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Action-Oriented Continuing
Education at the Workplace

Intellectual Output 4

Competence-based framework curriculum for organisers of continuing education

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Introduction

In this text, within the framework of the EU-funded project HoWARP (Action-Oriented Continuing Education in the Workplace, https://agile-learning.eu/ho-warp/), an overarching, competence-based framework curriculum is developed for organisers and instructors who plan and implement continuing education - hereafter referred to as "trainers" for short. With the help of this curriculum, they should be enabled to use action-oriented principles consciously and methodically in continuing education.

There is a clear tendency in the field of continuing vocational education and training towards internet-based, virtual events in which the participants rarely or never meet in person. This tendency is considerably strengthened by the current Covid19 pandemic and places special demands on the action orientation of continuing education. For this reason, the curriculum to be developed here should be geared primarily to those continuing education courses in which the contacts between the participants take place entirely or almost exclusively virtually.

In the first chapter, some basics are presented first:

- What are the underlying principles of action-oriented continuing education?
- What content is relevant for this, and
- a model according to which a corresponding further training event can be planned and implemented.

In the second chapter, a framework curriculum is developed, which enables the target group to design and implement an action-oriented curriculum for their own case of application. The basic structure of this curriculum with the didactic model, the elaboration of goals, the definition and preparation of contents as well as the choice of methods and media remains the same for different target groups and different applications.

In order to illustrate how the concept and the procedure can be adapted in individual cases, it is concretised in the third chapter by way of example for two use cases:

- for leaders of further training courses, such as those carried out by Ecoplus in Lower Austria at a technically higher or academic level, and
- for a "basic course" for trainers who are not currently teaching.

For other types of further training with different scopes and target groups, e.g. for more trade/craft-oriented activities, this curriculum must be specifically adapted in each case. In the further course of the HoWARP project, pilot courses will be conducted and evaluated to test and further develop the concept.

1. Basics

Starting point: The principle of complete action

The "principle of complete action" (see Figure 1) has proven itself as a didactic structuring for action-oriented learning[1]. From this established principle, the methods to be used and the distribution of roles and tasks of the participants can be derived, which determine the framework of the curriculum.
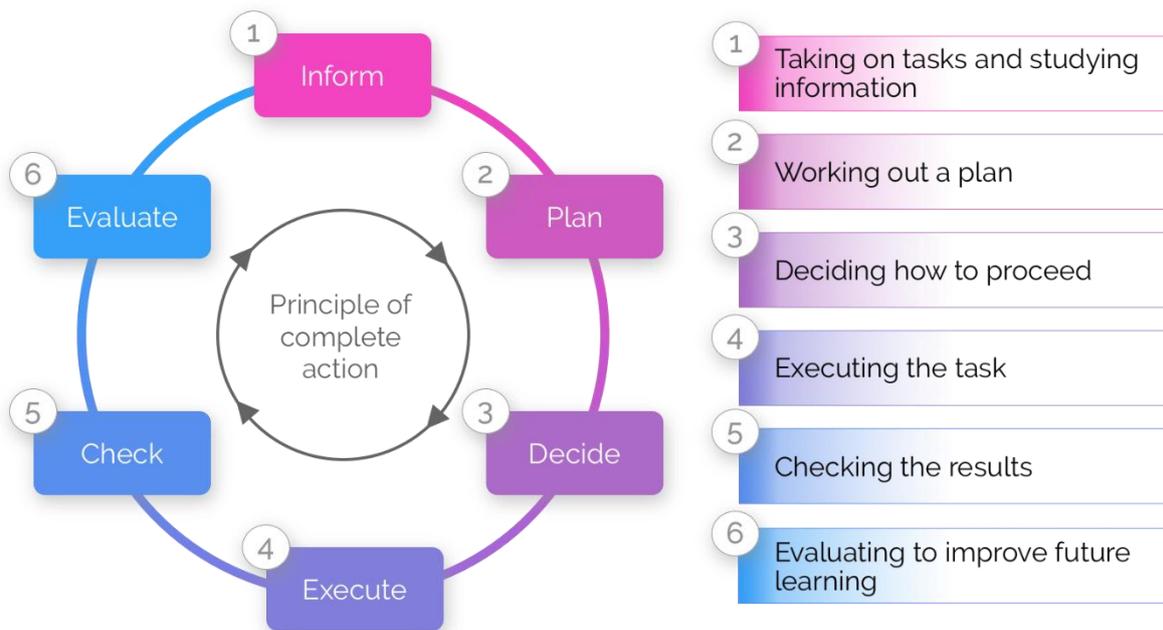

