Holistic Learning

How to Study Better, Understand More and
Actually "Get" What You Want to Learn

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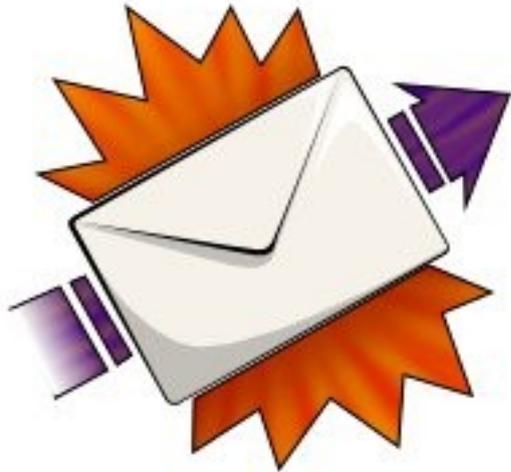
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About the Book

Holistic learning is a process for learning more effectively. The concept for holistic learning came out of several small articles I wrote beginning with a popular entry entitled, "How to Ace Your Finals Without Studying." The main idea I presented was that some people effortlessly learn new concepts and material while others struggle. I believe that the difference between these factors is mostly due to a process called holistic learning.

As many people who read the initial articles on holistic learning commented, you may notice that your own learning style closely reflects holistic learning. Holistic learning isn't a new technique or revolutionary idea. It is simply a way of explaining how smart people think!

If you don't have time to read the book, here is a quick summary of what it's about:

- Holistic learning is the opposite of rote memorization. Instead of learning through force, your goal is to create webs of information that link together.
- Your goal when learning anything is to create a **construct** or an underlying understanding.
- Constructs are formed from **models**, chunks of understanding that aren't completely accurate but can be used to solve problems.
- You create webs of information, constructs and models by **visceralizing**, **metaphor** and **exploring**
- Holistic learning works with highly conceptual information where there is an underlying system. It doesn't work well with arbitrary information or skills.

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It's already noon and I'm getting that gnawing feeling in my stomach like a small child making demands in a toy store. I tell myself it's lunchtime and that seems to satiate me as if I just told the kid he might have the toy if he just shuts up for a bit. The intercom interrupts me and calls me down to the office. What now?

"*Looks like you have a test to write*," the secretary says cheerfully. What? I don't remember being asked to write a test. My stomach seems to snarl at me in contempt of my earlier attempts to placate it. "*Just go down the hall, you can write your exam in there.*"

Chemistry. One of those scholastic contests. Usually multiple choice. Although they are supposed to test you on the course material, they always slip in questions based on stuff you've never even seen before. Probably to separate out the kids that just went to class and those that went to extended study sessions and bought University textbooks. I just wish I had known about it beforehand.

Just get it over with. We didn't cover most of the questions in class, but a little bit of creativity can go a long way. I have sixty minutes, but I finish in forty. Likely a silent bargain my subconscious made with my digestive system.
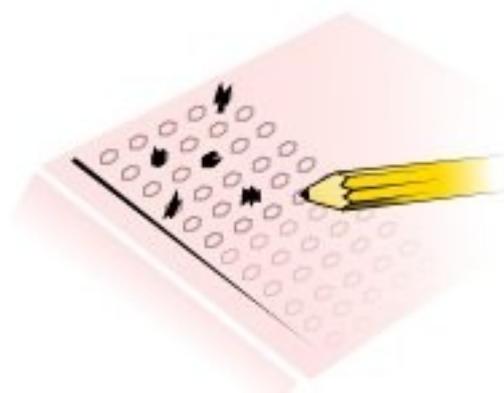
Three weeks go by.

"*Congratulations. Looks like first place.*" Ten names go down in descending order. I feel a bit of pride being the only person outside the big city to be on the list. First place and a check for a little under five hundred bucks. Not bad for less than an hour.

Undeserved Talent?

I shouldn't have been able to win that contest.

I wasn't taught more. Over half the material on the test was on concepts that were only vaguely familiar. I had to write an essay on the chemical properties of soap. The only time soap was mentioned in my class would have been in a reference to washing your hands.

I didn't study more. My advanced warning hovered at around five minutes. I can only assume that the other nine names listed along with me on the contest results probably at least knew they were writing it. Given the prestige of the contest, I'm guessing they probably at least opened their textbooks to study.

