Assessment and feedback in training

Teaching objective

Develop an understanding of **different types of feedback, when** to give and receive feedback, and for which **purpose**.

Challenge (10 min)

what kind of feedback/assessment do you know as a learner or use as a trainer?

- What type of assessment did you undertake as a learner and/or trainer?
- What was its purpose in your opinion?
- Was it useful to your learning or teaching?
- When did the assessment happen?
- Write down at least one example and discuss it with us.

Q: what are the different ways we can categorise assessment?

Assessment timeline - when and why to assess

1. **Pre-course assessment** (before the course) - verify the target audience of the course

2. **Preventive assessment** (beginning of the course) - final adjustments of the course to the reality of the participants

3. **Formative assessment** (during the course) - pilot in real time if learning is taking place

4. **Summative assessment** (right after the course) - measure and evaluate the knowledge and skills acquired

5. **Strategic evaluation** (after the course, long time after the course) - measure the adequacy, quality and impact of the course

Anonymous questionnaires allow to have an idea of the level of knowledge of the whole group of learners.

Non-anonymous and personal questionnaires allow to find out if the learner has a necessary pre-required knowledge, and in the negative case indicate an appropriate teaching choice to palliate this lack.

Challenge (5 min)

- Have a look at the example pre workshop questionnaire.
- What is the role of this questionnaire?

MCQs: Multiple Choice Questions

Challenge: MCQ (10 min)

Q: what is 27 + 15 ?

a) 42

b) 32

c) 312

d) 33

Pick one wrong answer and explain misconception associated with it.

Design of MCQs with distractors

Versatility: Multiple choice test items can be written to assess various levels of learning outcomes, from basic recall to application, analysis, and evaluation.

Reliability: Reliability is defined as the degree to which a test consistently measures a learning outcome.

Validity: Validity is the degree to which a test measures the learning outcomes it purports to measure.

Challenge: MCQs (10 min)

Write one MCQ (in your field of teaching). Pick one :

- a knowledge gap ("what")
- a weakness in a practical skill ("why, when, how")
- a misconception

Discuss with your partner(s).

Summative assessment: An exam or a test at the end of a course is an example of summative assessment. Summative assessment is aimed at evaluating learners' performance at the end of teaching (this could be at the end of a topic, a session, or at the end of the entire course). This is the most frequent type of assessment occurring in schools and universities and usually includes grading. It is less frequent in training.

Formative assessment takes place **during** teaching and learning. Its purpose is to help both instructors and learners to become aware of what the focus should be.

Formative Classroom assessments' purpose is to **improve the quality of student learning**, not to provide evidence for evaluating or grading students.

Challenge (10 min)

- Think of different kinds of formative assessment
- Write down on the post it.
- Discuss it with your partner(s).

Formative assessment can be done in many different ways:

- Asking **questions** to learners and getting responses orally;
- Asking them to **describe the strategy** they would adopt to solve a problem;
- Asking them to **solve a problem in groups**, or individually but in front of the class;
- Using **brainstorming** and **discussions**;
- Providing **diagnostic questionnaires**;
- Providing **MCQs** with distractors.

Formative assessment

can be used to collect information about learners':

- prior knowledge
  > which knowledge gaps need to be filled before moving on

Formative assessment

can be used to collect information about learners':

- mental models
  - > whether their mental models are correct

Formative assessment

can be used to collect information about learners':

- goals and objectives
  > if learners goals and objectives are aligned to the course's goals and objectives

Formative assessment

can be used to collect information about learners':

- frequent mistakes

  > which types of mistakes need special attention

Formative Assesment can be used to:

Activate and explore prior knowledge:

- activate prior knowledge
- reveal accurate but insufficient prior knowledge
- recognise inappropriate prior knowledge
- highlight inaccurate prior knowledge

Peer instructions (2+3 min)

- Watch the video.

- Discuss with your partner(s).

Feedback from learners

- assessing **learner reactions to teachers and teaching** thus providing context-specific feedback that can improve teaching within a particular course;

- assessing **learner reactions to class activities**, assignments, and materials thus giving instructors information that will help them improve their course materials and assignments;

- assessing **learner reactions course organisational aspects**, thus providing the organiser information that will help him or her to improve the course organisation;

Systematic immediate feedback

When?

Ideally at natural breakpoints such as ending an exercise, shifting to a different subject and right after a wrap-up session.

How?

It should be very focused and expedite in execution. The instructor should think of a clearly stated question that has a binary (Yes/no) or garaded (0-5) response.

This is **Instant Feedback**.