Figure 1. The steps of the "Complete Action" (own representation)

The principle of complete action rests on various theoretical approaches and focuses on the connection between learning and action. The focus is no longer on imparting knowledge alone, but also on applying knowledge in work-relevant tasks and in solving problems. In this way, in addition to ensuring subject relevance, a more sustainable anchoring of (subject) knowledge in the learners can be achieved. Another advantage of this approach is that other (knowledge) components of professional working behaviour, such as methodological knowledge or social cooperation, are also trained.[2]

In each step, the learners are active, while the teachers have different roles. The six steps are in detail:

- **Inform**: This is very broadly defined here. The starting point is in any case a task from the current or future work context provided by the teacher. In Agile Learning, this task for the upcoming learning phase is also called a "backlog" or more narrowly a "sprint backlog". This task must be fully grasped by the participants. It will usually involve familiarising themselves with new subject content. If possible, learners should acquire this content themselves, using

material provided (see below: "flashcards") or material they have researched themselves. In this way, an intensive familiarization with this content is achieved. However, the teacher can also present the contents in a lecture or similar, e.g. if there is not enough time for a phase of independent learning. The step of appropriation must then take place afterwards.

- **Plan**: In this step, learners should think about and work out on their own how they want to approach and complete the tasks. Teachers can give advice and guidance, but should not direct the planning process.
- **Decide**: At the end of planning, learners need to decide how they want to proceed in their learning process. This should be presented to the teacher. As a rule, he/she will take note of the decision and comment on it if necessary, but in the case of very problematic decisions he/she may also have to withhold approval, e.g. in the case of obvious hopelessness or too great a consumption of resources. In any case, it must be clear that the decision lies fundamentally with the learners and that they also take responsibility.
- **Execute**: The execution is done by the learners independently. If possible, they should work under conditions (material, tools, working environment) that correspond to their own workplace in order to facilitate the transfer to their own work. The teachers are available continuously or at agreed times for advice and support, but must leave the responsibility for the execution with the learners.
- **Check**: The results of the execution are first checked by the learners themselves: Does the result meet the requirements and their expectations? Have they achieved what the task required and, if so, to what extent? For this purpose, they can use test sheets or the list of requirements for simpler tasks, if available. Afterwards, the teacher must also give a professional assessment of the extent to which the learning objective has been achieved from his point of view, where he still sees gaps or deficiencies and where there is a need for improvement. In the context of agile learning, this step is also called "review".
- **Evaluate**: At the end of the learning phase, it is important to evaluate the experience with the procedure: Was the information sufficient? Was there sufficient and purposeful planning? Did the decision turn out to be sustainable? What could have been done better in the execution? What could be done better next time? This evaluation should be done by the learners themselves. If they have little practice in this, they can also be guided. The role of the teacher is more like a coach who guides reflection. He provides his observations during the past learning phase and suggests strategies for future action. In agile learning, this phase is also called "retrospective".

"Agile learning" as a repeated run through the "complete action"

For more complex and demanding tasks, mostly at a high technical level, the approach of agile learning in the company[3] was developed. It is also based on the principles of action-oriented learning and essentially extends the principle of complete action by three elements:

1. The steps of the complete action (from informing to evaluating) are not only carried out once for a task. Here, the processing of an extensive task from the operational context is carried out in several cycles of the complete action, each of which is also controlled and evaluated at the end. These cycles are also called "stages" in the context of agile learning.
2. In this treatment, the "toolbox" of "Scrum", a method of agile project management, is used. This means above all the technique of the "backlog" for the clear presentation of all required activities and the use of a Kanban board, with which the progress of the work is visualised.
3. The company environment is directly involved. For example, the learning task is provided by a client within the company and the results of the processing are also approved by this client.

In addition, the technical content is not only taught by the instructors themselves (trainers, coaches, etc.), but also by company experts. These can be included in the review, for example, in order to deepen learning in further cycles.

