definition*** *to see what you missed. Hypothesis is a supposition or proposed explanation made on the basis of limited evidence as a starting point for further investigation*

Step 5: ***Synthesize your own understanding****. Hypothesis is a foundation placed under a scientific theory that is a starting point of theory construction. This foundation is based on limited evidence.*

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Please notice after learning the exact details of the concept I can still encode the details as fun and creative imagery. I just make this imagery extra accurate. This accuracy may make you come up with some absurd ideas. However, as long as the absurdity leads back to the actual meaning, you have understood and applied the concept.

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For example:

IG

I am a little confused on connecting my markers to the words. For example, the word "argument" for which I came up with an image of two people yelling at each other. However, when I am going from the image back to words, I mix it up with words like disagreement? I had similar trouble with words like photography and photograph. Should I be coming up with separate markers for every word or do some words have the same marker?

Dr. Lev Goldentouch

You cannot distinguish between things you visualize in the same way. You need markers that are more accurate. See etymology: argument from Latin argumentum "evidence, ground, support, proof; a logical argument," – means than in an argument one person tries to prove something to another. Disagreement from the noun of action agreer "to please" – feeling unpleasant with what is happening around. Now you can use some disambiguation typecasting like men argue and women disagree, or whatever makes sense in your mind.

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The most powerful methods are also the simplest to use. With the etymology method, you can create markers for some very complex concepts, and then each time you meet these concepts you will have readily available markers. Please do use these very strong markers carefully, with detailed links and context: **if you ignore context too many times, you will start to become confused and will need a new set of markers.**

Chapter 14: Training Visualization

You cannot rely on Google image search to come up with markers. Visualization skills can be learned quite easily using several methods.

These initial exercises will help you develop visualization capabilities. They are also useful for controlling your focus and mindfulness.

Many students initially fail when starting learn visualization techniques. Do not give up. You can continue with the training even though you have not aced visualization. With time, your visualization skills will become as good as your other skills, or you will learn how to modify your personal style to use the visualizations that are easy for you.

1. Photograph

- Find a photograph.
- Take your time to analyze it.
- Memorize every detail you can.

Then:

- Simply close your eyes
- Try to recreate it in your mind
- Bring in as much detail as you can:
  - the colors,
  - the birds in the sky,
  - the freckles on the skin
  - whatever is there.
- Open your eyes to get more detail if you have to.

Remember, this is not a test. Do this exercise until you can easily recreate a photograph in your mind.

2. Object

For the second exercise, we are going three-dimensional. This time, pick up a small object perhaps your pen or your keys.

- Again, analyze all the details and memorize it.
- Take your time.
- Now, close your eyes

- See the object mentally
- The challenge here is to start rotating it.
- See every detail but from all angles.
- If you feel comfortable, begin to bring in some surroundings.
- Place it on an imaginary table.
- Shine a few lights on it and imagine the shadows flickering.

3. Focus

This method may not work for some of you. If you are unable to do this exercise after several attempts, *do not worry about it* and just continue practicing other exercises.

- Start with a point.
- A black point on a white background is very precise and holds your focus.
- When your focus is fully attracted to the point, you start to increase it into a circle.
- The circle encompasses several things
- You can bring shapes into and out of it with the power of your mind.
- Increase the circle as much as you can without losing the intensity of your focus.
- Bring in a simple inanimate object such as a flower, a statuette, a candle.
- Make the object rotate and dance in your imagination.
- Try to experience it with all senses.
- When the object becomes lively, try to transform it into a specific person.
- Visualize the person in all details.
- Generate a conversation with the person, to the point where you are drawn into the conversation.
- At some point both the circle and the person disappear, and you drift into magical landscapes created by your imagination as the result of your conversation.

4. Online

- Open Google Search
- Choose a random image
- Look at the image for 10 seconds.
- Close your eyes.
- Try to visualize the image.
- Be accurate regarding number and position of details.
- Remember as many details as possible.
- Try to visualize the entire image.

There are several levels in this exercise:

1. **Simple** objects, like office supplies
2. **Larger** objects, like cars
3. **Complex ideas** expressed in clipart
4. **Optical illusions**
5. **Fantastic landscapes**

Each level of detail enables visualization that is more complex. The complexity of visualization typically matches the complexity of the text. *A fantastic landscape is about as complex as an average Wikipedia article.*

Getting Stuck With Visualization

About 1% of our students become stuck with visualization. They either cannot get into the visualization mode and see pitch black, or they cannot get out of visualization mode and experience vivid hallucinations.

Trouble Visualizing

If you have trouble getting into visualization, this may mean your visual processing is just too fast. What other people experience as images and objects, you may experience as logic and connections. You may get an inexplicable subliminal "feel" of the image without getting the image itself.

Guess what? This is exactly what the top speedreaders feel like. They need to process the information so fast that no images are formed. Instead, they improve their subliminal perception and use

pauses between paragraphs to connect the new subliminal information to other things they know.

Try to focus on how various things connect to each other, and you will get the feeling of the marker without even seeing it. Practically, you will be jumping several steps, so expect a bumpy ride, but eventually a high pay-off.