I didn't try harder. I didn't bother checking over my questions. I just colored in the dots, wrote the essay and handed it in.

The worst part though, I wasn't entirely surprised. Although this was my first big win, I had always done well academically. I rarely studied for tests and exams and when I did study it was closer to a quick skim than a detailed session. School was never really more than an abstraction while I worked on more interesting projects.

To someone who struggled at school or even for someone that could succeed but had to work hard, my success seems pretty undeserved. This first story may seem like an unnecessary display of bravado. But I write about my success, however minor, not because I'm so special but because I'm actually fairly common.

I have met, known and researched many people who had what appears to be a similar gift. An ability to understand things effortlessly. Whether inside the classroom or in life, certain people seem to have a knack for quickly understanding concepts. It can manifest itself in the humble genius who works as a janitor but can tell you about any major historical event or an Einstein who revolutionizes our way of thinking and the world we live in.

This bothers me. I'm not satisfied with the explanation of giftedness or innate talent. That sounds more like an elitist excuse devised by the smart to explain why their results can't be replicated. I wanted to know how some people managed to learn faster. I wanted to know whether it was more than just a gift but an ability that could be practiced.

Psychologists have known for a long time that intelligence is partially genetic and partially environmental. So it can be easy to dismiss exceptional smarts as being from genes, great parenting or something in the water. But remember, before dyes, hair color was entirely genetic too. **A superior strategy for learning can help shift what was once only a gift to an ability that can be trained.**

Holistic Learning

To say the difference in intelligence is the result of a single skill would be naive at best and a gross misrepresentation at worst. Most researchers believe genius is comprised of numerous abilities from creative problem solving to athletic or musical skill.

But in my observations of how I learn and how other people, far more intelligent than myself, learn there was one factor that really stuck out. People who learned concepts easily didn't learn the same way other people did. It wasn't that they were using the same strategy more effectively. These people were operating from a completely different approach that a casual glance could easily miss.

I call this approach, holistic learning. **Holistic learning is basically the opposite of rote memorization**. Instead of trying to pound information into your brain with the hopes it will simply fall out when you need it, holistic learning is the process of weaving the knowledge you are learning into everything you already understand.

Rote memorization focuses on learning through individual boxes of information. Like a computer filing system, everything is neat, organized and separate from each other. You have a box labeled science, one for history, one for the movie you watched last week and another for your job. These boxes are split into more boxes. Your science box has a separate one for biology and physics. Physics has unique boxes for different formulas and concepts.
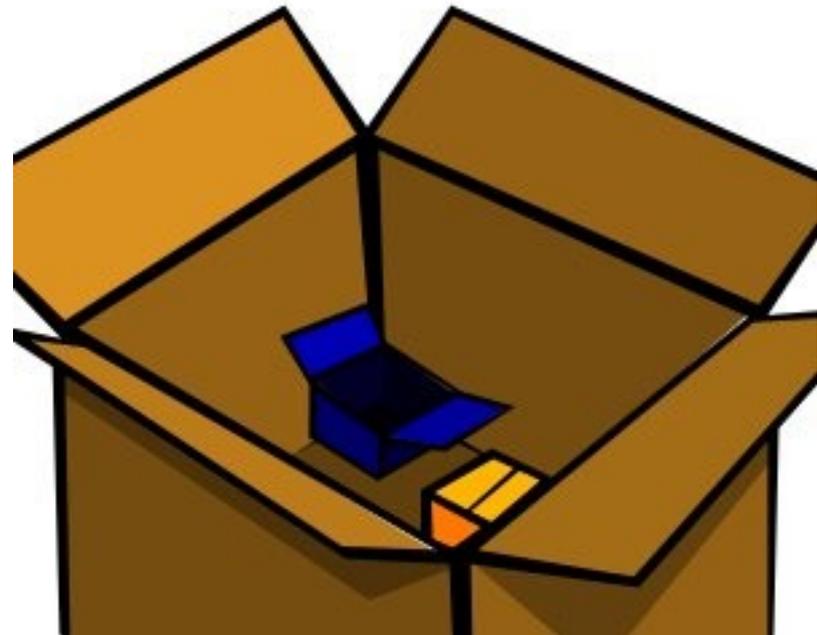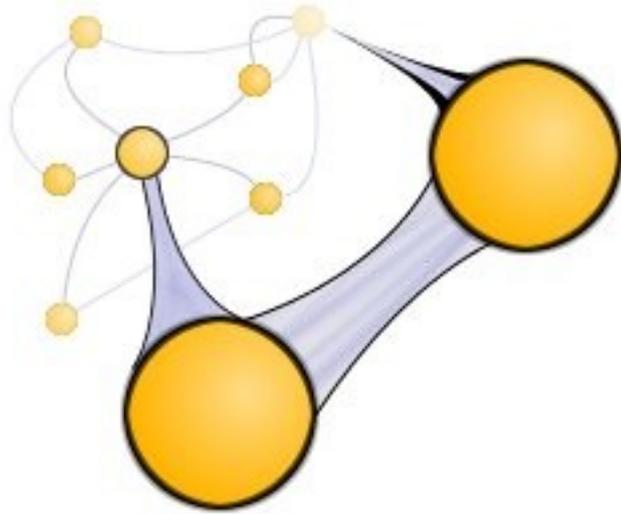
The problem is that your brain isn't a computer filing system. It's a network of interconnected neurons. When you need information you are just hoping that you stumble upon the thread that leads to the box you want. Otherwise you're screwed.

