Day 1 of The Carpentries Instructor Training, 27-28 August, 2024

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Welcome to Day One (Tuesday 27 August)

:::info
This document is synchronized as you type, so that everyone viewing this page sees the same text. This allows you to collaborate seamlessly on documents.

Users are expected to follow our **Code of Conduct (https://docs.carpentries.org/topic_folders/policies/code-of-conduct.html)**.

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General questions or feedback? Contact team@carpentries.org (mailto:team@carpentries.org).

Collaborative documents

This is the Document for today: https://codimd.carpentries.org/2024-08-27-ttt-escience#

Collaborative Document day 1: https://codimd.carpentries.org/2024-08-27-ttt-escience#

Collaborative Document day 2: https://codimd.carpentries.org/2024-08-28-ttt-escience#

Code of Conduct

- Participants are expected to follow those guidelines:
- Use welcoming and inclusive language
- Be respectful of different viewpoints and experiences
- Gracefully accept constructive criticism
- Focus on what is best for the community
- Show courtesy and respect towards other community members

For more details, see here (https://docs.carpentries.org/topic_folders/policies/code-of-conduct.html).

Want to report a Code of Conduct incident and you prefer to do it anonymously? You can do it here (https://goo.gl/forms/KoUfO53Za3apOuOK2).

Logistics

Getting help

□□♀To ask a question, raise your hand.

To get help, put a pink post it on the lid of your laptop.

Workshop website

https://researchsoftwaretrainingNL.github.io/2024-08-27-ttt-escience/ (https://researchsoftwaretrainingNL.github.io/2024-08-27-ttt-escience/)

Trainers

- Lieke de Boer (Community Manager, the Netherlands eScience Center) / Background: Cognitive Neuroscience
- Mateusz Kuzak (Team Lead Training Programme, the Netherlands eScience Center)

Helper

- Fenne Riemslagh

□□□□□□□□□□□♂□ Roll Call

Name/ pronouns (optional) / job, role / social media (twitter, github, ...) / background or interests (optional) / city

□ Agenda day 1

time	topic	questions
9:30	□□♀□□♂Welcome	What is The Carpentries and how do we approach teaching? What should you expect from this workshop?
10:00	Building Skill With Practice	Who is a typical Carpentries learner? How can we help novices become competent practitioners?
10:55	☕ Morning Break	
11:10	Expertise and Instruction	Does subject expertise make someone a great teacher? How are we (as Instructors) different from our learners and how does this impact our teaching?
11:50	Memory and Cognitive Load	What is cognitive load and how does it affect learning? How can we design instruction to work with, rather than against, memory constraints?
12:35	Building Skill With Feedback	How can I get feedback from learners? How can I use this feedback to improve my teaching?
12:45	Lunch Break	
13:45	Motivation and Demotivation	Why is motivation important? How can we create a motivating environment for learners?
14:40	Equity, Inclusion, and Accessibility	Why are equity, inclusion, and accessibility important? What can I do enhance equity, inclusion, and accessibility in my workshop?
15:20	Afternoon Break	
15:35	Teaching is a Skill	How can I improve my teaching?

16:30	Wrap-Up and Homework	What have we learned so far? What needs to be done to prepare for the next part of the workshop?
16:50	End of Day 1	

Icebreaker

What is a :book: book, :radio: podcast, :movie_camera: movie, or :tv: series that you recently enjoyed?

- Mateusz: :radio: the Guardian short series: Black Box (podcast), AI
- Lieke: :book: On earth we're briefly gorgeous (https://www.goodreads.com/book/show/41880609-on-earth-we-re-briefly-gorgeous) - Ocean Vuong
- Fenne: :tv: Wie is de Mol? Streaming version
- Claire: :tv: La Vuelta (cycling race)
- Dani: :radio: No such thing as a fish (podcast) - favourite fact of the week
- Efe: :book: Voynich Manuscript (gibberish manuscript) - mysterious manuscript to be deciphered. Read more here: https://www.theatlantic.com/magazine/archive/2024/09/decoding-voynich-manuscript/679157/
- Nestor: :book: Samurai book (old fashioned Japanese book)
- Sam: :tv: Shogun on Disney Plus (accurate retelling of first visitor in Japan)
- Parvin: :book: I'm Malala (Noble Peace Prize winner)
- Jelle: :tv: Foundation (series) Isaac Asimov style series
- Anne-Marie: :book: Legends and Lattes
- Anne-Marie: :book: The Culture Map
- Laurent: :tv: Call my agent (French series)
- Tiernan: :book: Ian Banks - the Culture (the player of games and ..)
- Thijs: :movie_camera: No time to die
- Daniele: :book: The books of Jakub, by Olga Tokarczuk
- Ewan: :book: The invisible gorilla: how our brain deceives us
- Sara: :book: Think again by Adam Grant
- Daniele: :book: To your scattered bodies go (sci-fi book)
- Nikos: :radio: Inner Cosmos by David Eagleman (Podcast)

Collaborative Notes & Exercises

Analogies (in pairs)

Consider an analogy that you might use to explain your work/hobby
Share it with your group
Discuss how it is useful, how it is wrong

Anticipating Misconceptions (in pairs)

Describe a misconception you have encountered as a teacher or as a learner.

