Output O4

Training programme on cooperation through digitalisation

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Project Partner

Hanse-Parlament, Germany (Lead Partner)

Hochschule 21 gemeinnützige GmbH, Germany

Handwerkskammer Schwerin, Germany

Satakunta University of Applied Sciences, Finland

Latvian Chamber of Commerce and Industry, Latvia

Chamber of Crafts and SME in Katowice, Poland

Hungarian Association of Craftsmen Corporation, Hungary

Informatikai Tavkozlesi Elektronikai Vallalalkozasok Szovetsege Egyesulet, Hungary

Language[1]

English

Contents

[1] The official examination regulations are available in German and English.

1. Introduction

Project Summary

Small and medium-sized enterprises (SMEs) in the construction sector urgently need to overcome the following challenges:

a) Fast, active and efficient shaping of the digital transformation.

b) Comprehensive realization of cooperation across different organizations at all stages of the construction process.

c) Attracting the urgently needed, appropriately qualified next generation of skilled workers and entrepreneurs.

The demand for good apartments and houses has rarely been as high as it is now, and yet there is far too little affordable housing available. Hence, significant increases in efficiency and acceleration of construction planning and execution are much needed in the construction industry. Construction projects can be carried out more efficiently through the application of targeted digital tools. In fact, around 30% of planning capacities can be saved this way. In addition, digital technologies make the identification of risks in the construction possible at an early stage so that they can be avoided.

When building one- and two-family houses, up to 25% of the total construction costs go to coordination work, which can be reduced to a very large extent through self-coordination using digital tools. Since the construction industry is characterized by a highly specialized division of labor, coordination errors can quickly occur, which often result in inferior quality and delays. Furthermore, energy and environmental aspects are often not given enough attention during new constructions and reconstructions. With the help of digital technologies, building owners, architects, engineers and craftsmen can plan together easily, increase the quality and ensure the adherence to deadlines. Moreover, new technologies make it possible to determine the energy costs of a building at an early stage and to eliminate risks or hidden costs. Individual priorities can be placed on technical features or environmental aspects. Although digital technologies and tools are already being tested and used in practice, the overall digitalization in the construction sector is only advancing very slowly.

Compared to other countries (e.g. the Netherlands, Denmark or Finland), Germany has a lot of catching up to do. SMEs in the construction and finishing trades, which are very active in the construction of one, two and smaller multi-family houses are particularly hesitant when it comes to using new digital tools and are therefore the focus of the project. The shortage of skilled workers is particularly severe in the construction industry.

The attractiveness for vocational training and construction activities is clearly suffering from the high specialization, physically difficult work, heteronomy, etc. The targeted use of digital technologies can reverse these barriers and lead to decisive increases in attractiveness. Large companies and general contractors in the construction industry often use their own digital systems, which they impose on their SME subcontractors, making them dependent and completely transparent. This leads to the rejection of digitalization in SMEs. There is a lack of SME specific advisory and training programs on digitalization in the construction and finishing trades. Both the owners and the employees of the SMEs have a high need for information, advice and further training. Support capacities must be expanded, and teachers and consultants of SMEs must be prepared and trained in a targeted manner in order to be able to convey SMEs and their

employees the use of digital technologies. The SME-specific training courses should highlight the intersections and interdependencies between the various trades and actors through transparent interfaces, in order to promote the need for cooperation and the use of digital technologies.

The overall objectives of the project are:

1. To quickly and productively shape the digital transformation in small and medium-sized enterprises (SMEs) in the construction sector based on the needs and challenges they are facing, so that as many SMEs as possible use digital technologies and tools in all fields of activity in their company.

2. To facilitate easier cooperation through digital technologies between all those involved in the construction work (clients, architects, engineers and SMEs in the various trades) from planning to the execution, including the management of the construction of large-scale projects.

3. To increase the efficiency, quality and punctuality in the construction industry as well as the ability to include environmental and sustainability aspects in the planning, construction or renovation of buildings through the application of specific digital tools and technologies.

4. To increase the attractiveness of vocational training and work in the construction sector in order to meet the already very high and still growing demand for qualified skilled workers and entrepreneurs in this sector. In order to achieve these decisive objectives, the following action goals are pursued in the project.

a) Providing digital technologies and tools as well as cooperation methods suitable for SMEs in the construction industry by analyzing international best practices and adapting them to the different national conditions, which are then transferred to SMEs together with individual implementation advice.

b) Providing SME specific education programs on digital competences and skills by analyzing and adapting international best practices, which are then implemented by chambers with their educational institutions, vocational schools and other VET institutions.

c) Strengthening the educational and counselling capacities as well as the qualification of teachers and consultants of SMEs so that they can give sound advice on digital transformation and implement qualification programs.

d) Increasing the attractiveness of vocational training and winning qualified young people with strong learning ability for the construction sector by developing, testing, evaluating and implementing additional qualification trainings on digitalization in the construction sector, which are completed during or directly after vocational training and result in an independent, recognized vocational qualification.

e) Enabling architects, engineers and SMEs in the construction and finishing trades to realize comprehensive collaborations through the use of digital technologies by developing, testing, evaluating and implementing a training program on collaboration management and digital skills.

f) Enabling SMEs and their employees to make full use of digital technologies in all areas of construction by developing, testing, evaluating and implementing a training program on digital competences and skills.

g) Contributing to closing the entrepreneurship gap by attracting young entrepreneurs with digital competences and skills through the development, testing, evaluation and implementation of a module program for digital entrepreneurship training.

h) Increasing the attractiveness of vocational training and work in the construction sector by offering interesting, expanded areas of activities as well as qualifications with recognized degrees at all levels of vocational training with maximum permeability.

i) Strong regional dissemination of the implementations of the project results by transferring the results and demand-oriented implementation recommendations to 72 SMEs and education institutions from 13 countries.

About the training on cooperation through digitalisation

Through the extensive use of digital technologies, cost savings, quality increases and adherence to dead-lines are achieved in residential construction. With the help of digital technologies, cooperation and holistic working methods are facilitated, so that SMEs are involved in all steps of the construction process from design to planning, construction and management. To promote this, a concept, curriculum and teaching materials were developed for further training on cooperation through digitalisation as well as an SME-specific program for the implementation of training and coaching. The developed programmes were tested in live operation under various national conditions, evaluated and finalised on the basis of the evaluation results. The target groups are architects, engineers, entrepreneurs and managers and specialists in the construction industry, who can acquire a recognised continuing education and further training qualification by completing the training.

Output O4 includes:

- Concept, curricula and teaching materials for a training programme on cooperation through digitalisation
- Program for the implementation of training and coaching
- Official examination regulation
- Implementation Reports
- Evaluation Concept and Report

2. Curriculum further training on the use of digital technologies and cooperation[2]

Introduction

The forms of co-operation between participants involved in the construction project, and both the opportunities and willingness to civic participation have increased during the past years. The digital revolution in our societies, called digitalization, has given new tools to co-operate, to collect opinions of people, and to offer real opportunities to impact on planning and designing processes. However, these new tools do not themselves solve the problems caused by failures in collaborating, misunderstandings and dissatisfaction of people affected by the project. We must also be aware of tools available, we have to have skills to use these tools, and we should be prepared to receive critic and even hostile expressions of opinions concerning the projects. We need both the knowledge, skills and readiness to listen our partners and people to avoid delays, failures and losses caused by bad co-operation, misunderstandings, and appeals made by people who have experienced that they were not listened.

The course

This course, based on the results of R1 "Best Practices digital technologies and trainings" is further training that deals with the realization of construction collaborations using digital technologies and tools. The aim is to give knowledge and skills to use modern collaboration tools and to motivate participants to listen also those opposing the planned projects or projects that are already under construction. During the course, some examples of usable tools will be presented and couple of these will be used, background and benefits of civic activism will be discussed, and the practical examples of collaboration and civic activism and their impacts will be presented. The course will be based to the KAIN-method (Knowledge Acquisition according to Individual Needs). The aim of the KAIN-method is to create a common knowledge base for participants with different backgrounds by utilizing the individual experiences and knowledge of participants. The method shows opportunities to change or improve the situation of the participants and to change ways to gain project goals. It also sharpens the awareness of possible needs for change, and enables the involved participants to find, define and design the right tools and implement them correctly.

The training process is composed of three phases: a) Classroom teaching that in certain situations can be replaced by online or hybrid teaching. b) Self-study and project work with external support. Although the support works best at site, it can also be given as distance support by phone, online meeting tools like Teams or Zoom, or via social media tools like you-tube or tik-tok, and c) Reporting and reflection, that can be done either as traditional class-room implementation or as online-meeting.

Target groups

Target groups of the course are architects and engineers as well as entrepreneurs and managers of small and medium sized construction and finishing companies. The course is also suitable for skilled workers in constructing and finishing branches, and students in further vocational education in construction and finishing branches.

[2] Compiled by Dr Kari Lilja and Dr Sirpa Sandelin,Satakunta University of Applied Sciences, Finland

Methodology

The course is based to the KAIN-Model. During the course, following methods can be used (the list is not final nor excluding other teaching methods):

- Class room lectures
- Online learning
- Self-learning as a part of project work.
- Individual project
- Online discussions
- Class room discussions
- Assignments
- Reports and presentations including self-reflection

With the help of following tools (the list is not final nor excluding other didactic tools):

- Powerpoint or other presentation tools
- Online learning platforms (e.g. Moodle)
- Online collaboration tools (e.g. Padlet)
- Online presentation tools (e.g., Prezi)
- Word Cloud tools (e.g.
- Videos
- Articles and other online material

The content of the course

Part one – Class room learning

The first day deals with the basic and fundamental issues of collaboration, including the European-wide and local legislation concerning the civic participation in areal planning and construction design, and co-operation in the workplaces (Figure 1). Furthermore, the motivation – why the collaboration and civic participation are important also for construction and finishing branches and companies involved in the project, and a brief presentation of KAIN-method, should be included into this day.

The second day of this phase introduces modern tools for collaboration, and ways to co-operate by using these tools: how to combine modern and traditional ways to co-operate, and how to secure the digital environment and information of each party of co-operation so that no risks for hazards occur. One or more of the presented tools will be used during the whole course. In the end of the second day, the instructions for the next phase – project work – should be given. An example of content will be seen in Appendix A.

Part Two: Learning project

This part contains an individual learning project to be realized in the enterprise. Project should be connected with the topics of the course. During the project, tools presented in the earlier phase should be used both in solving the problems risen during the project and in searching information concerning the optional learning tasks. Time to be reserved for this self-learning and project work should be long enough but not too long. Recommended period is between 8 and 12 weeks.

Part Three: Reporting and reflection

The aim of the third part of the course is to present experiences and results of the projects, to collect these results, experiences and knowledge gained during the project as a part of the collective knowledgebase, and to give a change and place for self-reflection to each participant. In addition to these, a concluding lection summarizes the lessons gained during the course.

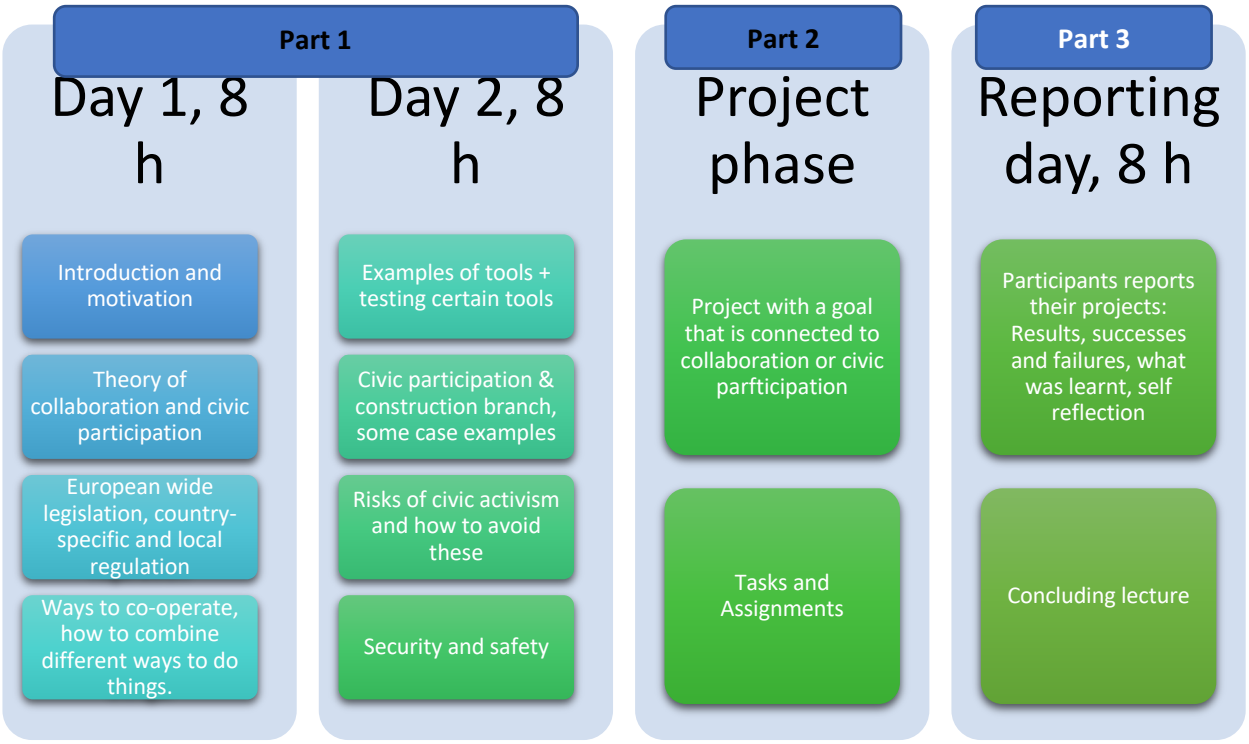


Figure 1. Elements of the course

Schedule of the course

The KAIN Method emphasizes the role of self-learning. The time reserved for lectures is relatively small, thus in the lectures, only essential issues should be dealt with. However, KAIN enables the use of self-learning tasks, and teachers are encouraged to use these to show the students how information can be acquired by themselves. However, if the self-learning tasks are used, it is important to teach trainees how to find and recognize reliable and relevant information, and how to distinguish between information and disinformation, and between relevant and irrelevant information. An example of course schedule is presented in Appendix A.