Holistic learning is messy. It doesn't put things into boxes neatly. Instead it **tightly interweaves concepts together**. Science concepts remind you of history which remind you of the movie you saw last week and the project at your job tomorrow. Within each general subject area, your web is even more tightly interwoven. Every concept in physics is linked with almost every other.

A tight web means that when one pathway is blocked, there are hundreds of others that lead to the same point of information. Tight webs may seem like an abstract concept, but you know the feeling when you have one. A tight web results in the feeling of "getting" it. You understand the subject or concept so thoroughly that aspects of it seem obvious and trivial.

When I had to write the essay portion of my exam the subject was the chemical composition of soap. Now our chemistry class never covered soap, or even organic molecules. So how did I write the essay? I used the web I had created. Thinking about soap reminded me of a brief video I saw in biology comparing soap molecules to fat. It also reminded me of a trip to a reenacted pioneer settlement where they were making soap from animal fat and lye. Each piece of information on its own is incomplete, but together they were strong enough that I had something to write about.

# Comparing Rote Memorization to Holistic Learning

Rote Memorization

- Organizes Ideas into Boxes
- Keeps Subjects and Concepts Distinct
- Few Neural Paths to the Same Idea
- Views Concepts Through One Perspective
- Aims to Learn Through Repetition

Holistic Learning

- Organized Ideas into Webs
- Interrelates Subjects and Concepts
- Many Neural Paths to the Same Idea
- Views Concepts Through Many Unique Perspectives and Senses
- Aims to Learn by Relating

Creating a Construct

A brick on its own is just a brick. Five hundred bricks on their own become just a pile of bricks. But with the right plan and layout, five hundred bricks together can build a house. Looking at each brick doesn't give justice to the design and usefulness of the house itself.
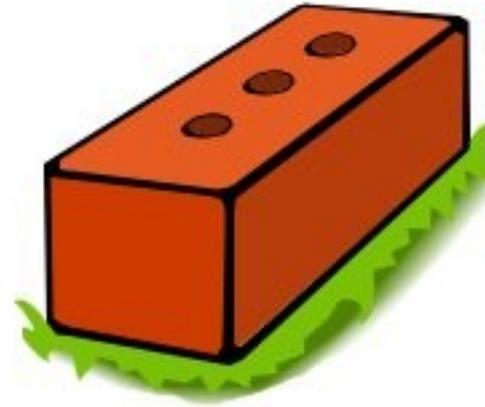
The linkages in holistic learning are just bricks. On their own they aren't very impressive or useful. But when you put together properly they form what I'm going to call a construct. **Your construct is the sum total of your web. It is how all the ideas fit together to create an understanding of a complex idea.**

A construct is impossible to communicate, unfortunately. When you are being taught a subject or you are learning it on your own, you are getting bricks fed to you one by one. If your lucky you might have a rough blueprint of how to organize the bricks, but if there aren't enough linkages or they are assembled improperly the result is confusion.

"I Don't Get It"

You can tell you haven't learned holistically when you don't "get" the concept. You may have heard and interpreted the information properly, but you don't understand it on a deeper level. All you have is a pile of bricks, but you can't see how they fit together.

The first key to building a house is to realize that's what you are trying to do. Your goal when learning any complex subject or field should be to build a construct. A framework of understanding in which your web of knowledge occupies. I take very few notes in classes and I study them even less. My goal in every class is to build a construct not to transcribe what was said. Taking notes can be helpful but realize that is only an intermediate tool to your greater goal. Having a workable construct.

