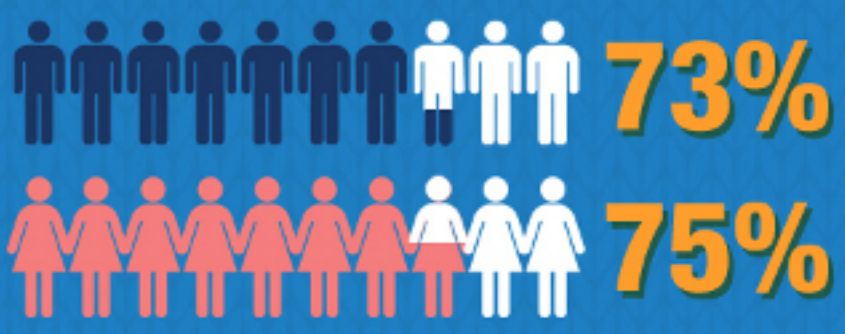
Resource Packet: Communicating Orally

This packet includes all documents you will be using to answer questions and learn vital concepts in the "Communicating Orally" module. Feel free to print this packet now, so that you can make notes as you go, or print each document as it becomes available during your progress through the course. The title of the page the document will appear on is noted in the top left corner of each document in this handout.

FEAR OF PUBLIC SPEAKING

ALSO KNOWN AS GLOSSOPHOBIA

74% OF PEOPLE SUFFER FROM **SPEECH ANXIETY**



5.3 MILLION

AMERICANS HAVE A SOCIAL PHOBIA

3.2 MILLION

AMERICANS HAVE A FEAR OF CROWDED PUBLIC PLACES

Public speaking is the greatest fear that people have, even greater than spiders and death itself.

SHORTER IS SAFER...

William Henry Harrison is credited for giving the longest speech at an inaugural ceremony. The speech comprising of 8445 words exposed him to cold and wet, killing him a month later through pneumonia. George Washington, on the other hand didn't stress his vocal chords giving an inaugural speech just 135 words long.

THE LONGEST SPEECH RECORD IN THE HOUSE OF COMMONS THOUGH STANDS SINCE 1828. IT LASTED 6 HOURS.

AT ANY GIVEN TIME, 5% OF THE WORLD'S POPULATION AGED BETWEEN 5 AND 50, SUFFER FROM THE FEAR OF SPEAKING IN OPEN TO OTHERS. THAT IS WHY MORE MEN AND WOMEN LOOK FOR A SOLUTION TO THIS FEAR BY TURNING TO HYPNOSIS THERAPY AND SELF HELP BOOKS THAN FOR ANY OTHER REASON.

MIAMI PUBLIC SPEAKERS
WWW.MIAMIPUBLICSPEAKERS.COM

SOURCES:

NATIONAL INSTITUTE OF MENTAL HEALTH
(HTTP://WWW.STATISTICBRAIN.COM/FEAR-OF-PUBLIC-SPEAKING-STATISTICS/)
HTTP://PUBLICSPEAKINGSUCCESS.NET/ARCHIVES/340
DESIGN BY: LION FUSE DIGITAL MEDIA

Science > TED Talks

6 speaking tips for scientists and engineers

Posted by: Kate Torgovnick May *October 11, 2012 at 11:21 am EDT*

Melissa Marshall
Talk nerdy to me

Melissa Marshall has a message for scientists and engineers: Contrary to popular belief, the general public is interested in your work and does want to hear the details of your research. The trick is that you must communicate your ideas clearly, because they will start snoring in their seats if you assault them with a slew of jargon and details they're not prepared to understand.

See, Marshall is a communications teacher. And as she explains in this talk from TEDGlobal 2012 University, she was asked several years ago to teach a

communications class for engineering students. The experience highlighted for her that the ability to speak clearly does not come part and parcel with the ability to do great technical work.

"Our scientists and engineers are the ones tackling our grandest challenges from energy, to environment, to healthcare, among others. But if we don't know about it and understand it, then the work isn't done," says Marshall in her talk. "So scientists and engineers, *please* talk nerdy to us. … Make sure that we can see your science is sexy and that your engineering is engaging."

To hear Marshall's mathematical formula for solving this problem, watch her wonderful 4-minute talk. Below, Marshall gives more detail on six specific strategies that scientists and engineers can use while preparing to share their work outside their field.

Here's what Marshall had to say:

1. Be aware of your audience.

To successfully communicate, a scientist or engineer must analyze their audience. It is critical that you understand the background, knowledge base, interests and biases of your audience so that you can adapt your content to them. Often, I will hear that the science needs to be "dumbed down." I think this is a flawed perspective that doesn't place enough emphasis on the responsibility of the speaker to communicate clearly. As speakers, we have to respect our audience — we need them on our side! You can clearly communicate your science without compromising the ideas.

2. Show the relevance.

It is important to establish early on why your work is relevant to your audience. If you don't tell them why it matters to *them*, it is much harder to maintain their attention. Look for opportunities where you can create connections from your work to the everyday lives and experiences of your audience.

When crafting the language of your talk, an excellent technique is to anticipate the questions your audience will ask and then use those questions to frame the content you will cover. This creates an instant connection between you and the audience because the audience perceives you as being invested in their understanding of the talk. When you see points where the audience may scratch their head, verbally acknowledge this with a, "So you might be wondering at this point … ." This makes the audience feel as though you are relating to their needs.

