Day one afternoon

- Motivation and Demotivation
- Equity, Inclusion and Accessibility
- Teaching is a Skill

Motivation and Demotivation

Questions

- Why is motivation important?
- How can we create a motivating environment for learners?

Objectives

- Identify authentic tasks and explain why teaching them is important.
- Develop strategies to avoid demotivating learners.
- Distinguish praise based feedback and the type of mindset it promotes.

Motivation matters

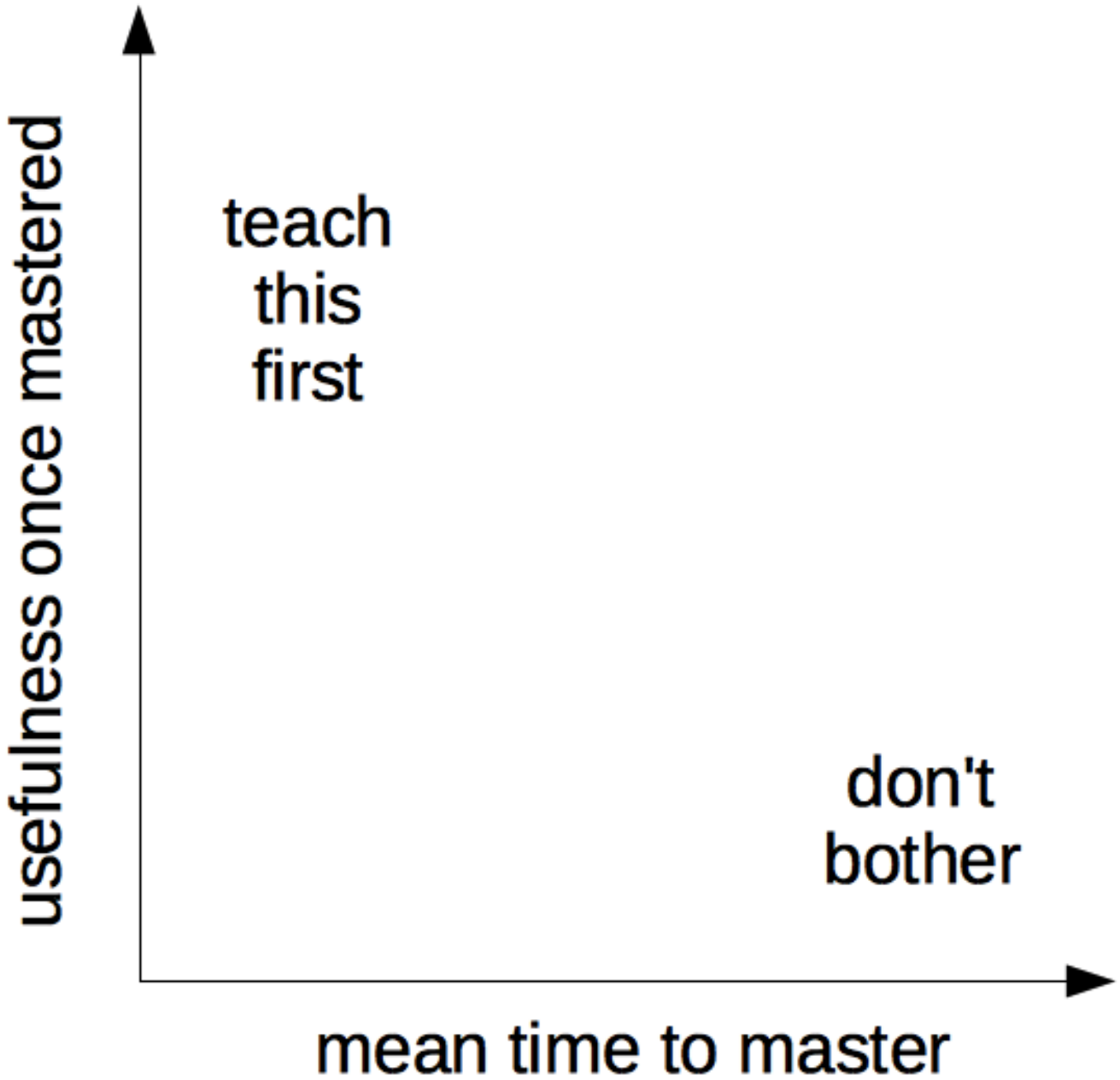
We can do everything to facilitate the cognitive processes needed for learning but it will all fall short if the learners are not motivated.

Big part of our job as instructors is to **cultivate motivation to continued learning.**

How Can Content Influence Motivation?

Motivate learners and help build confidence by starting with:

- what is **quick to learn an immediately useful**
- **authentic tasks** - real tasks performed by someone doing their work


usefulness once mastered
teach
this
first
don't
bother
mean time to master

Exercise (10 min)
Authentic Tasks Think, Pair, Share

Think about some task you did this week that uses one or more of the skills we teach, (e.g. wrote a function, bulk downloaded data, built a plot in R, forked a repo) explain how you would use it (or a simplified version of it) as an exercise or example in class.

Write it down on a post-it.

Pair up with your neighbour and decide where this exercise fits on a graph of “short/long time to master” and “low/high usefulness”. Put the posted in the right place on the board.

How Can You Affect Motivation?

Exercise (5 min)
Brainstorming Motivational Impacts

Think back to courses you have taken in the past and consider things that an instructor has said or done that you found either motivating or demotivating. Try to think of one example in each case, and share your example in the collaborative document.

Invite Participation (tips)

- Establishing norms for interaction.
- Encouraging learners to learn from each other.
- Acknowledging when learners are confused.

Encourage a Growth Mindset

Fixed mindset

belief that ability or intelligence is born rather than made.

Growth mindset

belief that ability can be acquired through effort.

Encourage a Growth Mindset

Positive error framing

Encourages learners to understand errors in a positive way – as an opportunity to learn something they would have missed otherwise – **reinforces a growth mindset and helps them to stay motivated**.

Exercise (5 min)
Helping Learners Learn From Mistakes

A learner at your workshop asks for your help with an exercise and shows you their attempt at solving it. You see they've made an error that shows they misunderstand something fundamental about the lesson (for example, in the shell lesson, they forgot to put a space between ls and the name of the directory they are looking at). What would you say to the learner?

In the collaborative doc, describe the error your learner has made and how you would respond.

Encourage a Growth Mindset

- Presenting instructor as a learner
- Praising effort or improvement, not performance or ability.

Exercise (5 min) Choosing our Praises

Since we are so used to being praised for our performance, it can be challenging to change the way we praise our learners. Which of these examples of praise do you think are based on performance, effort, or improvement?

1. That's exactly how you do it – you haven't gotten it right yet, but you've tried two different strategies to solve that problem. Keep it up!
2. You're getting to be really good at that. See how it pays to keep at it?
3. Wow, you did that perfectly without any help. Have you thought about taking more computing classes?
4. That was a hard problem. You didn't get the right answer, but look at what you learned trying to solve it!
5. Look at that - you're a natural!