Qualification requirements

After the course, a trainee should understand why the collaboration is important; know, how the digital tools can be used to enable and support co-operation; be able to use some of the digital tools; realize both the power, opportunities and risks of civic participation and activism; be aware of the risks connected to the use of digital tools in collaboration, and know, how to protect against these. The gained skills will be proved by successful project work.

Because the course is further training, each facilitator should define the final qualification requirements in accordance with local regulation, and rules of their own institute, considering the requirements and wishes of employers.

APPENDIX A: Example of the course content and schedule

Phase	Topics	Material examples and Notes

Day one
8 hours, including short breaks and lunch pause
	Introduction and motivation, 2 hours
	- Introduction to KAIN-method
	- (Digital) co-operation: What and why
	- Highlights the role of digitalization in changing ways to collaborate
	  ○ New tools and renewed needs
	  ○ New concept of co-operation
	  ○ Cross-cultural collaboration over the geographic borders
	- Advantages offered by this development
	- Despite of the huge advantages, the risks must be known too.	

	Theory of collaboration and civic participation, 1 hour - The psychologic base of collaboration - The political base of civic participation - Different forms of collaboration and civic participation	Scientific and common papers approaching civic participation. Papers approaching collaboration Tools for co-operation
	European wide legislation, country-specific and local regulation, 30 minutes - This part should be localized according to policy and legislation in each country	Participation in the EU European ombudsmen's opinion
	Lunch pause according to local regulations 30 min – 1 hour	

	Ways to co-operate, how to combine different ways to do things, 2 hours
	- Macrocultural differences in co-operation
	  ○ How culturally sensitive properties like age, gender, religion … impact the co-operation
	- Organizational culture
	  ○ Different organizations, different ways to do things
	- Personal differences in co-operation
		Co-operation
		
		NOTE: Several cases of best practice collection including the co-operational elements can be presented here as examples of different approaches.

	○ introvert vs extravert ○ Other personal properties that should be considered. - Combining different ways to co-operate ○ Respect ○ Pay attention ○ Listen ○ Ask ○ Answer questions… - Discussion: Have you found differences in ways to co-operate? Were there problems? If, how did you solve these?	
	Problem solving, tools and tips - Different problem solving styles -	Problem solving
Day two 8 hours, including short breaks and lunch pause	Examples of tools + testing certain tools, 3 hours - Practicing and testing free versions of certain tools, see examples right. Time for testing should be reserved at least 45 minutes per tool. Before the test, a brief presentation of tool is recommended.	Digital collaboration tools examples: Teams Moodle – free version (Trial) available Padlet – free version available Zoom – free version available
	Civic participation & construction branch, some case examples, 1 hour - What is civic participation, how it can be utilized in construction business - How to utilize digital tool, case example from best practices – collection: CHAOS Crowd (https://chaosarchitects.com/).	Cases: Case article 1 Case article 2 Case article 3 Scientific and common papers Tools for participation
	Risks of civic activism and how to avoid these - Discussion: are there any risk in civic activism, 1 hour ○ Reputation risks (social media) ○ Loss of time and money due to delays caused by complaints from civic activists ○ How about the positive impacts	Impacts of Civic Engagement Pervasive protests affirm civic activism, but carry serious risks Reputation risks

	○ Participating citizens in early phases of planning helps to avoid complaints and other interventions	Social Media Effects: Hijacking Democracy and Civility in Civic Engagement NOTE There are rare authors concentrating in the risks of companies caused by civic activism.
	Lunch pause 0:30 – 1 hour	
	Security and safety - Co-operation in the security and safety issues, 1 hour ○ Benefits and risks ○ What should be considered before start ○ Agreements ▪ Borders and limits ▪ Rights and power of each participant ▪ How to deal with unforeseen issues ○ What happens after collaboration ends. - Security and safety issues that should be considered during any collaboration at all, 1 hour ○ Sensitive information, e.g., personal data and business secrets. ○ Physic safety, e.g., outsiders at the construction site ○ What should be considered before start ○ Agreements ○ What happens after collaboration ends. ○ Etc.	NOTE: Security and safety issues of co-operation are very country specific, thus, it is recommended that local experts are used as visiting lecturers.
	Instructions and tasks for the self-learning phase, 1 – 2 hours depending on the number of participants. - Information and instructions concerning the project phase, e.g., ○ How to choose a topic	

	○ How to implement and run a project ○ How, when and whom ask for help ○ Contact information of available tutors / trainers ○ How to write a report and presentation - Learning tasks – if used ○ Tasks, deadline, tips for solving, how to return the answer - Every participant should be given an opportunity to ask questions	
Self-Learning 8 - 12 weeks	Project - Work place learning - Student should realize a project at his / her workplace. Goal of the project should be connected with the topics of the course	NOTE: Teacher / Trainer / Coach should be easily available and contactable during the whole period.
	Learning tasks and assignments - Optional - Suitable in cases where e.g., employers expect that a trainee gets or improves certain special skills. - Task and / or assignments should be given in a way that enables a trainee to solve them independently, knowing, that help is available if needed. NOTE: Tasks and assignments should be planned case by case depending to the needs of the trainees and goals of the training.	
Concluding day 8 hours, including short breaks and lunch pause	Project reports - Trainees presents the brief reports on their projects and assignments - Discussion	
	Concluding lecture - summarizes the course	

Links for inspiration

Note: Many of the scientific papers may require agreement between library and publisher to be accessible.

About civic participation

Scientific papers

Civic activism online

Urban civic activism

What makes people engage

Civic activists moving

Of Plants, High lines and Horses...

Using Social Media and Mobile Technologies...

Urban planning, community, participation...

Activist planning – a response to...

Self-organization and urban planning – two cases...

The citizen participation – comparison between...

E-Participation in Urban Planning: Getting and Keeping Citizens Involved

Citizen participation in road construction

Other papers

Civic participation

Civic participation in Finland

https://www.oecd-ilibrary.org//sites/57c233e7-en/index.html?itemId=/content/component/57c233e7-en# https://www.oecd-ilibrary.org/governance/oecd-guidelines-for-citizen-participation-processes_f765caf6-en

https://www.oecd-ilibrary.org/sites/74c83222-en/index.html?itemId=/content/component/74c83222-en# https://www.oecd-ilibrary.org//sites/e133cc3c-en/index.html?itemId=/content/component/e133cc3c-en#

https://www.epc.eu/en/publications/Under-Construction--Citizen-Participation-in-the-European-Union~483460

Europe lacks a functioning infrastructure for its citizens' political participation

Citizen participation in the construction competition

About collaboration

Common texts

What is Collaboration?

https://blog.jostle.me/blog/why-collaboration-is-important

https://hbr.org/2007/11/eight-ways-to-build-collaborative-teams

https://www.thebalancemoney.com/collaboration-skills-with-examples-2059686

https://www.smartdraw.com/collaboration/collaboration.htm

https://www.theforage.com/blog/skills/collaboration-skills

https://www.atlassian.com/work-management/project-collaboration

Scientific papers

https://www.mdpi.com/2079-9292/10/22/2806/pdf

Linking corporate...

The interplay between financial rules, trust and power in strategic partnerships in the construction industry

An institutional inquiry conducted from the inside of a strategic partnership in Danish construction

How does open innovation enhance productivity? An exploration in the construction ecosystem

Tools for collaboration

Commercial papers

Top 10 Collaboration Tools - See a Free List of Tools

15 collaboration tools for productive teams

Best online collaboration tools of 2022

55 Best Online Collaboration Tools & Software for Teams [2022]

20 Online Collaboration Tools for Business in 2022

The 25 Best Online Collaboration Tools of 2022: Work Better Online

Best digital collaboration tools

8 Types of Collaboration Tools

15 Best Online Collaboration Tools For Teams In 2022

Digital collaboration Delivering innovation, productivity and ... Deloitte's report on collaboration tools

https://www.digital.nsw.gov.au/delivery/digital-service-toolkit/resources/digital-collaboration-tools

https://axerosolutions.com/blog/how-online-collaboration-tools-benefit-your-business

https://checkify.com/blog/collaboration-tools/

Scientific papers

Internet Based Collaboration Tools

Digitalizing collaboration

Collaboration Tools for Virtual Teams in Terms of the SECI Model

A Conceptual Framework for Creating Mobile Collaboration Tools

Are Collaboration Tools Safe? An Assessment of Their Use and Risks

Connecting teams in modular construction projects using game engine technology

Integrated digital twin and blockchain framework to support accountable information sharing in construction projects

Impact of Industry 4.0 Platform on the Formation of Construction 4.0 Concept: A Literature Review

Evolution of close-range detection and data acquisition technologies towards automation in construction progress monitoring

Stakeholder relationships in off-site construction: a systematic literature review

Tools for participation

Urban Co-Creation: Envisioning New Digital Tools for Activism and Experimentation in the City

Engaging New Digital Locals with Interactive Urban Screens to Collaboratively Improve the City

Urban Imaginaries of Co-creating the City: Local Activism Meets Citizen Peer-Production

Durable Civic Technology: Minecraft as a Tool in Urban Planning Public Consultation

Participatory Apps for Urban Planning—Space for Improvement

Urban planning, public participation and digital technology: App development as a method of generating citizen involvement in local planning processes

Enhancing classical methodological tools to foster participatory dimensions in local urban planning

Digital Infomediaries and Civic Hacking in Emerging Urban Data Initiatives

Spatial knowledge management tools in urban development

Internet and Civic Activism: New Opportunities of Action

Digital activism decoded – the new mechanics of change

Urban planning 2.0

Digital Urban Planning Platforms: The Interplay of Digital and Local Embeddedness in Urban Planning

Digital social innovation and civic participation: toward responsible and inclusive transport planning

The Impact of Web-Based Media on Evolution of Participatory Urban Planning and E-Democracy in Poland

E-Participation in Urban Planning: Online Tools for Citizen Engagement in Poland and in Germany

Integrating Online and Onsite Participation in Urban Planning: Assessment of a Digital Participation System

The value of Community Informatics to participatory urban planning and design: a case-study in Helsinki

Problem Solving

Scientific papers

Problem solving skills improved

Technological Problems Solving in the Knowledge-Based Environment

Archimedes optimization algorithm

Creative problem solving learning

Other Papers

Problem solving techniques: Steps and methods

Problem solving process

What is problem solving?

Commercial sources

Problem solving techniques

Problem solving methods

“Brilliant” problem solving techniques

Cultural differences

Scientific papers

Cultural differences in co-operation

Culture and co-operation

Long-term evidence on cooperation and cultural differences in public goods dilemmas

Cross-cultural variation in co-operation

Other papers

Co-operation

The cultural co-operation model

Co-operation, culture and conflict

Notes for the teachers

The material enclosed is an example showing how the topics of this course could be presented. Each teacher should adjust this to the circumstances of his own country, considering the local regulation the level and skills of the trainees, and the study programme of the students; are they studying construction, finishing, plumber, some examples to be given. Each programme may require different weightings and highlights, and it is on the responsibility of each teacher to consider these special needs.

Target group

Target groups of the course are architects and engineers as well as entrepreneurs and managers of small and medium sized construction and finishing companies. The course is also suitable for skilled workers in constructing and finishing branches, and students in further vocational education in construction and finishing branches. The course suits well to others interested in digital collaboration, too.

Work required

In the curriculum, the average work required by each module is measured in working hours to make it easier for teachers to plan the practical application. However, the time required by project phase is difficult to estimate. It depends on the length of the project phase (8 – 12 weeks) and the difficulty level of project and learning tasks. If the education institute requires ECTS credit units (abbreviated in this presentation as CU) to be used, the hours can be changed to CUs. One credit unit equals 27 hours workload. Concerning the weeks, it is recommended that one week would respond one CU. The curriculum consists of modules totalling 24 hours + from 8 up to 12 weeks work, totally corresponding approximately 9 to 13 ECTS credit units containing class lectures, individual studies, project work and optional learning tasks /assignments.

Teaching methods

Teachers are encouraged to use varying methods containing e.g.:

- Lectures,
- Visiting lecturers,
- On-line studies,
- Discussions
- Videos approaching the topics (Reliability of the source must be evaluated),
- Individual studies including learning tasks, and
- Assignments.

The project work is an essential part of the KAIN – method.

Cooperation with the local experienced industry practitioners is highly recommended. The good team spirit is important for creating an atmosphere of trust, and via this to enable sharing of knowledge and experiences that is an important part of creating a common knowledgebase.

Contents of the curriculum

The variation in regulations and circumstances and qualification requirements are quite different in the BSR-countries, thus the material was written only as a form of framework inside which the local actors should modify the contents of modules according to their own regulations and local requirements, without forgetting the needs of different study programmes. By using innovative, problem-based, and experiential educational approaches, teacher will be able to support students to create an atmosphere that enables to share knowledge and experiences, and to learn, how to co-operate with the hep of digital solutions at construction sites.

The overall objectives of the curriculum are:

- The student deepens his/her knowledge about underlying basic information concerning co-operation and digital solutions supporting co-operation in the construction and finishing business.
- The student understands the regulatory and theoretic framework behind the co-operation and civic participation.
- The student can implement and run a project that is related to digitalization and co-operation.
- The student reports the results of the project (and self-learning tasks if used) and reflects the successes and failures evaluating the process and his/her own role.
- The student deepens his/her knowledge about common digital collaboration tools and their usability in the context of construction business.

The curriculum is divided into modules as follows:

- Module 1: Basic knowledge and instructions for the project and self-learning phase.
- Module 2: Project phase
- Module 3: Reporting and reflection phase

About the links

The links to materials have been tested during the period February – April 2023. However, the links may be changed and deleted very fast; thus, it is recommended that links that will be given to students were checked in the beginning of each course. Some of the links may be behind the paywall and require agreement between the educational institute and publisher to be available. In such case, contact your librarians. Some of the links refer to documents that have been written in commercial or political purposes. The authors of this document do not take a stand for or against any product, and the research results and opinions found in the links are also the responsibility of the original authors of the documents in question.