3. Paint a picture.

Examples, stories and analogies really help an audience to engage with your scientific content. The employment of these strategies can often be the difference between a good presentation and a great one. Examples and stories help technical information to "come alive" for an audience.

Meanwhile, analogies are one of the most powerful speech strategies available to a presenter of science as they anchor a complex technical idea to a concept that the audience already understands. When you use an analogy, you are using the audience's prior knowledge to explain your concept. This is a much deeper form of learning. The retention of concepts explained with analogies is greater because the listener's brain already has a place to file that information instead of having to create an entirely new file from scratch. Check out Brian Cox's TEDTalk on the Large Hadron Collider to see some great analogies in action!

4. Make numbers meaningful.

There are many occasions in scientific presentations where the speaker must discuss elements of size and amount. Sometimes an audience might not fully appreciate the significance of a raw number or measurement. Your information can really stand out if you provide context. By making a number relevant to what they already know, you are making that information much more meaningful and, most importantly, memorable. One great example of this was Robert Ballard's TEDTalk introduction when he said that the funding received by NASA was enough to fund the National Oceanic and Atmospheric Adminstration for 1600 years. What a powerful way to communicate that number!

5. Banish bullet points.

When a speaker uses text-heavy, bulleted slides, it can lead to cognitive overload — otherwise known as Death by PowerPoint. Whether words are spoken or written, they are processed in the same part of the brain. Since a talk itself is composed of words, when a presenter has slides that are primarily text, the audience will often only read the slides *or* only listen to the presenter. Additionally, bullets do not show connections or relationships between the content being presented. As a result, it is difficult for the audience to determine the most important information on the slide. This issue is magnified in a scientific presentation that contains challenging content.

As a presenter, consider if traditional slide design is in fact the best method. We can do so much better than bullets! One alternative strategy I recommend is called Assertion-Evidence slide design. Research has shown that it is more

understandable, memorable and persuasive. Assertion-Evidence slide design is characterized by a concise, complete sentence headline (no longer than 2 lines) that states the main assertion (i.e. what you want the audience to know). The body of the slide then consists of visual evidence for that assertion (charts, graphs, images, equations, etc.).

Some other excellent strategies and resources for presentation and slide design are available from my Penn State collaborator Michael Alley, as well as from Nancy Duarte, Cliff Atkinson and Garr Reynolds. These resources should be on the bookshelf of every presenter of science.

6. Deliver dynamically.

Audiences have high expectations when it comes to delivery! While content is always the most important factor in any scientific presentation, the impact of delivery style is not to be underestimated. Think back to some of the best presentations that you have seen. No doubt that in addition to compelling content, the presentation had other outstanding qualities. Just think about the amazing delivery of Jill Bolte Taylor's iconic TEDTalk.

The biggest must: Energy and enthusiasm for what you are presenting. Audiences connect with passionate speakers, so allow that to come through in your delivery. Hans Rosling is a great example of a presenter with enthusiasm for the data being presented.

Although it is crucial that your delivery is natural for you, that doesn't mean that you are stuck with whatever currently happens when you step on a stage. It takes practice to develop a natural and effective style. Many presenters feel that because they are so nervous that they can never be "one of those" presenters who seems comfortable in front of an audience. They resign themselves to just surviving their presentations instead of trying to thrive within them. With practice, most presenters, regardless of nervousness, can dramatically improve their delivery style. Every effective presenter has worked very hard to become that way — encouraging news, because this means that if you are willing to put in the effort, you too can significantly improve. Amy Cuddy's recent TEDTalk on "power posing" provides some great advice on how to feel more confident *before* delivering a talk!

communication engineering Melissa Marshall science speaker tips TEDGlobal 2012 TEDTalks 6

Exercise: Developing a Persona

Developing a persona helps you to understand your audience and to communicate more effectively with your audience. One way to understand your audience is to develop a persona.

Persona

1. List **YOUR** audience's geographical, demographic, psychographic, and behavioral characteristics. To identify this information, use the categories below.

