

Tales of the Undead...Learning Theories: The Learning Pyramid

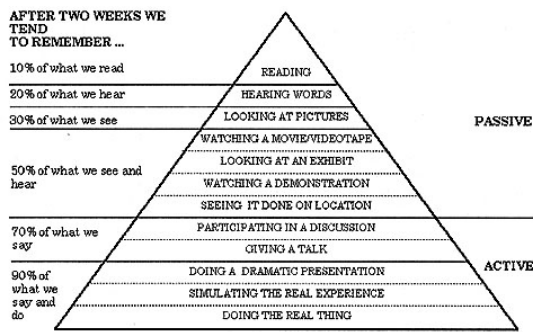
🕒 January 13, 2014 📁 Higher Education, Teaching 🔖 learning period, learning theories, pedagogy 👤 acrlguest

ACRLog welcomes a guest post from Candice Benjes-Small, Head of Information Literacy and Outreach, and Alyssa Archer, Instruction Librarian at Radford University.

“If I have to sit through YET ANOTHER freaking ‘professional development’ session based on these cockamamie theories, I am going to pluck my eyeballs out and throw them at whatever charlatan the administration hired to conduct said session.”- *professor on an online academic forum discussing learning myths, including the pyramid.*

Some educational myths just can't be killed. Case in point: the learning pyramid.

If you're involved with student learning, you are probably familiar with the Learning Pyramid. This diagram breaks down different modes of learning and argues that more active modalities are better for long-term learning: we remember 10% of what we read, 20% of what we hear, 30% of what we see, and so on, all the way up to 90% of what we do.

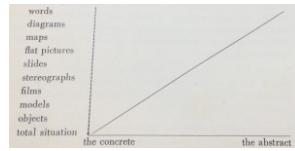


Adapted from: Edgar Dale *Audio-Visual Methods in Teaching*, Holt, Rinehart and Winston.

Just in the last few weeks, we have witnessed two experts in separate presentations (one in librarianship, the other in education) refer earnestly to the pyramid. And while we didn't gouge our eyeballs out, it made us both wince. This is a zombie learning theory that refuses to die. Whether it's called the Cone of Learning or the Learning Pyramid, or demonstrates retention rates by another graphic, it keeps getting its head methodically removed by a dedicated cadre of researchers, yet rises up again in search of more brains. In this post, we'll review the history of the pyramid, why it's wrong, and why it never dies.

History of the Learning Pyramid

Edgar Dale, an expert in audiovisual education, created a model in his 1946 book *Audio-Visual Methods in Teaching* that he named the Cone of Experience to discuss various modalities/channels of imparting information. His cone did not refer to learning or retention at all, instead modelling levels of abstraction: words being the most abstract in his model, at the top of the cone, and real-life experiences the most concrete, and at the base of the cone (Lalley & Miller, 2007, p. 68). Take a look at the image below left: note that there are no percentages listed, this is purely a theoretical model. Dale did not value one mode over another, but argued for a wide variety of modes depending on context (Molenda, 2004, p. 161). Researchers speculate that Dale based the Cone on an earlier theoretical graph (below right) from 1937's *Visualizing the Curriculum*, by Charles F. Hoban, Charles F. Hoban, Jr., and Samuel B Zisman.



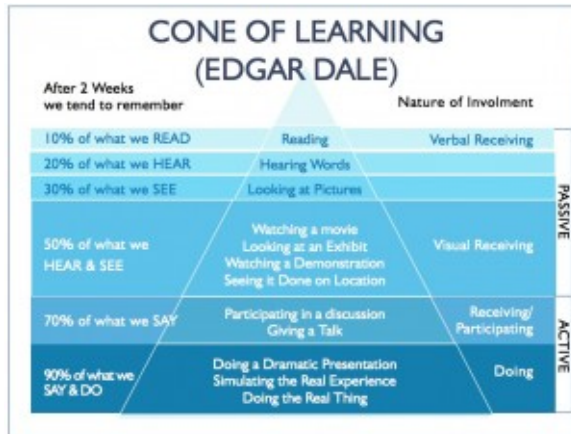
Edgar Dale's Cone of Experience from the first edition of *Audio-Visual Methods in Teaching*, a model of abstract to concrete experiences. The probable inspiration for the Cone of Experience, from *Visualizing the Curriculum*, Charles F. Hoban, Charles F. Hoban, Jr., and Samuel B Zisman (1937, p 23)