Structure of a curriculum

Following the classic "Berlin model of didactics"[4], it can first be stated that every course has specific prerequisites. Courses always take place within a cultural and organisational framework that shapes them and to which they must adapt. In the same way, the learners bring with them their previous learning experiences, their prior knowledge as well as their expectations of the content and the approach of the teachers. Both have to be taken into account in the design and implementation of the course, and the course also has an impact on the environment, the organisations involved and the participants - learners and teachers alike.

The learning events themselves are developed according to this model within the given boundary conditions and structured along four basic questions:
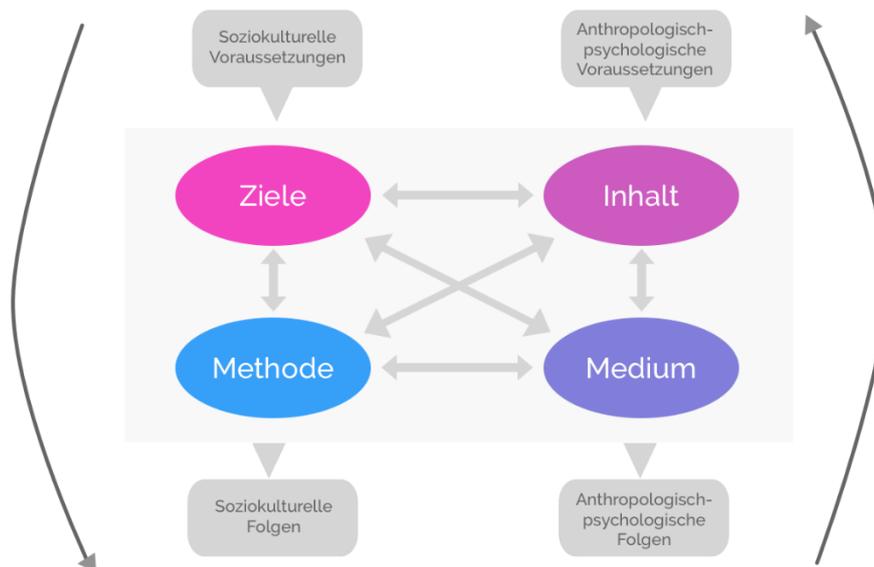
Figure 2: Didactic model (own representation based on Heimann, Otto, Schulz)

1. What are the goals?

The goals are to be formulated in a competence-oriented way, i.e. not only what knowledge the learners should have and be able to reproduce afterwards, but above all, what skills they should have and how these skills should show themselves in the implementation in professional actions. [5]The result should be a new or improved ability to act in practical application in the target areas.

2. What are the contents?

Which subject-specific and interdisciplinary contents should the learners get to know, process and be able to apply independently in order to achieve the goals? In what form is the content available and how should it be prepared and structured to make it easier for the learners to access it?

3 What are the methods?

They are derived from the objectives and must fit both the target group (previous knowledge, experience with working techniques, motivation, etc.) and the external conditions (group size, room situation, time budget, distributed team, etc.).

If, for example, specialised knowledge is to be presented to a larger group in a short time, different presentation techniques may be appropriate, such as free speech or a slide presentation. However, if the aim is to acquire practical skills, such as gas-shielded welding or designing a text page, the participants must also have the opportunity to try these out for themselves.

4. What are the media used?

The choice of media is primarily determined by whether and in what proportions the learning process is to be carried out in presence or virtually. The media can then range from blackboard and chalk to flipcharts, moderation cards, projections with a beamer, online platforms and learning support with augmented reality to specially programmed virtual learning applications or serious games. Regardless of the question of presence or virtual, two criteria are central to the selection:

(1) The selected media must support the learning process and facilitate it, but in no case complicate it. This means that the learners are either already sufficiently familiar with the media or it can be assumed with some certainty that they have sufficient (digital) competence to be able to use the media to be employed easily and without much additional effort. If the choice of media makes it difficult to achieve the goals, alternative media approaches must be chosen.

(2) The media follow the method and not vice versa. Consequently, the media should also support and reinforce the chosen methods as best as possible. Again, if the media impede the clarity or feasibility of the methods, other media must be chosen.