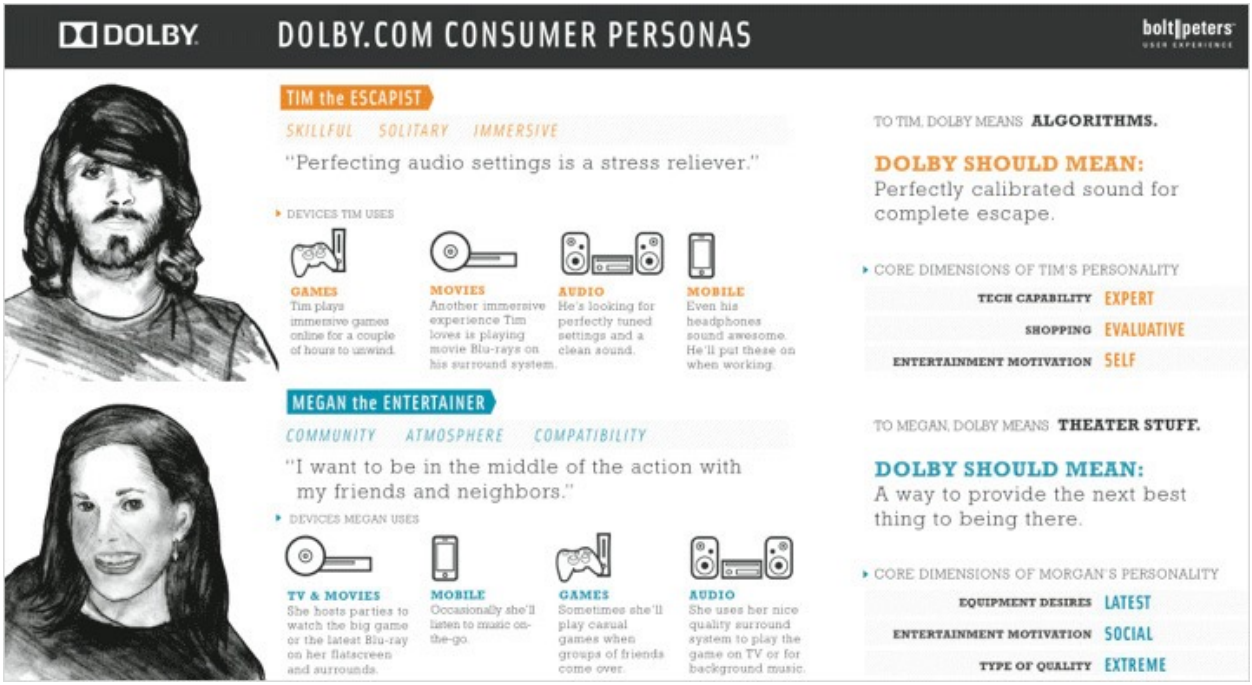
Geographical	Demographic	Psychographic	Behavioral
Continent	Age	Lifestyle	Occasions
Country	Gender	Social class	Degree of loyalty
Country region	Family size	AIOs (activity, interest, opinion)	Benefits sought
City	Occupation	Personal values	Usage
Density	Income	Attitudes	Buyer readiness stage
Climate	Education		User status
Population	Religion		
Subway station	Race		
City area	Nationality		

Source: http://www.smashingmagazine.com/2014/08/a-closer-look-at-personas-part-2/

2. Use questions listed in the mind map on the next page as a starting point for understanding your audience.

Source: http://www.smashingmagazine.com/2014/08/a-closer-look-at-personas-part-2/

3. Use the information from Parts 1 and 2 to synthesize a model similar to the one below. The person you are describing in this model is a typical member of your audience, so keep that in mind. Make sure and include your audience's geographical, demographic, psychographic, and behavioral characteristics.



Source: http://boltpeters.com/clients/dolby/

4. Use the information from Parts 1, 2, and 3 to socialize your persona. From the information you have gathered during this process, you will develop a persona similar to the one below. Identify descriptive adjectives derived from the information you have collected to use in the development of a persona for your audience. When you are finished, your persona should look similar to the one at right.

Source: http://blog.mailchimp.com/new-mailchimp-user-persona-research/

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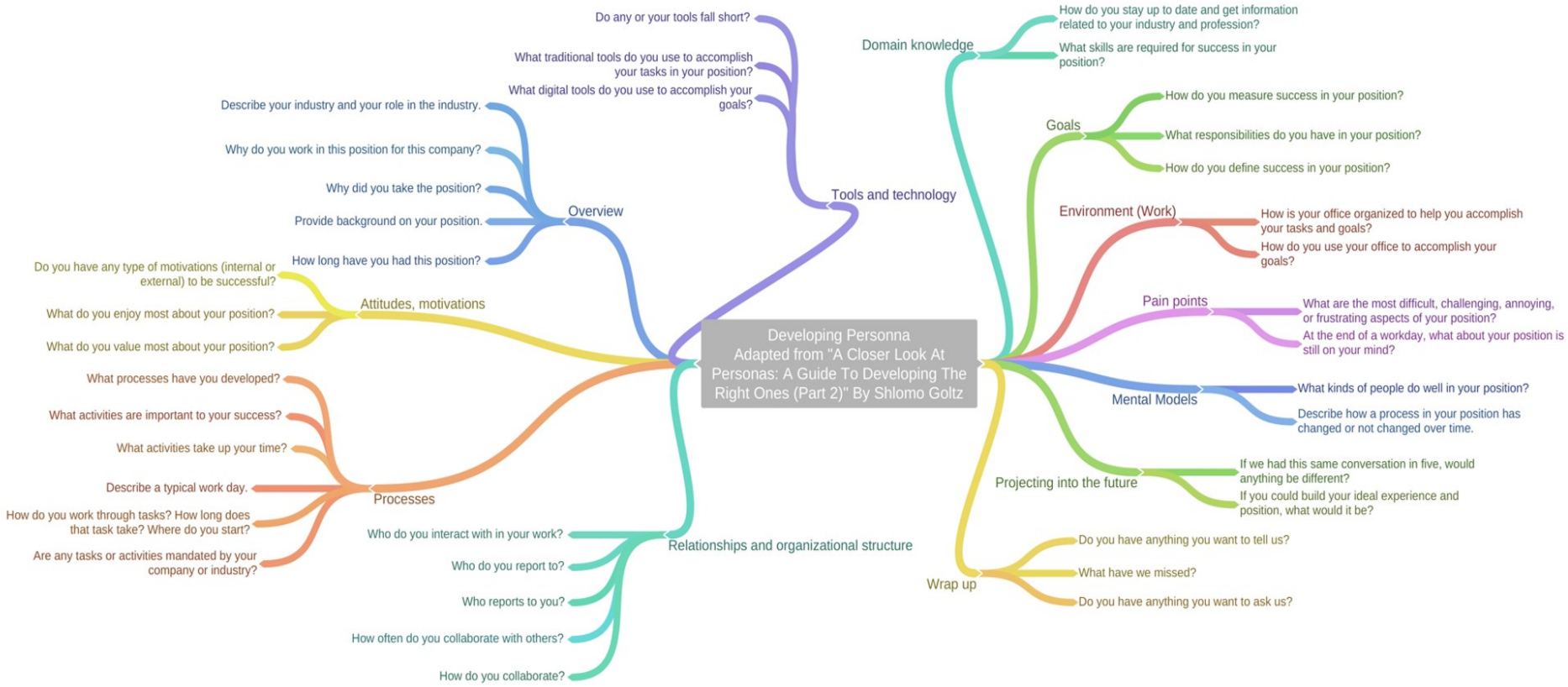