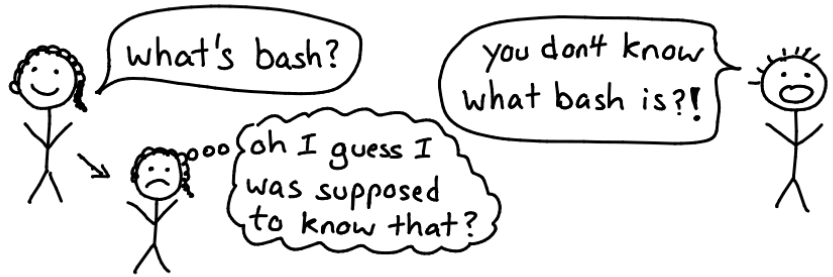
First, do no harm! Things you should not do in your workshop.

- Talk contemptuously or with scorn about any tool or practice.
- Dive into complex or detailed technical discussion.
- Pretend to know more than you do.
- Use the J word (“just”) or other demotivating words.
- Take over the learner’s keyboard.
- Express surprise at unawareness.

"no feigning surprise"

my ♥ favourite ♥ social rule from the Recurse Center

Here's a thing that happens a lot:

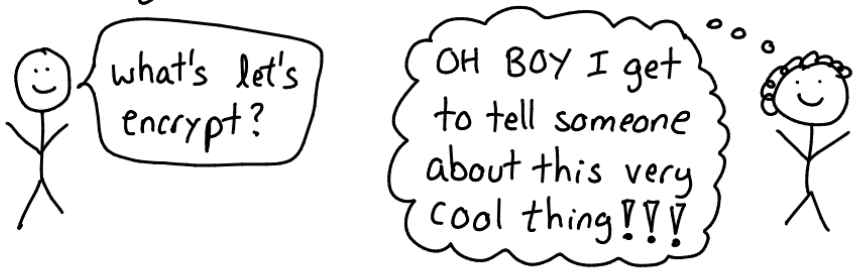


Here's a cool simple trick!

Don't act surprised when someone doesn't know something you thought they knew

(even if you are a little surprised!)
It doesn't help.

Then you get to have fun times like this:



And it gets easier with practice! !!!

Julia Evans @b0rk

Not Just Learners

- Learners respond to an instructor’s enthusiasm.
- Instructors are learning to teach. (that requires motivation as well)
- Carpentries Instructors teach because they want to.

Equity, Inclusion, and Accessibility

Questions

- Why are equity, inclusion, and accessibility important?
- What can I do enhance equity, inclusion, and accessibility in my workshop?

Objectives

- Identify instructional strategies that are consistent with universal design.
- Recognize systemic factors that can distract and demotivate learners.
- Understand the role of The Carpentries Code of Conduct in maintaining an explicitly inclusive environment.

Equity

The proportional distribution of desirable outcomes across groups.

Sometimes confused with equality, equity refers to outcomes while equality connotes equal treatment.

Inclusion

Actively engaging traditionally excluded individuals and/or groups in processes, activities and decisions in a way that shares power.

Inclusion promotes broad engagement, shared participation, and advances authentic sense of belonging through safe, positive, and nurturing environments.

Accessibility

Refers to the intentional design or redesign of technology, policies, products, and services that increase one's ability to use, access, and obtain the respective item.

Each person is afforded the opportunity to acquire the same information, engage in the same interactions, and enjoy the same services in an equally effective and equally integrated manner, with substantially equivalent ease of use.

The Carpentries Core Values

Exercise (5 min): Discuss The Carpentries Core Values

1.Take a moment to read through the Core Values on this page: https://carpentries.org/values/

2.Choose one core value that resonates with you. What is a decision you might make in a workshop that could look different if you were actively considering the core value you chose? Discuss in pairs.

Accessibility

Exercise (5 min): What Happens When Accessibility is an Issue?

Think of a time when you have been affected by, or noticed someone else being affected by barriers to accessibility.

This may have been at a conference you attended where the elevator was out of service, or maybe a class you were taking relied on audio delivery of content.

Describe what happened, how it impacted your (or someone else's) ability to be involved and what could have been done to provide better accessibility in this case. Discuss in pairs.

Accessibility

When organising a workshop, think of accessibility in advance, don’t wait for participants to tell you about their needs.

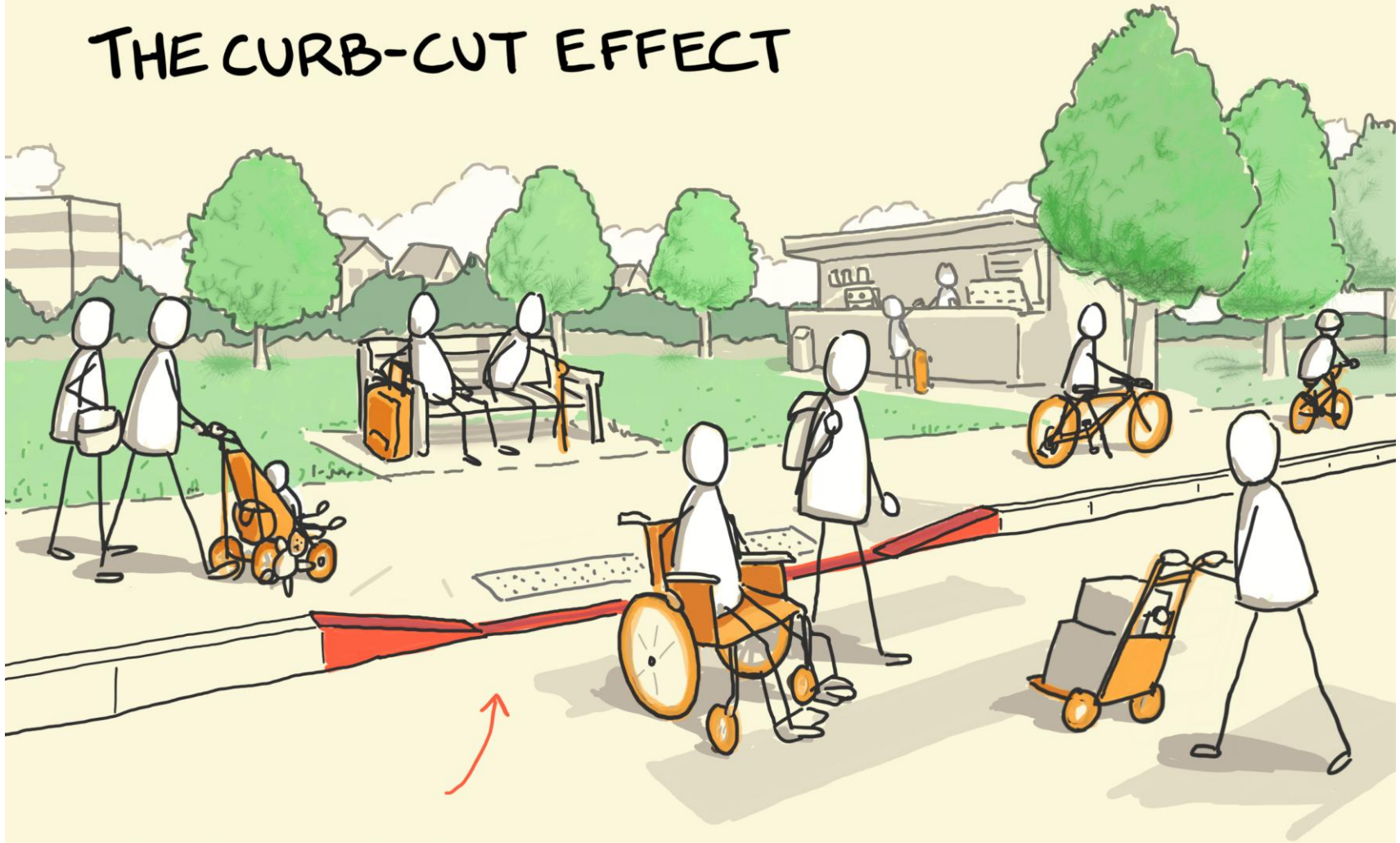
Many people will not feel comfortable requesting accommodations in advance.

