



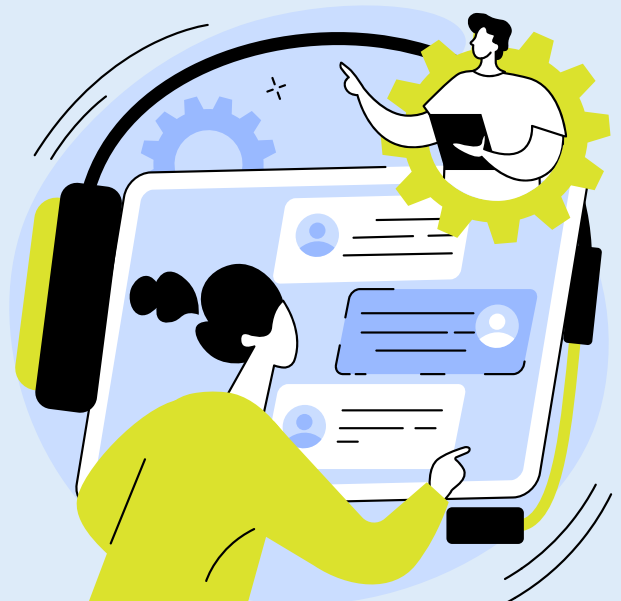
P4ELECS

Platform for
Electrification Skills
& Competences

Quicksheet

How to create a working model

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About



- In vocational education, students learn to apply operations to install, create or solve problems. Theory frames the underlying dynamics and explanation of what needs to be done in what way.
- A **working model** can guide the performance of a task. Examples of a working model are :
 - Set of guidelines,
 - Step-by-step plan,
 - Protocol procedure,
 - Checklist,
 - Operation directions
 - Rule of thumbs, ... (Ploegman & de Bie ,2008)
- Designing a working model requires careful consideration. The main challenge in designing these working models is **to discriminate the different meaningful actions to execute**. Experts have strongly integrated expertise what could make it complicated to understand what a novice does not know/has not automatised yet (Hattie, 2012).
- For the building block it would be good to start rather with a beginner in mind. The user of the building block (BB) can skip/adapt steps according to the prior knowledge of his/her group.

Benefits



To support students to **train a professional task** to obtain a result; a working model structures their learning



By repeating the steps and checking their actions with a working model, students will **more and more automate** skills



Students learn **independently** or help observe each other or go around and coach students individually while other continue practicing.

P4ELECS working models



PREPARATION

Define clearly **the outcome or result** of the process supported by the working model.

Make clear what is necessary to know or be able to do in order **to start** to use the working model

When introducing the working model, make sure the students are equipped with the **necessary knowledge, understanding or skills** when they have worked through previous content.



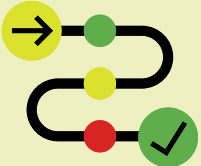
A pitfall in designing working models is to start and stick with theory rather than connecting to professional tasks.

E.g. instruction about hygiene from a theory and not about cleaning in a restaurant (Ploegman & de Bie, 2008).

Tips



Use short sentences and **direct instructions**

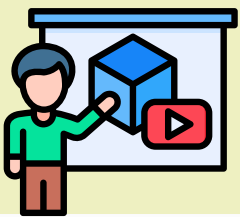


Structure the different steps with the lay-out, e.g. tables, diagram, numbers, roadmap,...



Use text and image (dual coding). **Visualize each step** as much as possible with pictograms, sketches, diagrams, pictures,

- Use concepts/explanation together pictures or visuals close in spatial distance.
- When using pictures or videos in your BB, make sure they clearly match what you're writing/talking about.
- Simple images work best because too much detail can confuse students. Cognitive Science suggests that too much information at once can overwhelm them.



Accompany some or all steps of a working model with a short clip where the expert **demonstrates** the action and verbalizes what is happening. (If possible and meaningful)



Test the working model with somebody comparable to the target group to improve the comprehensibility of instructions, different steps and visuals.