Unfortunately, this conceptual model took on a life of its own. While Dale included caveats in the several editions of his work that the Cone was a theoretical model, and that multiple modes could apply to situations depending on the context, his work was ripe to be misused as a practical tool. As Michael Molenda notes, by the third edition of *Audio-Visual Materials in Teaching* in 1969, Dale had to include a full [six pages of disclaimers regarding the cone](#), titled “Some Possible Misconceptions.”

Despite Dale's warnings, the Cone of Experience was misapplied and renamed the Learning Pyramid. However, there is no conclusive evidence to back up these average retention rates. How did this happen?



Source: National Training Laboratories, Bethel, Maine



Examples of what the Cone of Experience became. The links to the images above have been removed to protect the mistaken. They are just two examples of the hundreds found on a simple Web search.

Who first came up with the retention rates associated with the learning pyramid is murky, but researchers have theories. Molenda (working with several sources) believes the development involved Paul John Phillips, an instructor working at the Aberdeen Proving Ground's Training Methods Branch during World War II. Phillips returned to work after the war to the University of Texas, where he trained members of the petroleum industry. The University of Texas records tie Phillips to the retention rates used in the pyramid. How-

ever, when Michael Molenda contacted both the University of Texas Division of Extension and the archivist at the Aberdeen Proving Ground, [they could find no research regarding the percentages.](#)

In Molenda's history, the learning pyramid with retention rates was first published in a magazine article in 1967, by D. G. Treichler. The author included no citations or evidence to back up the retention rates, but Molenda suspects that they probably they came from Phillips, as he distributed training materials to the industry while at UT.

However, the current propagator of the learning pyramid is the unassociated NLT Institute for Applied Behavioral Science, which claims to have research from the early 1960s which supports the pyramid, but has lost the evidence. Will Thalheimer points out in an [excellent post](#) on the pyramid, that this lack of evidence negates all credibility. Even if research were conducted at one time, we cannot trust it. The context has been lost, as well as the ability to retest the method and examine it for errors.

Why the Learning Pyramid is False

Beyond its sketchy background, the learning pyramid should raise concerns:

1. What kind of research results end up in such tidy percentages, all multiples of 10?
2. How would one even develop a method for testing such broad claims?
3. Do we really believe a learner can remember 90% of anything?
4. Can an activity be separated from its content and be given credit for learning?

Many distinguished authors have gutted the pyramid's claims. Educational expert Daniel Willingham [provides excellent arguments](#) against the pyramid related to oversimplification; providing an optimal learning experience does not boil down to the instruction method. There are many different variables that impact learning.

Our field has also tried to dispel the myth. In her book [Reflective Teaching, Effective Learning](#), Char Booth explains another danger of the pyramid, that relying too heavily on the idea of mode strips away designing instruction for differences in context and content (2011, p. 41). Booth's anecdote about how she embraced the pyramid because of its implications for student engagement illustrates another flaw with it. The pyramid is a visual sighting. If we only remember 30% of what we see, then a picture of the pyramid should not have such a dramatic memory impact on so many people.

What's the Harm?

As the opening quotation exemplifies, many teaching faculty members know the learning pyramid is false. If you bring it up to them, you will greatly diminish your credibility. (Because the pyramid is so popular, though, we also suggest you tread carefully if a professor speaks of it in a positive way!)