Trouble Getting Out Of Visualization

If you have trouble getting out of visualization, this may mean your visual processing is too rich. What other people experience as images, you experience as vivid objects, maybe even with touch and smell. Most of the memory champions are like this. To overcome the speed limit, try not to add to the object details beyond the bare minimum, and pace yourself. Limiting your time to do things has amazing influence on people with vivid visualization, enabling very fast and very accurate reading.

1. **Art**: sing with a voice of an angel, draw a circle around yourself and start chanting
2. **Politics**: burn a flag of some country
3. **Outsourcing**: hire a PR company
4. **History**: burn a temple, burn yourself, start sitting protest/hunger
5. **Container**: throw garbage cans
6. **Material**: hold a box with a sign of radioactive material, wear biohazard suit

Chapter 17: Linking Markers

It is not enough to remember details. **It is very important to connect the details with each other**. There are several levels of linking markers. We start with examples of low-level visualization and related linking, and end with high-level visualization and related linking of markers. We start from creating short and simple stories, build up associations and complex visualization, and end up with the creation of whole virtual worlds adapted for retention of hundreds and thousands of details.

Anchors

We mark in the text the data we want to remember. However, how do we make sure we will be able to find our markers?

1. Generate special markers which we call anchors through which we remember all other markers.
2. Link all markers to each other and eventually to anchors.
3. Make sure that anchors answer a specific question we may ask later to retrieve other markers.
4. Anchors are "slow" markers: we make them very lively and easy to remember and try to connect them to our prior knowledge.

Find Your Natural Markers

Some people use a highlighter, some write on page margins and some draw illustrations. We use different ways to mark what we read. When we visualize our marker, it works in the same way. Try to ask yourself:

1. Do you remember better the actual toys you played with as a child or comics you read when young?
2. Do you still remember the way home from your school, or do you remember funny stories with your schoolmates?
3. Is your own life more lively for you than the last blockbuster movie you saw?

4. Do you prefer nature or do you prefer high-quality rendering of a cool video game?
5. Do you effortlessly recall jokes, poems or equations?

Once you ask yourself the right questions you will understand what sort of markers work best for you. Check different sorts of visual associations with texts. What do you remember better? What comes to you effortlessly? What associations do you get for anything you read?

Do not be embarrassed by yourself. Some of my best associations are too obscene to be written in a book. So what? They are funny, they get me involved and they are very memorable.

Follow Your Text

When creating structures to hold your text, try to follow the template in which the text is written. Typically, texts are hierarchical and open an idea into several subjects, and each subject into several statements. Some texts appear to have lists and pro/con tables. Do not try to force your own structure upon the text you read, follow the structure of the text instead.

Markers Versus Details

Typically, we generate approximately two markers per paragraph with approximately five details per marker. Generating markers takes time, and we need details to make the markers memorable. If we add too many details per marker, we will start forgetting details. If we add too many markers, we will read slower and we may start adding details that are not supported by the text.

Question: How Do I Link Markers?

AD

The impression I am getting is that I have to read the text, choose out unusual words that stand out and turn them into images since that is what the brain likes the most and then go back and turn those images into a story or do I try to force myself to create the story at the same time?

NM

I can create markers pretty well now, still struggling in choosing what parts now and then. My problem is linking them together. I see you said the story method is too long to connect

markers together effectively for speedreading, but I can't seem to find where you explain how you should link them.

Dr. Lev Goldentouch

You do sort of a story, but one that does not have to make sense. The story is more of a comic. You can see the flow visually, but you cannot actually vocalize the story behind it.

Most authors recommend placing the objects in a familiar environment, the loci or memory palace method. This way you can imagine a huge house or museum, and then you memorize your itinerary and the objects you see. I could not personally use the memory palace method since I am challenged this way (I cannot find food in my own refrigerator). Therefore, I developed my own strategies.

When I was training, Anna asked me to create an image per page, per paragraph, per sentence, per detail I want to remember and to draw these images on a page near the titles I give to the article, the sections, the paragraphs, etc. Eventually, I stopped drawing, but the brain continued marker generation.

The simplest way to link objects is to create some sort of funny physical interactions between them. I call it the "three stooges" style. It includes a lot of breaking through, sitting on, running into, etc., where you get a chance to memorize parts of objects meeting each other at various points. I initially used this method. It allows me to create links very fast with no effort, but the resulting imagery very soon loses all uniqueness.

The method I recommend to the students of this book is what I call ***"cartoon" or "storyboarding."***

- *You start with creating the general mood of the storybook, during the preparation stage. Usually I go with some sort of 'dark' setting, maybe Steampunk or Iron Men environment.*
- *Then I start creating images one by one, giving each section/paragraph an image. Each detail of the paragraph is carefully planted in various active personages and the setting.*
- *Larger parts of content get more space than the smaller ones.*

! *Various sections are then linked by some sort of sinister plot. Maybe hugging bears or sitcoms are more suitable for your style.*

! *The storyboard method also boosts your creativity and encourages unique markers.*

The third method I use I call ***"hyperlinking."*** *It is inspired by website design. You can enjoy something similar on "Big History" (TV series):*
http://en.wikipedia.org/wiki/Big_History_(TV_series).

The method uses very simple markers but very complex links between them, where most of the information is carried by links. Using this method, I can learn whole disciplines and areas of knowledge, but I would not use it for a single article.