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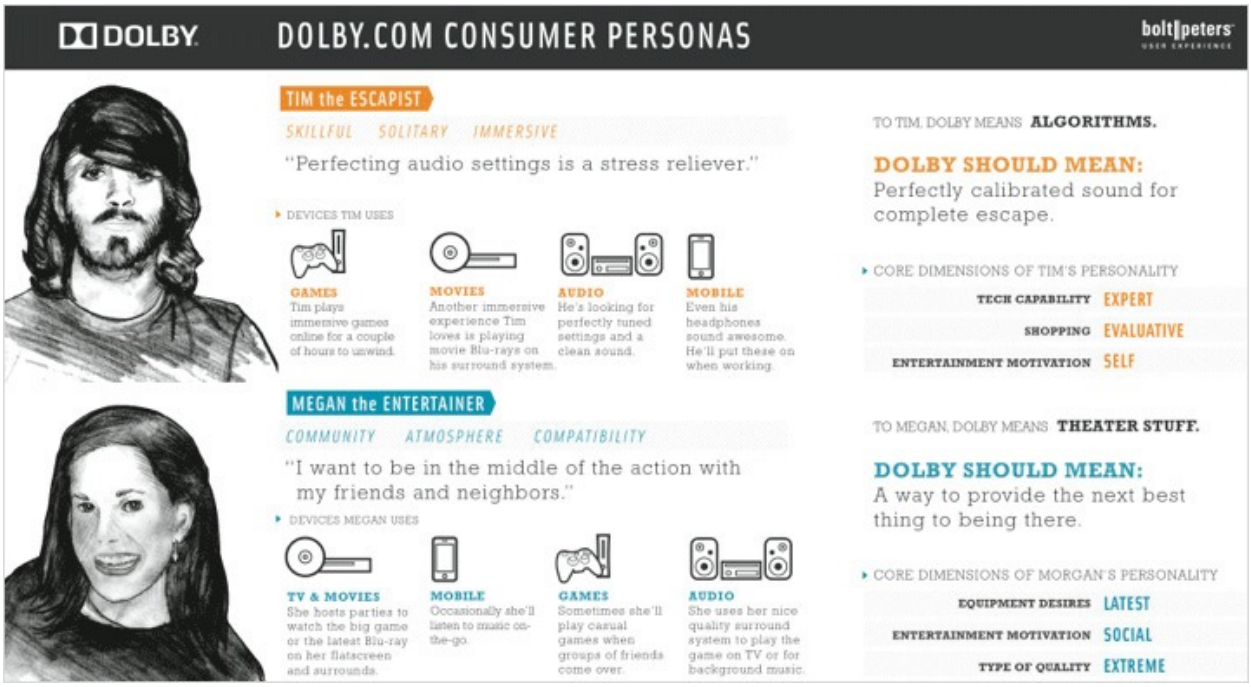

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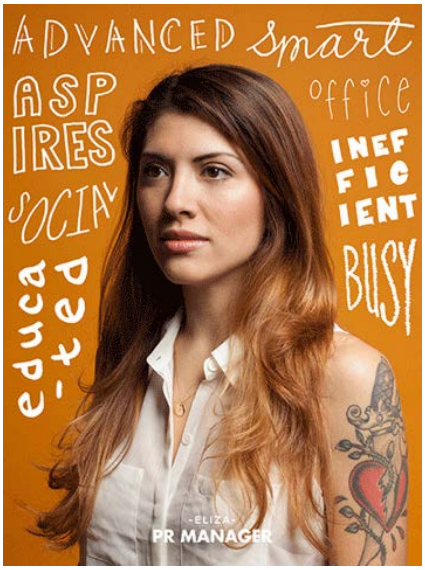


Image Source: http://blog.mailchimp.com/new-mailchimp-user-persona-research/

Communicating Orally: Speech Scenarios

Animal Agriculture

1. **Zoonotic disease spread:** Zoonotic diseases are diseases that can be transmitted between domestic animals, wildlife, and humans. They can be caused by bacteria, viruses, parasites, fungi, and protozoa. Global human population increases (requiring more food to be produced with intensive farming methods), wildlife habitat reduction, and fragmentation have led to increases in zoonotic diseases as humans come in closer contact with animals. Examples of zoonotic diseases are severe acute respiratory syndrome (SARS), Ebola hemorrhagic fever, E. coli, rabies, West Nile Virus, Lyme disease, tuberculosis, bovine spongiform encephalopathy (BSE or mad cow disease), and brucellosis. The spread of these diseases can be mitigated through sanitation and food safety practices, but global trade and travel enable diseases to spread faster than ever before.
2. **Global population growth and food security:** In 2017, the United Nations predicted the world population would reach 8.6 billion by 2030, which is an increase of 1 billion people in less than 15 years. As cities expand to house these additional people, agricultural land acreage shrinks. Agricultural operations must then use novel production methods or expand into previously unused land to make up for the lost space. Pressures on water and energy resources will increase along with pressures on land. Additionally, animal protein requires more land, water, and energy to produce than plant proteins, leading many people to explore the possibility of moving to a more plant-based diet, which in turn, may decrease the demand for meat. New and efficient processes, genetic research, and tools must be pursued and created to fill this gap and prevent or lessen global food shortages. Food insecurity and poor nutrition can lead to chronic diseases, behavioral issues, and increases in conflicts.

