

# 17.Live Coding is a Skill 18.Preparing to Teach

Cora Assmann

10 June 2022



**FRIEDRICH-SCHILLER-  
UNIVERSITÄT  
JENA**



## 17. Live Coding is a Skill - Why Participatory Live Coding?

- “live coding”: instructors plug their laptop into the projector and work through the lesson, typing in the code, reformatting data, and talking as we go
- learners are strongly encouraged to “code-along” with the instructor
- practice of having the instructor live code and the learners code along as **“participatory live coding”** or, less formally, **‘code-along sessions’**

# 17. Live Coding is a Skill - Why Participatory Live Coding?

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



go to the pad, 5min

# 17. Live Coding is a Skill - Why Participatory Live Coding?

## Advantages

- Live coding is more compelling than watching someone page through slides
- Live coding enables instructors to be more responsive to “what if?” questions.
- Participatory live coding allows instructors to go off-road and follow their learners’ interests.
- Lateral knowledge transfer: participatory live coding facilitates the transfer of tacit knowledge
- It slows the instructor down
- Learners get to see instructors’ mistakes and how to diagnose and correct them.

# 17. Live Coding is a Skill - Why Participatory Live Coding?

## Challenges

- Instructors needs to improvise when things go wrong or when learners have questions
- It can be hard for learners to listen and type at the same time, due to the *split-attention effect*.
- This is why it is very important that instructors first explain what they are going to do, then say what they are typing as they type it, and then explain what they did again afterwards.
- It may take a bit of practice for instructors to get used to thinking aloud while coding in front of an audience.

# 17. Live Coding is a Skill - Why Participatory Live Coding?

***Watch this first participatory live coding demo video:***

***<https://youtu.be/bXxBeNkKmJE>***

***and this second demo video:***

***[https://youtu.be/SkPmwe\\_WjeY](https://youtu.be/SkPmwe_WjeY) alone.***

***Then summarize your feedback on both in the pad. Use the 2x2 rubric for feedback we discussed yesterday.***



watch the videos



total 15min

go to the pad

# 17. 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 learner's environment.
4. Use your screen wisely.
5. Use illustrations.
6. Turn off notifications on your laptop and phone.
7. Stick to the lesson material.
8. Leave no learner behind.
9. Embrace mistakes.
10. Have fun!