The beauty of having a construct and not a memorized list of information is constructs are much easier to maintain. If I showed you a pile of bricks and removed one of them, would you be able to tell me where it goes. Possibly if the pile was ten or twenty bricks. But what about a hundred? A thousand? A million bricks? Would you still know where the missing brick should go?

Now if I showed you a brick building and removed one of the bricks, could you tell me where it is supposed to go? Probably immediately. Even if the building consisted of over a million bricks, a quick scan would show where the hole in the building lay and where the missing brick could be found.

You don't need every brick to maintain the structural integrity of a house. You don't need every piece of information to maintain the integrity of your understanding. When you have a construct, you can solve difficult problems even when there is a lot of missing information. You simply look at your construct, see where the holes point to and fill them in.

Most people incorrectly assume you can't answer questions you haven't been taught how to answer. But as long as you have a relatively stable construct, you can find ways around the missing information. When one path gets shut down you take a different route. When I take a test I can usually find a way to solve the problem even if I forget the method I was taught.

Start With a Model

If you wanted to design a skyscraper, you wouldn't start by buying some land and laying bricks, would you? No, you'd start by building a model. A model is not the same as a construct. A construct is a complete set of understandings. A construct for math allows you to solve any problem in math.
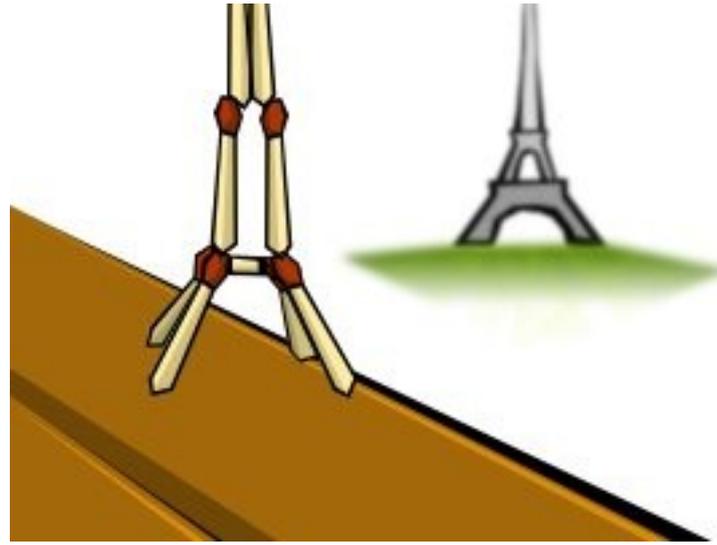
A model is a quick representation of the idea you are trying to relate or understand. It is an incomplete and temporary solution. Without building a dozens of models any attempts to form a construct will collapse. Trying to understand everything at once is impossible for the conscious mind to handle. Building individual models can give you a chance to stitch them together into a complete construct.

Recently I took a course in Vectors and Linear Algebra. A very abstract course where most people have difficulty forming a construct. When the concept of a subspace was introduced, I was lost. I needed a construct for the concept, but it was too broad to immediately grasp. So I looked for a model.

The model I chose was a visual representation of what I figured an idealized subspace might look like. I imagined a subspace as being a plane suspended in three dimensions. The visualization was as vivid as it was automatic. I can remember the plane being red and translucent slicing through a blue-gray vacuum of three dimensional space.

This model was not a construct. A plane in 3D is just one of many different types of subspaces. But without it, a subspace would have just been a bunch of rules and numbers. Even if the model was inaccurate, I could use it as a basis for refining and expanding the eventual construct.

Links form into simple models which form into overall constructs. Layered creations of understanding. Effective constructs also link outside of where they are applicable. Once I had a construct prepared for subspaces, I started to view my own experience as a subspace of reality.