Especially new, digital media, technologies and tools can exert an attraction on teachers (and also to some extent on learners) that is triggered exclusively by their novelty and technological fascination[6]. Therefore, the impulse to apply a seemingly innovative media support structure in a learning scenario runs the risk of shifting the focus from the actual acquisition of competences to the learning of the new technology. [7]

2. The framework curriculum

The principles presented above are implemented for the development of a curriculum for a course on Complete Action in an agile learning environment as follows. This is a "didactic double-decker": The principles of Complete Action are applied to teach them.

Requirements

The most important prerequisites for a course in which the participants learn how to conduct action-oriented courses themselves are:

- The participants have an environment in which they (want to) organise and/or carry out the Continuing Education and Training (CET). This environment, e.g. the CET institution or the company where it is to take place, or a funding body, supports the action-oriented approach or is at least open to it.
- These trainings are carried out close to the workplace, i.e. reference can be made to the work experience and the current or future requirements and problems of the workplace where the participants of the training are or will be working. Tasks can be taken over from there - directly or in a related way.
- Participants master the subject content they are to teach to such an extent that they can independently structure and adapt it along the requirements of action-oriented teaching.
- Participants are willing and able to question and change their own approach and previous ideas about teaching.

Goals

The aim of this framework curriculum is to develop a model for a course that will enable participants,

- independently design, detail, organise and implement competence-based, action-oriented continuing education,
- to prepare subject content appropriately and to convey it in an action-oriented way.

To this end, they must be taught content ("knowledge") and acquire skills with which they can act professionally ("professional action competences").

Knowledge[8]

The participants know

- the six process steps of the "Principle of Complete Action", and the different roles of teachers in this process,
- the approach of "Agile Learning" with its possible applications and its most important methods[9]

Professional competences

The participants are able to

- apply the principle of complete action to a specific, professionally demanding continuing education,
- structure and prepare the contents of this CET accordingly so that they fit the target group as well as this principle and action-oriented learning as a whole,
- formulate a didactically prepared learning/work task from the participants' technical problems,

- adapt and use the essential steps and methods of Agile Learning as appropriate to the situation,
- implement further training courses that comply with these principles in a completely virtual environment, i.e. without face-to-face meetings between the participants,
- use and demonstrate methods and tools of virtual teamwork, and finally
- apply criteria to assess the quality of reviews and reflection (retrospective).

Contents

The content of the course should provide participants with knowledge, skills and options for action that will support them in teaching in an action-oriented way in their further training and in working consistently in a competence-oriented way. This content should come as directly as possible from the participants' working environment and thus enable them to deal with workplace-relevant issues. Possible contents are only outlined here with keywords because they have to be selected and determined in detail depending on the time available, the previous knowledge of the participants, the application cases, etc. They will be formulated in a separate document (Intellectual Output 6 - Development of a Course Design), in which a specific curriculum will be developed. The contents are taught through a problem-solving-oriented assignment.

Technical contents of the further training

Essential contents for a further training in action-oriented competence mediation can be:

1. Basics of activity-based learning (HOL) [10]
2. Steps of the HOL, roles of the teachers as well as the learners
3. Characteristics of a good learning and work task
4. Basics of feedback for reviews and retrospectives
5. Agile learning: A form of repeatedly going through the steps of the "Complete Action".
6. Agile learning tools (backlog, sprint backlog, Kanban ...)
7. Tools of virtual teamwork: use of digital spaces for group work, voting, pin board, ...

In a specific curriculum for a workshop that is to be carried out in real life, this content is elaborated, tailored precisely to the respective target group and prepared as learning units.

Preparation of content: The learning units

For self-directed learning, it makes sense to provide content as self-learning materials whose form supports independent elaboration of new content. In order to enable solution-oriented learning, the self-learning materials should meet the following requirements:
- **Easy orientation** about the content and possible outcomes after engaging with the material
- **Short processing times for** each learning unit, (15 - 30 minutes)
- **Solution orientation**, in that the processing brings the learners directly closer to the solution of a task set for them.