3. Program for the implementation of training and coaching

The Coaching Process

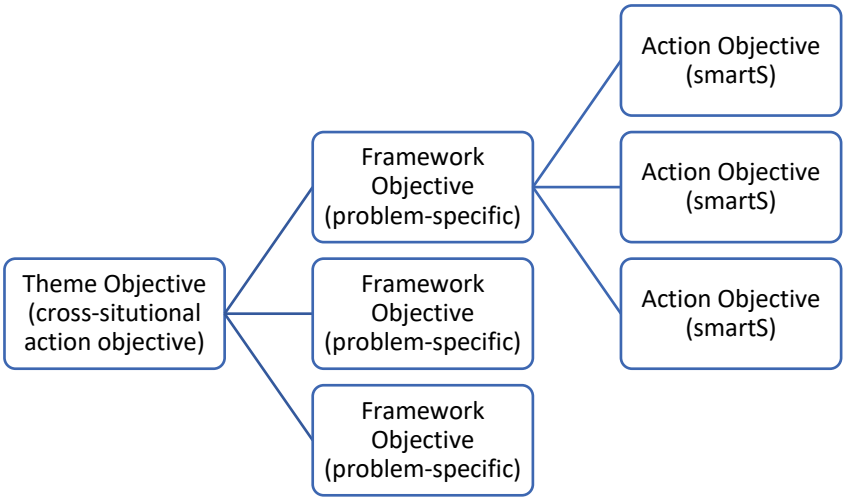
The words “coaching” and “consultation” are often used interchangeably. However, strictly taken, these concepts imply very different notions. Coaching focuses on a goal-and results-oriented process which helps clients to find their own solutions. It is therefore understood as a method that enables those facing special (often professional) challenges or problems to manage them (largely) independently. Due to this self-understanding, it becomes clear that a coach is not an advisor or consultant answering the questions of the person seeking advice, but a coach enables the client, through certain questions and techniques, to ask the “right” questions and find the answers by him or herself.
The task of consultants or advisers, on the other hand, is to answer specific questions of the person seeking advice as an expert on the topic. Hence, the solution or answer to the question of the advice seeker is given by another person, implying that the person seeking advice does not need to further investigate the issue.
Nevertheless, there are some common characteristics of the two processes:

- Profound expertise and professionalism: usually acquired through university studies, training and with extensive professional experience
- Reflexivity: Here understood as a systematic and well-founded thinking about one’s own actions and activities as well as the structures and processes with which one pursues a goal.
- Value orientation and positive image of man understood here as an appreciation and recognition of the diversity of personalities, a personality’s dynamics and changeability
- Working in and with networks: as a necessary condition for pursuing goals and increasing professionalism.[3]

As part of the DIG-CON project, due to the complexity of challenges and issues, it can be assumed that there will be no clearly defined border between coaching or counseling support from the coaches/advisors. Both can be appropriate, important and necessary depending on the case. Therefore, consulting or coaching is seen in this context as an interactive process in which both, the strong support of the consultant or coach and active participation of the person seeking advice, is of immense importance for solving the problem at hand.[4] Within the DIG-CON project, this process should be based on the “Case Management Model” increasingly used in the realm of social work.[5]
Case management is an extremely complex and intensive process carried out together with the advice seeker. It is always on a voluntary basis and requires the consent of the person seeking advice. Cases in which a case management structure is worthwhile are particularly complex problem situations for whose solution a large number of helpers from different areas is required.

[3] Cf. https://www.unternehmer.de/management-people-skills/128418-die-coaching-serie-teil-i-was-istcoaching-ueberhaupt or https://www.unternehmer.de/management-people-skills/131706-die-coachingserie-teil-ii-wo-liegen-die-grenzen-von-coaching
[4] Cf. Nußbeck, Susanne (2010). Einführung in die Beratungspsychologie (2. Ed.). München: Reinhardt.
[5] Cf. Müller, Matthias (2016). Case Management in der Migrationsberatung für erwachsene Zuwanderer (MBE) – Eine Arbeitshilfe (1. Ed.). Berlin: Deutscher paritätischer Wohlfahrtsverband Gesamtverband e.V.

This also means that multiple coaching sessions will be necessary. Furthermore, setting up case management structures is a time-consuming and labour-intensive process. Therefore, it cannot be expected that the advisors/coaches of the project participants will fully implement this concept. Nevertheless, it should serve as a suggestion for structuring the coaching process.



The case management process is divided into two levels: the case level and the (care) systems level. At case level, the case manager focuses on the person seeking advice. First, the case is assessed. In this phase information is collected comprehensively, systematically and without judgement or evaluation. The next step of this phase is a conscious decision which problem should be worked on made jointly by the case manager and the advice seeker. Once this decision has been made, hypotheses are formulated to come up with different explanations for the selected problem. These hypotheses facilitate the formulation of action goals in the next phase. In the case of this project, the selected problem should be the desired self-employment as entrepreneur. Furthermore, it is important to record strengths, competences and resources of the participant to be able to draw on them when solving the selected problem during the coaching process.

In the next phase (planning) an individual support plan is drawn up. Here, a distinction is made between theme, framework and action objectives. It is crucial to adhere to the hierarchy moving from the abstract theme objectives to the concrete action objectives. Theme objectives take interests and hopes into account, they are personal, easy to understand and formulated in a positive way – they reflect the participant's visions. Framework objectives relate specifically to the guiding problem (i.e. self-employment as entrepreneur) and its explanation hypotheses. They are generally in line with the theme objectives. Lastly, action objectives are formulated to concretely implement the framework objectives. They are incremental and must be manageable for the participant. The so-called smartS criteria (specific, measurable, acceptable / attractive,

realistic, timed and strength-oriented)[6] should be taken into account when formulating the action objectives.

In the case level's next phase, it is a matter of implementing the defined objectives. In contrast to regular counselling, in case management this phase is more than just a recommendation and placement into assistance services. Here, close accompaniment and, if necessary, support is foreseen. The process is oriented towards the wishes, strengths and resources of the participant to initiate a helping process that is as autonomous as possible (keyword empowerment). If many different institutions work together, so-called case conferences can be of an advantage to make cooperation more effective.

Before ending the case management process as well as already during the implementation phase, the process should be closely monitored and if, necessary, modified by the advisor/coach. The close accompaniment of the change process by the advisor/coach offers the participant additional support.

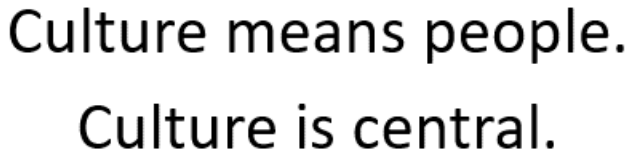
The end of the process should be active and binding. It contains elements of reflection, evaluation and farewell in which the handling of new situations without the advisor/coach should also be discussed.

The systems level of case management focuses on all the organisations and specialists who are involved in the solution process for those seeking advice. Here it is helpful to fall back on already existing networks of the advisor/coach as well as of the participant.

The SMEs and their employees require intensive individual counselling and coaching during all phases of qualification programme, starting with the identification of existing competences until after successful qualifications. During all phases, the participants receive accompanying advice and coaching from an advisor/coach of the respective project partner. If possible, this person should not be replaced during the entire process, so that each participant has a constant central contact person with whom a relationship of trust can be developed.

Aspects of Knowledge Management[7]

Culture and Environment



The culture of an organization is the key to a better knowledge management. Culture refers to the underlying values, beliefs, and codes of practice that characterize a community. The organizational culture is, where knowledge management takes place. Within the organizational culture knowledge capture and creation, knowledge sharing, and dissemination and knowledge application take place. But this

[6] Cf. Ehlers, Corinna/Müller, Matthias & Schuster, Frank (2017). Stärkenorientiertes Case Management: Komplexe Fälle in fünf Schritten bearbeiten. Opladen u.a.: Barbara Budrich Verlag.

[7] Innovative Business Transfer Models for SMEs in the BSR, Baltic Sea Academy, Hamburg 2021

also means that knowledge management cannot work without the right corporate culture supporting and shaping it.

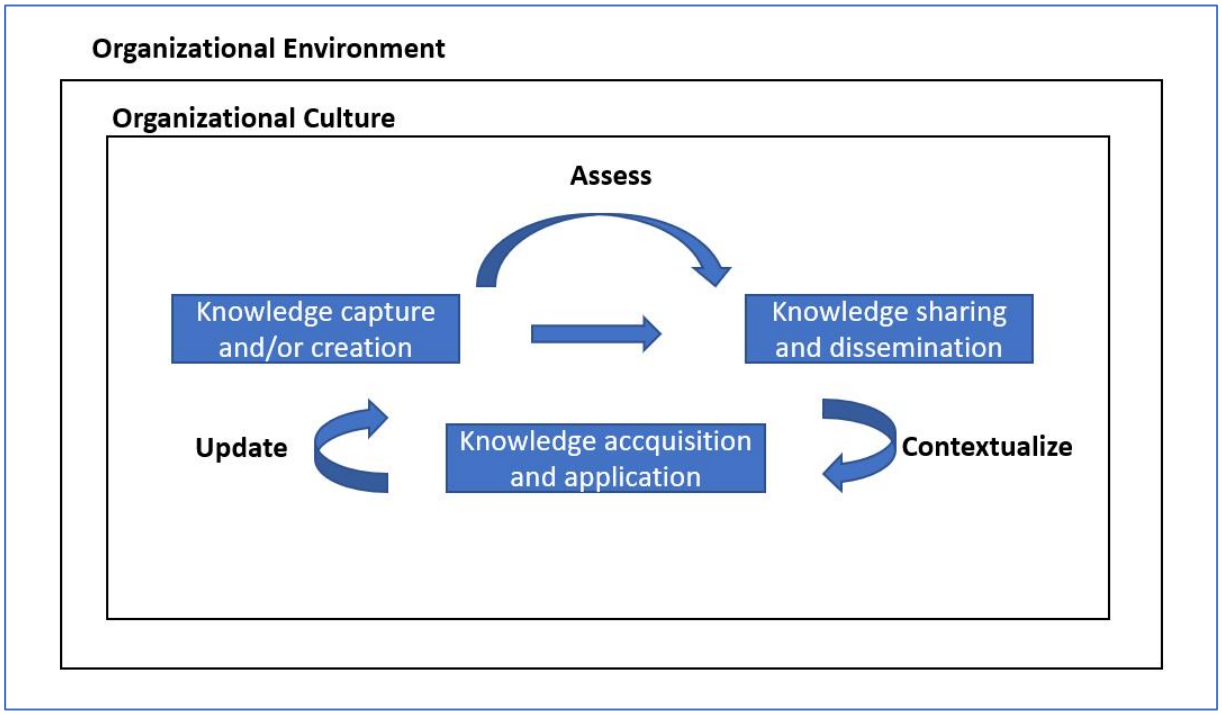


Figure 2 The cultural component in an integrated Knowledge Management cycle

Culture means people and each organization needs to be aware that how they treat their workers is how they shape their company's culture. A corporate culture is **not** defined by an attractive text on the company's website and by some foosball table in the lobby. A corporate culture is defined by: **How do you treat your people in your organization!**

Example: Water cooler/Coffee machine talk

Water cooler talk. This is a fixed term describing casual discussions between co-workers, usually taking place at the water cooler (U.S.) or the coffee machine. So, imagine the following situation: A couple of workers are on the corridor, next to the coffee machine and chatting. Now you, as the boss are passing by and watching these people you say: "Hey people, what are you doing there? Go back to your office and computer screen and continue working." If this kind of culture exists, knowledge management and knowledge sharing is not going to happen. Because, you don't know what the people there were discussing. Maybe they were discussing a recent customer problem and a new way of solving it.

The opposite behaviour is what workers need. The water cooler talk has the power to create informal networks among colleagues, which are essential for knowledge management. How to share knowledge if you have no network for sharing?

A culture ready for a better knowledge management is characterized by **flexibility**. The reason for this can be found in the previous paragraphs and is: "Culture means people." Whenever building up a knowledge management system in your company, around your employees, you are dealing

with people. For sure. And this needs flexibility, for example informal knowledge sharing flexibility, which is the corporate flexibility that allows workers to chat with other workers at the coffee machine without worrying. Recent studies show that workers spend 20% of their working time searching for information that is already existent in the organization. By giving employees informal knowledge sharing flexibility you can reduce this time significantly, **encourage** your employees to participate actively in the knowledge management, you safe a lot of money and your company becomes more competitive.

The workers need to be motivated and encouraged to create **informal networks** and to develop informal knowledge sharing attitudes. Interviews with representatives of large organizations show that probably **less than 1%** of all innovations are created in real formal meetings. Ever walked out a meeting and thought "nice we just invented this new product in this meeting"? Probably not, because this is not how innovations happen. Innovations happen in people networking and sharing the knowledge informally. **99% of innovations happen informally**. Meetings are a quality control tool.

Of course, you also need to pay your workers well, but there are other aspects important to create a good knowledge management atmosphere. The workers must feel **appreciation** and a form of **acknowledgement** for their contribution. This is the one of the most important things to keep in mind when wanting to implement knowledge management.

Bad Example: Knowledge Management attempts at Energy solutions

The company Energy solutions is active in the sector of consulting businesses from the energy industry. For every client the company is making a pitch presentation with individual propositions for solving the company's biggest problems.

The owner-manager realizes that some presentations contain good ideas that can be used for other presentations as well, if the respective presentation would be available for all employees. Then the employees would be able to browse through all the previous presentations and benefit from the numerous brilliant ideas their colleagues already had.

The owner-manager decides to give a cash premium for each uploaded to the knowledge cloud portal.

As a result, a lot of garbage landed on this knowledge cloud portal. The knowledge cloud portal was completely useless as people uploaded just for the sake of it to get a couple of euros. There were so many files with so little information that nobody could get an overview of the contents. There was no quality control.

It is not the actual money or the actual reward that makes people participate in knowledge management, it is the praise, the acknowledgement and the appreciation of people contributing and sharing knowledge. Maybe the lack of people able to lead this way is the reason why a really consistent and functioning knowledge management is so rare in today's economy.

Mentoring Program

A recommended way to promote informal networks is a mentoring program. A mentoring program is a program, where older and/or more experienced workers (mentors) train younger and/or less

experienced workers (mentees). Each mentee gets a mentor assigned, who will guide him for a defined timeframe. Mentoring programs are a good way to pass on knowledge to colleagues and successors and at the same time it is motivating experienced employees.