- Clickers
- Socrative
- MentiMeter
- Learning Catalytics

Challenge: benefits of Instant Feedback (10 min)

What are the benefits of instant feedback:

- for learners
- for trainers

write them down, one benefit per post-it

Short term feedback assessment of training quality, participant and instructor performance

It happens **immediately at the end of the course** with the purpose to measure the trainees' perception of: the **quality** of the training and its **organisation aspects**, the **trainer's capacity** to teach (performance), the **adequacy** of the training to their expectations and the **strengths and weaknesses** of course.

Task:

Look at Feedback Questionnaires used in ELIXIR workshops.

1. The type of questionnaire we developed for ELIXIR Italy courses: Feedback questionnaire for the ELIXIR Italy course on "NGS for evolutionary biologists: from basic scripting to variant calling" (Rome, 23-27 November 2015). It is adapted to each new course.

2. The type of questionnaire used to assess the quality of bioinformatics courses organised and delivered by the Gulbenkian Training Programme in Bioinformatics at the Instituto Gulbenkian de Ciência: Feedback questionnaire for the course on "Bioinformatics using Python for Biomedical Researchers" (Oeiras, PT July 11th – July 15th 2016)

3. Common shared questions used by most of the ELIXIR Nodes (countries).

Long term post-course feedback

The assessment of impacts that endure.

Long term assessments (over 6 months after a course) **are** rather **difficult**.

Feedback is hard
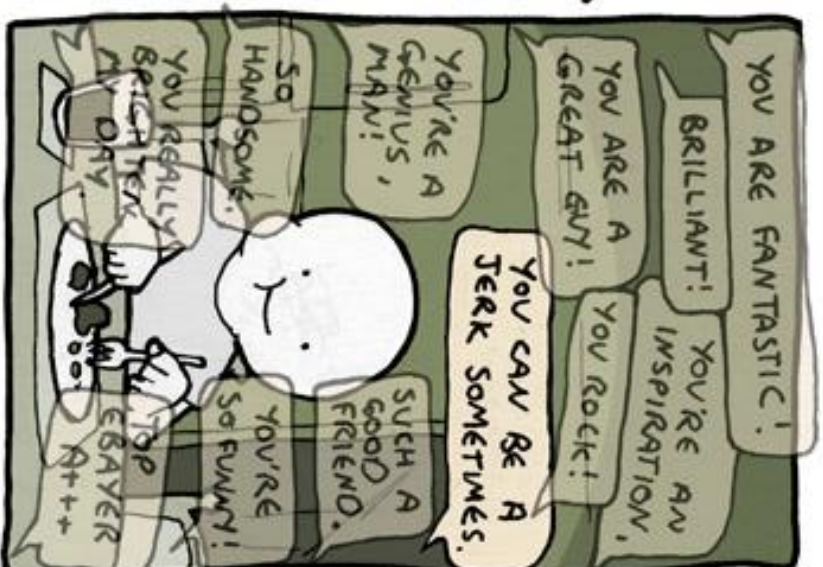
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Dealing with (bad) feedback

Trainees feedback should be considered along other forms of quality evidence:

- Review what they have effectively learned (in exams)
- Consider your own experience of teaching
- Discuss with colleagues and friends
- Look the feedback from past sessions of the same course
- Look at the response rates
- Look at the counter examples (contradictions)
- Look at the repetitive patterns(not at only one single answer)