From Accommodation to Universal Design

Accommodation puts the onus on the individual with the need.

By contrast, "**universal design**" means creating something to be maximally usable by all people without additional changes.

THE CURB-CUT EFFECT



WHEN WE DESIGN
FOR DISABILITIES

... WE MAKE THINGS
BETTER FOR EVERYONE

sketchplanations

Universal Design in Learning (UDL)

UDL places **responsibility** for accessibility **on the course designer** rather than on the learner.

It states that the most inclusive approach to education is to **design** instruction **with diverse learners in mind** from the beginning.

The key to UDL is **creating redundancies** such that learners have multiple options in how they: (1) receive, (2) engage, and (3) share information.

Exercise (10 min): Applying Universal Design in Your Teaching

Consider some of the teaching tools and strategies we have discussed so far in this workshop, or others you have observed in your experience. How do these meet UDL goals of providing multiple options for learners?

Consider multiple ways for learners to:

1. receive information
2. engage with you, the material, and other learners
3. share what they have learned

Discuss in pairs.

Accessibility

Every little bit counts

- It can be overwhelming and …
- Don’t try to do everything at once.
- Do the easy things first.
- Introduce one thing a the time.

Systemic exclusion

As with other demotivation pitfalls, we can also think carefully about the language that we use and how we interact with our learners to avoid reinforcing systemic bias.

Stereotypes

- may be **explicit** (conscious and deliberate) or **implicit** (unconscious and automatic)
- **guide what we notice** about people
- **guide how we interpret** people's behaviours
- can **facilitate quick judgements** in appropriate situations (e.g. stopping a child from driving a car)
- can **lead to systematically negative attitudes and behaviours** towards members of certain groups

When Instructors have stereotypes about learners

- call attention to differences unnecessarily
- give more or less attention to certain learners
- respond to questions differently for certain learners

When learners experience stereotypes about themselves

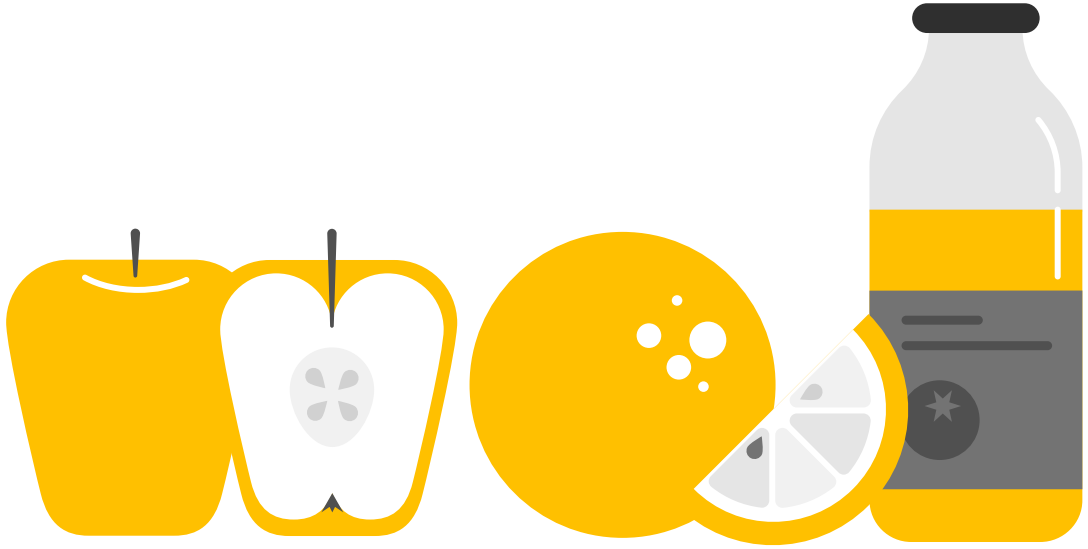
- develop a fixed mindset about aspects of their own capability
- experience increased cognitive load when reminded about a stereotype, interfering with the learning process. This is known as **stereotype threat**.

What can we do about our own stereotypes

- Get to know people from many different groups!
- Observe your own behavior, and build awareness of situations in which your perceptions and behaviors are influenced by stereotypes.
- Avoid calling attention to common stereotypes, even in a way that seems positive.

Inclusive Practices in a Carpentries Workshop

- Setting Expectations with the Code of Conduct
- Listening with Assessment and Feedback
- Examining your Actions



Teaching is a skill

Questions

How can I improve my teaching?