The pyramid also leads one to believe that mental activities themselves produce set amounts of learning. But this mindset fails to address the quality of the mental activity. A librarian might decide to implement a peer coaching activity because the pyramid says teaching others is the best way to remember something, but if the students don't have the appropriate knowledge, they will probably just end up confusing each other. You should never design a lesson just so students are "active." As Bill Cerbin states in his [essay on active learning research and its implications for college teaching](#), "Active learning is most effective when the experience supports students to interact with and reflect on the subject matter in substantive ways."

The Lure of the Pyramid

Despite the pyramid having been debunked in many venues for decades, it continues to show up in educational presentations and literature. How

people learn is a complex topic, complicated by advances in neuroscience and cognitive psychology research. It's natural that we should seek commonalities in learning. As the authors of the white paper "[Multimodal learning through media](#)" state, "The person(s) who added percentages to the cone of learning were looking for a silver bullet" (2008, p. 8). Shortcuts to 'what works' would be especially tempting to librarians who do not have extensive training in education.

In the library field, both of us have attended presentations where the speakers used the pyramid as a quick way to reinforce the importance of engaging students during class. "Remember, people learn better when they are doing!" we are exhorted, as the famous image appears in a slide. The "short cut" is not only a way to simplify complicated processes to ourselves, but to rapidly convince others that student activity is a worthy goal.

Finally, the pyramid speaks to us. When discussing the pyramid with other instructors, we often find ourselves agreeing to the "truthiness" of it: intuitively, it just feels right. Of course being active and participatory should lead to more learning than does more passive activities, like reading or listening. Who among us has not sat in an auditorium during a lecture (library or otherwise), surrounded by sleeping audience members? In fact, the research supports that lecture is of limited use when it comes to retention of material; [people's minds tend to wander](#) after a short period of time. It seems common sense to conclude that methods alternative to lecturing would be better. And if we already believe that other methods are better, then when we view the learning pyramid, confirmation bias kicks in, prompting us to not question premises that support what we already believe.

Grains of Truth

So should we throw away the learning pyramid? Although we hope we have debunked the idea of that different methods of teaching will lead to set percentages of learning, we think this

myth does address some valuable ideas:

1. Memory matters. One of the best ways to measure learning is to assess the retention of material covered. We should continue to survey the literature on memory and retention, such as the 2013 article, “[Improving students’ learning with effective learning techniques: Promising directions from cognitive and educational psychology.](#)”
2. Think multimodal. As has been mentioned, Dale did not intend to create a hierarchy of mental activities, but to suggest there was a continuum from which to choose. People’s attention spans are short, but they do tend to retain more when the instructor mixes it up: interspersing short lectures with peer collaboration, or after reading a passage, interacting with an online tutorial.
3. Student engagement. The literature [strongly supports that active learning exercises promote students thinking and caring about the material.](#) This greatly aids retention, but it also helps lessen library anxiety and gives students a more positive feeling about the library sessions.

Final Words

Since the 1960s, experts have been trying to convince people that the learning pyramid is bogus. But for every article written exposing its weaknesses, there seem to be dozens of instances where it is invoked as truth in presentations, websites, and trade publications. We hope that having read this post, you will join the forces of pyramid slaying and base your instructional choices on valid research, not educational myths.

the Undead...Learning Theories: The Learning Pyramid”



January 14,
2014 at 3:16
pm

Lisa
Horowitz

The other aspect of learning that should be added to this is that everyone has different learning styles. My first thought on seeing the pyramid was “how can that be true? Everyone learns in their own way.” Multimodal teaching makes the most sense, not only because people retain more as their attention is held, but also because it allows different kinds of learners to interact with the material in different ways.



January 15,
2014 at 1:44
pm

Candice
Benjes-
Small

Thank you for your comment, Lisa! Yes, the pyramid does assume everyone learns the same way and does not account for different learning abilities. PS Alyssa and I might ask to do a post unpacking “learning styles.”

Pingback: [Educational myths: the learning pyramid | Fortbildung in Bibliotheken](#)



February 12,
2014 at 5:39
pm

Monica
Rettig

@Candice:
Re: possible future post on
Learning styles — please
do!