- **Breath deeply**
- Humans focus more on negative feedback than on positive (you are not alone)
- Try to see the point in the criticism, **learn from it**
- **Don't take it personally** (easier said than done). Try to focus on what they say about what you do (not who you are)
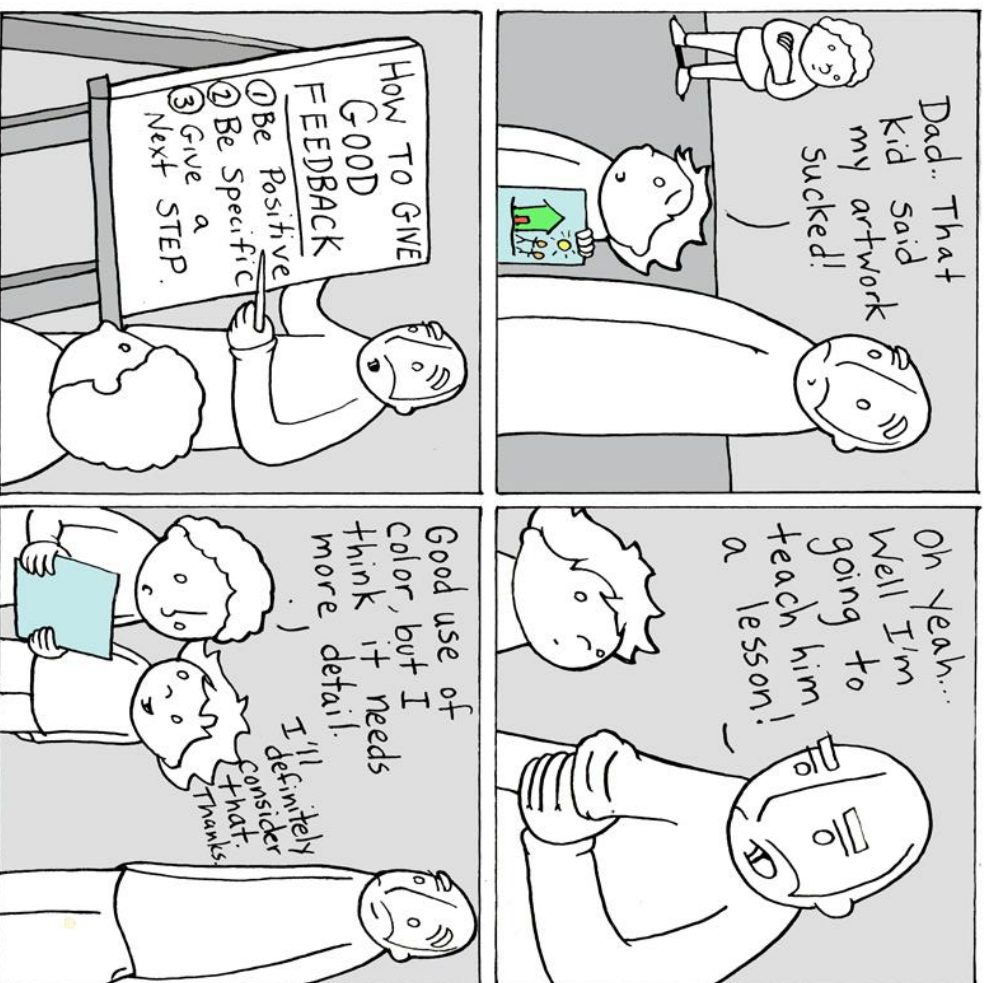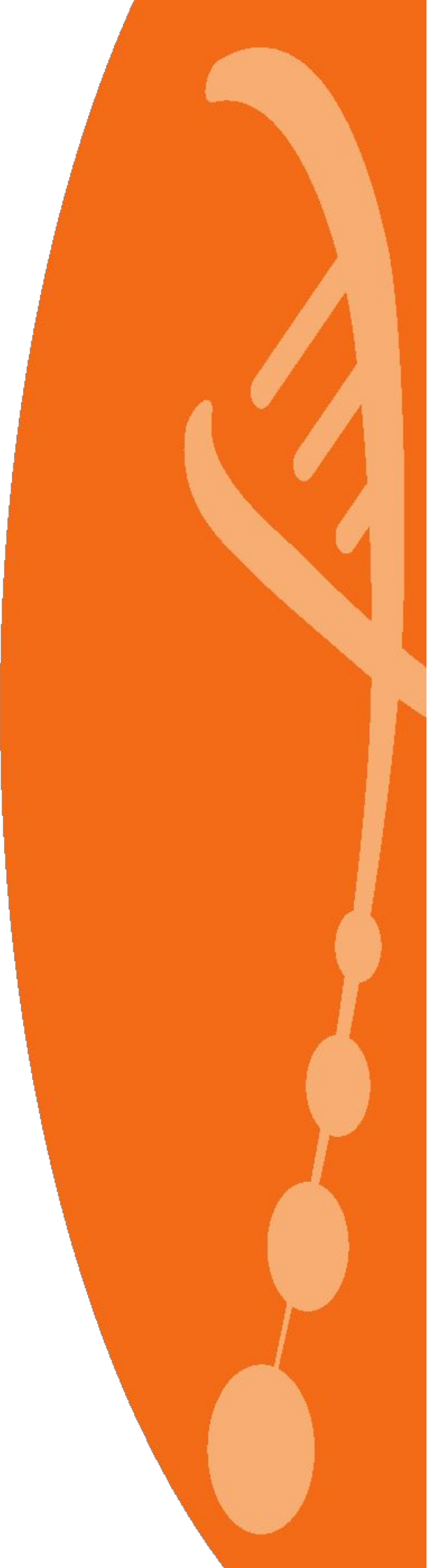
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