Linking Exercise

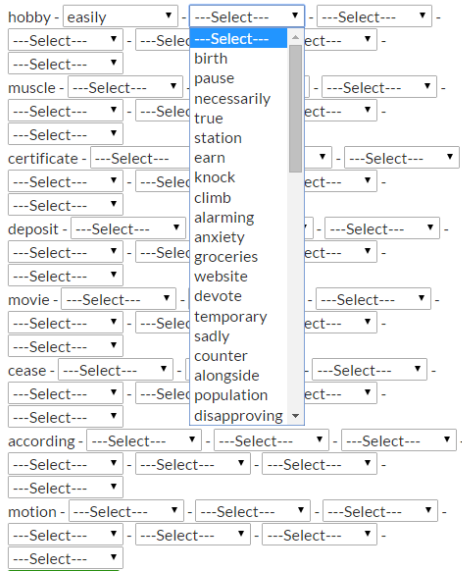
In the linking exercise, you have the first word open and you do not need to generate chunking. Many lists come in a form very similar to the linking exercise. All you need to do is remember how an object follows from another.

Go to http://www.KeyToStudy.com/linking-markers-exercise/. Choose 8x8 structure - I do not want this example to be too long.

hobby - easily - theatre - space - significantly - website - ambulance - between
muscle - knock - aloud - station - sadly - than - true - pause
certificate - mineral - emergency - proud - shortly - weather - release - govern
deposit - scheme - steer - excluding - anxiety - active - return - expert
movie - surround - onion - illustrate - birth - devote - earn - strip
cease - counter - population - satisfied - feature - crucial - arrive - alongside
according - afternoon - ruin - groceries - dishonestly - lose - detailed - necessarily
motion - disapproving - exhibit - terrible - climb - temporary - take - alarming

Once we generated all the links, we ask to complete the table using multiple-choice selection. The words come up as clues, which is very comfortable. However, as there are more words, the right word

starts to hide in the long combo box. Finding the right word is good training for the scanning skill.



You can guess if you want, and when finished you get a score.

Now, how do we remember 64 associations? We create a comics/animation! It is imperative to keep the order right, so we add an artificial detail before each word. Try to add different colors for original and added words, like red of original and blue for added.

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Association: hobby easily theatre space significantly website ambulance between

Comic Animation: (Gardening) hobby (makes growing flowers) easily (thrown on stage of) theater (where actor with flowers looks into) space (illuminated by stage light because he is) significant (his reviews crushed on a) website (so he needs an) ambulance (where he lies) between (sanitars.)

Very dramatic: an actor, scene, flowers, critics, heart attack.

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Association: muscle knock aloud station sadly than true pause

Comic Animation: (Mafia) muscle (at a door) knocks (continues) aloud (from police) station (a siren sounds) sadly (much more) than (now. Not) true (this scene) pause (filming)

Here we have two motives within the same animation. We start within a film, but we do not know that, until we stop filming. Again, filming of a mafia story is easy to remember.

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Association: certificate mineral emergency proud shortly weather release govern

Comic Animation: (Medical) certificate (approves) mineral (to be eaten in case of) emergency. (The scientist) proud (of the mineral, thanks) shortly (to the public, which retreats due to) weather (Mr Hyde is) released (and the city is his to) govern

I knew that this is Dr. Jekyll/Mr Hyde only when I came to the word "release" and it associated with a monster. Having Mr. Hyde is sufficiently horrific to remember the link.

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Association: deposit scheme steer excluding anxiety active return expert

Comic Animation: (Safe) deposit (lock with electronic) scheme (and metal wheel to) steer. (Everyone bank owner) excluding (breath with) anxiety (as the mechanism becomes) active. (The deposit is) returned (and the bank owner thanks the) expert.

Try Oceans 11... TV offers an endless supply of stories to use.

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Association: movie surround onion illustrate birth devote earn strip

Comic Animation: (Rapper watches a) movie (with huge boom box) surround (He eats) onion (and cries. He doodles to) illustrate (a demon's) birth (in satanic chamber with) devote (who sacrifice virgin) earn (the demon's favor as they) strip (the virgin.)

Occasionally we have a dream within dream scenario. With practice, we can easily handle it. It is much better than trying to recreate a link that became disrupted.

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Association: cease counter populate satisfied feature crucial arrive alongside

Comic Animation: (The National Guard) ceased (the city as they) counter (zombies who) populate (the streets. Never) satisfied (the search for a) feature: (a crack or a door to break. It is) crucial (for human survivors to) arrive (to the guards with no zombie) alongside.

With practice, we can learn to visualize negations. Typically I place a burning red X sign in the scene where the negations happen for double coding.

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Association: according afternoon ruin groceries dishonestly lose detailed necessary

Comic Animation: According (to the commander, this) afternoon (a group of zombies) ruined (a) grocery (store, killing thieves who) dishonestly (stole the army weapons. They) lose (their life making) detailed (map of underground passes) necessary (for escape.)

Continue previous theme- easier than creating a new theme. It is hard not to mix added versus original words, like visualizing red details on a blue map. For "necessary" I use the exclamation point (!). I use similar punctuation symbols to emphasize/double code some other words.