Plant Agriculture

1. **GMO labeling:** In recent years, the debate on whether to require companies to label food products that contain GM (genetically modified) ingredients has gained much interest. Consumers increasingly demand to know if their foods contain GMOs, but some argue that requiring companies to label all products containing GMOs is excessive and carries the connotation of a warning against consuming GM products. Additionally, health risk concerns are usually not with the GM crop itself, but with the pesticides, specifically

glyphosate, that can be used on the GM crops. In an effort to create a compromise between full labeling and no labeling, legislation requiring a "QR code" containing information for any GM ingredients was passed in 2016. Even still, this legislation has not fully put the issue to rest as the USDA must implement several details.

2. **Dependency on undocumented immigrant labor:** Fruit and vegetable production is labor-intensive and has not been automated to the same level as grain production. In many areas of the United States, immigrant workers do the labor-intensive jobs that make low prices on food possible. However, anywhere from 25% to 70% of immigrant farm workers have been reported to be undocumented, prompting concerns that President Trump's immigration reform efforts will greatly decrease the labor available to harvest time-sensitive fruits and vegetables. Decreasing available labor sources could result in financial losses for the agricultural industry, and possibly increase food costs for consumers.

Poultry Agriculture

1. **Meat Bird Leg Abnormalities**: Although this is an issue the poultry industry has focused on for several years, producers frequently encounter broiler chickens and turkeys in their production houses with severe leg abnormalities. These can include perosis/slipped tendon/spraddle legs, dyschondroplasia (a growth plate defect), rickets, foot pad dermatitis, and femoral head necrosis. Often, these abnormalities are associated with genetically selecting birds for growth traits and can result in consumer concerns for commercial poultry's welfare. Birds with these issues are also either not fit for human consumption or graded lower, which can result in income losses for the producers. Researchers must continue to refine the genetics of commercially-produced poultry to decrease the incidence of skeletal abnormalities while increasing growth rates.
2. **Increasing feed costs**: A large amount of grain produced in the U.S. is fed to farm animals grown for eventual human consumption. Rising costs of grain mean producers must find alternatives for the cereal grains (such as wheat and corn) and other substances (such as fish meal) in commercial poultry feeds to keep production costs low. Additionally, lower consumer acceptance and governmental allowances for using growth-promoting antibiotics translate into producers requiring more from their feeds in order to stay competitive. As the industry develops methods to grow birds to their full genetic potential, nutrition and sourcing feed ingredients is a top priority.

Visual Thinking Magic
The Evolution of Extraordinary Intelligence

Visual Metaphor: Bridging the Gap

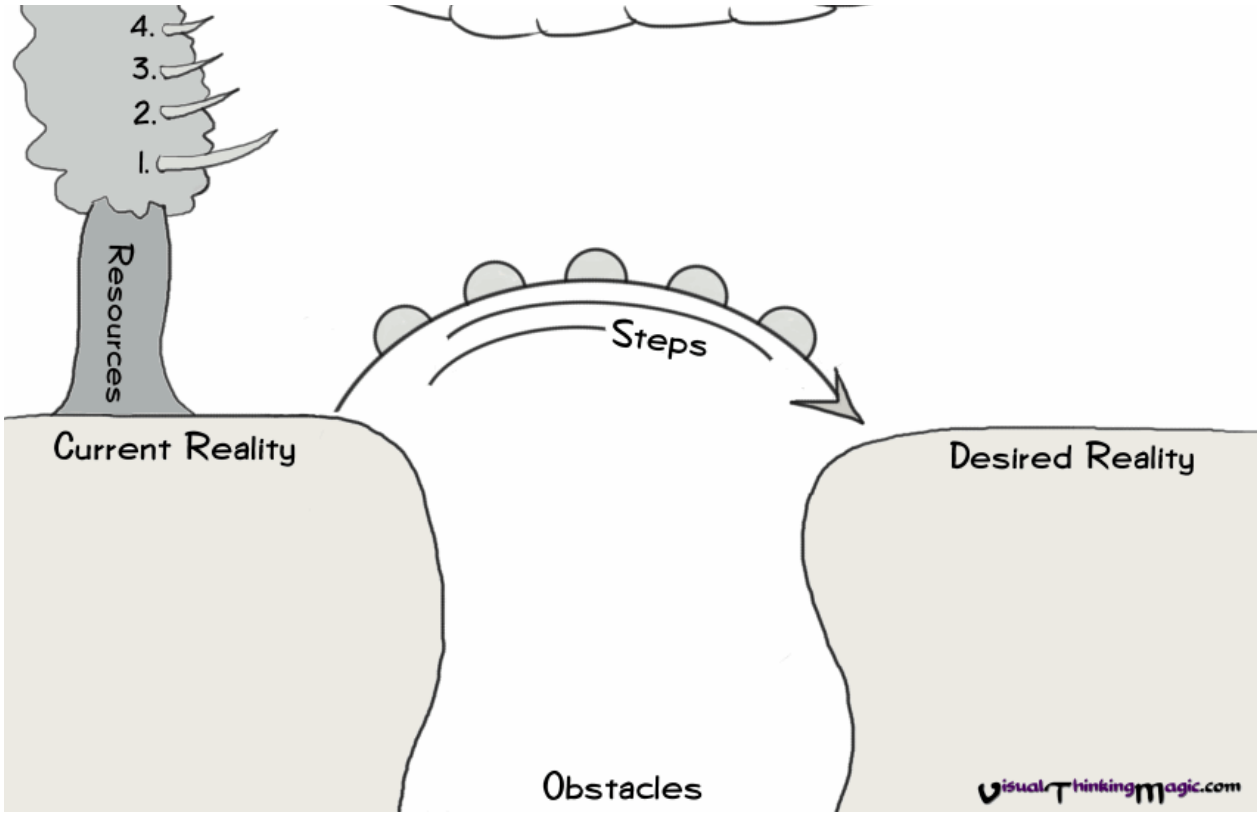
Now that you are familiar with visual thinking metaphors and analogies, today, I would like to provide you with a practical example of a **visual thinking metaphor** that is often used for life coaching purposes to help clients clarify their goals and objectives. In fact, it is one of the many visual thinking metaphors we will be discussing in the coming months.