Constructs that become islands are worthless when there is a problem that exists between them. Interlinking your constructs helps funnel problems outside of their influence zone into realms of understanding. When I wrote that essay on soap, soap was outside of my constructs. But because my constructs were interlinked, it was funneled into different constructs based on my experiences in different places.
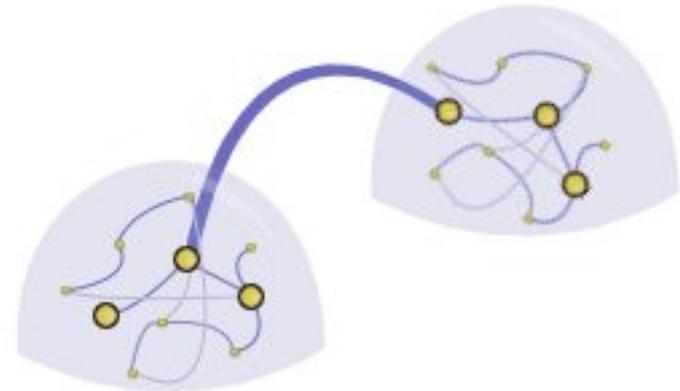
How to Learn Holistically

I've just spent a fair bit of time trying to explain what holistic learning is and to break down the idea of webs into constructs and models. But how the heck do you actually do it? This is a good question. Most people who learn holistically use it by default. There aren't that many conscious techniques. When I need a model, I find one. When I have enough models I form a construct. When I learn information I try to link it within and outside my constructs.

But despite the system I use to form constructs, I believe it is a skill that can be practiced and learned. I'd like to cover some specific methods for forming models and constructs and interlinking your web.

When you are ready, I believe most these techniques can be done entirely mentally. You don't need to use your fingers or a pencil and paper to calculate 5+3. Similarly, with enough practice you can probably find yourself automatically using these techniques inside your head. But until you get used to thinking this way as a habit, you will probably want to actually write out the process to reinforce it.

Holistic learning is a skill that takes practice. I don't believe in quick fix solutions, and holistic learning certainly isn't one of them. These techniques should allow a small, immediate boost in comprehension, but the real goal of a highly interlinked web takes time.

Method One: Visceralization

A model isn't a grouping of ideas, it's an experience. A frequent mistake I see people making is that they try to understand something by grouping together rules and ideas. This seems logical, but it is an inefficient way to interlink and is little better than brute force memorization.
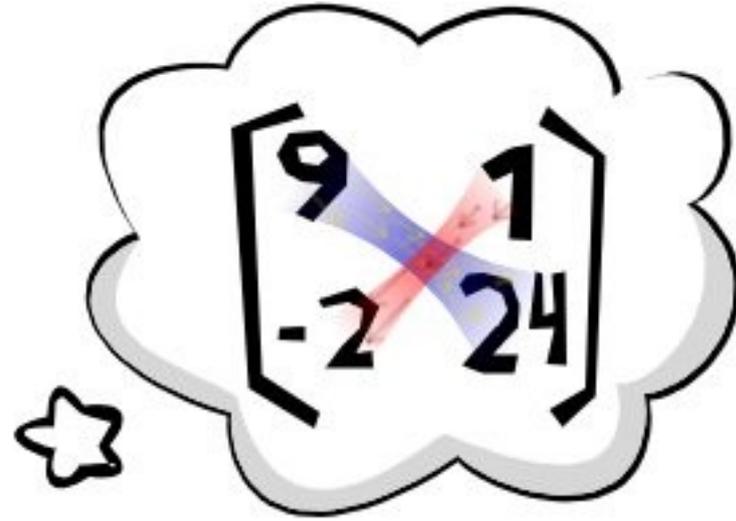
Instead you want to summarize concepts and ideas with a specific image or feeling. I call this technique "visceralization" and not visualization because it doesn't have to be a picture. The best "visceralizations" are combinations of images, sounds, feelings and textures. Depending on your learning preference you may see, hear or feel ideas. More than just a picture, you want an experience.

By visceralizing you are taking something that is abstract and making it tangible. This creates a workable model that can be combined and understood. Think of visceralizing like your brains version of zipping a file. When you zip a file you take many bytes and compress them into a smaller space removing redundant elements. Visceralizing means taking a handful of concepts and turning them into a single workable experience.

How To Visceralize

You probably already use this method to some extent. This often happens when an author visceralizes a concept for you. By describing the concept in a mental picture or feeling he or she can push you towards creating a model. Holistic learning means you need to do this process on your own when an easy model isn't handed to you.

If you aren't sure exactly how to do this, the best place to start is with a pad of paper. Draw out the relationship between several ideas in a picture. Remember your goal isn't a perfect construct but a simplified model. Even if your model is shown to be slightly inaccurate later, it is still better than no model at all.