What is going wrong in each of the wrong answers?

27
15
----+
42

a. 42
b. 312
c. 32
d. 33

Exercise: Awareness gaps (5 minutes, silent docing)

- Is there anything you are learning how to do right now? Can you identify something that you still need to think about, but your teacher can do without thinking about it?
- Think about the area of expertise you identified for yourself earlier. What could a potential awareness gap be?
- Lieke: I am learning Turkish, and I have to think about the word order every time I make a sentence.
- Parvin: FIRST Q: I am learning how to play the piano.everytime I see a new note, I must spend time to read them and find the keys on the piano. While my teacher can easily tell which key is that just by listening to the sound of it. SECOND Q:I am en expert in reservoir engineering. I often need to go back and refresh my memory to be able to teach it properly.
- Daniele: I am learning to swim front crowl. I do not know how to flip in the swimming pool. How should I keep my arms during the flipping to be in the right direction in the shortest time possible? - When teaching numerical analysis, I take for granted that students know ho to perform matrix-vector multiplication with pen and paper, so that they can translate this into code, but this need not be the case.
- Jelle: In astronomy, there are many awareness gaps. People do not know that our sun is for example a star. This is easy to forget as an expert.
- Tiernan: I am learning Spanish and I spend more time speaking than writing. I have to remember what sounds are silent and how the written words are often a bit different to their phonetic sounds. To my Spanish speaking girlfriend she will know when words are right or wrong but can't map out why some words are spelled the way they are.
- Sam: 1. I am learning how to swing dance. I need to think about every signal my lead gives and what that means as a follow where it is natural for my teachers. 2. In knitting I find it really easy to identify the basic stitches, dropped stitches, and how to fix them. I could see the ease of identification that I assume others may have being an awareness gap.
- Anne-Marie: 1. I am learning how to knit, but I have a lot of trouble with the different stitches and how to use them consistently, I tend to switch unconsciously. 2. As for my area of expertise, I tend to rattle on about certain concepts to my boyfriend and his grandma, without noticing they can't follow what I'm saying.
- Sara: 1. I am learning Dutch. I can read well but when it comes to speaking I have difficulty setting the right word order! 2. As an expert cook, I sometimes forget to mention the minor important tips that one should do when cooking the same dish.
- Nikos: I tried to learn piano and I had to be constantly aware on where each key is.
- Daniele: 1. I am learning how to play drums, I still need to train a lot to synchronize my limbs. 2. As a GIS expert, I always take for granted basic operations when teaching students
- Néstor: A digital version of my PhD thesis to publish it on the web. I can not identify something that my teacher can do for this acticity. The area of expertise is can be

writing a digital book. The awarness gap can be the technological sckills.
- Laurent: Awareness gap: as an expert I sometimes tend to go too fast when teaching, forget my own learning path, being impatient to comeback to elementary notions.
- Ewan: Learning how to bake small cakes. I have to really think about the proportions, functions and interactions of the ingredients. I might take for granted how references work in Java.
- Thijs: learning how to have prolonged attention on how a piece of music develops structurally without having my mind wandering off at some point (or to soon).
- Claire: 1. I am a novice at MTB and find it difficult to keep my speed into uphills or cornering 2. My partner is learning French and asks me why we say things a certain way. I have no idea how to answer those questions.
- Efe: Most tutorials for teaching Python or Git starts with basic commands. But some novice may also fail at even installing and running the Python Shell, or opening a Git account :)

Exercise: What do you use interchangeably? (5 min)

In the Collaborative Document, share an example of words or notation that you sometimes use to accomplish or refer to the same thing. If possible, try to think of an example that might occur in a Carpentries workshop.

Building awareness of how you can represent the same concept in multiple different ways will help you avoid doing so without explanation while teaching.

Exercise: test your working memory

https://miku.github.io/activememory/

Write your score in the collaborative document (if you want)!

- 8
- 8
- 3
- 7/20
- 7
- 5
- 7

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

1. **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) and explain how you would use it (or a simplified version of it) as an exercise or example in class.
2. **Pair** In the breakout team up with your neighbour and decide where this task fits on a graph of “short/long time to master” and “low/high usefulness”.
3. **Share** Share with the rest of the class.