Objectives

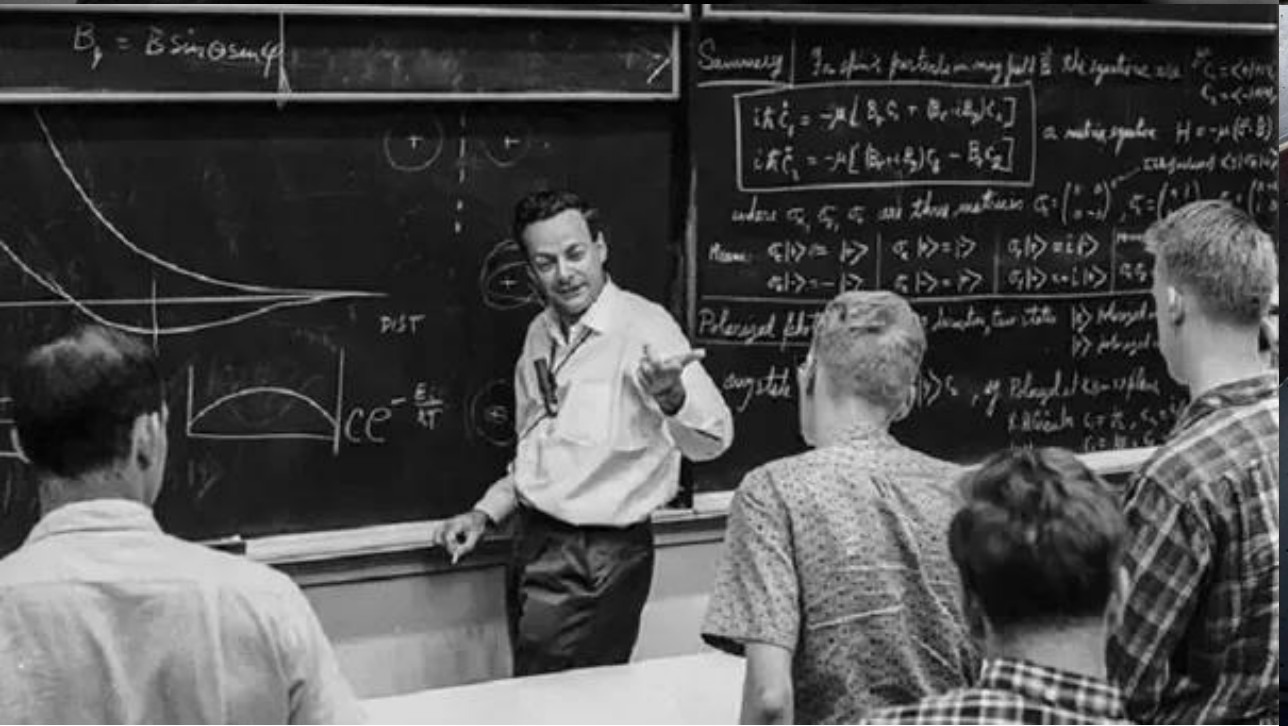
Use peer-to-peer lesson practice to transform your instruction.

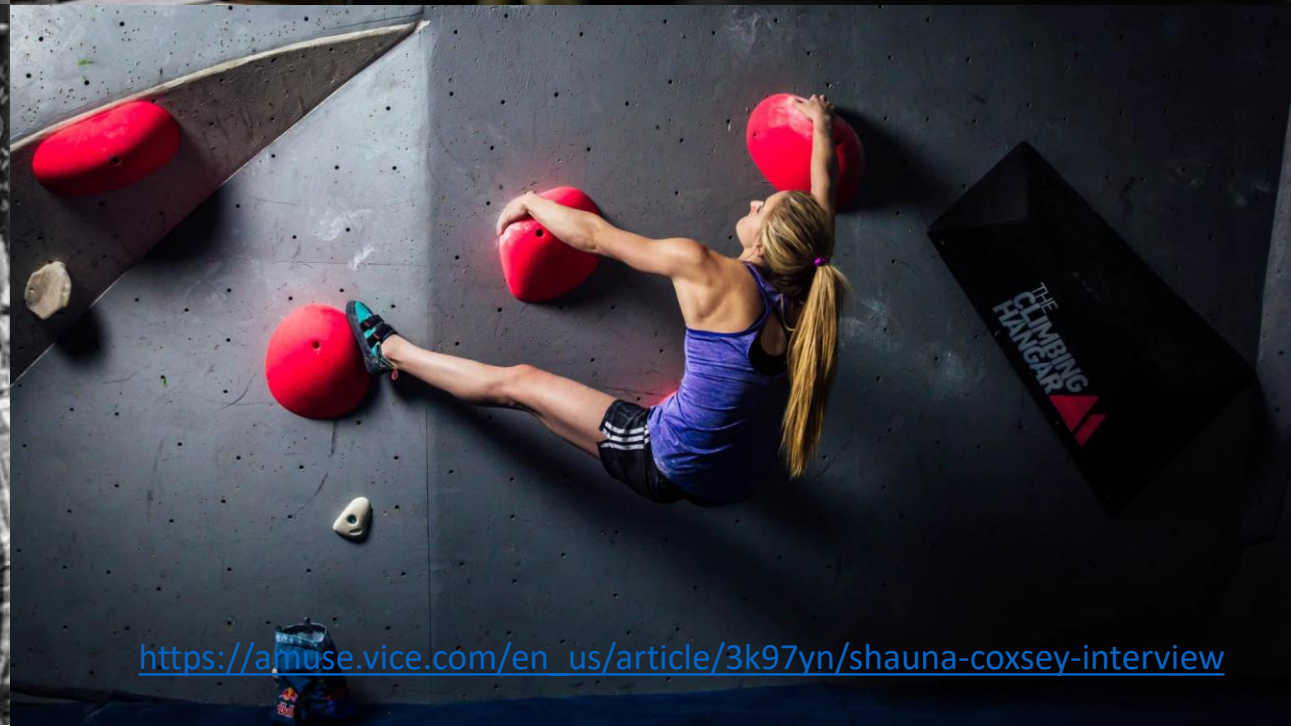
Give thoughtful and useful feedback.

Incorporate feedback into your teaching practices.

https://akitakase.bandcamp.com/

https://twitter.com/inoueart





https://amuse.vice.com/en_us/article/3k97yn/shauna-coxsey-interview

1Utama – Camp5 Climbing Gym


4 halves
0 2
10
20
30
40
1 half

Lesson Study

or

jugyokenkyu

Feedback is hard

Initiate feedback

What kind of feedback are you looking for? Ask Questions.

“What is one thing I could have done as an instructor to make this lesson more effective?”

“If you could pick one thing from the lesson to go over again, what would it be?”