- ➔ Use mentoring programs to accelerate the learning curve of new employees. Mentoring is a good motivator for younger **and** older employees. It also promotes a more pleasant work environment.
- ➔ Define clear guidelines for the mentoring program. This includes goals, time frame, locations, meeting points, communication channels, the individual expectations of mentor and mentee, and the limits of the mentoring program.
- ➔ Especially owner-managers can participate in mentoring programs. A possible realization of this approach is an excessive training of the potential successor or key employees, before the owner-manager leaves the company.

Example: Mentoring program at BUILDIT

The company BUILDIT is active in the sector of construction. They make the site work and clear and grade the land. They also lay the foundation of the house, frame up the walls, and install the trusses. The company is only serving private clients and quite small, as the owner-manager employs 5 workers. Now, within one year the owner-manager is retiring, at the same time as one of the most experienced workers as well. One year before they leave the owner-manager decides to start a mentoring program.

The owner-manager finds a successor and trains him as his mentee. The owner-manager introduces his successor to all his clients and suppliers, he explains him the particularities of his company, thus preparing him well for taking over.

As there is a lot of work the owner-manager and his successor decide to hire 3 new workers instead of just one replacement. They decide to extend the mentoring program to their employees and assign the retiring and two other experienced workers the three new workers as mentees.

The results were phenomenal. Before the owner-manager was always doing the training of new workers and it took a long time. Now the experiences workers are doing it on the job, without decreasing their productivity. Furthermore, the experienced workers are happy, they feel acknowledged for their skills and as a side effect an excellent atmosphere arose.

Expert Knowledge

Expert knowledge is a separate point, as it is not referring to experienced workers with good knowledge, we know from the mentoring program. Expert knowledge refers to knowledge, which is essential for the functioning of the company, and which is obtained only by a very few or even only one person in your company. First, you need to identify expert knowledge and the workers who have this expert knowledge. This expert knowledge might be very valuable.

Example: Boris the expert

Boris is working in the sales department of your company. His task is to identify new sales leads and pass them to the senior sales executives and their teams. One year ago 3 people were working simultaneously at this position, but now Boris is the only one. He can generate sufficient sales leads for all senior sales executives alone. Boris is able to do this, because he developed a

system. He discovered that by comparing market prices of different goods he can identify numerous potential sales leads at a fast pace.

For an owner-manager the task is to identify employees like Boris, an employee like Boris is both for a company, a curse and a blessing. He is a blessing, because:

- ➔ He is very efficient and good in doing his job.
- ➔ He is innovative as he developed a new tool on the job.
- ➔ He is saving you money as two extra workers are not necessary anymore.

But he is also a curse because:

- ➔ Your entire company depends on Boris, finding enough sales leads.
- ➔ He is the only one who knows how the system of comparing market prices works.

So, why do you need to take action against the negative effects of expert knowledge? The reason for this is the reduction of dependency and uncertainty. There might be the case that Boris becomes sick tomorrow for a longer time. There is also the possibility that your competitors heard about Boris and his good work and offer him a better job, so tomorrow he come into your office and quits the job. You don't want to get into this situation, so you need to take measures to protect your company from situations like these.

You need to make sure that the expert knowledge is widely spread within your company, so that at least one, better two of your other workers gets to know this expert knowledge as well and can assume the other persons tasks. This can be done by a mentoring program, as described before. By assigning these experts (mentors) their trainees (mentees) the **individual expert knowledge becomes collective expert knowledge**, widely available in the company. There are some effects even supporting this action. The expert will feel acknowledged for his work and the development of deeper expert knowledge. The newly trained worker feels more important and valuable, after learning the expert knowledge. This also shows the other workers that there is a culture of creating, sharing and applying knowledge.

The overall objective is to transform individual expert knowledge to collective or organizational expert knowledge. It should not be a problem for the company to loose a worker, have a long-term sick worker or have workers on maternity-leave.

Internal Communication

The role of internal communication is critical, when talking about knowledge management. Especially for the creation informal networks and for the development of informal knowledge sharing attitudes. It is recommended for the owner-manager to clearly and continuously promote the company's strategy and vision. The owner-manager is also a important role model for the workers. His attitude and behaviours define how employees see their job and how they work. A knowledge management implementation is only with the clear and continuous support and encouragement from the owner-manager achievable.

An internal communication plan can summarize the different means of communication in a comprehensive way. This allows the organization to identify what messages need to be communicated and when to communicate them to achieve the maximum worker acceptance. Four overall goals to keep in mind when developing a communication plan:

1) To provide workers across your company with detailed information about the benefits of knowledge management.
2) Manage the workers expectations regarding the implementation of the knowledge management system and explain its possible impacts.
3) Identify and quickly address your workers concerns regarding the knowledge management system implementation.
4) Show that the management is sufficiently supporting the knowledge management initiative.

A better internal communication focuses on the workers and improves the communication channels, the communication quality and the communication means. The advantages of a better internal communication are a better understanding of the shared values and the facilitation of the communication of behaviours, habits and feelings to promote a sense of belonging and ultimately increase motivation.

There are some small actions one can undertake to promote better internal communication:

- ➔ First find out the worker's needs, use an anonymous survey for example.
- ➔ Introduce breakfasts for the workers with **random seat orders**, so the workers talk to different colleagues from different areas each time. Also, directors can report on the current business situation, projects, personal changes, internal and external problems and expectations for the future.
- ➔ Use supporting media to better promote knowledge management. Appropriate forms are PowerPoint presentations, memos, videos, newsletter, the intranet, a wiki or print materials.
- ➔ Make sure that this information is accessible for **all** employees and closely listen to their opinions.

Further Tips

- *It is important that the owner-manager shows commitment and interest*
- *Focus on the quality of communication*
- *Listen actively*
- *Use technology to improve the internal communication*
- *Don't assume that verbal communication is easily implemented, just because your company is small. Workers need a structure and parameters to communicate without fear of consequences.*

Processes

Another important focus in knowledge management lies on the organizational processes. For a successful implementation of knowledge management practices, the processes need to be right. By processes, the way a company deals with different project outcomes, success and failure is meant.

Example: MechanicalEngineering

MechanicalEngineering is active in the engineering sector, mostly in the area of analysing, evaluating and planning potential new wind farms. They send teams of engineers to their costumers after a phase of on-site work the team returns to the corporate headquarter to finish the report. Last year the company accomplished 20 projects, of which 17 were financially successful and 3 were not successful.

MechanicalEngineering decides to introduce an internal evaluation phase after the completion of each project, whether successful or not. A skilled team is taking notes of these evaluations and analyses the processes that took place.

After the evaluation of 10 projects of which two failed Lucas, a member of the evaluation team, says to the boss: "I think I found a pattern, all project managers from the successful projects highlighted the close communication with the customers head of engineering, but the two projects that failed didn't mention him. After some more digging the team identified that in the two failed projects the infrequent communication with the head of engineering resulted in a critical time delay in the application process for new wind farms and trigged the project's failure.

This short example demonstrates the need to learn from previously conducted projects. It is important to understand that workers can learn from both, successful and unsuccessful projects. In fact, they need to learn from both, and the organization needs processes to actually capture:

- ➔ What went into the project?
- ➔ What happened during the project?
- ➔ In which way were things done during this project?
- ➔ Which were the outcomes?
- ➔ Was the project effective and were resources used efficiently?
- ➔ etc.

The key task for an organization is to build the processes from which knowledge can be created and consequently, the workers shouldn't repeat the same mistakes again and again. It also fosters workers do good things that they learned from previously done good things. A great aid for implementing these processes is the tool "Lessons Learned".

Tool: Lessons Learned

The tool "Lessons Learned" can help your workers to learn. The tool is based on documentation of knowledge, that takes place shortly after a new activity generated new knowledge. The people involved can compare what was expected and what was the result of the activity. This helps to better determine if an activity was successful or not. Ultimately the knowledge is kept in your company.

This tool also promotes self-reflection of your workers after each activity. It shows what was good, what was bad and what needs to be improved. Your processes become more effective, use less resources and less time. This results in a reduction of costs.

You can also involve other employees for additional input. The overall process should include these points:

1) Meeting with all team members and inform them about "Lessons Learned"

2) Implement a "Lessons Learned" meeting after each project or critical event

3) Assign an instructor, who is not the project leader, as he tends to dominate the communication.

Lessons Learned is not one evaluation, it is a ***consistent process of learning****.*

Idea Competition

Another attractive instrument in knowledge management are idea competitions. If you are struggling with decreasing sales, an intense competition that is ahead and you feel not innovative enough this tool can help to solve your problems. Its basic idea is that people can submit their new ideas, one or more ideas win, and the winning idea gets a reward. New ideas can come from employees, clients or suppliers, the more people engaged the better for your company. Idea competitions work in a 8-step process:

1) Consultation with experts to design the competition
2) Selection of judges
3) Name an instructor that organizes the competition
4) Define the duration and the price of the competition
5) Set rules, elaborate the structure and define criteria
6) Announce the idea competition to all potential partners
7) The judges evaluate the ideas and decide on a winner, based on the defined criteria
8) Organize and conduct a ceremony for all participants and the winner

Before the challenge it has to be clear to all participants to understand the necessities of the customer, for who they will create the ideas. A clear goal must be set, and a good and respected manager should be the instructor. This shows the importance of the idea competition for the company and the owner-manager.

Conduct further Training[8]

Preface

The pedagogic content of the concept is perfectly applicable to the DIG-CON teachers to conduct further training, since it targeted in green economy, digitalization and entrepreneurship. The European Green Deal will transform the EU into a modern, resource-efficient and competitive economy (https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en).

European Digital strategy and the Path to the Digital Decade give grounds to companies to achieve strategic targets by 2030, i.e. empower businesses and people in a human-centred, sustainable and more prosperous digital future. Digital transformation of businesses aims to increase the use of Cloud, Artificial Intelligence and Big Data to 75% of all European companies, and to 90% of SMEs to reach at least a basic level of digital intensity. (https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age_en). This also means that in the near future training is, at least partly, based on the use of digital solutions.

[8] Dr. Sirpa Sandelin, Satakunta University, Pori 2020

Because of this development trend, a new chapter (Chapter 4) on digital training and learning tools has been included to the train the trainer pedagogy.

Principles of effective teaching

The first part of the pedagogy deals with effective teaching. It deals with pedagogical approaches, presentation skills, attitude awareness, motivation and engagement (i.e. involvement of participants) and evaluation issues. There are several links to different kind of document, reports and videos about how to improve the training sessions.

Learning involves acquiring new knowledge, skills and attitudes that result in change in participants' ability to do something, i.e., the components in learning process include knowledge acquisition, thinking for understanding and doing in practice.

What makes the training program successful?

The purpose of this training program is to impart knowledge of principles of effective teaching and effective training techniques and their application in SMEs. Participants may have worked with something like resource efficiency, material efficiency, resource or material saving, environmentally friendly technology before, so they have a solid background on which to build. When is the training successful? To achieve the success criteria the training should have a clear agenda of the topic to be covered, well defined target group, have enough time to the planning, have well defined program specific learning outcomes, have teachers, instructors or presenters who are familiar with the topic, involve participants, have organizational support systems for the very first steps of the training, use quality measurement system (based on evaluations, feed-back analysis), etc. The list is long and demanding and organizing training program may be a real challenge.

One of the key success factors is the trainer, mentor, coach or instructor, no matter which is applicable to the train the trainer sessions. Bwika (see link below) has identified the following attributes of a good instructor:

- Competence in subject matter
- Mastery of the techniques of instruction and evaluation
- Desire to teach
- Resourcefulness and creativeness
- Attentiveness to trainee needs
- Management techniques in classrooms
- Professional attitude
- Ability to develop good personal relations

Further information:

- Handouts 6. Qualities of a good instructor http://www.nzdl.org/gsdlmod?e=d-00000-00---off-0cdl--00-0----0-10-0---0---0direct-10---4-------0-0l--11-en-50---20-about---00-0-1-00-0--4----0-0-11-10-0utfZz-8-10&cl=CL2.20&d=HASH0106087b55a6cce0f9ea881f.7.6.1&gt=1

Training Process

Training course design and organization includes several phases. The training design models ADDIE consists of five phases, ie. analysis, design, development, implementation and evaluation. Analysis deals with analysis, where the need for the training is studied in detail. In the designing phase the training program is outlined and planned. In the development phase the training is rolled out to the field in the form stipulated in the design phase. The final phase evaluation concludes the process and measures how effective the training program was at achieving its goals. The detailed information with examples can be found from the page The ADDIE Model Infographic https://elearninginfographics.com/the-addie-model-infographic/.

Further information:

- Module 6: Planning training of trainers workshops https://watsanmissionassistant.org/wp-content/uploads/2018/10/module-6-planning-tot-workshops.pdf
- Train the trainers https://sswm.info/perspective/train-trainers, see material under Sections

Training session should respond to the participants learning styles. In general, there are three types of leaners:

- Visual: These learners receive information best through seeing or reading it. This type of learners benefits from written instructions, diagrams, handouts, overheads, videos, and other visual information.
- Oral: Oral learners receive information best when they hear it. They respond best to speakers, audio conferences, discussion groups, etc.
- Kinesthetic: These learners learn by touch and feel. They respond well to demonstrations and in having the chance to practice themselves.

Trainees are individuals. Sometimes trainers may encounter themselves in a demanding position with difficult participants. Table 1. gives some strategies to cope with difficult participants.

Table 1. Ways to survive with difficult participants (Swan and Morgan 1993, sited in Assistive Technology Trainer's handbook, https://www.natenetwork.org/wp-content/uploads/at-trainers-handbook.pdf, p. 86-87)

Behavior	Possible reasons	Strategies for presenters
The aggressor		
Confrontational, challenging and unpredictable. May include direct confrontation or constant "supportive" criticism of present ideas.	Need to win. Desire to be the leader. Need to control the group or the outcome of the training.	Remain calm – do not engage in the confrontation. Ask for explanation and clarification of concerns. Seek feedback from other participants. Redirect the conversation back to content.