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Association: motion disapproving exhibit terrible climb temporary take alarming

Comic Animation: (Congress) motion (to impeach) disapproving (sexual behavior of the president, who) exhibit (a dress with a) terrible (stain. Demonstrators) climb (the Capitol stairs, blocking) temporarily (city center. The police) takes (no action, faced by) alarming (violence of the riots).

Here I chained president elections and riots - both of which you can find in the news. For temporarily, I visualized the day-and-night cut scene from "*House of Cards*." For alarm, I visualized police lights, etc.

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A memory champion can encode a detail in 0.5 seconds. Typically, when faced with this exercise, students invest too much focus in each specific word, rather than following a theme where all
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the words are reasonable. It is very important to go with themes, and not create a different theme for every object, or the exercise may take forever to complete.

Story Creation

BM

Is creating a story effective? Does it count as markers?

For the game you have posted for this chapter, I do the following. I feel it's not quite what you suggest but find it really hard to make markers for the objects in the game using one to two words.

My example... (the BOLD being the words to remember)

> *I enter my kitchen, step on the floor covered in 10c **COINS**, I see a giant **PINEAPPLE** chopping up rotten **TOMATOES**, I hear this horrible yelping midget **DOG** spot a **LEMON** and throw it to shut it up but it breaks the Japanese Porcelain **FIGURINE** which was hopping around the lounge like a **RABBIT**, etc....*

Is that sort of thing useful or is it too much work? Should I really be condensing it down? I have used this technique to memorize lists and lists of stuff in previous attempts at improving memory, but I am not sure if that will work for what we are doing here.

Dr. Lev Goldentouch

There are many methods for remembering things. The story method is very useful if you have a very high density of information; however, it is a bit slow. Try actually visualizing to remove vocalization and improve the speed of learning. For example, I often create visualized comics, e.g. quickly changing chains of images that have a certain story behind them.

Jonathan A. Levi

As Dr. Goldentouch mentioned, it is very effective, as you said it works well for lists and things you have to remember. However, for reading it will indeed prove way too slow. Still, if you have to remember a lecture and go on stage, this is a great way to remember the key points. In fact, one of the Ted talks we link to discusses this exact technique.

BM

OK cool, I guess my thoughts then are that I can create images for the different things such as dartboard, white cat, etc., good markers for them, but without that story I was creating I find it difficult to link them all together enough that one leads to the other.

If I can clarify the comic idea, that would be taking a marker, say for the dartboard, which for me would be a mate playing darts in my garage and him losing constantly and the despair in his voice. Taking that image and giving it a link to say a white dog, which my marker would be my pet dog, Max. I can link these two together as I lived with my mate before, but do I need to do that extra link? Are just the two markers I have described enough linkage to keep them all in the mind?

Thanks again.

Dr. Lev Goldentouch

Always link, if you have time make more than one link. The links allow navigation between markers, like between pages on a website.

Visualization Levels

AB

Homework game, how to better use markers with the game?

I played the game and made markers for each image. This worked well until level 3. I felt this problem was coming from not having a connection between the clusters of images. They were all standalone for me.

So I made a story following chronologically to images and markers to each image. Example a 'can', 'bowling pin' and 'baseball glove' becomes: I saw a can and put a bowling pin in it, and then I proceeded to throw it with my baseball-gloved hand. This worked perfectly without a single mistake from level 3 to level 10, took me 30 minutes to do so.

I actually realized/wondered halfway (level 6) that I was actually using modified version of the memory palace. I feel that it's a good way for totally unconnected information. This story technique is ineffective for logical information. With practice, I hope I can use place markers and logically connect them to the big picture.

But with the unconnected images in this game how am I supposed to do that? Should I make up a big concept/marker to place all the images with markers in? Like I make individual markers for 'can', 'bowling pin' and 'baseball glove' then connect those markers

with my image of a standard American dad in a movie who eats 'can' food and plays 'bowling' and 'plays throw ball'?

Dr. Lev Goldentouch

Depending on the level of visualization, you will get different results.

Low-level visualization: Put a pin into the can and then put the glove on the pin. Notice that putting the glove on the pin like you would put it on a hand is fun to visualize and creative, so easier to remember.

Middle-level visualization: Smash the can between the pin and the glove. Here all three objects interact with each other very graphically and in physical vicinity. Notice that taking one element out of the picture destroys the connection; therefore, the connection is strong.

High-level visualization: You are a knight, with a can on your head, a bowling pin as a sword and the glove on the hand holding the pin. Now each of the objects can interact with anything in the landscape around you and each other in multiple ways.

AB

Awesome! I think I get it.

So Low-level is simply objects 1-2-3-4 ... in order – basically the way I did it.

Middle-level is connecting multiple markers together in a cluster 3-3-3 and so on.

High-level is me being the starting point (Knight), my knightness I defined by a few items in my possession. I'd then use my items to interact with other object clusters. Like fighting a cat with sunglasses and a rose behind his ear with my pin.

Hmm, I notice there are multiple ways I can proceed if I visualize myself as a Knight. The most logical way as I see it is to connect an individual story to each of my possessions. So my markers would branch out like a tree. Me the Knight as the trunk of the tree and my possessions as big branches. From my big branches would extend small branches of marker clusters. That way it would be a clear way to move around the markers without messing up. I imagine this would be a strong and fast, but limited in speed. Because I don't use my possessions together.