Balance

What to improve / What went well

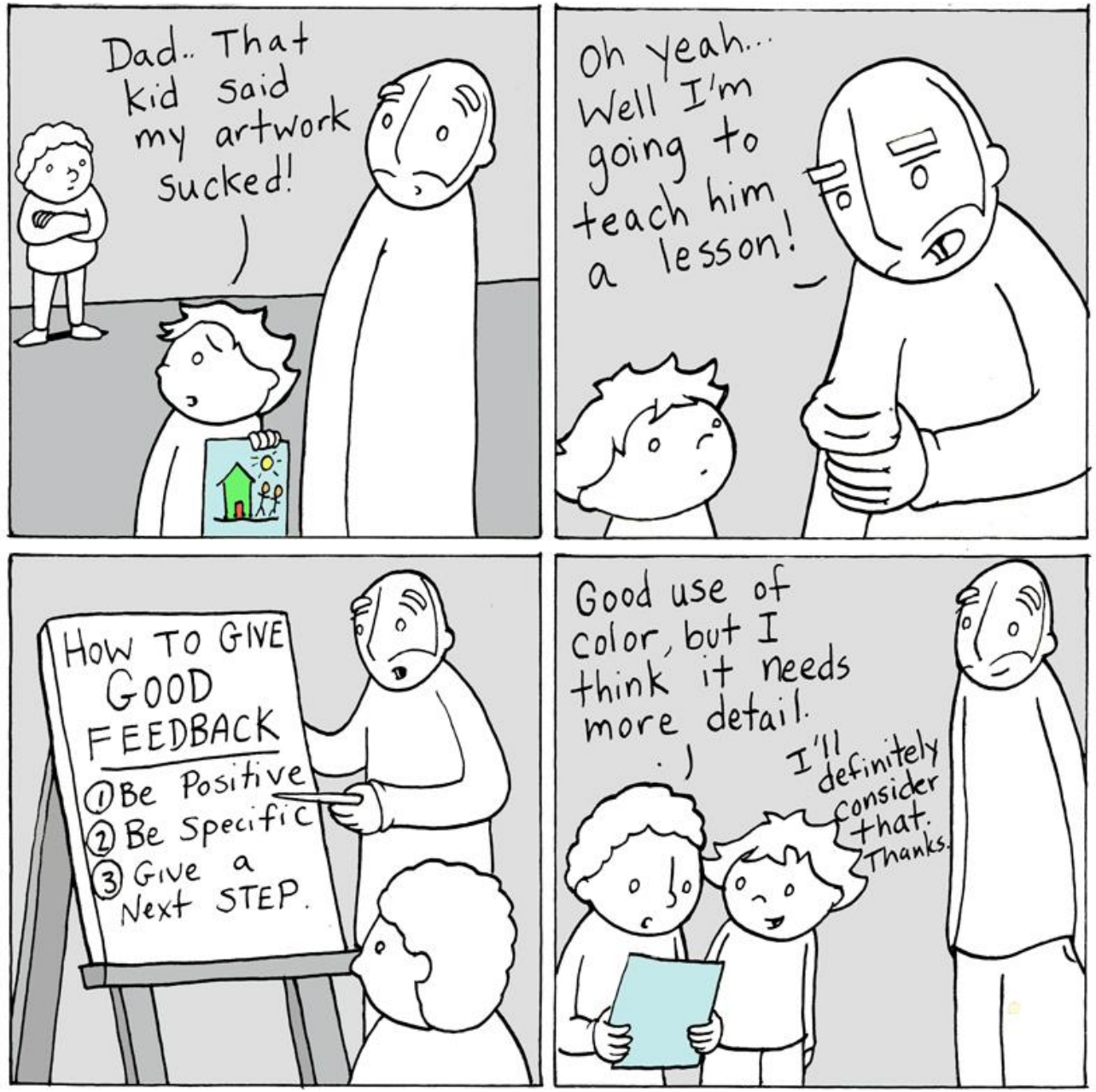
Tip / Top

Communicate expectations

How learners / other instructors can best communicate their feedback to you?

Use feedback translator

Someone (co-instructor) who can communicate collected feedback.

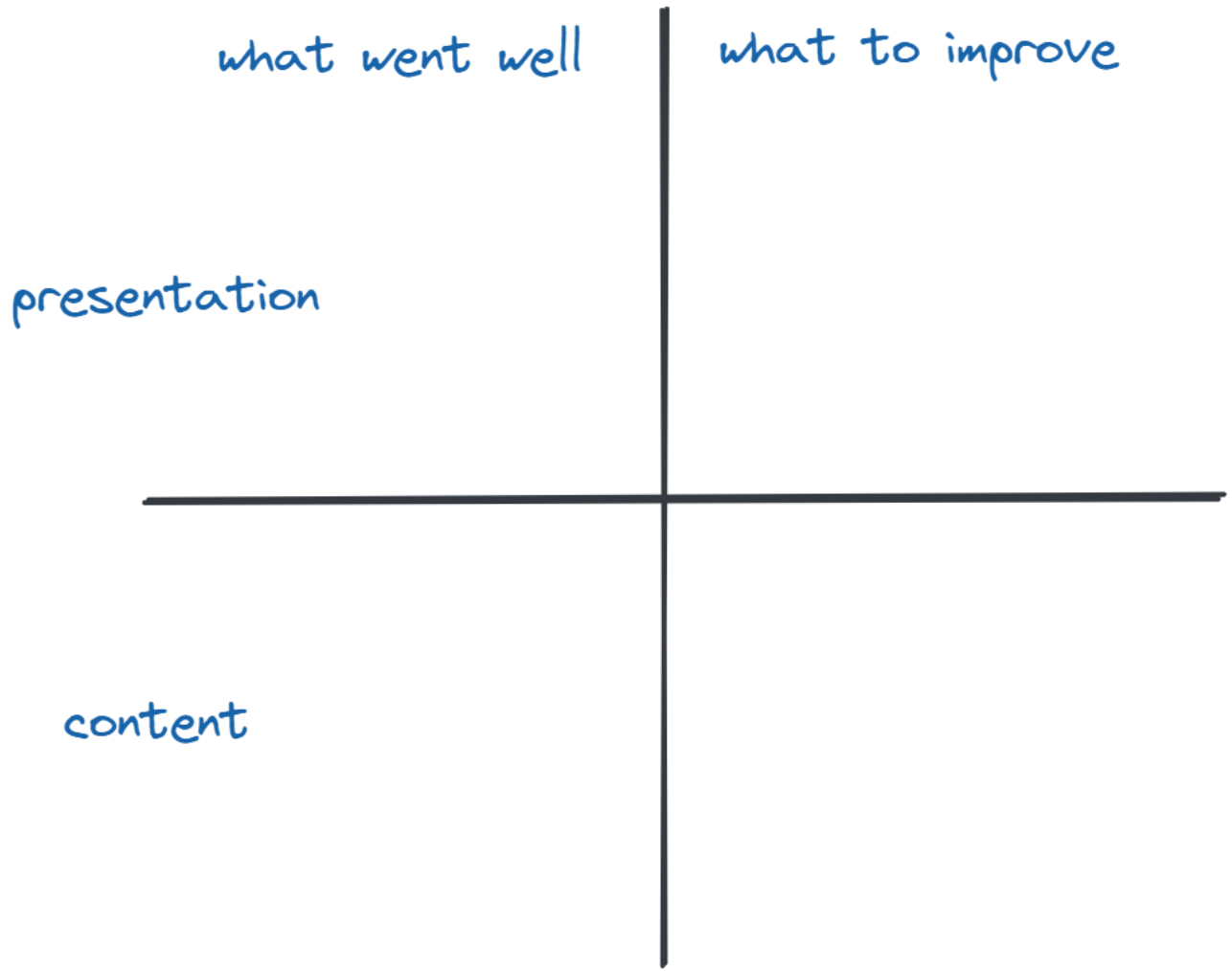


Tips for giving feedback

- Be positive.
- Be specific
- Provide next steps (actionable)

Remember that giving and receiving feedback is a skill

- You need feedback on feedback
- You need to practice


what went well
what to improve
presentation
content

Exercise (10 min)

We will start by observing some examples of teaching and providing some feedback.

Watch example teaching video and then give feedback on it.

Put your feedback in the Collaborative Document.

Organize your feedback along two axes: positive vs. opportunities for growth (sometimes called “negative”) and content (what was said) vs. presentation (how it was said).

Exercise: Sharing Feedback (breakouts ~25 min)

You will be split into breakout rooms with the groups of three.

Individually, spend 5 minutes preparing a 90-second introduction to the topic of the lesson episode you chose before the start of the training course. You will not be live coding.

Get together with your group and have one person teach their segment to the group. Keep a strict time limit of 90 seconds per person (one person should be responsible for the timekeeping).