Exercise: Brainstorming Motivational Impacts (5 min)

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.

- Ewan: Motivating: one professor said that students who make the homework every week, earning a small bonus, will most likely pass the exam (even without the bonus).
- Parvin: MOTIVTING: teachers who mention some concepts are harder to grasp and everybody needs time to understand them. DEMOTIVATING: teachers with unhealthy ego who want to brag.
- Daniele: demotivating - teachers expecting you to know/remember everything from previous courses; motivating - getting extra material / info / tips for self-study
- Laurent: I found it demotivating amd frustrating when the teacher exceeds the time slot or also talks too much. Motivating environement: calm, clear, feels it is simple.
- Anne-Marie: 1. Motivating: one teacher would always leave the slide with the example code open so we could apply it to our own data. If we got stuck, he'd come by and help us figure it out by asking questions. Gives a feeling of autonomy and accomplishment. 2. Demotivating: One teacher would be very demeaning in making questions more manageable. e.g. he'd say so posing this as a vwo question / havo question / vmbo question, and kind of laugh at us if we didn't get it.
- Jelle: Demotivating: Teacher assumes that you remember all of the previous course on the topic after 1 year.
- Néstor: Demotivating- Learning a topic or skill that the student do not consider relevant. Motivating- Learning a technology or skill that eliminates limitations from a current problem.
- Sam: Demotivating- a coach that compared class grades to physical skills (assumed one type of skill should imply the other). Motivating- teachers that made me feel respected and not looked down on / patronized.
- *Demotivating*: teacher who expects you to memorize facts. *Motivating*: teacher that explains concepts rather than listing facts.
- Thijs: demotivating: a teacher that cannot or did not give a realllife example to some theoetical concept he just explained. It would have been helpful to connect what has been discussed to something recognisable ("inlevevingsniveau"). motivating: present a subject after first giving a reallife background problem that helps to explain the relevance of the topic
- Tiernan: Demotivating: For some courses in school, certain teachers would stick to a schedule about what they needed to cover that day/week and if you had not kept up, and they did not check that you were following, you could be totally disengaged and made to take the decision that you will figure it out later by yourself. Motivating: I found that when teachers give feedback to others in a constructive and friendly way, it takes the pressure out of making an attempt or contributing to the discussion - there are some language teachers who do this well. You learn from the attempts other learners make, it makes you think of yourself as part of a group with a shared objective, and when you hear the correction, you realise what you know or don't.
- Daniele: a science teacher made us learn basic facts about a pendulum, by making us measure data and give us an hour to figure out properties looking at the measurements. Every time a colleague of mine says that a mathematical statment is trivial, uninteresting, or essentially done, it irritates me instantly, and it makes me feel very disconnected with the topic.
- Claire: demotivating: I've had teachers pick on someone specific and belittle them in class. I also used to find homework demotivating. motivating: regular breaks and interactive
- Sara: The way a teacher receives a learner's questions or comments can be both motivating and demotivating. If the teacher's reaction conveys you asked a naive question it can be so demotivating that you would keep quite to the end of the session wondering if it is the right course for you. On the other hand, if well received, you feel proud of yourself and keep interacting more.

- Nikos: When teaching a subject, providing a real-world example/application where the same basic principles/concept is applied can be very motivating to show the usefulness of it. Demotivating when just goes through text in slides and only reads it.
- Efe: In a recent online Dutch class, I got super demotivated by the lecturer sharing screenshots of text and images from learning material they had elsewhere. Some of the screenshots were from PowerPoint and one from a Video lecture! 😹 In an online environment, I would expect more interactive material, where I could rather have the original video or slides directly in front of us.

Exercise: Choosing our praises (5 min)

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!

Exercise: Why Do You Teach? (5 min)

We all have a different motivation for teaching, and that is a really good thing! The Carpentries wants instructors with diverse backgrounds because you each bring something unique to our community.

What motivates you to teach? Write a short explanation of what motivates you to teach. Save this as part of your teaching philosophy for future reference.

- Tiernan: I come from a library background and always enjoyed working with people finding what they needed. This led on to speaking with users and putting together talks, presentations and other materials, and I found it really satifying to get to know people who I would see all of the time. I started working with colleagues in colleges to teach on modules and really enjoyed the feedback you get when the class went well. Lecturing, support sessions and supervision were all challenging but good experiences that makes you really learn your topic and what you want to cover.

- Laurent: Teaching makes me feel useful. Also helps to master a topic (you really understand once you are able to explain it).

- Sara: Teaching is learning!

- I find it rewarding to help learners achieve their goals / learn to tackle new tasks (and I also discover something new each time)

- Efe: I teach not to feel like the last member of an extinct species. That it is rather a relay race and not an individual marathon. So that someone can resume the work, pick up the missing pieces, and come up with something better.