There is another way that might be faster. But I wonder if this is harder to do. Instead of making branches, I'd make the entire

environment in one go. Me as the knight and with my possessions. I would then interact with a cluster of items, each item having a cluster of items. Example: I'd fight a evil army, Evil cat, Evil Butterfly and Evil Lemon. The evil Butterfly would be carrying a weapon! An umbrella with a tomato on the end and so on.

When I think more about it, the latter I feel is what you meant by High-level visualization. The first I am limiting myself again to the system of markers. Well, actually in all fairness both systems are good in my opinion. The effectiveness depending on what you try to remember. Same at the different techniques the memory champion contests use. As we are trying to learn markers for remembering details in this course, I should go with the latter method?

Dr. Lev Goldentouch

High-level visualization may involve remembering hundreds or thousands of detail in the correct order by generating a whole virtual world. Typically, it is used for remembering very complex details with 100% retention level. The complexity of visualization required to remember thousands of details might be compared with creating the World of Warcraft game from scratch.

Speed Up Markers

Kids are great with visual associations. Ask a kid what a specific cloud looks like and you will get a story. Show a kid four stars and he will say it is a magic animal. You do not lose those skills as you get older. If you look at clouds and try to think what they look like, you will eventually succeed. By trying to find order in random patterns, you speed up your visual associations and marker generation process. Try to remember foreign words. What does this word sound like? The more you play with free associations, the better your markers will eventually become.

How Do Neurons Fire Together?

Your brain contains circa 90 billion neurons that work together due to trillions of connections between them. Neurons prefer to connect over short distances with neurons close to them forming neighborhoods, islands, and archipelagos. When we do complex tasks, many neurons in the same neighborhood fire together. Each time neurons fire together, their connection grows faster and stronger.

Only about 20% of neural connections are strong. Other connections are weaker and latent.

What does this mean to us? When we learn something new, we make sure to connect it to something we know quite well so that there will be strong connections into the new knowledge.

There is one foundational principle in the KeyToStudy System the student should understand: Within the brain, all information is interconnected. With each acquisition of new data/information, the key to retention is to connect the new data/information to information currently stored in the brain. Being able to recall the stored information easily and then attaching the new data/information, promotes recall and retention.

Reading with intention/purpose is fundamental in the KeyToStudy System. Eliminating noise (nonessential elements) in the text is essential for reading speed and retention. When a student is able to eliminate the noise, the effort that goes into learning anything is reduced considerably making reading and remembering effortless. By focusing on the key elements of the text and connecting those elements throughout the text, the "noise" or nonessential elements do not slow down the student.

As for practice, we urge the student to take the time to persevere and not give up on the practice exercises presented in this book. Some exercises you may be familiar with; however, a lot of the content presented here is new to most people.

These exercises require you to exert mental and physical energy towards your evolution into a SuperLearner. Do not be disheartened if the results are not immediately forthcoming. Perseverance in the replacement of old learning habits (ingrained through many years of schooling and/or study) with new learning habits of necessity requires persistence, perseverance, and practice. Consistency in the three Ps (persistence, perseverance, and practice) will ensure success will be yours.

A basic skill required by many of the exercises mentioned in this book is an active imagination and the ability to visualize. Some people may think they do not have an imagination or the ability to visualize. However, this is simply not true. It is impossible not to visualize. For example, imagine a beautiful red bird sitting on a snow-covered evergreen branch. What would you see in your mind? You would have some sort of an image occur in your mind. Visualization is nothing more than seeing an image in your mind. Improvement in

visualization (which is nothing more than a skill) is accomplished through practice.

What about imagination? Imagination, much like visualization, is a natural occurrence. It is impossible not to imagine. Imagine putting your bare feet into a fresh snow. What happens? You immediately shiver and move your feet. Imagination is also a skill that can be developed.

Improving reading speed and retention simply requires creating a world in your mind where you visualize the parts of the text being read and imagine yourself interacting with those parts. Creating a world in your mind can help you become more imaginative, which in turn will help you come up with more visualizations for better retention.

Whatever your purpose may be for reading this book, **developing a better imagination is possible** and something a good memory requires. The fun part of developing an imagination is the best part of the KeyToStudy System, which is a better, more controlled and efficient imagination.

To conclude, we know these techniques will enable you to devour texts of any kind at a much higher speed, and to remember a much greater percentage of what you read. We know these techniques work because they have worked for multitudes of students from all walks of life and with different abilities. The ultimate goal of the training you are now embarking on is to ensure you read at least twice your present speed and remember twice your current retention score. However, like everything worth having in life, adopting the KeyToStudy System will take some time, some patience and a lot of practice.

Chapter 18: Chunking And Sequencing

In time management, there is some simple advice stating to break a large task into smaller easily manageable tasks you can do one after another. If you can do several small and similar tasks together, if will reduce the total processing time. The first principle is called **sequencing**. We generate sequences of one marker following another as a long linked chain. The second principle is called **chunking**. We try to unite several similar markers in a group and handle all of them in one chunk. Chunking also deals with structuring the information in complex data structures.