After the first person has finished teaching, share feedback. The person who performed should start by offering feedback on themselves. The timekeeper should help to keep feedback to about 5 minutes per person to ensure everyone has time to perform and discuss.

Rotate roles and repeat.

Return to the main group and briefly summarize the feedback you received in the Collaborative Document.

Exercise: Using Feedback (5 min)

Look back at the feedback you received on your teaching. How do you feel about this feedback? Is it fair and reasonable? Do you agree with it?

Identify at least one specific change you will make to your teaching based on this feedback. Describe your change in the Collaborative Document.

Key Points

Like all other skills, good teaching requires practice and feedback.

Lesson study is essential to transferring skills among teachers.

Feedback is most effective when those involved share ground rules and expectations.

Homework

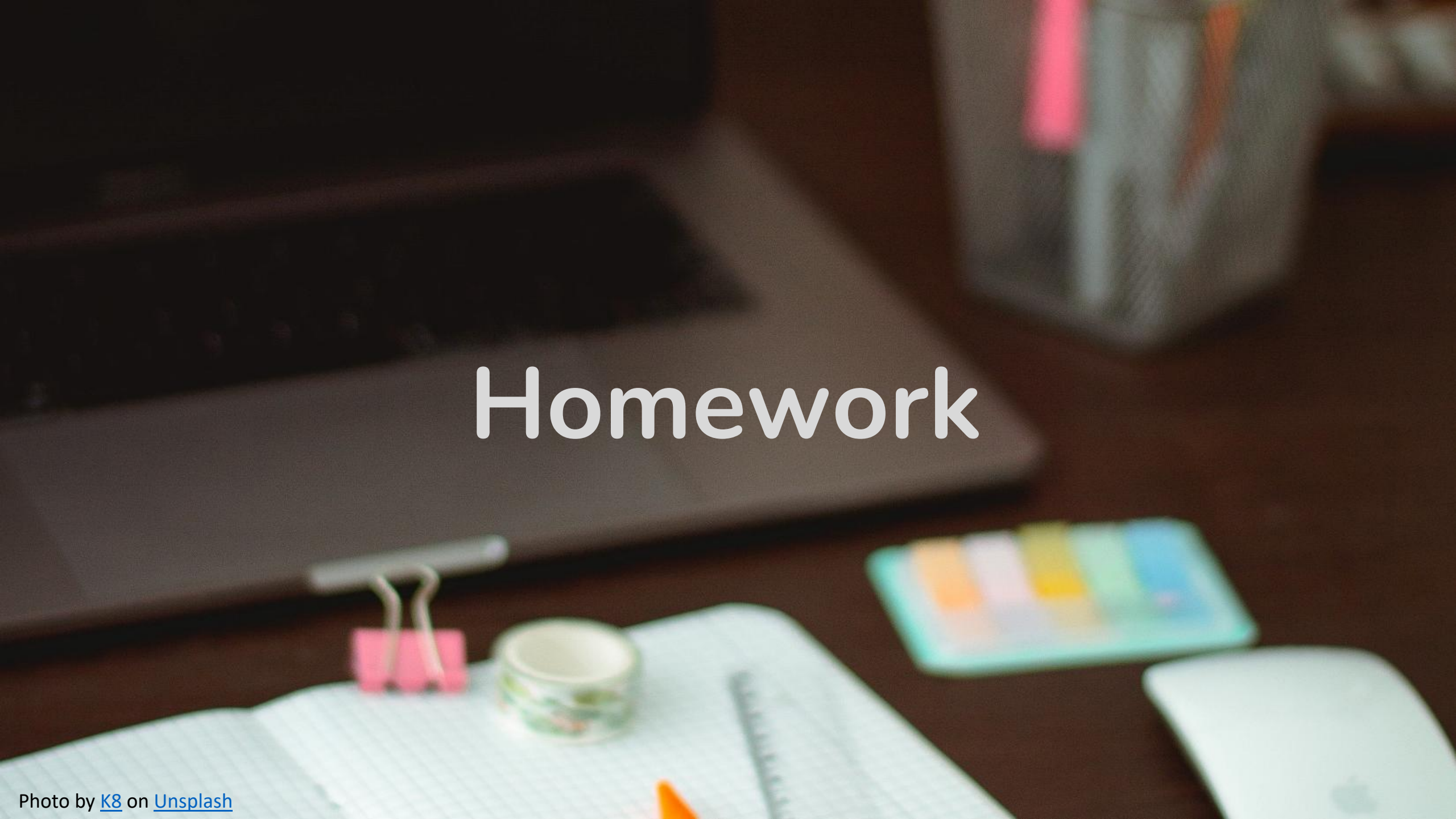


Photo by K8 on Unsplash

Homework

Read about centrally-organized and self-organized workshops and our handbook content on Teaching and Hosting Workshops – be sure to click through to some of the associated checklists.

Prepare for the live coding exercises.

Photo by Jon Tyson on Unsplash

Instructor Training Day 2
Welcome back

Icebreaker: What you learned yesterday?

One (favourite) thing (concept, idea, theory) you remember from yesterday.

Goals for this workshop:

Get familiar with and understand how to apply research-based teaching principles, especially as they apply to The Carpentries audience.

Understand the importance of a respectful and inclusive classroom environment; commit to creating such an environment; and be able to identify and implement The Carpentries policies and general practices to accomplish this.

Practice and develop skills in the teaching methods used in Carpentries workshops

Learn enough about The Carpentries organization to know where to go for help, how to start organizing a workshop, and how to get involved with community activities.

Morning

Getting Started on Instructor Certification

The Carpentries: How We Operate

10:25  morning break

Live coding is a skill

Preparing to teach

12:30  lunch break

Afternoon

More practice live coding

Working with your team

15:25 afternoon break

Launches and Landings (how to start he workshop)

Putting it all together

Wrap-up

17:00 End & Drinks

Exercise: What questions do you have? (5 min)

Yesterday we asked you to read some resources about the logistics of teaching and running Carpentries workshops.

Please add your questions about logistics and preparation to the Collaborative Document.

We will answer these questions in the Collaborative Document during your work time and will return to this list later today.

Getting Started on Instructor Certification

Questions

What do I need to do to finish certifying as a Carpentries Instructor?

Objectives

Describe the final steps required to qualify as an Instructor.
Schedule your community discussion session.

Instructor checkout

1. Make (and send us a link to) a small **contribution** to a lesson or glossary.
2. Take part in an online **community discussion** session.
3. Take part in an online **teaching demonstration** session.

All trainees have **3 months (90 days)** from the end date of your training to complete checkout.

Exercise: Be The Expert, Checkout Q & A (10 min)

In pairs, read and discuss one of the three checkout procedures described on this page:
https://carpentries.github.io/instructor-training/checkout/index.html

Make notes in the Collaborative Document:

- What points do you think it is most important or helpful for people to remember?
- What questions or points of confusion do you have, or think others might have?

When you are done, report back to the full group about that stage of the process.