Thank you for this
debunking! I too have
seen the Learning Pyramid
here, there, and
everywhere, but hadn't
given it a great deal of
thought. I especially
appreciate your links to
further reading on active
learning.

Pingback: [Tales of the Undead...Learning Theories: The Learning Pyramid | Fluency21 – Committed Sardine Blog](#)

Pingback: [Tales of the Undead...Learning Theories: The Learning Pyramid | ACRLLog « Analyzing Educational Technology](#)

Pingback: Sharing practice: Why we should try and do better. | Careerschap | The musings of a careers professional in the higher education sector.



March 30,
2014 at 11:29
pm

Zifang

I first came across the debunking of the learning pyramid in this blog post by Will Thalheimer. It is indeed amazing how many people uses it!

http://www.willatworklearning.com/2006/05/people_remember.html

Regarding learning styles, research has not been supportive. See links to some references!

http://www.psychologicalscience.org/journals/pspi/PSPI_9_3.pdf

http://www.psychologicalscience.org/journals/pspi/PSPI_9_3_editorial.pdf

<http://elearnmag.acm.org/featured.cfm?aid=2070611>



April 1, 2014
at 6:35 am

Alan Levine
(@cogdog)

In a relate oft repeated never documented claim “Research at 3M Corporation concluded that we process visuals 60000 times faster than text.”

The primary citation used is a 3M PDF of a brochure which makes the claim, citing un-referenced “behavioral research” – in essence, writers reference a reference which lacks the reference. Then it gets repeated so many times, in so many powerpoint, that it sounds truthy.

I exhausted my research capabilities in 2012 and came up empty, but offer a still unclaimed \$60 cash prize for the person who can find the alleged original research.

<http://cogdogblog.com/2012/07/06/60000-times-question/>

I am pretty sure the answer is buried below the base of the learning pyramid.



April 2, 2014
at 6:52 pm

B. Bruce

The learning pyramid is not the only theory/concept that was debunked but continues.

Saba (2000) states that “distance education research has been dominated by quasi-experimental research which compares the effectiveness of distance

education to classroom instruction, face-to-face education, or traditional education”(p. 2). Although the “no significant difference” answer to this comparative study question was provided by Crump in 1928, this topic and method is still a focus of and is prominent in distance education research (Moore & Kearsley, 2005, p.240).

Moore, M. G., & Kearsley, G. (2005). Distance Education: A systems view (2nd Ed.). Belmont, CA: Wadsworth Cengage Learning.

Saba, F. (2000). Research in Distance Education: A Status Report. International Review of Research in Open and Distance Learning, 1(1), p.p.1-9. Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/Article/4>

Pingback: [Ripples of influence in a CoP, moving through the 90-9-1 rule | Agile KM for me... and you?](#)



July 5, 2014
at 11:39 pm

How interesting! While one of my foremost goals

Thomas

is getting my students to learn the material AND retain it, I've come across this Learning Pyramid, which I have seen taught in a formal university setting (and workshops for teaching instruction!). So thank you for debunking this 'myth', which I didn't know it was 😊



August 17,
2014 at 8:55
am

james catts

Curious. It's interesting that the opponents to the simplified summary called "The Learning Pyramid" are Lecturers (statistically 13% of the USA population that are highly literate) that never refute that the findings are essentially true but that there is no scientific study to back it up. I stipulate that the creators of the Pyramid have publically stated that the original data cannot be found.

I also find it interesting, that after literally thousands of years of teaching through lecture, that we don't know that human beings that are fully engaged through all the senses retain more. Lecture has been the Modern Western Form which, arguably after near 400 years since 1621 of

intention to make us a literate nation, we are at a 43% non-literacy rate in our country. (NALS)

Note: What might come next in response is an attack on NALS data or an attack on an over simplification of the findings.

Whether one can physically measure the sun or not, it still is round even at a distance.