Simple Chunking

In low-level chunking, we detect similar markers and chunk them in groups of 3 to 5 markers per chunk. In this way, we effectively increase our working memory from 7 objects to 20 objects (5 chunks of 4 objects). Moreover, we can perform marker manipulation between the chunks and between markers within each chunk.

Intermediate Chunking

In mid-level chunking, we work with data structures. These include linked lists, trees, and maps.

Linked Lists

Linked lists are ordered chunks of markers connected by some sort of linking "animation" allowing us to effortlessly and accurately transverse forward and backward between them. A good example of a linked list is a task list, i.e., what to buy at the grocery store.

Trees

An excellent way to remember texts are trees of markers. We have markers for articles, sections, paragraphs and sometimes sentences and terms within a sentence. The linking here is hierarchical from parent to children and similar to zoom-in animation on Prezi. Often we find it useful to connect the children of the same node as linked lists to increase accuracy. It is also a very natural way to follow the text logic.

Maps

Maps are fully associative ways to remember pairs of markers. We can use them to connect objects of seemingly unrelated trees. This is a great way to encode out-of-the-box thinking or interdisciplinary connections. References we see in any scientific article are examples of such maps.

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Below is a discussion from our Udemy course regarding these visualization manipulations.

Chunking Mental Markers

DM

I've developed a clear understanding of how mental markers work and am working toward making my markers more vivid and a bit more relatable to each other. Lately, I've been creating funny stories in order to chunk the mental markers (ex: "Crosby's Seafood on Highway 17 = David Crosby holding 17 sign while eating seafood"), but wonder if there are better ways to link those mental markers together. Could you provide other examples of mental marker chunking in action?

Dr. Lev Goldentouch

Try to check various approaches and see what works for you. Usually, there is a trade-off between speed of creating markers, accuracy in details and retention span (e.g., how well you remember the markers after a year). Therefore, advanced SuperLearners use more than one system of markers. Also, try to engage as many senses and association chains as you can if you need high-quality retention span, and for better accuracy try to create unique images.

Jonathan A. Levi

Just to add, I think you are definitely on the right track with your Crosby example, also because you've chunked 3-4 details. Experimentation is key here, but I think you'll already observe really dramatic results just with the techniques you've already demonstrated. Great work!

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Order Of Markers

ATN

When recalling markers, should I be trying to recall them in the order I memorized them? This would seem logical especially when reading literature such as novels, which make sense in a particular order. If so, are there any techniques to achieve this?

Dr. Lev Goldentouch

Well, this is a very good question. When we compare the training required for handling complex data structures in one's brain versus the benefit, the mind-mapping methodology became compelling. Therefore, the short answer is use mind-mapping tools. Below is a long answer.

The most advanced structure I use is a directional graph, something like the Internet, where everything is linked to everything via some sort of hyperlinks, see e.g. https://www.bighistoryproject.com/home. This is equivalent to reading 2000 wpm in structural complexity.

The simplest approach is a linked list, like a story, the order in which the subjects are mentioned. This is equivalent to reading 400 wpm in structural complexity.

For the person who graduates from this course, I originally suggested a tree-like structure, where you have markers for each granularity (the whole article, per section in sequence of sections, per paragraph in section and per important fact within paragraph). The linking of the markers should be bi-directional on each level, so you can "walk through" the markers in the original and in the inverse order. This is equivalent to reading 1000 wpm in structural complexity. For a simple text, this method becomes very similar to mind mapping, and thus the short answer in the first paragraph.

Jonathan A. Levi

Just to add a personal testimony, as I said in the lectures I struggle a little bit with mind maps, and so I tend to replay markers back in logical strings. These are roughly in the order they were created, but sometimes, if the logic is clearer to me in another order, I'll change it up.

For example, in a scientific paper where they state assumptions, then methodology, then findings, I may playback assumptions and

then replay the markers of findings, because, to me, this is more logical. Then I'll play back the methodologies.

ATN

But doesn't mind mapping by its geometrical definition involve adopting a top-down approach rather than the bottom-top (details -> concepts) approach that's been emphasized? Its starting point is a broad topic that then 'branches' out into details, right?

Dr. Lev Goldentouch

Basically, you need to be able to go both bottom-up and top-down. Here is an "ideal" approach expected at the end of the course:

First, you go top down when you prepare the structure of the document in your head. Then you add up details in a bottom-up fashion, correcting missing "branches" as you go. Finally, after reading the document you consolidate your knowledge by going top-down and verifying the details you remembered.

In real life, I work with connected graphs and Jonathan works with some personalized variation of linked lists, so the mind-mapping approach is not really a strong recommendation.

~~~~~

Remembering Markers

KC

I'm really having trouble remembering the markers I'm making. For example, I would read a section in of an article, create 5 markers but only remember 2 of them. Any tips? The way I do it is I pick a word that is a detail and then think of the first thing that comes to mind. For example, if I were picking a marker for your question, I would have picked the word "Marker" and I think of a blue plastic one the size of a highlighter where I can smell the chemical marker smell.

PICB

That sounds great, in that case, maybe the problem is your markers are not well connected, have you thought about that?

Jonathan A. Levi

If you have difficulty remembering markers, there are a couple things that could be happening.

One is like Pablo said, they don't link up nicely.
~~~~~

Another is you may just have to train your working memory to remember larger chunks of numbers. Try remembering 3 sequences of 3 numbers. Once you can get that, work on 3×4, etc.