Exercise: Schedule a Discussion session (5 min)

Visit the discussion Etherpad to sign up for a session: **https://pad.carpentries.org/community-discussions** If the session you would like to attend is full, contact the discussion host and co-host to ask if you can attend.

If you would prefer to do your teaching demonstration before your discussion, visit the demo Etherpad and sign up there: **https://pad.carpentries.org/teaching-demos** There is a demo rubric (linked from Collaborative Document) provided as a guide for Trainers evaluating potential new Instructors during the teaching demonstration.

What does the badge mean?

1. **You can teach** Carpentries workshops.
2. **You get to vote** for Carpentries Executive Council
3. **You can register** for Carpentries **Bonus Modules**.
4. **You can share** it your CV

The Carpentries: How We Operate

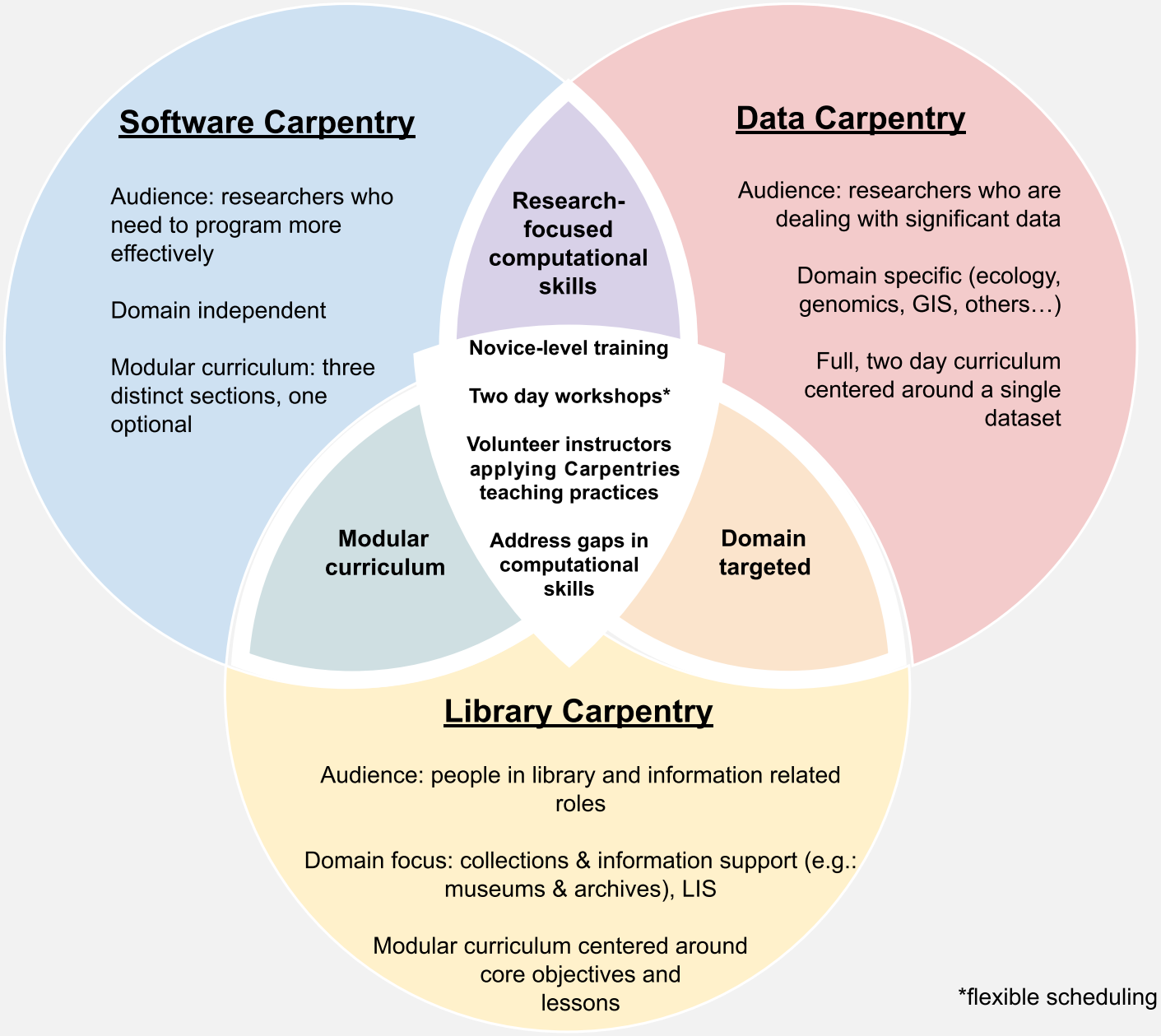
Questions

- How is The Carpentries organised and run?
- What is the difference between SWC, DC, and LC workshops?
- How do you run a Carpentries workshop?

Objectives

- Get connected with The Carpentries community.
- Describe where you can go to get information on running a workshop.

A VERY BRIEF HISTORY OF THE CARPENTRIES



*flexible scheduling

Rules

Using the Names and Logos

- The names “Data Carpentry”, “Library Carpentry”, and “Software Carpentry” and their respective logos are all trademarked.
- You may only call a workshop a Data Carpentry, Library Carpentry, or Software Carpentry workshop if it meets the requirements.
- Please report ‘Mix and Match’ Workshop (there is a form for it)

Materials

All Carpentries lesson materials are freely available under a permissive open license.

Exercise: Carpentries Jargon (classroom)

How many of the following terms you can define?

- Lesson
- Episode
- Workshop
- Lesson Program
- Instructor
- (Instructor) Trainer

Organising a workshop

Two types of workshops:

Centrally organised

- From institutional membership
- Ad-hoc paid

Self-organised

- Consult The Carpentries Handbook

  docs.carpentries.org

Setting Out On Your Own... Together: Lesson Incubation

- Use Carpentries Lesson Template
- Put it in the incubator
- Use Curriculum Development Handbook

Keep in touch

Want to listen?

- Sign up for our newsletter
- Follow us on Twitter, Facebook, or LinkedIn

Want to interact (or listen with options to engage)?

- Join our Slack organisation
- Join our Email lists (start with “Discuss”!)

Want to join meetings (to meet new people or listen in)?

- Sign up for Community Discussions (or just drop in if there is space!) or other events when announced
- Explore taking on one of the Roles identified above

Exercise: Get connected (5 min)

Take a couple of minutes to **sign up for The Carpentries channels** you want to stay involved with on this page: **https://carpentries.org/connect/**

When you are done, share a channel you find interesting or useful on the Collaborative Document.

Key points

The Carpentries materials are all openly licensed, but names and logos are trademarked.

Carpentries workshops must cover core concepts, have at least one certified Instructor, and use our pre- and post-workshop surveys.

Guidance for teaching and hosting workshops is provided in The Carpentries Handbook.

Photo by Jakub Dziubak on Unsplash

Life coding is a skill

Questions

- Why do we teach programming using participatory live coding?