Building a Visual Bridge

This visual thinking metaphor explores a number of key critical areas that are fundamental to the process of goal setting. It explores the following areas:

- Current reality
- Desired reality
- Obstacles standing in the way
- Available resources
- Steps required to achieve your desired reality

First of all, familiarize yourself with the blank template below and then read the brief explanation about how you can use this tool for your own purposes. Keep in mind that a visual metaphor such as this is most ideally used when sketched out on a large whiteboard — allowing you plenty of open space to work with.



Click here to download a pdf sample of this visual thinking metaphor.

Here is an overview of how you would use this visual thinking metaphor:

1. Identify Your Goal

First, within the cloud area, write down the goal that you would like to achieve. Only use keywords, and be as specific as possible.

2. Identify Current Reality

On the left cliff, write down a list of keywords that define your current reality. You're basically outlining where you are right now in your life — your current life circumstances. Include everything that is good, bad and ugly. 😉 Alternatively, you can represent your current reality using sketches and symbols.

3. Identify Desired Reality

It's important not to go into too much detail at this stage, but simply jot down keywords that stand out in your mind.

On top of the cliff, represent these keywords (your desired reality) using a series of sketches, symbols or both. The sketches can depict feelings you want to experience, physical things you want to have, etc. Completing these sketches will help you to create more meaningful associations.

4. Identify Obstacles

Within the gap between the two cliffs, write down all the obstacles that are standing between your current reality and your desired reality. Again, write down only keywords without going into too much detail. Alternatively, you can represent these words in a visual way, as described above.

5. Identify Key Resources

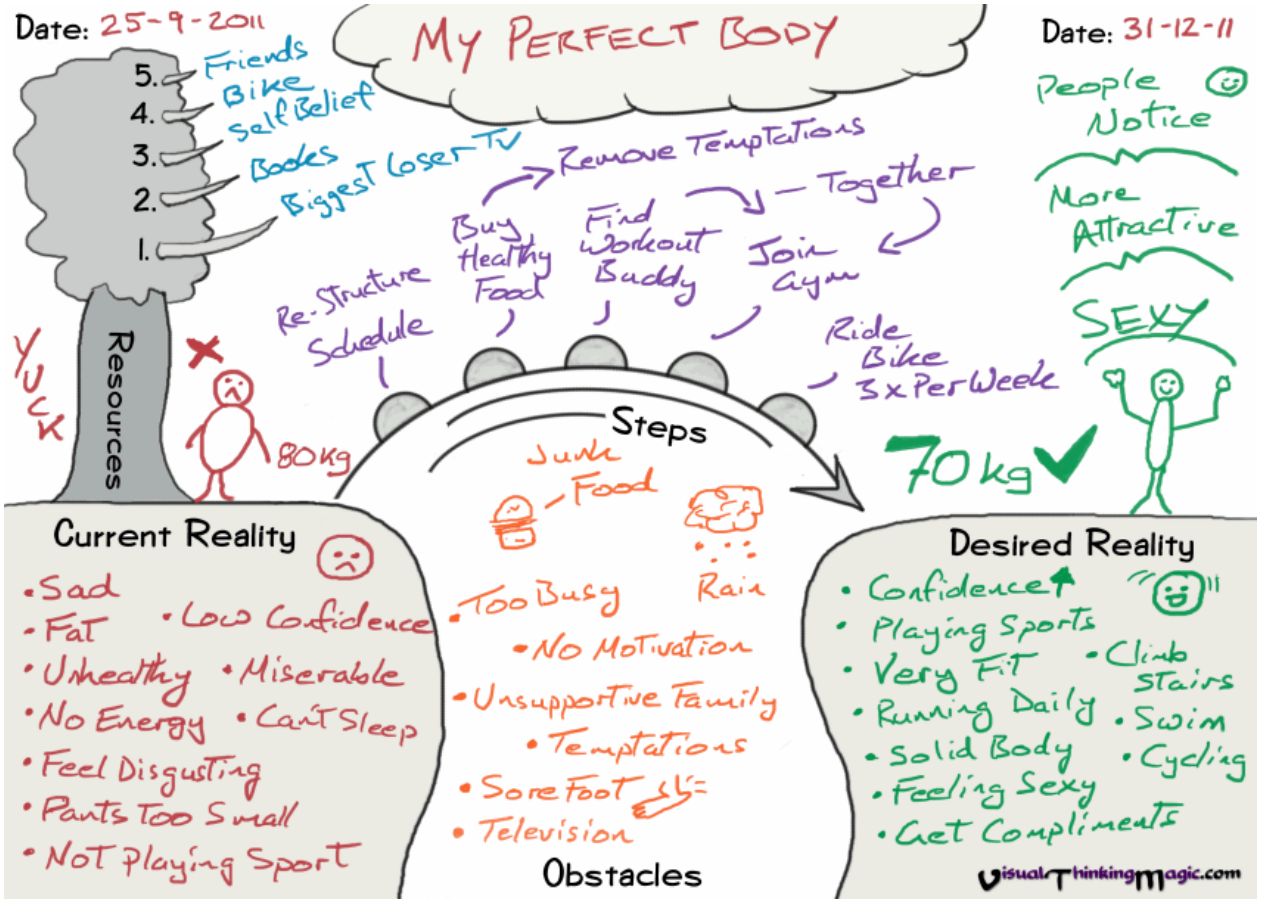
On the tree branches outline five key resources that you have at your disposal that you could use to help you overcome the obstacles that are standing between you and your desired reality. Again, just jot down keywords.