It has proven successful to enable quick orientation through a clear structure:

- What does this learning unit help with?
- What can the learners do better afterwards?
- Compact representation of the input
- Application of the input to a concrete task [11]

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The methods

The core of the curriculum is that the participants get to know action orientation as a concept of continuing education in a continuing education that is itself organised with action-oriented methods. This principle is also called the "didactic double-decker": The methods I learn about are at the same time the methods with *which* my CET is organised. The task of such a curriculum is therefore to use the contents of the CET in the workshops, courses, etc. as much as possible and also to let the participants use them themselves on a trial basis, i.e. to make them directly experienceable. In concrete terms, this means going through all the learning and activity steps of the "principle of complete action" within the workshop, if possible even several times, and also using the tools presented, such as a backlog or a Kanban board.

In principle, the methods can be developed along the process steps of the principle of complete action. The following table gives an overview of the objectives and the method area for each process step. If the activities are carried out by the teachers, they are marked with the ▨ symbol, if they are carried out directly by the learners themselves, they are given a 🖊.

Process step	Goals		Methods section
Inform	- Acquire information - Define and understand the problem - Analyse data - Impart knowledge	🖊	- Data collection[12] and processing - Research & self-learning material
		▨	- Preparation of information sources - Lectures/Presentations
Plan	- Set and formulate goals - Define and plan work processes - Name the resources needed (material, tools, people, etc.)	🖊	- Formulate goals in writing and in a comprehensible way - Carry out project planning (work packages, resource planning, responsibilities)
		▨	- Provide templates - Support goal formulation
Decide	- Joint decision for a solution - Advice from the teacher	🖊	- Presentation of the planning - Argumentation and defence of one's own planning
		▨	- Critical appraisal - Involvement of the learning team and guidance on collegial consultation
Execute	- Carry out work steps in a team - Coordinate and track tasks - Name obstacles and remove them from the way	🖊	- Assign roles and tasks - Scheduling and accepting tasks - Carry out work steps
		▨	- Acquire resources and solve structural problems - Point out pitfalls

Control	▪ Present results ▪ Evaluate results (target-performance comparison) ▪ Evaluate target achievement		▪ Lecture/Presentation ▪ Demonstration on the object or mock-up ▪ Assessment of the achievement of objectives
		?	▪ Quality assessment ▪ Establish a larger frame of reference ▪ Describe alternative solutions
Evaluate	▪ Reflect on cooperation ▪ Reflect on personal development ▪ Derive consequences		▪ Reflection/retrospective (what good, what bad, how different) ▪ Putting your own development into words
		?	▪ Formulation aid ▪ Guide collegial reflection ▪ Questioning techniques

A larger selection of methods with which these process steps can be implemented in a virtual continuing education are presented in the Intellectual Output 3 "Methods Manual" of the HoWARP project.

Media

Presence workshop

Workshops in which the participants physically meet will not be discussed in depth here. In an overview, however, it can be assumed that particularly the following media come into question:

- Flipchart
- Moderation walls and material
- Projector and slides
- Separate rooms for small group work
- Exercise material for the learning task
- Short instructional videos, if applicable
- …

Virtual workshop

In virtual workshops, the performance and accessibility of the learning platform play a central role. These have a direct impact both on the forms of learning and on which methods can be used. Among other things, this depends on,

- in which way action-oriented input can be given,
- to what extent and in what way understanding and exchange in the (small group) team are possible,
- how frequently and quickly queries can be asked and answered,
- how teachers can get feedback on intermediate work in subgroups,
- to what extent reviews and reflections can be conducted interactively.

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The HoWARP project's Intellectual Output 3 "Methods Manual" also presents various scenarios for the technical limits of the hardware and software used and subsequent options for designing virtual continuing education.

3. Two application examples

Example 1: Further education leaders at Ecoplus

The context

The framework of the ecoplus seminars, for whose leaders (event team and experts) the curriculum is to be developed, is characterised by

- Participants from around 10 companies who want to receive further training on a very new topic.
- The event team defines the topic together with experts (and with companies) and narrows it down.
- Together with experts, the event team sets up a qualification of at least 5 workshop days. In between, practical tasks have to be completed. It organises the framework (project presentation, inputs from the companies in advance, rooms and dates) and financial support for the training.
- The experts concentrate on imparting knowledge, which is usually very practice-oriented. The participants should be able to try out and learn to apply new technologies presented or knowledge learned to their company practice, their environment and their circumstances. At the very least, after the qualification they should have an idea of what they can do with it in the context of their field of activity.

ecoplus has been working very well with this approach for several years, made possible by well-developed funding structures in Austria. This year alone, ecoplus has set up five further qualification projects (e.g. ARbau) in addition to the seminars on BIM (Building Information Model - a digital model of buildings spanning all life phases).