		Model ways to permit differences of opinion to stand. Use humor. Be friendly and relaxed. As a last resort, discuss the behavior in private during a break.
The isolate		
Does not participate or frequently leaves the session for other activities such as phone calls.	Anxious about speaking. Unsure of own knowledge. Unwilling to commit to the work. Insecure about working with others. May not want to be in the workshop. May have pressing needs than the content of the training.	Ask questions that require yes, no or very short answers to get things started. Offer activities for pairs or very small groups. Assign each person in the workshop specific task to be reviewed by the presenter or other participants. Ask questions that are about the isolate's areas of expertise or strengths. Work with the person one-to-one or ask about the reasons for non-participation.
The negative		
Responds negatively to any new idea or task. Refuses to try new ideas or to consider them.	Poor self-concept. Lack of faith in ability to do the work. Has been required to attend the training.	Stay positive. State your perceptions of the situation in positive ways. Do not argue. Do not problem solve for the person. Brainstorm with the large group about ways to address the negative aspects that person identifies. "What would it take..." Ask the group to reserve judgement until the end.

		Ask what part of the topic could be adopted.
The monopolize		
Talks for long periods. Interrupts others. Repeats concerns frequently. Tries to speak first. Does not listen.	Insecure about participation. Insecure about own knowledge base. Need for attention. Need for approval from the presenter or the group. May be naturally talkative. May desire to be in charge of the outcome.	Odder activities that require turn taking and multiple speakers. Offer activities that require each person to respond or pass. Encourage participants to offer feedback to each other rather than in the large group. Provide a time limit for comments and questions that everyone in the group must abide by.
The expert		
Says that s/he already knows the content. Talks a lot. Volunteers to help the presenter. May offer incorrect facts.	Seeking respect and acknowledgement from other participants. Seeking approval or connection with the presenter.	Ensure opportunities with others. Spend a break or part of a lunch with the person.

Further information:

- Guide for Training in SMEs is available in several languages https://op.europa.eu/en/publication-detail/-/publication/1020b85f-dcc4-4c80-8d6e-65f4617aa3cd
- ADDIE overview http://www.mass-service.org/sites/default/files/A11%20ADDIE%20Presentation%20Materials.pdf

Presentation skills

Lectures

When planning a training session, trainers should pay attention to what trainees remember from it. Estimated learning takes place:

- 10 % of what they read
- 20 % of what they hear
- 30 % of what they see
- 40 - 50 % of what they see and hear
- 50 % of what they discuss

- 70 % of what they experience
- 90 % of what they say as they do

Trainers should engage participants in thinking, questioning, and experiencing themselves. Thus, trainers should not speak all the time alone, because effectiveness of learning decreases very soon, if participants are not integrated in the training.

Icebreakers

In the beginning of the session, it is important to get participants involved and engaged in an activity that requires them to talk and cooperate with the others. Icebreakers are the simple activities used at the beginning of a session to help participants learn each other's names and/or backgrounds, share their experiences, or introduce the topic of the lecture. The right icebreaker can help to get a positive and enjoyable learning experience for both the trainer and the participants. During the icebreakers participants should connect with at least one other person. Icebreakers should be topic related and at low risk so that participants would feel comfortable and easy. Time used for icebreakers should not be too long compared to the length of the session.

Further information:

- The Assistive Technology Trainer's Handbook is a toolkit for assistive technology training, and it offers wide range of information related to the training sessions, for example icebreakers, presentations, brainstorming etc. https://www.natenetwork.org/wp-content/uploads/at-trainers-handbook.pdf
- Creative Icebreakers, Introductions, and Hellos for Teachers, Trainers, and Facilitators – manual has 15 ideas for icebreaking in the beginning of trainer's session. http://www.businesstrainingworks.com/training-resources/free-icebreakers

Presentations

The presentation (e.g. PowerPoint™ or Prezi (Prezi.com)) is used to support the content of the training and thus it should be clear and easy to read. The presentation is designed to be a visual support for both the trainer and the participants.

- Assistive Technology Trainer's Handbook https://www.natenetwork.org/wp-content/uploads/at-trainers-handbook.pdf
- Presentation Skills Training Resources and Articles http://www.businesstrainingworks.com/training-resources/presentation-skills-articles
  How to create effective training materials https://www.hpandt.com/howtocreateeffectivetrainingmanuals.pdf

Figures, Tables and Videos

In order to improve the attractiveness of the lecture and the presentation it would be advisable to include figures or tables or videos into the presentation/ the lecture. Figures and tables illustrate

the situations well and thus make it easier for the participants to assimilate the gained information. Presentations of success stories and case studies can be also included to this section. Internet and Youtube offer good opportunity for researching suitable videos.

Further information:

- This toolkit is a training programme which can be delivered by experienced trainers / facilitators, with expert knowledge and skills in facilitating. http://www.knowledge.scot.nhs.uk/media/6866097/trainthetrainers__final_.pdf
- Free training resources https://www.trainingcoursematerial.com/free-training-resources

Attitude awareness, motivation and engagement

According to the BJ Fogg Behavior Model, people take action when their motivation and ability to complete a task are both high and there is a triggering element (Figure 1). Behavioral changes will be expected during training if all three elements are present at the same time.

The model highlights three principal elements and their subcomponents:

- Core Motivators (Motivation): pleasure/pain, hope/fair, social acceptance/rejection; sensation, anticipation, belonging
- Simplicity Factors (Ability): time, money, physical effort, brain cycles, social deviance, non-routine
- Triggers: facilitator, spark, signal

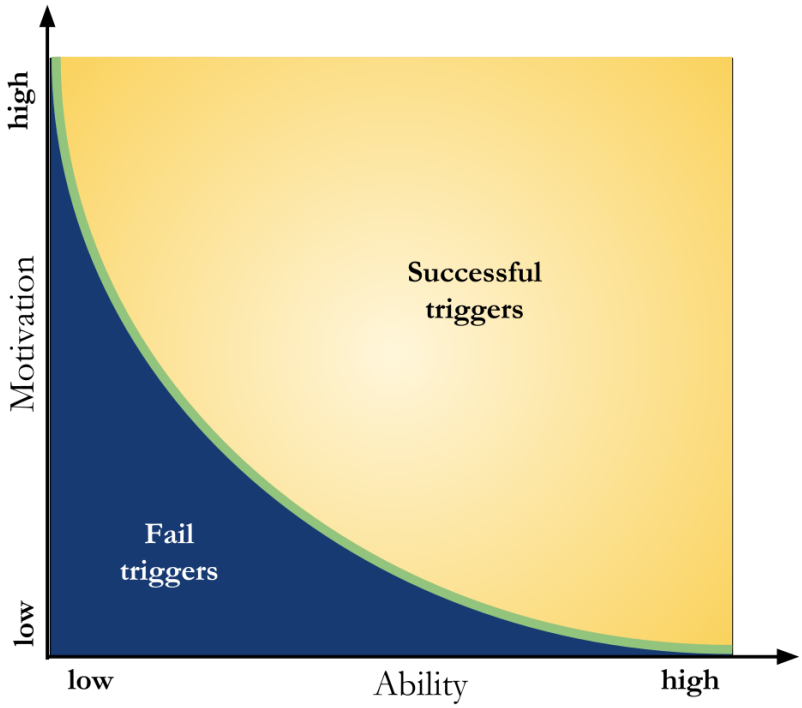


Figure 3. The BJ Fogg Behavior Model (According to Goodmanguy - Own work, CC BY-SA 4.0, https://commons.wikimedia.org/w/index.php?curid=58335488).

In the planning and implementing training sessions trainers have to create and keep the high motivation level, give skills to do things easier, and give something that calls to action. Training should give a positive learning experience and a feeling of a victory.

Attitude can be dealt in different ways during the training. Depending on what type of attitude question we have the solution of influencing into the attitude is somewhat different. Is there a need for attitudinal change, future oriented attitude, more positive attitude or an attitude that can see the comparative advantages? The training course objective should be created in a way that it emphasizes the nature of attitude change. Change should be seen both in participants' own attitude and in the attitude in SMEs to gain comparative advantages. Also, the importance of the concept in a global scale should be emphasized.

Effective training and learning relay on motivation. Trainers face challenges in making the lectures more interesting and motivating. Unfortunately, there is no single answer how to motivate participants. Trainers are advised to accommodate different learning styles, like visual, oral, or kinesthetic, during their training sessions.

When implementing the training program trainers should consider how they can translate theory into practice. Experimental learning is very powerful when trainers can combine participants' own experiences with the training program contents.

There are a range of exercises the trainer can effectively use in order to involve in the participants as much as possible to the learning process. The best way for adults to learn is when the new course material is based on their experiences, but when there is also left space for the debate among the participants. Many participants are experienced personnel who have valuable information to contribute. There are varieties of training methods and together they can give the possibility for a multifaceted understanding of the course material.

One way to activate trainees is to include storytelling in the training sessions. Stories may make communication easier and insert personal touches in the sessions. Stories can be used as examples of right and wrong ways to perform tasks or skills. They could be used to activate participants to find different views on the topic. Trainers should also give floor to the participants' own stories.

There are several ways trainers can use to engage your audience throughout the training sessions:

- interesting materials, which will be used after the training, too
- pair or group discussions, involve participants in one way or another
- case studies and examples from real life situations
- role plays are excellent for example in supervisory, mentoring or coaching situations
- demonstrations, videos, material samples, process simulations, etc,

Further information:

- Training methods: a review and analysis https://www.researchgate.net/publication/274980945_Training_Methods_A_Review_and_Analysis

- The Trainer's Survival Guide has 25 different activities that make lecture-based programmers more active. They can be used during the training session and they have tips for the trainer to get participants involved. http://www.leotrainer.com/tactiveteach.pdf
- 10 Storytelling Tips for Powerful Messages in ONE hour https://ec.europa.eu/regional_policy/sources/informing/events/2511-virtual/melissa_rancourt_inio_meeting.pdf

Evaluation

Evaluation of the effectiveness of the training is important task. After the theory session trainers or organizers can collect feedback with questionnaires which participants can fill in onsite. Allow enough time for completing the forms and allow also time to discuss what participants have learnt and how they are going to use that knowledge. The subject of the evaluation is

the course itself with all the topics and gained knowledge

the framework conditions out of the course: lecturers, organization, materials etc.

Based on the evaluation results, trainer can reveal the whole training outcomes against the expected outcomes, find out eventual weaknesses and get information about new aspects to be incorporated into the program.

For the "Train the Trainer program for teachers to conduct further training" evaluation forms will be created and distributed during the training sessions.

Further information:

- Training Course: Evaluation of Adult Education and Training Activities, Course Structure and Contents http://www.demalproject.eu/documents/O2_EVA_EN_181130.pdf
- Training evaluation https://sswm.info/train-trainers/post-training-activities/training-evaluation

Effective training techniques

The second part of the pedagogy deals with mentoring and coaching, spreading best practices, learning from the worst cases, effective questioning and appreciative inquiry, and creativity and innovations. There are several links to different kind of document, reports and videos about how to improve the training sessions. The further information links and other sources have been accessed 26.9.2021.

Learning involves acquiring new knowledge, skills and attitudes that result in change in participants' ability to do something, i.e. in this Train the Trainer programme the ability to apply effective training methods. The components in learning process include knowledge acquisition, thinking for understanding and doing in practice.

Group work and brain storming

Group works can be applied in learning if the trainer wants participants to deal about the issue by debating and discussing. Group work in small groups gives all participants the opportunity to participate in the exercises and thus express their ideas. In order to get the best out of the group

works would be good to get them goal oriented. The participants should understand the task of the group work at hand, the timeframe and the way of presenting the results.

In brainstorming the trainer asks an open-ended question and the participants come up with as many solutions as possible. The idea of brainstorming is to get participants involved and engaged in the training. Brainstorming should be based on few rules in order to get the best results. Example of the rule could be that there are no stupid or bad ideas.

Further information:

- Trainer's Handbook, Assistive Technology Trainer's handbook https://www.natenetwork.org/wp-content/uploads/at-trainers-handbook.pdf
- MindTool Brainstorming http://www.mindtools.com/brainstm.html

Mentoring and coaching

The EMCC glossary gives the following definition to coaching and mentoring: "It is a professionally guided process that inspires clients to maximize their personal and professional potential. It is a structured, purposeful and transformational process, helping clients to see and test alternative ways for improvement of competence, decision making and enhancement of quality of life. Coach and Mentor and client work together in a partnering relationship on strictly confidential terms. In this relationship, clients are experts on the content & decision making level; the coach & mentor is an expert in professionally guiding the process".

https://emccdrive.emccglobal.org/api/file/download/uKy7MLlofV6NoR4grJpySLZNGpbYoGntuZSeu9zf)

Mentoring can be described as partnership between two people working in a same field or sharing same experiences. A mentor is a person helping the mentee to develop solutions to career related issues. Mentors should be helpful and get the mentee to believe in him/her while boosting his/her confidence. A good mentor also challenges and questions mentee, but in the meantime provides guidance and encouragement. The most important meanings of mentoring are to enable others to become more self-aware, to make them take responsible for their life and to direct their life in the direction they decide.

Coaching focuses on the individual needs of a person and is generally less formal than other kinds of training. A manager, supervisor, or other employees serve usually as the coach. The coach works with the employee being coached when time allows and works with this employee to answer questions, make suggestions, leads to right track, and gives support and feedback. The differences between coaching and mentoring are shown in Table 2.

Table 2. Differences between coaching and mentoring (https://www.usgs.gov/media/files/coaching-vs-mentoring-25-ways-theyre-different).

Coaching	**Mentoring**
Task oriented	Relationship oriented
Short term	Long Term
Performance driven	Development driven
Can be done as needed; no design necessary	Program design needed to create effective program

Manager directly involved	Manager involved only indirectly
More easily evaluated and measured for ROI	Less easy to measure for ROI
Reliance on performance management systems, e.g. reviews, 360's etc.	Not dependent upon performance management systems
Feedback by coach to manager about progress in development	No feedback by mentor to manager
Coach paid for services	Mentor receives no compensation
Coach operates independently	Mentors operate with assistance from the Mentoring Program Manager
No training of coaches needed	Mentors and mentees trained
Focus is more on business issues than personal	Focus is on personal and professional development
Lower initial investment cost	Higher initial investment cost (lower over time)
Lends itself to online software	Management of the mentoring program lends itself to software but not the relationship itself
Coaches leave organization when done	Mentors and mentees remain in the organization and can provide ongoing mentoring to others
Done by inside or outside content expert	Mentors are normally within the company
Can be done for remedial purposes	Never remedial
Internal politics not usually affected	Internal politics a consideration in program design
Cultural change may/may not occur	Mentoring is transformational and affects the culture
Diversity may or may not be included	Diversity is a component of mentoring
Coaching done 1-on-1	Mentoring most often is done 1-on-1 but other models may be used as well
Content expertise more important in coaching	Interpersonal skills more important in mentoring
Manager can be coach of own employee	Mentor is outside mentee's direct supervisory line
Coaching is one-directional	Mentoring is bi-directional
Coaching is focused on the business person	Mentoring involves the whole person
Behavioral transformation	Personal transformation

Further information:

- Information on business mentoring, successful mentorship and the benefits of mentoring can be found from the Website https://www.micromentor.org/

- Videos: http://mentoring-works.com/resources/videos/

Effective questioning and appreciative inquiry

Learning can be promoted by effective questions. By questions trainers can motivate participants, keep their interest on the key issues, and engage them in the learning process. Questions can also be seen as means of fostering knowledge sharing and creation among participants. Should you be worried if participants do not have questions? Yes, you should. In the beginning of the session's trainer should encourage participants to ask questions. There are no silly questions. If there are no questions from the audience, pose them a question. If you do not know the answer, ask help from the participants. Someone from the audience might know the answer. Of course, you can always give links to Internet sites with further information.