6. Bridge the Gap

Now that you are clear about where you are, where you want to be, the obstacles standing in your way, and the resources you have at your disposal, it's now time to build a bridge that will take you over the cliff towards your desired reality. This bridge is going to be built using a series of steps that you will take over a certain period of time that will get you to where you want to go.

Again, it's important here to only use keywords, and keep your description of the steps simple and straightforward.

Visualizing Your Journey Towards a Perfect Body



As you can see, I've outlined the current reality I'm experiencing at the moment (red), the desired reality I want to experience in the future (green), the obstacles standing in my way (orange), the top five resources I currently have at my disposal (blue), and the five steps I need to take to achieve my desired reality (purple).

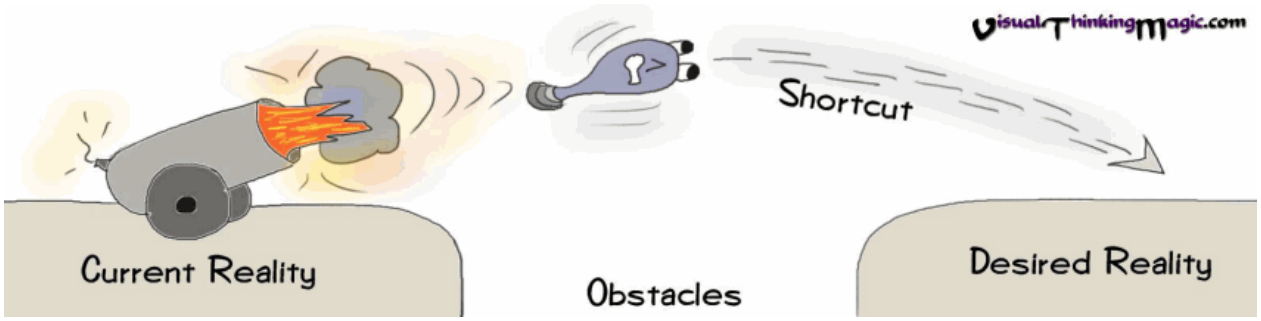
I've mainly used words for this example, however if you feel comfortable you can use more pictures and symbols.

The Benefits of Visual Metaphors

Using visual thinking metaphors is much like building a story of your life and your journey towards a goal. You are effectively taking your thoughts, different scenarios, choices and options out of your head, and making them concrete and real in front of your eyes. This helps you to clarify things, to identify patterns and make better and more effective decisions.

on paper in such a manner provides you with incredible clarity that you would never experience if you simply kept things in your head.

By seeing all my options, all my thoughts, all my problems, all my emotions, all my obstacles, all my desires, and all the relevant aspects of my life visualized within a powerful metaphor — helps to put EVERYTHING into perspective. This perspective shifts my model of the world, which likewise stirs my emotions, moves me to action, and catapults me over the cliff. 😉



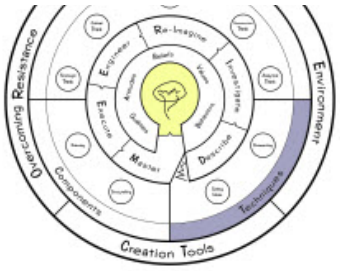
I will provide you with an in-depth analysis of this visual thinking metaphor (including a video walk-through), as well as many other visual thinking metaphors and many other visual thinking techniques and tools in the months ahead. For now, try this visual thinking metaphor for yourself, and begin consciously reshaping your perspective and understanding of reality.

Metaphors and Analogies are Only the Beginning

In upcoming posts, I will present you with much more information about metaphors and analogies, including more practical examples about how you can incorporate them into a visual thinking framework. But our metaphorical journey doesn't end here. Because within the next post we're going to examine how to incorporate similes and allegory into your visuals.

This article has explored one of the many visual thinking techniques that you can use to help you solve problems, think more creatively, and generate ideas far more effectively. Like with anything, the more you use them, the better you'll get.