The special approach of ecoplus differs from "normal seminars" mainly by a strong "engagement with the needs of the participants/companies" and "empowerment of the participants" (maximisation of output). Thus, this approach is very well suited to implement the principles underlying this curriculum. In concrete terms, it is possible to identify the problems to be solved and the learning and work tasks to be worked on in advance with the participants and to prepare them didactically.

Target group of the further training

The target group is organisers and experts for such workplace-oriented further training, within Ecoplus and in other Austrian provinces. Based on previous experience, it can be assumed that the target group has great expertise in their field and at least basic knowledge of lecturing and presenting. These people usually have an academic education.

Structure of the process

The training itself should follow the presented principle of complete action: Inform - Plan - Decide - Implement - Review and Reflect. This can look like this, for example:

Preparation: Experts choose a seminar that they will hold in the next few weeks and work out the contents. They also design the methods and a schedule.

Workshop I: The experts get input on action-oriented and agile learning (2-3h).

Application: They can then apply what they have learned to their own seminar design and revise/add to their methods if necessary and detail the schedule - individually or in peer-to-peer teams. There is the possibility to ask questions to the HOWARP team.

Testing outside the curriculum: implementation of the seminar by the experts within a few weeks.

Workshop II: Exchange of experiences and reflection. Depending on the size of the group, first in peer groups or immediately for all (approx. 2h).

Example 2: Trainers without current practice

Target group of the further training

In this example, we assume a target group that does not have its own teaching practice, but should and wants to carry out further training according to an action-oriented concept in the foreseeable future. For the sake of simplicity, it is assumed that this target group, for professional as well as financial reasons, will not accept an extensive qualification offer, for example over several weekends or even several weeks. Therefore, this curriculum is so streamlined that it can be implemented in a two-day workshop. Should more time be available for teaching action orientation in learning processes, for example in a master craftsman training or in university courses, it can also be extended appropriately, e.g. by extended working hours alone and in a team. Then more extensive content, more demanding exercises and deeper reflections would also be possible.

Structure of the process

In the workshop, a simulated teaching practice should be tried out in which the participants can take on both the "teacher" and the "student" perspective. They should be able to reflect on both experiences and draw conclusions for their own events. A process with this approach could look like this, for example:

- The participants receive an initial input on action-based learning and the principle of complete action. Then they are divided into two small groups.
- First, each small group works out a (manageable) learning task in stages as a "teacher group" in order to experience this process for themselves. These learning tasks must have different topics, the topics must not yet be known to the other group.
- Between the individual stages, they reflect on their approach and receive further input.
- When the learning task has been completed, it is handed over to the other small group ("group of students") to have them work on it and to reflect on their work together.
- At the end, there is a joint evaluation of what experiences were made with creating and working on the (exercise) learning task, which decisions of the "teacher group" had which effect on the "student group" and what follows from this for the further training that the participants want to carry out themselves later.

In large learning groups, it is also possible to divide the group into several small groups, whereby each small group first works out a learning task as a "teacher group" and then works on the learning task of another group as a "student group".

Requirements for the learning task

Learning and work tasks are usually complex and unstructured because they are supposed to represent a complex practice. They require a subdivision into smaller, workable and solvable problems - as is also done in practice. For a CET where the participants have no actual teaching practice to learn from, a learning task should accordingly fulfil the following requirements:

- It should be possible for the "teacher group" to create the learning task in stages, so that there can be repeated input on the design of a learning process and a review and reflection after each stage.
- It must be possible to work through the content quickly because, as a rule, both the "teacher group" and then the "student group" have to familiarise themselves with it.
- The decisive factor for the successful creation of the learning task should not be the mastery of a complex content. The challenge should lie in a meaningful sequence of simple steps.
- Different variants must be possible in the processing of the learning task so that the "group of pupils" has a scope for design.
- It must be possible to complete the learning task in a short time in order not to lose too much time for it.
- In addition, the learning task should either bring a real gain in knowledge or be great fun (preferably both), so that the "group of students" is also motivated to work.