In the SMEs problems can be solved by using the 4D-model or 5D-model. The four common phases are:

- Define: you have to know the current situation and it's positive aspects
- Discovery: analyze what works well currently
- Dream: dream vision of what is the bright future, brainstorm creative and innovative ideas
- Design: build the dream, plan systems, processes, and strategies

The fifth phase in the 5D-model is (Figure 2):

- Deliver, which is the implementation towards the dream.

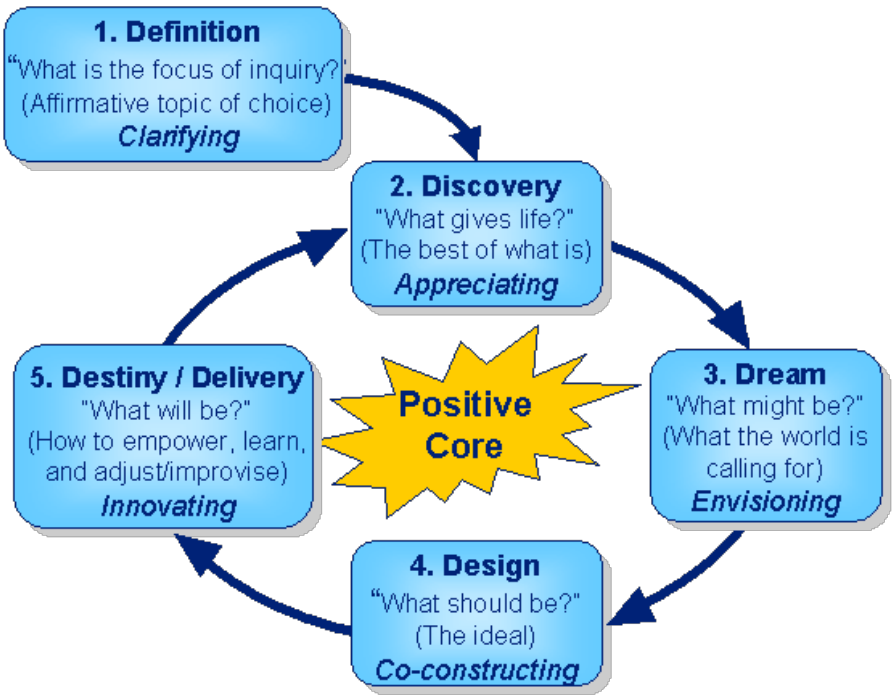


Figure 4. The 5-D Cycle of Appreciative Inquiry

http://www.metavolution.com/rsrc/articles/whatis_ai.htm

Further information:

- MindTools Appreciative inquiry http://www.mindtools.com/pages/article/newTMC_85.htm
- Center for Appreciative Inquiry http://www.centerforappreciativeinquiry.net/

Best practices and worst cases in knowledge creation and sharing

Best practices can be defined as "practices that consistently show results superior to those achieved with other means". (European Commission report on best practices p.17) Best practice examples can be used as a support and example during the training session. Good examples can be asked from participants.

Further information:

- Small Business Act - Database of good practices https://ec.europa.eu/growth/tools-databases/sme-best-practices/SBA/index.cfm?fuseaction=welcome.detail
- Enterprise Europe Network, Success stories https://een.ec.europa.eu/success-stories

Worst cases can be defined as ": involving, projecting, or providing for the worst possible circumstances or outcome of a given situation" (https://www.merriam-webster.com/dictionary/worst-case). During the training session worst cases can be helpful to the participants in order to help their planning of the future expenditure cuts and contingency in their businesses. Unfortunately, examples from the worst cases are not easily found.

Experiences from a real working life and companies should be included in the training programmes. During group activities possible solutions for the acute changes could be developed.

Further information:

- Foresight methodology: https://www.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1553867970.pdf

Creativity and innovations

Creativity and innovations are closely related to the productivity in SMEs. European Commission promotes innovations in SMEs, like technological breakthroughs, new processes and business models, non-technological innovations and innovations in the services sector. Creativity, use of new knowledge and capturing tacit knowledge will strengthen productivity of SMEs. When knowledge is transferred effectively, new product, process and service innovations have a change to be invented.

Further information:

- European small business portal has gathered together all the information provided by the EU for SMEs, ranging from practical advice to policy issues. http://ec.europa.eu/small-business/index_en.htm
- European Commission, Innovations http://ec.europa.eu/growth/industry/innovation/index_en.htm

- MindTools Creativity tools http://www.mindtools.com/pages/main/newMN_CT.htm

Digital training and learning tools

Technology plays a fundamental role in the processes of train the trainer education and learning. Digital training and learning tools can be used in several ways to support the teaching and learning process. The number of digital tools available is huge, so only a couple of the main type of applications will be presented. The role of these tools is to give autonomy to the trainee and encourage trainees to collaborate with other trainees and facilitate communication with the trainer and trainees. Digital tools can be used in multiple ways via mobile devices. With train the trainer process technology will give much wider ways to conduct training sessions, to be integrated as supplement tools in face-to-face teaching or to support mentoring or coaching process either online or offline.

Pedagogy in digital environments

When utilizing digital training and learning tools, the pedagogical approach has to be rethought. All three forms of knowledge, i.e. content, pedagogy, and technology, have to be considered simultaneously in unique contexts as shown in Figure 3. Since train the trainer courses differ from the level of trainees, the cultures and lecturers, each course is unique. Traditional training events are unique too, but the complexity of training with digital tools brings more pedagogical challenges. Transition to the use of digital training and learning tools means much more than just transfer of materials and activities to the digital environment.

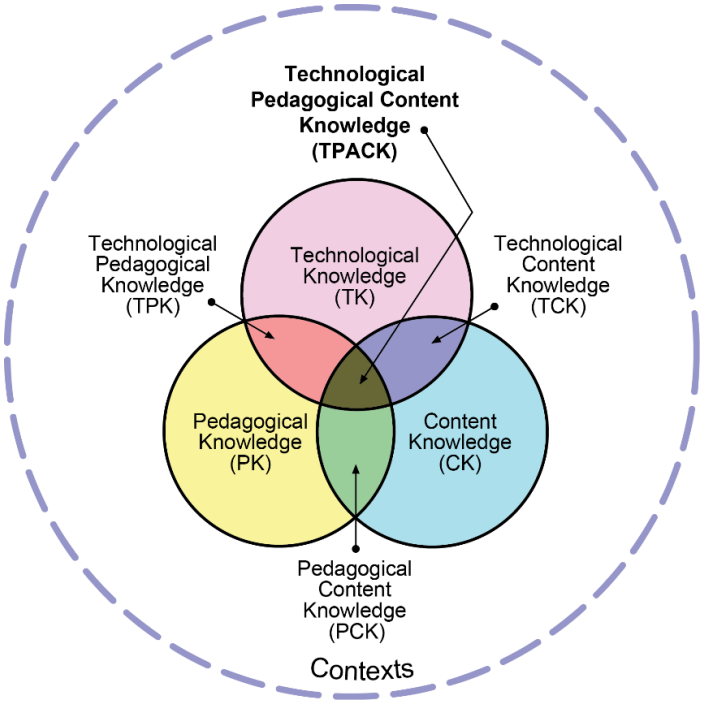


Figure 5. Components of TPACK (© 2012 by tpack.org, http://tpack.org).

Examples of learning platforms and tools

Some of the learning platforms and tools are shortly presented here. Tools enable not only online video meeting, but also managing daily tasks and storing documents in cloud services. Tools work as well as well on mobile devices and desktops or laptops. The following platforms and tools are

only examples from different kinds of applications, and more free and fee paid versions and applications are in the Internet.

Moodle is an open source learning management system (https://moodle.org/?lang=fi).

The platform works in several languages.

Hubs for meetings and conferencing, chatting and collaborations are i.e. Microsoft **Teams** (https://www.microsoft.com/en-us/microsoft-teams/group-chat-software) and **ZOOM** (https://zoom.us/).

Collaborative tools offer versatile visualization tools for collaborative knowledge building. Visual thinking tools are applicable in various business and training cases, such as project planning, meeting management, brainstorming, idea management, knowledge management, and note taking. Participants can simultaneously create content and new ideas or create mind maps. Some examples of collaborative tools are Flinga whiteboard (http://www.nordtouch.fi/, Miro (https://miro.com/) and Padlet (https://padlet.com).

Kahoot! is a game-based learning platform for creating, sharing and playing learning games or trivia quizzes (https://kahoot.com/).

Online feedback can be collected by many different platforms. E.g. some of the collaborative tools enable anonymous input and can be modified to be used in collecting the feedback. More sophisticated tools, for example Google Forms and Microsoft Forms, enable conducting a survey and importing the results to the Excel or other spreadsheet program to be analyzed.

Tools that are particularly designed to collect feedback are for example SurveySparrow (https://surveysparrow.com/), GetFeedback (https://www.getfeedback.com/) and Gainsight PX (https://www.gainsight.com/) that is particularly designed to catch user feedback from digital platforms, applications and services.

Concerning the educational purposes there are several free web tools that can be used to gather feedback from students. Feedback can be both formally and informally. It is also possible to use these tools to poll students about a learning event, assess their level of comprehension, or simply to get to know their opinions about a certain topic. Some of these tools will be listed below:

- Poll Everywhere (http://www.polleverywhere.com/)
- Kwiqpoll (http://kwiqpoll.com/)
- TodaysMeet (http://todaysmeet.com/)
- SimpleMeet Me (http://www.simplemeet.me/#)
- Urtack (https://urtak.com/)

Each tool has its own properties and particular purpose it has been designed for. Thus, it could be a good idea to get known with several tools before choosing the one to be used just in the case on hands.

Further information:

- Digital pedagogy https://www.tuni.fi/tlc/en/planning-and-implementation-of-teaching/digital-pedagogics/

- Digital pedagogy toolkit https://www.jisc.ac.uk/full-guide/digital-pedagogy-toolkit#
- Hybrid pedagogy https://hybridpedagogy.org/
- Pedagogics in digital learning https://unips.fi/pedagogics-in-digital-learning/
- Automatic feedback in online learning environments: A systematic literature review https://www.sciencedirect.com/science/article/pii/S2666920X21000217

Guide and checklist for the implementation of vocational training

The example of a master craftsman training

Suggestions and recommendations	**Check**
A) Objectives of the training a) Providing skills to independently lead a company, to assume managerial tasks in the areas of technology, business administration, human resource management and development, to establish vocational training in companies and to independently make use of the acquired enhanced professional competence by autonomously adapting to new needs in the relevant areas. .... b) The master´s programme consists of four independent parts. Each part finishes with a separate examination and a professional title, reflecting the enhanced skills. Part A1: "Practical knowledge" – completion with the title "Recognised Technician". Obtaining crucial knowledge, abilities and skills to master and competently accomplish tasks of the respective profession and to identify and manage job-related challenges and solutions, by taking into account new developments. Part A2: "Subject-specific theory" – completion with the title "Technical Specialist". Acquiring necessary theoretical knowledge in the respective profession by imparting knowledge in the fields of technology, safety, process engineering, materials engineering, mathematics and economic knowledge to be able to analyse and assess challenges and to present, document and propose appropriate solutions for order processing and for the administration and organization of a company. Part B1: Business Administration – completion with the title "Business Administrator". Obtaining essential business and legal knowledge by situation-oriented introduction of comprehensive entrepreneurial competences - especially with regard to business, commercial and legal issues. Providing knowledge and skills for proper evaluation of companies´ competitiveness; preparing, implementing and evaluating of start-up and take-over activities and development of corporate management strategies. Part B2: Occupational pedagogics – completion with the title "Instructor". Obtaining necessary professional and work-pedagogical knowledge and the entitlement to conduct vocational training in companies. Transfer of knowledge and skills in the fields "significance" and "legal framework", training planning, recruitment of trainees, training in the workplace, promotion of learning processes, team building and completion of the training. .... c) The technician training consists of the following parts, which are concluded with a closed examination: Part A: General basics (not included in the master craftsman training) Part B: Subject-specific content (includes parts A1 and A2 of the master craftsman training and goes beyond that) Part C: Business Administration and Management (corresponds to Part B1 of the master craftsman training) Part D: Vocational and work pedagogy ((corresponds to part B2 of the master training)	....
B) Participants and target groups 1. Persons with completed vocational training (journeyman, skilled workers) of all trades	....