Just ask any Millennial, given a choice, if they prefer to sit through another boring non-dialogue, non-participative lecture or read again after college. 87% of Americans either CAN'T or Prefer to NOT Read. (based on NALS)

SUGGESTION:

Instead of attacking, how about making a positive contribution by doing the scientific study on the methods that contribute to learning retention?

Respectfully, Thank you for your time and consideration.



November 9,
2014 at 12:52
pm

Tom

Hi James, I think the point being made is that there is no research, or at least little of it that is reaching the trenches of education (at least here in America). It is shocking to see how many PHDs use Dale's cone of perception as the basis for their educational models. Do a google search on the cone of perception and see it repeated and repeated over and over, by people who know better. Also if the research is lost, but the cone of perception is true, it should be easy to reproduce. after all that is what science is all about. To reproduce results. Perhaps it is time these PHDs who use the cone of perception start trying to reproduce those numbers. They will find out that they can't, but I guess that is why education is a soft science.

Pingback: [Best of 2014: LLL's Favorite Tweets & Links on Listening and Lawyering | Listen Like a Lawyer](#)

Pingback: [A myth about listening and learning | Listen Like a Lawyer](#)

Pingback: [Debunker Club Works to Dispel the Corrupted Cone of Learning | Experiencing E-Learning](#)

Pingback: [Dale's Cone of Experience- Reflection on theory | Miss Who? Miss Ferguson!](#)

Pingback: [Bottlenecks to Learning: Spoken Language – The Dangerous Child](#)

Pingback: [Zombie Ideas Again: “The Learning Pyramid” | Larry Cuban on School Reform and Classroom Practice](#)

Pingback: [5 Tech Tools for Learning by Doing](#)

Pingback: [What is Write to Learn - Keith Hartnett](#)

Pingback: [2 Persistent Myths About Teaching and Learning - Teaching in Higher Ed](#)

Pingback: [Basic Observation of Teacher Librarian | Paula Heichel Blog 2.0](#)

October 16, 2017 at 11:58
pm



Ruth Small

My first time seeing the Learning Pyramid was a class handout during my doctoral program, taught by a protegee of Edgar Dale. It's source was cited as National Training Labs, Bethel, Maine.

Pingback: [Jegyzetelés - Egyetemi Évek](#)



November
17, 2017 at
4:49 am

D. Lovell

I'm reminded of something. Many years ago Jerry Seinfeld was told that he needed to shorten a comedy show he was planning because people didn't have that long of an attention span. Jerry replied that people only had a short attention span when they were bored. When they were entertained they could sit there for hours. I have to think the same applies to learning. I can't help but think that perhaps the need to cling to outdated or unproven methodologies may stem from the desire to attach blame or accountability to a method rather than to a teacher's ability to engage the minds and imaginations of their students.



January 12,
2018 at 10:40
am

Miroslav
Madjaric

“Tell me, and I will forget.
Show me, and I may
remember. Involve me,
and I
will understand.”
(Confucius, circa 450BC)
Some guy who wants to
get his 5 minutes glory
should debunk also this
theory (practically
identical to the cone)! My
students say they retain 10
times more when they are
lecturing instead of just
hearing professor’s
lectures (and not only
mine!).
Participative teaching
methods are obviously so
superior to passive ones
that obviously no
researcher bothered
him/her with unnecessary
analysis. Should we make
big research about the fact
that in the winter is colder
than in the summer?



February 5,
2018 at 3:17
am

Claudio

Loved it. Thanks for
shedding light on this. I’ve
been teaching part time
my whole life and was
preparing to include the

pyramid on my lecture
tonight but thought...
better check out some
criticism on this so I ended
up on your page, directly
from Wikipedia.

I truly appreciate being
able to check the other
references here on the
comments section which
completely debunked this
theory.

Thanks so much

Pingback: [A gigantic pyramid scheme | Catherine & Katharine](#)

Pingback: [Lo mejor que pueden hacer tus alumnos.... – Noelia López](#)

Pingback: [Never Trust a Pyramid - Anthony Teacher.com](#)