Possible learning tasks could be: creating and evaluating surveys with an online tool, designing a techno club, building bridges out of paper, etc.

Notes

[1] See, among others, Engeström, Y. (2014). Activity Theory and Learning at Work. In U. Deinet & C. Reutlinger (Eds.), Activity - appropriation - education (pp. 67-96). Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-02120-7_3; Herkner, V., & Pahl, J. -P. (2020). Action orientation in vocational education and training. In R. Arnold, A. Lipsmeier, & M. Rohs (Eds.), Handbook of vocational education and training (pp. 189-203). Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-19312-6_17; Wolf, S. (2003). Lernfeld und Prozessorientierung in der beruflichen Erstausbildung - das Beispiel Mechatroniker [Diploma thesis, TU Berlin, Berlin]. http://dx.doi.org/10.14279/depositonce-1598, p. 12ff. ; Bünning, F. (2007, August 10). Approaches to Action Learning in Technical and Vocational Education and Training (TVET). http://www.unevoc.unesco.org/fileadmin/user_upload/pubs/ActionLearning.pdf

[2] The conceptual basis of the curriculum outlined here has several necessary prerequisites (see also the HoWARP document "Basic assumptions and prerequisites of action-oriented and agile learning processes" by Stefan Wolf and Jörg Longmuß).

1. Learning is essentially cooperative
2. The learners act in a self-organised way and are supported in doing so.
3. The learning process must be learner-centred, which means that the trainer must take on the role of facilitator and enabler. To do justice to this attitude, trainers should take on different roles at each of the six stations of the complete storyline.
4. To design an action-oriented learning process, it is imperative to formulate a problem that the participants have to solve.
5. If the possibility exists, analyses of the work and business processes should take place in advance in order to generate appropriate tasks (concept of learning and work tasks, see among others Ebeling, Gronwald & Stuber, 2001).

[3] On Agile Learning as a whole, as well as on the approach and tools used, see Longmuss, J., Korge, G., Bauer, A. & Höhne, B. (2020). *Agile learning in the enterprise*. Berlin: Springer Vieweg https://doi.org/10.1007%2F978-3-662-62013-7

[4] See Heimann, P., Otto, G., & Schulz, W. (1970). Unterricht: Analyse und Planung (5th, ed.).

[5] in the sense of vocational action competence.see in particular Rüschoff, B., 2019). Methods of competence assessment in initial vocational education and training in Germany.: A systematic overview study. Commissioned by the Federal Ministry of Education and Research as part of the ASCOT+ research and transfer initiative (Wissenschaftliche Diskussionspapiere No. 206). Bonn, pp. 8-10).

[6] Siehe z.B. Watters, A. (2016). *The curse of the monsters of education technology*. Smashwords: Ebook. Teräs, M., Suoranta, J., Teräs, H., & Curcher, M. (2020). Post-Covid-19 Education and Education Technology 'Solutionism': a Seller's Market. *Postdigital Science and Education*, *2*(3), 863-878. https://doi.org/10.1007/s42438-020-00164-x

[7] A special case arises in learning scenarios that explicitly target the acquisition of digital competences or media literacy in general. In such learning contexts, it may well make sense to use a range of different tools and technologies in order to give learners their own assessment scheme for the usefulness of certain technologies in specific contexts by reflecting on the technology as such.

[8] Knowledge, skills and competences come from a conceptual basis, but which one is not clear. Should this perhaps be added to the framework curriculum?

[9] Longmuss, J., Korge, G., Bauer, A. & Höhne, B. (2020). *Agile learning in the enterprise*. Berlin: Springer Vieweg https://doi.org/10.1007%2F978-3-662-62013-7

10 Example of a task: As a trainer, you have the task of teaching a course of master craftsmen the basics of vocational training and should clarify the basics of HOL in a short technical input (duration max. 15 min.). Also present the pros and cons of industrial crafts training.

11 Examples of such learning units can be found at https://academy.agile-learning.eu/lcard/

12 Only the generic terms are mentioned here. If a specific course is planned, the general term "data collection" would have to be more concrete, e.g. as data collection methods: Interviews, online surveys, document research or also more technically the reading of sensors or the acquisition of open data sources such as climate data, ...