.....	
2. Persons without vocational training, but with long-term professional experience in their profession (at least five years)	.....
.....	
3. Potential start-up candidates	.....
.....	
4. Students and graduates in the relevant disciplines	.....
.....	
5. Temporarily unemployed persons with appropriate educational/vocational background who under a master´s or technician`s programme wish to improve their chances of obtaining work or to enhance their professional career.	.....
.....	
6. All persons who do not want to graduate from a master's or technician`s degree, but only want to pursue specific parts of the master´s or technician`s programme (particularly Part "Business administration" and Part "Occupational pedagogics") as advanced vocational training	
C) Notices and Information for participants Emphasizing that these are four independent training courses that a) can be completed separately and with a separate professional title. b) successful completion of all four parts "automatically" leads to a master degree.	.....
Recommendation to consider the completion of each individual part of the master's programme as an essential cornerstone of advanced education and – if the "master" title is pursued – recommendation to start with the parts B1 "Business Management" and B2 "Occupational pedagogics".	.....
.....	
Indicating target-group-specific significance, as well as the advantages and benefits from completing each individual training part as well as benefits from gaining the master or technician title, such as: • significant importance for the autonomous exercise of the chosen profession • very high success rates of business start-ups with completed training • great career opportunities to assume leadership functions • high attractiveness and personal image gains from the master or technician training • a master´s or technician`s degree is held in high regard by companies and customers, an excellent marketing element to underscore quality assurance by securing due qualification • outstanding significance of practical knowledge and skills in business administration, management and corporate governance • entitlement to conduct vocational training of young people, and thus decisive contribution to attracting qualified junior staff	

• pivotal importance of acquired occupational and work-pedagogical knowledge for personnel development and promotion, for team development and for increasing motivation in companies …… Information about the significance of the master's or technician`s education, reaching beyond just acquiring professional qualification, such as full entitlement to a university degree in some countries, classification in the Qualifications Framework at "bachelor´s" level. …… Special emphasis on a) cost estimation of the participants´ fees, e.g. not only indication of total cost but also cost per participant hour and; b) in particular, financial support and tax incentives. …… Repeated dissemination of information via various media channels – in writing and particularly active in face-to-face meetings, in form of individual consultations, at meetings, trainings, via consultants, etc.	………. ………. ……….
D) Recruiting participants Early and repeated announcement of courses on advanced education in professional journals, on websites, via newsletters, circulars, etc. …… Production of posters, hand-outs with invitations to advanced education training courses or related information on counselling events and information placement/introduction in educational establishments, chambers, universities, etc. …… Sending personal invitation letters with indication of date, including a reply sheet by mail and/or by e-mail; address at least 50 times the number of potential participants than the desired number of participants …… Repeated telephone follow-up activities to addressed potential participants …… Conducting press conferences/discussions and issuing press releases to achieve publications in the daily press. At least one press release shall be issued within the framework of the master or technician training testing and at least one press conference must be held (see E). …… Involvement of propagators (e.g. consultants, teachers, etc.), who approach potential participants in person to submit invitation letters …… Use every opportunity for personal contact to pass on information and to advice potential participants about your measures …… At least 15 (ideally 25) participants per training …… The parts A1 "Practical knowledge" and A2 "Subject-specific theory" in the master training or part B in the training of technicians are each occupation-related. In principle, in parts "Business administration" and "Occupational pedagogics", participants can be persons from all trades and business segments. Participants from various areas and trades will promote the exchange of experience among themselves.	………. ………. ………. ………. ………. ………. ……….

..... The advanced training courses can be conducted under a full-time scheme with daytime lessons or under a day-release scheme with evening lessons and at weekends. In order to meet all demands it is advisable to offer both forms of courses, according to the respective demand. Parts “Business administration“ and “Occupational pedagogics” are particularly suitable for a day-release scheme.	.....
E) Implementation of advanced training Assuring timely and binding reservation of training rooms and training workshops and securing an adequate equipment ..... Timely recruitment of lecturers and organising a complete teaching timetable for each respective complete advanced training block: a) At least one full-time lecturer shall be active in each educational block, a competent specialist on the respective advanced training topic or profession. b) Secondary qualified instructors who are generally particularly cost-effective. In addition to professional qualification and experience, pedagogic abilities and teaching experience are of paramount importance. If necessary, follow-up trainings and/or train-the-trainer seminars shall be conducted. For this purpose, specific concepts, curricula and teaching materials were developed for the “Master BSR” project which are available free of charge. ..... Timely preparation and provision of documents, materials, etc. for a) all teachers and staff; b) all participants. Provision in paper form as well as electronically (see internet platform). The following documents and materials have been designed and are available free of charge: • Analyses of the education and labour markets in the Baltic Sea Region • Concepts for conducting programmes in Denmark, Germany, Poland, Lithuania and Latvia • A concept for a uniform master's or technician`s programme for the BSR • Curricula and teaching materials for all parts of the master's and of the technician`s programme • Concept and documentation for the evaluation of all parts of the trainings • Examination regulations for all parts of the programmes • Concepts, curricula and teaching materials for a dedicated train-the-trainer seminar ..... For each continuing education – establishment and operation of an user-friendly Internet platform, including • setting all documents and materials for download • links to textbooks, etc. for self- study	....

• existing e-learning systems for each training course • announcement of appointments, classrooms etc. • complete addresses of all lecturers and contact persons • complete addresses of all participants for communication with one another • interesting information, such as the announcement of further events, current publications, important links, etc.	
F. Evaluation of advance training programmes Any advanced occupational educational measure is subject to evaluation in order to identify and implement further developments and improvements in future training programmes. For this purpose, at various times during implementation written and oral interviews with the participants and lecturers shall be conducted, together with an accompanying monitoring analysis. ..... The concepts, questionnaires, guides etc. developed are free of charge for all and any future use. ..... The advanced programme courses shall be first-class and cost-intensive to give the participants very significant added value. In this respect, it is advisable to follow on a random basis further career paths of individual graduates and to identify their benefits. The obtained results are ideal in terms of information and acquisition of new participants (see C and D).	....
G) Evaluating and conducting examinations The following procedures are required for the advanced programmes: • Grouping into level class 5 “Higher Vocational Training” or level class 6 “Bachelor and other comparable trainings and competences” within the Qualifications Framework. • Assessment of obtained competencies and skills with credit points (CPs). • Awarded CPs can be transferred across countries. • The completed advanced courses as well as the title are recognised across the Baltic Sea Region. .... Concepts for conducting examinations, including quality assurance measures, as well as uniform examination rules were designed. The documentation is available free of charge for all and any use. ..... In countries with a binding examination system in place, examination is subject to national law and thus leading to a “national degree title”. Further, an additional evaluation is to be carried out in these countries, based on the designed uniform examination regulations. In countries without any examination regulations in place, examinations are based on the designed uniform examination regulations. Examinations or additional evaluations based on the designed uniform examination regulations lead to the title “Master Baltic Sea Region” or “Technician Baltic Sea Region”.	....

Competences, knowledge and skills already acquired in other qualification measures that meet the trainings requirements, are recognized for the trainings and can lead to the exemption from examination of certain parts of the exam.	
H) Implementation report Within four weeks of completion, each implementing partner shall provide a conclusive execution report on the implemented advanced training measures, including a) short description of the implemented measures on informing and attracting new participants and copies of the produced information material, press releases, press reports, etc. b) short description of the implemented preparatory measures c) the number of participants in each training part d) covered trades and activity areas e) eventual participant dropouts, specifying their reasons f) very brief characterisation of the engaged teaching staff g) examination results h) own experience and assessment of the implementation i) specific recommendations and information regarding future implementations of training programmes j) own plans regarding future implementations of training programmes by the implementation partner after project completion	

Evaluation of Trainings or Consulting Processes

Every training and coaching program must be evaluated. Oral feedback is important during and especially after completion of the program. Anonymous written surveys of participants and lecturers are also indispensable. Below are two examples of written surveys.

Questionnaires[9]

These are examples of possible questions for the evaluation of trainings and the evaluation of the results of a consulting process - the questionnaires can be extended, shortened or otherwise adapted according to your needs.

In common	Very good	Good	Mode-rate	Bad	Very bad
The organization in advance (information, registration)					
The facilitation (location, room etc.) was suitable for training					
The topics and issues were relevant and responded to the goals of training					
The lecturers explained topics of the lessons, additional questions, experiences, and topical issues arisen during the course well					
The course material was informative and helpful					

[9] Basic source: Evaluation Concept. Compiled by Dr Kari Lilja and Dr Sirpa Sandelin, Satakunta University of Applied Sciences, 2019

There was enough time scheduled for each issue						
I got valuable knowledge from lessons and examples presented by lecturers						
I believe that I can utilize the knowledge gained from lessons in my future career						
I can utilize the skills trained and knowledge gained when consulting my clients						
Are the extent and content of the qualification sufficient as a basis for practical use?						
Further comments						
Topic ...	The presentation was clear and understandable The issues were relevant and topical The information presented were up-to-date					
Topic ...	The presentation was clear and understandable The issues were relevant and topical The information presented were up-to-date					
Topic ...	The presentation was clear and understandable The issues were relevant and topical The information presented were up-to-date					
Recommendations						
What was good?						
What could have been done better? (E.g. was some topic missing or unnecessary)						
Would you recommend the course to someone you know? (If yes, why? If not, why not?)						

What do you need for supporting colleagues, your employees, customers, ...?
Other comments

Evaluation of a Consulting Process[10]

Name: ..... *[if it is not to remain anonymous]*

Company: .....

All persons are asked to give their assessment of the change process in their company. The results are to serve the perception about the status and development in an overall view and, if necessary, to identify improvement potentials.

The survey is anonymous.

The evaluation is carried out by internal/external [institution/person]. The results are presented in a common meeting and jointly evaluated.

The questions are scaled with ranges from 0 = very bad to 10 = very good.

very bad					moderate					very good
0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

1. How well did the dialogue in the company work?

very bad					moderate					very good
0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

2. How well did the development of support measures worked?

very bad					moderate					very good
0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

3. How engaged were the responsible persons to the project?

very bad					moderate					very good
0	1	2	3	4	5	6	7	8	9	10

[10] Own elaboration – A. Frevel, 2018

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

4. How well has the management supported the change processes?

very bad					moderate				very good
0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

5. [If applicable/existing] How well has the workers council supported the change processes?

very bad					moderate				very good
0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

6. How well did the superiors support the implementation of the measures?

very bad					moderate				very good
0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

7. Has all staff being informed systematically (comprehensively and promptly) about of the actions and results?

very bad					moderate				very good
0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

8. How well did the employees support the implementation of the measures?

very bad					moderate				very good
0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

9. How well was the cooperation between the involved responsible persons?

very bad					moderate				very good
0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

10. How well have been the timetables?

very bad				moderate				very good		
0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

11. How sufficient were the personnel and time resources?

very bad				moderate				very good		
0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

12. How sufficient were the financial resources?

very bad				moderate				very good		
0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

13. Have the influences of the measures been evaluated?

very bad				moderate				very good		
0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

14. Have the concrete objectives been achieved?

very bad				moderate				very good		
0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

15. Are the developments and results recognized and appreciated in the company?

very bad				moderate				very good		
0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

16. Was the enthusiasm at the change process preserved over the time?

very bad		moderate		very good

0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

17. How satisfied are you overall with the change process?

0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

18. Further comments on the assessment:

4. Official examination regulations

The following examination regulations were adopted in German by the Vocational Training Committee of the Schwerin Chamber of Skilled Crafts in March 2023 and by the General Assembly of the Schwerin Chamber of Skilled Crafts in May 2023 and subsequently approved by the Ministry of Education of the State of Mecklenburg-Vorpommern and then published in the journal Nord Handwerk. The examination regulations, of which an English translation is also attached below, have thus entered into force.

A procedure for the international recognition of the official further education qualification at EQF Level 5 was also developed, discussed and agreed.

Examination Regulation

Rechtsvorschriften für die Fortbildungsprüfung zur Fachkraft für Digitalisierung und Zusammenarbeit im Bauwesen (HWK) nach § 42a HwO

Die Handwerkskammer Schwerin erlässt aufgrund der Beschlüsse des Berufsbildungsausschusses vom ..... 2023 und der Vollversammlung vom ..... 2023 gemäß des § 42 a der Handwerksordnung (HwO) in der Fassung der Bekanntmachung der Neufassung vom 24.09.1998 (BGBl. I S. 3074; 2006 I S. 2095) zuletzt geändert am 31.08.2015 (BGBl. I S. 1474) folgende besonderen Rechtsvorschriften für die Fortbildungsprüfung zur Fachkraft für Digitalisierung und Zusammenarbeit im Bauwesen (HWK).

§ 1 Ziel der Prüfung und Bezeichnung des Abschlusses

1) Durch die Prüfung zur Fachkraft für Digitalisierung und Zusammenarbeit im Bauwesen (HWK) ist festzustellen, ob der Prüfling die notwendigen Kenntnisse, Fähigkeiten und Erfahrungen besitzt, digitale Technologien in kleinen und mittleren Unternehmen des Bau- und Ausbaugewerbes in handwerklich orientierten Funktionsbereichen sachgerecht einzusetzen.

2) Die erfolgreich abgelegte Prüfung führt zum anerkannten Abschluss Fachkraft für Digitalisierung und Zusammenarbeit im Bauwesen (HWK).

§ 2 Zulassungsvoraussetzungen

Zur Prüfung ist zuzulassen, wer

1) eine mit Erfolg abgelegte Ausbildungsprüfung in einem Beruf des Bau- und Ausbaugewerbes nachweist und über mindestens fünfjährige einschlägige berufliche Erfahrungen verfügt.

2) ein mit Erfolg abgeschlossenes einschlägiges Hochschulstudium nachweist.

3) Abweichend von Absatz 1 und 2 kann zur Prüfung auch zugelassen werden, wer durch Vorlage von Zeugnissen oder auf andere Weise glaubhaft macht, dass auf Grund der bisherigen Tätigkeit Kenntnisse, Fähigkeiten und Erfahrungen erworben worden sind, die eine Zulassung zur Prüfung rechtfertigen.

§ 3 Gliederung, Inhalt und Dauer der Prüfung

1) Theoretische Grundlagen

Im ersten Prüfungsteil sind Grundkenntnisse in folgenden Handlungsfeldern nachzuweisen:

a) Analyse der Realisierungspotenziale für inner- und zwischenbetriebliche Kooperationen im Bauwesen unter Nutzung digitaler Technologien und Tools

b) Analyse der Einsatzmöglichkeiten digitaler Technologien in der Ausführung von Neubau-, Ausbau-, Modernisierung-, Sanierungs- und Renovierungsarbeiten

c) Unterbreitung betriebswirtschaftlich begründeter Vorschläge zur Nutzung von Bau Kooperationsmodellen und von digitalen Technologien

d) Prüfung der betrieblichen Eignung zur Realisierung von Bau-Kooperationsmodellen und zur Nutzung von digitalen Bau-Technologien

e) Entwicklung von Optimierungsvorschlägen zur Verbesserung der inner- und zwischenbetrieblichen Kooperationen im Bauwesen unter Nutzung digitaler Technologien und zur Nutzung von digitalen Bau-Technologien

f)Analyse und Beurteilung der Kommunikations-, Kooperations- und Problemlösungskompetenz

Der erste Teil der Prüfung wird mündlich durchgeführt und soll insgesamt nicht länger als 30 Minuten dauern.