Objectives

- Explain the advantages and limitations of participatory live coding.
- Summarize the key dos and do nots of participatory live coding.
- Demonstrate participatory live coding.

(Participatory) Life Coding

Instructors **do not use slides** to teach coding, but work through the lesson material, **typing in the code** or instructions, with the workshop **participants following along**.

Exercise (5 min) Up and Down

List some advantages and challenges of participatory live coding from both a learner's and an instructor's point of view in the Collaborative Document.

Exercise: Compare & Contrast

Watch two participatory live coding demo videos as a group and then summarize your feedback on both in the Collaborative Document. Use the 2x2 rubric for feedback we discussed earlier.

In the videos, the bash shell for loop is taught, and it is assumed learners are familiar with how to use a variable, the head command and the content of the basilisk.dat and `unicorn.dat` files.

Top Ten Tips for Participatory Live Coding in a Workshop

1. Stand up and move around the room if possible.
2. Go slowly.
3. Mirror your learners' environment.
4. Use your screen wisely.
5. Use illustrations.

Top Ten Tips for Participatory Live Coding in a Workshop

6. Turn off notifications
7. Stick to the lesson material.
8. Leave no learner behind.
9. Embrace mistakes.
10. Have fun!

Exercise (25 min): Practice teaching

1. Split into groups of three.
2. Assign roles, which will rotate: presenter, timekeeper, note-taker.
3. Have each group member teach 3 minutes of your chosen lesson episode using live coding. For this exercise, your peers will not “code-along.” Before you begin, briefly describe what you will be teaching and what has been learned previously. Do not record this exercise.
4. After each person finishes, each group member should share feedback (starting with themselves) using the same 2x2 rubric as yesterday. The timekeeper should keep feedback discussion to about 1 minute per person; this may leave some time at the end for general discussion. The note-taker should record feedback in the Etherpad.
5. Trade off roles.

Preparing to Teach

Questions

- How should I prepare to teach?

Objectives

- Create a profile for a learner in your workshop.
- Critically analyze a learning objective for your workshop.
- Identify checkpoints in a lesson for formative assessment.

Exercise (3 min): Imagine a Learner

Take a moment to silently imagine a learner who might attend your workshop.

- What is their background?
- What problem do they face?
- What will they gain from attending your workshop?

Your learners

You will never know the full spectrum of neurodiversity represented in your workshop.

Thinking deeply about learners as people can help you prepare to bring your best self and provide an inclusive environment for everyone.

Remember Your Pre-Workshop Surveys

Examine Learning Objectives

Beware the Urge to Complicate

Prepare to Use Formative Assessments

Exercise (3 min): Where are your Checkpoints?

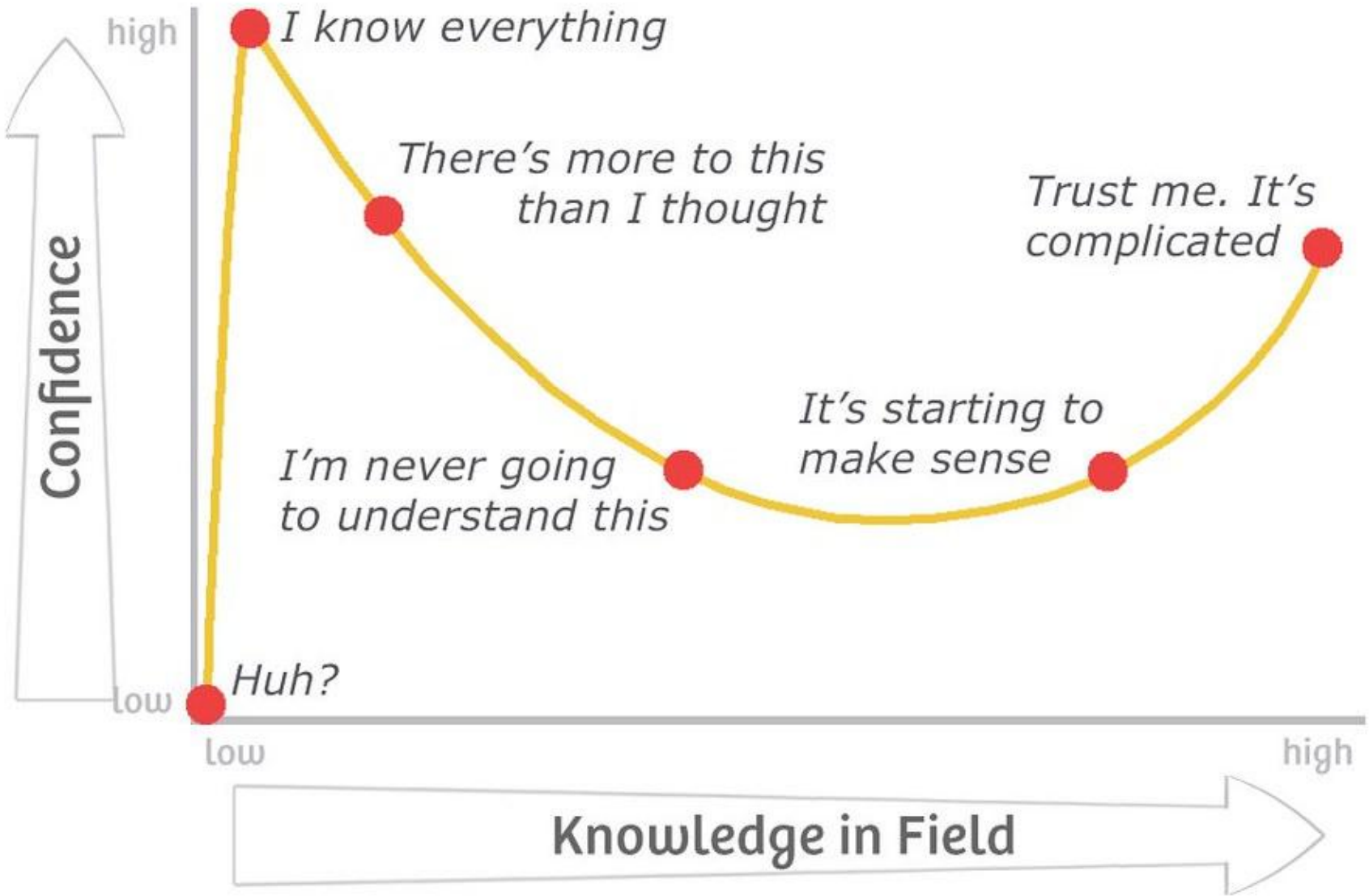
Have a look at your learning objective again and identify where in the lesson that objective should reasonably be achieved.

How frequent?

- Every 5 – 10 minutes.
- Depends on the “density” of the content.
- Used to break-up instructional time and refocus attention.

“Do You Understand?” is Ineffective as a Formative Assessment

Dunning-Kruger effect



Prepare to Cut

- Keep breaks on time
- Watch out for dependencies
- Leave time to wrap up your workshop.
- Do not speed up.
- Communicate with your team.
- Communicate with your learners

Review the Instructor Notes

Review Prior Feedback