*In the meantime, you should try to review your markers more frequently. Perhaps a *very* quick review after each paragraph – just picturing the markers before going on to the next paragraph – will help you remember them when you get to the bottom of each page.*

Keep us updated and let us know how it goes. I'll let Dr. Lev chime in as well with anything I missed.

KC

How are you linking the images? The way I do it is one image doing something to another image. For example, if my images are phone and chair I imagine the phone smashing the chair to pieces.

Dr. Lev Goldentouch

There are many ways of linking. The way you described above is a very simple one-way link.

Now consider a 2-way link:

You look at the phone and see an image of a chair. Where have you seen the chair? On your phone.

Consider nesting (Top level: phone, bottom level chair on the cover of 5S iPhone):

You see a movie on your phone's backside. In this movie, a fat clown with 5 balloons shaped like an S breaks a chair with his huge butt.

The same in the long chain (5s har 64G):

With the phone, you smash a chair, which transforms into 5 snakes which hide in a chess box (64 squares) of a grandmaster (G)

For hyperlinking, you need like 20 pieces of information….

What I am trying to say, if you use more pieces of information, you will be able to construct better data structures (fast creation, more stable, colorful, several ways of navigation within).

20 Images Exercise

This exercise is one of the hardest we have. It simulates the situation where you see some complex math (or business) text with formulas, tables, visualizations, which at first appear to be meaningless and unconnected. Through the power of will, we generate

meaning within this mess until everything falls within some templates.

Activate link http://www.KeyToStudy.com/random-images-generator/

You see 20 random abstract images

The first thing to do is chunk the images into groups of approximately 4 images in a 2x2 grid. For example, you can use spatial distribution as your key.

There should be 20 images in the example, so there are probably 5 objects on center top (binocular and calendar are 2 objects) and bottom left (I think there is a coin under the lamp). We can use 2 objects as one marker, it is not a problem.

Now you use a memory palace as a baseline. For the 20 objects exercise you can use a 6-room house. In this example, I use a generic house with different rooms:

(5) Bathroom	(4) Living room	(3) Study room
(6) Kitchen	(1) Garden	(2) Garage

Now create a short animation of a route you can take.

You go through empty garden

Into a garage where you see a table with

1. An oak tree sapling (personalize the tree)
2. On signed document (simple spatial linkage)
3. Which photo you take by an iPhone (linkage by action to the device)

Proceed with the photo to the study room where on the desk

1. You make a copy of the photo you just took (hence copy icon)
2. The copy gets notary stamp (certificate transformed from object to action)
3. And is filed into a drawer (make sense of the 4 drawers thingy)
4. You cut the background from the original (adapted use of scissors)

With the original photo, you proceed to the living room and on the sofa there

1. You glue a background slide to the photo (need to make sense of the object with diagonal lines)
2. You search the calendar for national holiday (the binocular on a calendar)
3. You paint the flag of golden green blue land - ia (does not have to be a true country)
4. You laminate the image (need to make some sense of the gear)

With the laminated photo, you go to the bathroom mirror where

1. You put clips to hold the photo (bottom right)
2. Take a frame out of the bathroom drawer (bottom left)
3. Glue the photo you have to the frame (top left)
4. Rinse the photo to remove extra glue (top right)

You proceed to the kitchen sink

1. Add the laminated frame to your amazing DIY lamp (left). Only now, your actions make sense. Notice DIY hides money saving and thus the coin.
2. Check your iPhone for the next task (the document and app bar do not belong to the kitchen, but we did not prepare a different room)
3. Start creating dinner menu (use the app icon)

Personally, I find this exercise difficult due to limited spatial orientation. Our students who use memory palaces all the time complete it in under 1 minute.

Effective Chunking With 2×2 Grid

Memory champion Wang Feng uses a very simple and efficient chunking method. Wang Feng is arguably the fastest mnemonist alive, so his method works. The simplicity of this method is only superficial, and you need a lot of practicing to master it – more than other methods we teach. Influenced by the structure of his native Chinese he uses very simple markers and then chunks the simple markers in 2×2 grid and remembers the whole grid as one more complex marker.

If you work with definitions and formulas, you do not have enough details to create complex markers from the text. Instead, we recommend creating simple markers. Simple markers look like pictograms, clip-arts, characters, icons: a very simple depiction of complex ideas. If you want examples, use Google image search with search tools -> type -> clipart turned on. Our 20 images exercise uses this sort of images, and many students find it is very challenging to work with this sort of abstraction.

An example:

DG

How shall I create and structure markers for several things like in paragraph below:

"Such application contains a description of the relevant goods, the target market and competitors, rough estimates regarding the size of the market, the price of goods, duration and cost of the work to create new products, the cost of production and profit margins..."

What I need to remember:

Rough estimates of

- Market Size

- The price of goods

- The cost of work

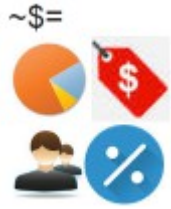
- Revenues

How do I do that?