- Nikos: Teaching helps me understand a topic better. I might get questions I haven't

thought of and to which I don't know the answers. Also great to share the excitement with others and motivate them.

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

1. 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.
2. 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.

Exercies: Giving Feedback (10 min)

We will start by observing some examples of teaching and providing some feedback. Watch this example teaching video as a group and then give feedback on it. https://www.youtube.com/watch?v=-ApVt04rB4U. 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).

Thijs: well: good explanation of why we do this lesson, clear structure, comfort the student by explaining that they can follow me as I code along, concepts will be further defined as we go improve: avoid using jargon terms (even if it is not the first lesson), I was a bit overtime, did not discuss what we previously did and how the current lesson follows upon that

Sam: pos- clear content, well laid out going over prior knowledge to objectives; improve- speak slower, perhaps less content

Feedback for Daniele: clear delivery, with engaging attitude towards the topic; could have gone a bit slower in the second part of the lecture (examples) and we got to the gist of the lecture too quickly

Feedback end of the day

:+1:

- liked learning about formative assessment
- like the overview of the many different aspects you can think of when teaching (acessiblities, inclusiveness)
- like the last part about giving feedback
- like how we created a space that made everyone feel comfortable to speak out
- like the last part because it puts together everything we did today
- don't know what i need to know because new to teaching; the focus is on the student and teacher and not about the topic (coding), really like this approach on human touch
- can we come to the VU and teach some fellow mathematicians on how to teach please

:-1:

- afraid how much I will forget, need more repetition, not too much topics but necessary to repeat it to consolidate in my memory
- I need a follow-up workshop for this on how to create lesson material: carpentries collaborative lesson development training https://carpentries.org/lesson-development-training/
- class structure; maybe use a round set-up to stimulate interaction

- multiple ways on how to confey our material (powerpoint, collaborative document, auditive) makes it difficult to follow sometimes
- intercultural communication would be a great addition to the topics of this workshop
- a lot of content in a 2 day course, maybe include a "next steps" at the end to follow-up

Resources

- https://docs.carpentries.org/topic_folders/hosts_instructors/workshop_needs.html#acces
- Teaching video: https://www.youtube.com/watch?v=-ApVt04rB4U

:car: Parking lot

Homework

To prepare for our next session, please:

1. Read about centrally-organized and self-organized workshops (https://carpentries.org/workshops/#workshop-organising) and our handbook content on Teaching and Hosting Workshops (https://docs.carpentries.org/topic_folders/hosts_instructors/index.html) -- be sure to click through to some of the associated checklists. These summarize commonly asked questions about organizing and running workshops.
   When you arrive for the next part, we will ask you to add one question about our operations to a list.
   We will then do our best to answer all of those questions during the day.

2. Prepare for the live coding exercises (https://carpentries.github.io/instructor-training/17-live.html).
   If you have not already done so per the pre-workshop instructions, pick an episode from an existing Software Carpentry,
   Data Carpentry, or Library Carpentry lesson and
   read through it carefully.
   In the next two parts, you will use this to practice live coding/participatory instruction for 3 minutes.
   Remember, imperfect presentations can generate useful feedback!
   If you have not yet selected an episode to focus on and would like a recommendation, consider one of the following:

   - Data Carpentry
     - Faceting and Clustering in OpenRefine (https://datacarpentry.org/OpenRefine-ecology-lesson/02-exploring-data/index.html)
     - Basic Queries in SQL (https://datacarpentry.org/sql-ecology-lesson/01-sql-basic-queries)
     - Starting with Data in R (https://datacarpentry.org/R-ecology-lesson/02-starting-with-data.html)
     - Starting with Data in Python (https://datacarpentry.org/python-ecology-lesson/02-starting-with-data)
   - Library Carpentry

        - Working with Files and Directories in the Unix Shell (https://librarycarpentry.org/lc-shell/03-working-with-files-and-folders.html)
        - Faceting and filtering in Open Refine (https://librarycarpentry.github.io/lc-open-refine/04-faceting-and-filtering/index.html)
        - For loops in Python (https://librarycarpentry.github.io/lc-python-intro/12-for-loops/index.html)
    - Software Carpentry
        - Working with Files and Directories in the Unix Shell (https://swcarpentry.github.io/shell-novice/03-create.html)
        - Tracking Changes in Git (https://swcarpentry.github.io/git-novice/04-changes.html)
        - Selecting Data in SQL (https://swcarpentry.github.io/sql-novice-survey/01-select/>)
        - Repeating Actions with Loops in Python (https://swcarpentry.github.io/python-novice-inflammation/05-loop)
        - Exploring Data Frames in R (https://swcarpentry.github.io/r-novice-gapminder/05-data-structures-part2)