Ask yourself what the concept would look, sound or feel like? How would it function and respond? When learning computer science I formed mental pictures of bizarre machines and objects that represented the different objects and functions I learned. Strings and arrays looked like colored cubes suspended along a cord. Functions were machines that ate strings and individual blocks and spat out new blocks.

As you get better you should be able to do this without a pencil and paper. Your imagination is far faster than your hand, so once you begin to understand the process you can start visceralizing how different concepts interact. You can see how they squish and respond to stimuli. Boring ideas translate into a bizarre and otherworldly scene.
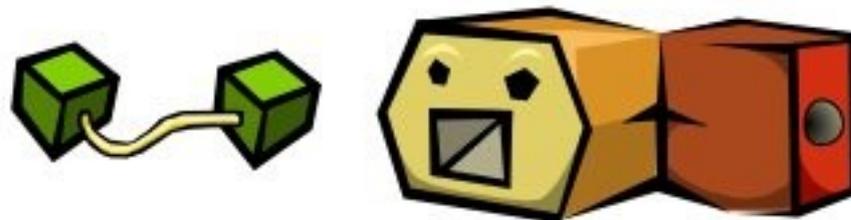
Method Two: Metaphor

Visceralization is my key process in developing models, the first step to a complete construct. But having models isn't enough. It can take time to develop a unique model and this can be wasted when you are lost, facing a problem for which you lack the proper instruction and constructs to handle. To interlink constructs you need to use metaphor.

Metaphor is a literary term used when you want to relate two things that aren't actually related. A variation of the metaphor is the simile. You use similes usually when you invoke the words, "like" or "as." The idea behind using metaphors in your learning is simple. You want to connect two ideas together even though they aren't really related. Einstein described the universe as consisting of a "fabric of space-time." This was a metaphor. He didn't believe the universe consisted of cotton threads weaved into a pattern, but he used the concept of fabric which you already have a construct for to link into space, which you might not.

Metaphors also aid in building constructs. If you wanted to build a house, the fastest way would be to make minor modifications to a blueprint you already own. Metaphors can allow you to relate a new construct to a previously established one. This can help you piece together ideas when your models fail to give accurate information.

How to Metaphor

If you practice accordingly, metaphors should be an automatic process. When you learn a subject it should automatically start reminding you of completely different ideas. When I read Nicollo Machiavelli's, The Prince, I started linking his ideas about statecraft (which were a rather weak construct for myself) and built them into ideas about business and social settings (which were strong constructs).

If you don't already use metaphors extensively, a quick way to start would be to play the, **"That Reminds Me Of..."** game whenever you learn something new. You play the game by thinking or writing down a list of ideas that this new concept reminds you of. It doesn't matter if the ideas are ridiculous or completely unrelated. That's the point, to link together ideas that don't normally connect.

The idea is that by playing this game repeatedly you can see the new concept through the vantage points where you already have understanding. This helps you understand more rapidly. If you already understand sports, then you can use sports as a metaphor when trying to comprehend economics or science. You can create connections between any subjects you just need to be patient enough.

The side-benefit of using metaphors is it actively links your constructs together. This process eventually means that even when your construct is really poor you can still fill in missing pieces. You can solve programming problems from an artistic perspective or relationship problems from an economics perspective. They won't be as ideal as a perfect construct, but they can be amazing substitutes when you haven't had the time to fully develop one.

Method Three: Explore

Exploration is the process of going through your constructs, models and metaphors and finding errors. Consider this to be the polishing phase of your final understanding. Scrap models that don't represent what you've learned and fill holes for where you lack understanding.

Exploration is less necessary when you follow the previous two methods rigorously. When you heavily visceralize and metaphor, you end up with a lot of redundancy. You understand something in so many ways that even if one of those methods you used to reach understanding is faulty or a gap exists, you have a dozen other ways to reach the same point.