Dr. Lev Goldentouch

Chunking 2×2 works quite well. You visualize the whole chunk at once. Very fast, and no stories required. I learned this method from Chinese memory champion Wang Feng

Lists of up to 16 items can be generated as a 2×2 structure of 2×2 structures. That's why our exercise has 20 items: to push beyond this limitation.



Why does a perfect grid have 4 items? Notice, quite often linking and chunking happens in a different context than marker creation. The context switching slows you down: remember multitasking exercises. The context switch is happening because our working memory is of limited size. The working memory size is 7±2 objects (7 plus or minus 2 objects). Note: 4 X (objects for chunking) + (the resulting marker) + (the link to a previous marker) + (the room to place the resulting marker) = 7 objects! This means that this way we use all the working memory, and have no context switching.

Why are we arranging the objects in 2×2 grid? This is the most spatially compact representation. If we need to visualize the object in one glance, we do not want it to move in 3D, we do not want to scan lines and columns; we want to have a razor-sharp focused visualization.

One of the things we always ask our students is personalizing the markers. How do we personalize the 2×2 grid? For example, we add a different color for each cell of the grid. We also place the grid within compartments of our memory palace. Finally, we link it to a story about the personal route: why we found this specific grid in the specific compartment.

Please notice the processing needs to be blazing fast. Otherwise, we would be better off using larger chunks with context switching for linking (as Anna teaches in her 1:1 lectures). Now suppose the article we read has 5 definitions, then we create one full grid and one partial grid, and we need to place both grids within the memory structure. This is 3 times more operations than creating a 5-object grid would require. To make it worthwhile, we need to get 2×2 grid creation and linking twice as fast as 5-object grid memorization. Such speed

requires a lot of practicing. No wonder Wang Feng trains for 8 hours each day...

Even without Wang Feng, super training you can remember 2×2 grids effectively. Start now, and with time, you will memorize as fast as a champion!

20 Words Example

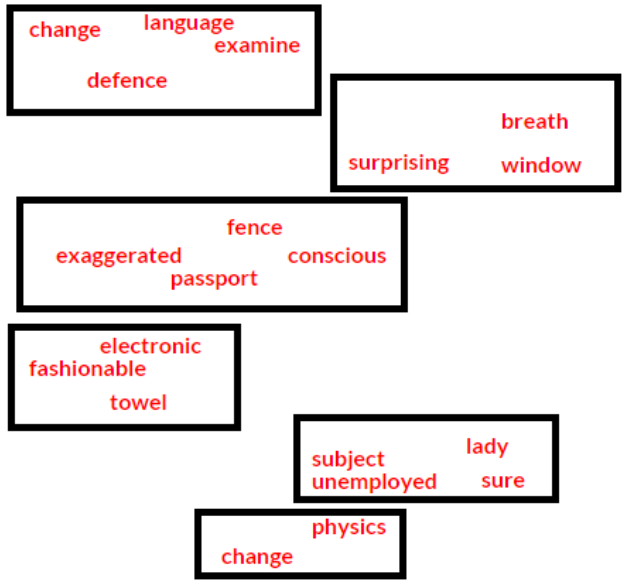
The 20 words exercise is very similar to what we see during prereading. We see some words that catch our attention, but we do not yet have enough details for full markers. So we use simpler markers instead.

G o t o http://www.KeyToStudy.com/20-random-words-generator/

You will see some 20 random words like

Typically I reorder the words into 2x2 grid according to their location within the text.

Notice, some of my 2x2 grids are rombs, and some are partially empty.



We can use simple pegs
1=pen
2=twins
3=tree
4=door
5=hive
6=lock

Now create visuals using pegs

"**Pen:** *Change, examine, language, defence*" A defence art student holds a pen writing language exam, but the letters of exam keep shifting (Harry Potter scenery triggered by "defence" association)

"**Twins:** *breath, surprising, window*" Twins open a window and gasp in surprise. (May continue Harry Potter theme)

"**Tree:** *fence, exaggerated, conscious, passport*" Harry Potter (we need to mark Harry is not a word) climbs a tree, falls near a fence and loses consciousness; a passport with his exaggerated image falls from his hand. (Unfortunately, some scenes are more complex than others are)

"**Door:** *electronic, fashionable, towel*" Door opens and Hermione dressed only in a fashionable towel electrifies Harry Potter with a taser. (Romance and violence are great drivers for associations)

"**Hive:** *subject, lady, unemployed, sure*" In the meanwhile, a jet sub flies out of a hive and a bum lady with a crown greets it with an OK gesture. (Nothing simple comes to mind, so we can use replacement: subject=jet sub, unemployed=bum, lady=queen, sure=OK gesture)

"**Lock:** *physics, change*" - Harry Potter in his dream unlocks gates that change the laws of physics. (For me change of laws of physics is one marker, like a portal through which ghost comes to earth in *Ghostbusters*, so I do not need to add extra markers)

Most of our students do not have a problem with this specific exercise, but rather with speeding it up. A simple way to speed up the exercise is to use the first visual association we have instead of generating more complex and far-fetched associations increasingly.

Also, notice all of the stories above are an animation sequence/cartoon of approximately 6 seconds. Do not make it longer. Just remember it as a short animation/cartoon.

Anna often suggests using chunks of 5-6 objects, but this often comes with a price of more complex and thus slower associations, so see what works better for you.

For Further Research:

https://prezi.com/