Click here to see how visual thinking techniques are integrated into the visual thinking framework.



October 7, 2011 Adam Sicinski techniques techniques

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Communicating Orally
Oral Presentation Rubric

Category	Scoring Criteria	Possible Points	Score
Presentation	Speaker maintains good eye contact with audience.	5	
	Good language skills and pronunciation are used.	5	
	Speaker is dressed professionally.	5	
	Limited use of filler words ("umm", "like", etc.).	5	
	Speaker shows appropriate nonverbal behaviors: movement, body language, gestures.	5	
	Total Presentation:	25	
Content	Presentation is 5-8 minutes long.	5	
	Presentation is submitted according to instructor guidelines.	5	
	Presentation contains accurate information that is cited appropriately for the field.	5	
	Visuals are well-prepared and effective.	5	
	Slide content is of appropriate length.	5	
	Total Content:	25	
Organization	Purpose, topic, and type of speech (informative, entertaining, persuasive, led to action) is clear.	5	
	Introduction is engaging and shows how topic is relevant to the audience.	5	
	Three main points are supported by evidence and relevant, scientifically-valid arguments.	5	
	Language and terms used are easy to understand and/or well-explained, and complex issues are explained with analogies that show the issue's relevance and importance.	15	
	Presentation leaves audience with the urge to take action and summarizes major points.	10	
	Overall feeling at end of presentation.	10	
	Total Organization:	50	
	Total Score:	100	

Comments:

Communicating Orally: References

Alan Alda Center for Communicating Science. (2017). *The Alda Center*. Retrieved from https://www.aldacenter.org/get-started/about-us

Australian Government Department of Agriculture (ABARES). (2012, May 2). *Richard Richards (pt 1) crop science contributions to food security.* Retrieved from https://www.youtube.com/watch?v=HF029fMFOVI

Backes, K. (2013, April 4). Kevin Backes poultry production seminar presentation 2012. *Sustainable Agriculture Research & Education*. Retrieved from https://www.youtube.com/watch?v=bJlgChBWzm8&feature=youtu.be&t=27s

Ezeanya, J. (2013, October 12). The 4 types of public speaking [blog]. *LiveSpeech.* Retrieved from http://www.livespeech.org/blog/the-four-types-of-public-speaking

Food Aid Foundation. (2017). *Hunger statistics.* Retrieved from http://www.foodaidfoundation.org/world-hunger-statistics.html

Gaille, B. (2017, May 20). 15 Fear of Public Speaking Statistics [blog]. Retrieved from https://brandongaille.com/14-fear-public-speaking-statistics/

Iowa State University Extension & Outreach. (2014, April 4). Bull selection and genetic considerations for replacement beef heifers. *Iowa Beef Center.* Retrieved from https://www.youtube.com/watch?v=wwKamcGywZ0

May, K. T. (2012, October 11). 6 speaking tips for scientists and engineers [blog]. *TED Blogs*. Retrieved from https://blog.ted.com/6-tips-on-how-scientists-and-engineers-can-excite-rather-than-bore-an-audience/

NanoNerds. (2012). *Undergraduate students unwittingly subjected to world's worst research presentation*. Retrieved from https://www.youtube.com/watch?v=nSGqp4-bZQY

PBS News Hour. (2017). *For Alan Alda, the heart of good communication is connection.* Retrieved from https://www.youtube.com/watch?v=nAkqWGO1T-c

Qahtani, M. (2015, September 23). 6 public speaking tips to hook any audience. *Charisma on Command*. Retrieved from https://www.youtube.com/watch?v=k8GvTgWtR7o

Schiefelbein, J. (2017). 7 delivery skills for public speaking. *Entrepreneur Magazine*. Retrieved from https://www.entrepreneur.com/article/290445

Shafei, H. (2012, June 21). *Presentation good / bad examples.* Retrieved from https://www.youtube.com/watch?v=S5c1susCPAE

Sicinski, A. (2011, October 7). Visual metaphor: Bridging the gap. *The Evolution of Extraordinary Intelligence.* Retrieved from https://www.visualthinkingmagic.com/visual-metaphor-bridge-gap

Sparling, B. (2015, April 1). PHRN research day 2014 presentation – Brandi Sparling. *Poultry Health Research Network.* Retrieved from https://www.youtube.com/watch?v=Y_9_Xyb5B6Y

Tracey, B. (2017). 9 tips to end a speech with a bang. *Brian Tracy International.* Retrieved from https://www.briantracy.com/blog/public-speaking/how-to-end-a-speech-the-right-way/

UK College of Agriculture, Food, and Environment. (2015, September 15). *Health Program for Calves Presentation with Dr. Michelle Arnold.* Retrieved from https://www.youtube.com/watch?v=7lV7GCj5KJg

University of Calgary. (2017). The what? So what? And now what? of critical reflection. *Connections.* Retrieved from http://connections.ucalgaryblogs.ca/2014/07/30/the-what-so-what-and-now-what-of-critical-reflection/

Wehmeyer, B. (2012, April 23). UW Department of Plant Sciences presentation. *University of Wyoming*. Retrieved from https://www.youtube.com/watch?v=90dv0UBLw0o&t=58s

Wolff, A. (2016, April 8). 5 public speaking tips from TEDxPortland speaker coach. *The Oregonian.* Retrieved from https://www.youtube.com/watch?v=JNOXZumCXNM