But if your understanding is really important, exploring your network of ideas can help you clean up mistakes. Holes and errors will only come up when you actually go back and test them. Until you actually review the information involved, they will be hidden from your awareness. This happens when you go to write an exam and you realize you don't know how to solve a specific problem or you don't have the right formula. A strong enough network may mean you don't need that formula to solve the problem, but you may have to take a few detours to get there.
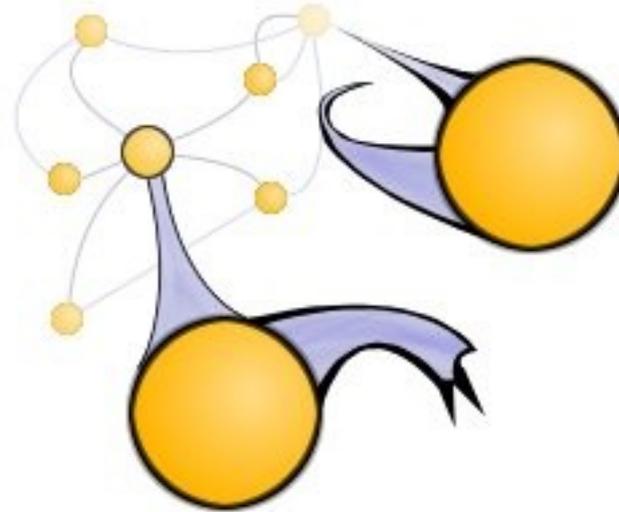
How to Explore

The best way to explore is to actually face problems. If you are using holistic learning in school this means homework questions, assignments and tests. Having to actually use your network will quickly point out holes and errors.

I disagree with the practice model that says you should do a question repeatedly until you understand it. This is just rote memorization and it is using questions to reinforce a strategy rather than to explore holistic webs. Holistic learning assumes you already have a construct and practice questions are just to fill holes. If you end up having to do the same type of question many times to understand it, you need to step back, create some new models and rebuild your construct.

The second best way to explore is to study. I do study a little bit, but it isn't a source of learning so much as it is a method of exploration. Reading over my notes and chapters points out ideas. Usually the idea is already reinforced inside my web, but sometimes I missed it entirely. Studying isn't as good as testing but it can fix a few broken paths.

If you have to read something over several times before you can remember it, then you either aren't paying enough attention or you don't have a construct, it's that simple. I don't believe in studying for hours before an exam. Unless I'm learning the subject for the first time or I've neglected to form constructs until the last minute it only takes a half hour at most for me to quickly explore a subject before writing a test.

Criticisms to Holistic Learning

When I first discussed holistic learning publicly I got a lot of support but some interesting counter arguments. Although I've tried to integrate and fix my understanding of holistic learning as a result of those criticisms, holistic learning is not a perfect remedy for genius. It is only one way of looking at the process of learning and there are areas where it doesn't apply.

Arbitrary Information

Holistic learning works best when there is an underlying system to be understood. It assumes that a proper construct exists, just that there is difficulty creating it. This applies to most subjects. Science and math tend to be the best but relationships, culture, computers, life, health, emotions, and philosophy all work well.

But where holistic learning breaks down is where no construct really exists. Law is a great example. Although there are some weak constructs that can be applied to laws, they are weak and arbitrary. One cannot assume a law exists based on the linking of similar laws. Rule based systems that are highly arbitrary require other skills that holistic learning doesn't cover.

History works a bit better with holistic learning, but there are many cases where information and data don't fit into an underlying system and are just a series of facts. Spelling, vocabulary and languages often have similarly weak potential for forming constructs. There are other well developed systems for understanding material that doesn't easily form constructs, but that is outside the scope of this book.

Subconscious Learning

Holistic learning focuses on concepts. But there are areas of life that don't rely on conceptual understand at all. Tiger Woods doesn't have to be a great holistic learner to win the PGA. Skills are learned subconsciously and don't benefit much from holistic learning.

Every form of learning is somewhere along the scale from highly conceptual to highly skill-based. Holistic learning emphasizes the highly conceptual end. These are usually the type of learning done in schools and many professions. But just as excessive memorization is a poor way to learn concepts, interlinking is a poor way to learn skills.

Summary of Holistic Learning

Although I've gone through many ideas, if there is one takeaway idea it is that you should be creating vast webs of interlinked ideas rather than pounding information into your skull. Not only is this a more effective form of learning it is more enjoyable. Visceralizing and using metaphors is fun. Instead of learning a dry subject and trying to force your brain to store it, you are using your mind the way it was intended.

If I've allowed one student to study less in order to know his subject or given one of you the means to improve her understanding, I've reached my goal. I absolutely hate having to resort to excuses of talent or giftedness to explain skills. Hopefully I've done a small part in breaking down the intellectual elitism and giving hardworking people a chance to use the skills others take for granted.

About The Author

Scott H Young is a recent high-school graduate with a passion for learning, self-improvement and getting the most out of life. Starting his self-improvement website in February, 2006, it has since grown to include close to 300 articles and receives thousands of unique visitors every day. Scott is currently a student at the University of Manitoba.

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