# 17. 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 pad.*
5. *Trade off roles.*



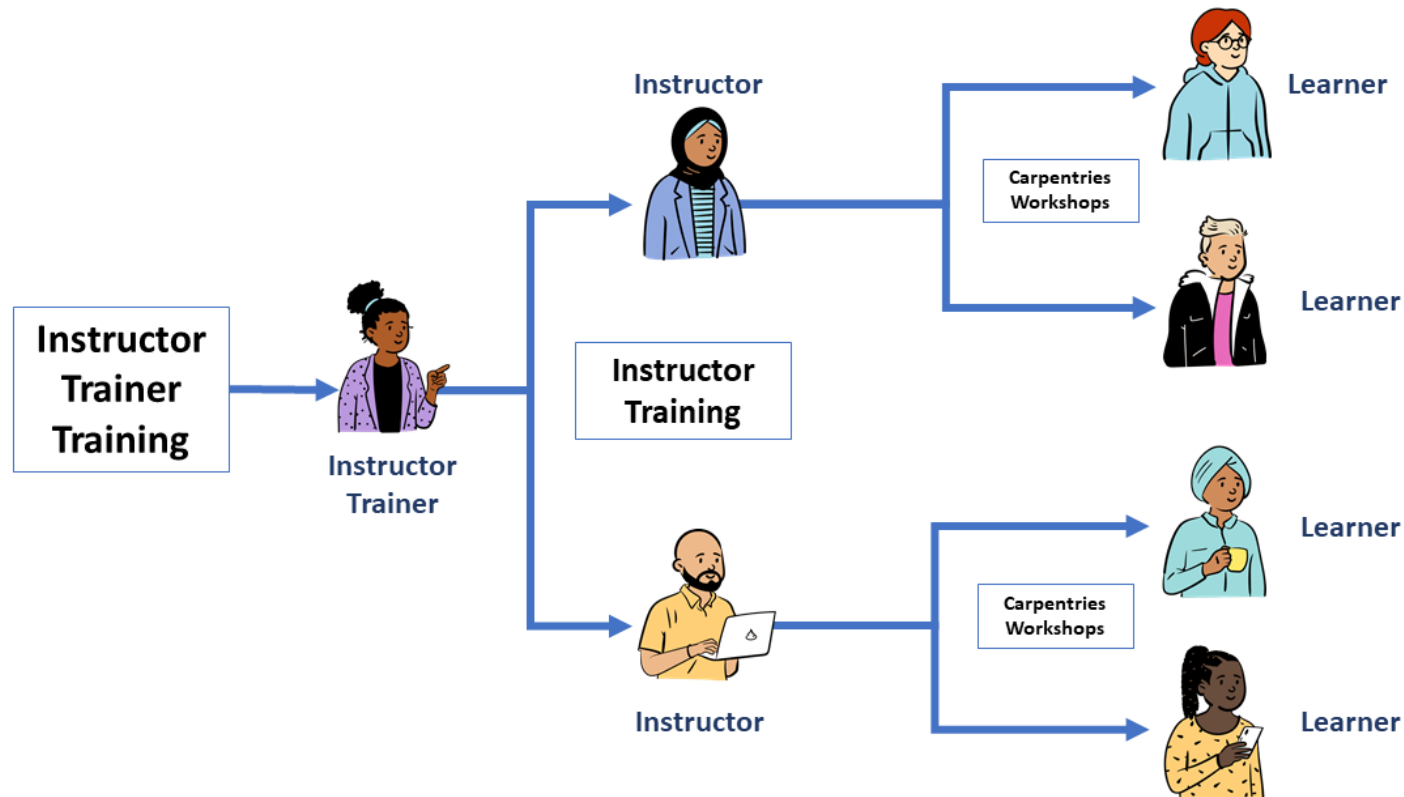
Group work  
in breakout rooms, 25min



# 17. Live Coding is a Skill - Summary

- Live coding forces the instructor to slow down.
- Coding-along gives learners continuous practice and feedback.
- Mistakes made during participatory live coding are valuable learning opportunities.

# 18. Preparing to Teach – Anticipate Your Audience



## 18. Preparing to Teach – 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? Write notes in the pad.***



go to the pad, 5min

# 18. Preparing to Teach – Examine Learning Objectives

## ? Overview

**Teaching:** 20 min

**Exercises:** 25 min

### 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.

- all Carpentries lessons have learning objectives listed at the top of each episode
- Carpentries learning objectives target novice learners
- the actions specified by the learning objective are basic and uncomplicated
- helpful designing formative assessments and in evaluating possible additions

# 18. Preparing to Teach – Evaluate Learning Objectives

Select one learning objective from the episode you've used for teaching practice. Copy it into the pad then add numbers below your objective to address the following:

1. Write your learning objective in the pad.
2. Suppose a learner had mastered this objective, and wanted to try something more cognitively challenging on the exact same topic (i.e. **not** a next step in a workflow). Identify an objective they could work towards next.
3. Suppose a learner struggled to meet the specified objective. What might they be missing? Identify one more fundamental thing a learner needs to be able to do in order to be successful in meeting this objective.



Go to the pad, 10min

# 18. Preparing to Teach – Evaluate Learning Objectives

**Table D.1.** Sample Verbs for Bloom's Taxonomy

Remember	Understand	Apply	Analyze	Evaluate	Create
Arrange	Associate	Calculate	Break down	Appraise	Assemble
Define	Classify	Construct	Combine	Argue	Build
Describe	Compare	Demonstrate	Compare	Assess	Compose
Duplicate	Contrast	Develop	Contrast	Check	Construct
Identify	Describe	Employ	Debate	Conclude	Design
Label	Differentiate	Estimate	Diagram	Critique	Formulate
List	Discuss	Examine	Examine	Detect	Generate
Locate	Exemplify	Execute	Experiment	Judge	Integrate
Name	Explain	Formulate	Extrapolate	Justify	Produce
Recall	Infer	Implement	Formulate	Monitor	Propose
Recite	Interpret	Modify	Illustrate	Rank	Rearrange
Recognize	Paraphrase	Sketch	Organize	Rate	Set up
Reproduce	Restate	Solve	Predict	Recommend	Transform
Select	Summarize	Use	Question	Select	
State	Translate			Test	
				Weigh	

# 18. Preparing to Teach – Prepare to Use Formative Assessments

## Where are your Checkpoints?

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



go to the pad, 5min

# 18. Preparing to Teach – Prepare to Use Formative Assessments

**How might you apply formative assessment to:**

- a) verify that that achievement has been met by all and
- b) make learners aware of their accomplishment?

Keep in mind that formative assessment can take many forms, including multiple choice questions, other exercises, spontaneous questions and calls for sticky notes. Discuss some thoughts about this process in groups and write some notes in the pad.



Group work  
in breakout rooms, 10min



## 18. Preparing to Teach – Prepare to Use Formative Assessments

How frequent you should use formative assessment?

every 5 minutes - at least every 10-15 minutes

**"Do You Understand"** is ineffective as formative assessment

# 18. Preparing to Teach – 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

# 18. Preparing to Teach –Summary

- To teach effectively, you have to know who you are teaching.
- Good learning objectives identify specific events that can be evaluated through formative assessment.
- A good exercise informs Learners and Instructors when an objective is achieved.

## 19. Lunch break for 60 minutes



**Virtual Minute Card**  
(see link in the Chat)