2) Planung, Realisierung und Bewertung von Kooperationen und des Einsatzes digitaler Bau-Technologien

Im zweiten Prüfungsteil soll der Prüfling nachweisen, dass er in der Lage ist, Kooperationsmodelle, Tools und digitale Bautechnologien für betriebsbezogene Arbeiten im Bau- und Ausbaubereich auszuwählen, einzusetzen und zu evaluieren. Dazu gehören:

a) das Aufzeigen von Aktionsfeldern für die Nutzung von Kooperations-Modellen und -Tools sowie digitaler Bau-Technologien in KMU

b) die Entwicklung von Interaktion, Austausch, Engagement und Zusammenarbeit mittels digitaler Technologien

c) die Planung des Einsatzes von Kooperationsmodellen und digitaler Bau-Technologien im Betrieb

d) die Darstellung von Vor- und Nachteilen bei der Realisierung von Kooperationen und der Nutzung digitaler Bau-Technologien im Betrieb

e) die Klärung sämtlicher Voraussetzungen zur Realisierung von Bau-Kooperationen und Nutzung digitaler Bau-Technologien im Betrieb

f) die Realisierung von Kooperationen und Verankerung des Einsatzes digitaler Bau-Technologien im Betrieb

g) Maßnahmen zur Überprüfung der Geeignetheit von Kooperations-Modellen und -Tools sowie von digitalen Bau-Technologien im Betrieb

h) Ermittlung von Bedürfnissen, kreativer Gebrauch von digitalen Technologien und Identifizierung digitaler Kompetenzlücken

Der zweite Teil der Prüfung wird schriftlich durchgeführt und soll 60 Minuten nicht überschreiten.

3) Projektarbeit

Der dritte Prüfungsteil erfolgt in Form der Durchführung eines Entwicklungsprojektes zum Einsatz von Kooperationsmodellen und/oder digitaler Technologien im Unternehmen. Entwicklung, Durchführung und Ergebnisse des Entwicklungsprojektes sind schriftlich zu dokumentieren. Das Entwicklungsprojekt wird vom Prüfling vorgeschlagen und muss vom Prüfungsausschuss, der auch Umfang, Beginn und Dauer der Projektarbeit festlegt, genehmigt werden. Die Bearbeitungszeit im Unternehmen soll sich mindestens über zwei Monate erstrecken.

4) Auf der Grundlage der Prüfungsleistungen in der Projektarbeit ist ein Fachgespräch zu führen, indem der Prüfling zeigen soll, dass er die der Projektarbeit zugrunde liegenden fachlichen Zusammenhänge aufzeigen, den Ablauf der Projektarbeit begründen und mit der Projektarbeit verbundene fachliche Probleme und deren Lösungen darstellen kann. Das Fachgespräch soll nicht länger als 30 Minuten dauern.

§ 4 Anrechnung anderer Prüfungsleistungen

1) Von der Ablegung der Prüfung in einzelnen Handlungsfeldern kann der Prüfling auf Antrag von der Handwerkskammer befreit werden, wenn er/sie vor einer zuständigen Stelle, einer öffentlichen oder staatlichen anerkannten Bildungseinrichtung oder vor einem staatlichen Prüfungsausschuss eine Prüfung bestanden hat, deren Inhalt den Anforderungen des jeweiligen Handlungsfeldes entspricht.

2) Eine vollständige Freistellung ist nicht zulässig.

§ 5 Bestehen der Prüfung und mündliche Ergänzungsprüfung

1) Die Prüfungsleistungen in den Prüfungsteilen gem. § 3 sind einzeln zu bewerten.

2) Die in den drei Prüfungsteilen erzielten Punktzahlen in den mündlichen und schriftlichen Prüfungsleistungen sind zu einer Gesamtpunktzahl zusammenzufassen. Dabei besteht die Gesamtnote zu

15 % aus dem ersten Prüfungsteil,

25 % aus der schriftlichen Prüfung des zweiten Prüfungsteils,

40 % aus der Projektarbeit des dritten Prüfungsteils und

20 % aus dem Fachgespräch im dritten Prüfungsteil.

3) Die schriftliche Prüfung des zweiten Prüfungsteils ist durch eine mündliche Prüfung zu ergänzen, wenn diese für das Bestehen der Prüfung den Ausschlag geben kann. Die mündliche Prüfung soll nicht länger als 15 Minuten pro Prüfung dauern.

4) Die Prüfung ist bestanden, wenn in jedem Prüfungsteil mindestens ausreichende Leistungen erbracht worden sind.

5) Über das Bestehen der Prüfung ist ein Zeugnis auszustellen, aus dem die Prüfungsgesamtnote hervorgehen muss.

§ 6 Wiederholung der Prüfung

1) Eine Prüfung, die nicht bestanden wurde, kann zweimal wiederholt werden.

2) Hat der Prüfling bei nicht bestandener Prüfung in einzelnen Prüfungsteilen gemäß § 3 mindestens ausreichende Prüfungsleistungen erbracht, so ist diese Prüfungsleistung auf Antrag nicht zu wiederholen, sofern sich der Prüfling innerhalb von zwei Jahren, gerechnet vom Tage der Feststellung des Ergebnisses der nicht bestandenen Prüfung, zur Wiederholungsprüfung angemeldet hat. Die Bewertung der Prüfungsleistung ist im Rahmen der Wiederholungsprüfung zu übernehmen.

§ 7 Anwendung anderer Vorschriften

Soweit diese Rechtsvorschriften keine abweichende Regelung enthalten, ist die Prüfungsordnung für die Durchführung von Fortbildungsprüfungen im Bereich des Berufsbildungsgesetzes der Handwerkskammer Schwerin in der jeweils gültigen Fassung anzuwenden.

§ 8 Inkrafttreten

Diese Rechtsvorschriften treten mit ihrer Bekanntmachung im Amtlichen Mitteilungsblatt der Handwerkskammer Schwerin (Nordhandwerk) und ihrer Veröffentlichung auf der Homepage www.hwk-schwerin.de unter der Rubrik „Rechtsgrundlagen“ in Kraft.

Legal provisions for the advanced training examination as a specialist for digitization and cooperation in the construction industry (HWK) according to § 42a HwO

On the basis of the decisions of the Vocational Training Committee of ..... 2023 and the General Assembly of ..... 2023 according to § 42 a of the Crafts Code (HwO) in the version of the announcement of the new version of 24.09.1998 (Federal Law Gazette I p. 3074; 2006 I p. 2095) last amended on 31.08.2015 (Federal Law Gazette I p. 1474) the following special legal provisions for the advanced training examination for digitization and cooperation in the construction industry (HWK).

§ 1 Objective of the audit and description of the financial statements

1) The examination as a specialist for digitization and cooperation in the construction industry (HWK) determines whether the examinee has the necessary knowledge, skills and experience to use digital technologies appropriately in small and medium-sized enterprises in the construction and finishing industry in craft-oriented functional areas.

2) The successfully passed examination leads to the recognized degree Of Specialist for Digitization and Cooperation in the Construction Industry (HWK).

§ 2 Admission requirements

For the examination, it must be allowed who:

1) proves a successfully passed training examination in a profession in the construction and finishing industry and has at least five years of relevant professional experience.

2) proves a successfully completed relevant university degree.

3) By way of derogation from paragraphs 1 and 2, any person who demonstrates, by means of certificates or by other means, that knowledge, skills and experience have been acquired on the basis of the previous activity which justify admission to the examination may also be admitted to the examination.

§ 3 Structure, content and duration of the examination

1) Theoretical foundations

In the first part of the examination, basic knowledge in the following fields of action must be demonstrated:

a) Analysis of the implementation potential for internal and inter-company cooperation in the construction industry using digital technologies and tools

b) Analysis of the possible applications of digital technologies in the execution of new construction, expansion, modernization- restauration- and renovation work

c) Making business-based proposals for the use of construction cooperation models and digital technologies

d) Examination of operational suitability for the implementation of construction cooperation models and for the use of digital construction technologies

e) Development of optimization proposals to improve internal and inter-company cooperation in the construction industry using digital technologies and for the use of digital construction technologies

f) Analysis and assessment of communication, cooperation and problem-solving skills

The first part of the exam will be conducted orally and should not last more than 30 minutes in total.

2) Planning, implementation and evaluation of cooperations and the use of digital construction technologies

In the second part of the examination, the examinee should prove that he is able to select, use and evaluate cooperation models, tools and digital construction technologies for operation-related work in the construction and expansion sector. These include:

a) the identification of fields of action for the use of cooperation models and tools as well as digital construction technologies in SMEs

b) the development of interaction, exchange, engagement and collaboration through digital technologies

c) the planning of the use of cooperation models and digital construction technologies in operation

d) the presentation of advantages and disadvantages in the realization of cooperations and the use of digital construction technologies in operation

e) the clarification of all prerequisites for the realization of construction cooperations and the use of digital construction technologies in operation

f) the realization of cooperations and anchoring of the use of digital construction technologies in the company

g) measures to verify the appropriateness of cooperation models and tools as well as digital construction technologies in operation

h) identification of needs, creative use of digital technologies and identification of digital skills gaps

The second part of the exam is conducted in writing and should not exceed 60 minutes.

3) Project work

The third part of the examination takes the form of the implementation of a development project for the use of cooperation models and/or digital technologies in the company. The development, implementation and results of the development project must be documented in writing. The development project is proposed by the examinee and must be approved by the audit committee, which also determines the scope, start and duration of the project work. The processing time in the company should extend over at least two months.

4) On the basis of the examination achievements in the project work, a technical discussion is to be conducted in which the examinee is to show that he can show the technical relationships underlying the project work, justify the course of the project work and present technical problems associated with the project work and their solutions. The expert discussion should not last longer than 30 minutes.

§ 4 Crediting of other audit services

1) Upon request, the examinee may be exempted from taking the examination in individual fields of action by the Chamber of Crafts if he/she has passed an examination before a competent authority, a public or state recognized educational institution or before a state examination board, the content of which meets the requirements of the respective field of action.

2) A complete exemption is not permitted.

§ 5 Passing the examination and oral supplementary examination

1) The examination performance in the examination parts according to § 3 must be evaluated individually.

2) The scores achieved in the three parts of the examination in the oral and written examinations must be combined into a total number of points. The overall grade is too

15 % from the first part of the examination,

25 % from the written examination of the second part of the examination,

40 % from the project work of the third part of the examination and

20 % from the expert discussion in the third part of the examination.

3) The written examination of the second part of the examination must be supplemented by an oral examination if this can be decisive for passing the examination. The oral exam should not last longer than 15 minutes per exam.

4) The examination is passed if at least sufficient performance has been achieved in each part of the examination.

5) A certificate must be issued stating the passing of the examination, from which the overall examination grade must be shown.

§ 6 Repetition of the examination

1) An exam that has not been passed can be repeated twice.

2) If the examinee has completed at least sufficient examination performance in individual parts of the examination in accordance with § 3 in the event of a failed examination, this examination performance shall not be repeated on request, provided that the examinee has registered for the repeat examination within two years, calculated from the date of determination of the result of the failed examination. The assessment of the examination performance is to be taken over as part of the repeat examination.

§ 7 Application of other provisions

Insofar as these legal provisions do not contain any deviating regulations, the examination regulations for the conduct of further training examinations in the area of the Vocational Training Act of the Schwerin Chamber of Skilled Crafts in the currently valid version shall apply.

§ 8 Entry into force

These legal provisions enter into force with their publication in the Official Gazette of the Chamber of Crafts Schwerin (Nordhandwerk) and their publication on the homepage www.hwk-schwerin.de under the heading "Legal bases".

Evaluation in the Qualification Framework and international recognition

A qualifications framework for the Baltic Sea Region was designed under the Project Leonardo "Baltic Education"[11]. By means of the European Credit Transfer System of Vocational Education and Training (ECVET), this "BSR-QF" provided the basis for the evaluation of two craft occupations – "carpenter" and "painter". ECVET is a system which allows to characterize qualification (knowledge, skills and competence) by transferable and accumulable learning units and to assign credit points to the learning outcomes. The BSR-QF and the applied ECVET process for the two named occupations formed the basis for the evaluation of the three advanced training programmes developed "Workplace Innovation".

EQF and BSR-QF – an introduction

The Maastricht Declaration of 2004, the Lisbon Strategy of 2000 as well as several other European Union initiatives, and in this context specifically dedicated funding to raise the geographical and labour market mobility and to promote lifelong learning, will yield increased employment and economic growth across EU countries. Rapid social, technological and economic changes along with an aging society make lifelong learning a necessity. For that reason, education is a major component to meet and to achieve the ambitious Lisbon goals. Hence, the European Commission has induced to develop a European Qualifications Framework and to establish National Qualifications Frameworks (hereinafter: NQF) by 2010. The modelling of National Qualifications Frameworks lies in the competence of national authorities, whereas the EU-Commission has recommended that the EU Member States implement NQFs. The European Qualifications Framework represents a meta-framework and is considered by the European Commission as crucial in meeting European objectives, set out in the Lisbon Strategy.

The main purpose of a qualifications framework is to improve transparency, quality and comparability of professional and academic qualification levels across differing education systems and European countries. The EQF itself does not constitute a formal recognition of occupational qualifications. A special feature of Europe is the enormous diversity of educational systems. A prerequisite to make this specificity an asset is to foster transparency.

Transparency can be considered as a fundamental prerequisite for the recognition of qualifications, and it improves comparability. Better comparability between countries is a decisive element to increase labour mobility and to ensure permeability of qualifications, whereby permeability constitutes a prerequisite for lifelong learning.

In the near future, qualifications frameworks must meet these criteria with concrete and well-designed concepts. A qualifications framework is an appropriate tool for the development and for classifying qualifications. The European Qualifications Framework was adopted in November 2007.

Under the project "Baltic Education", constructive and fruitful discussions at European and national levels should be encouraged by a "Baltic Sea Region Qualifications Framework"

[11] Hanseatic Parliament: Baltic education, Hamburg 2008

(hereinafter: BSR-QF). This BSR-QF should be regarded as a supplement and contribution to the ongoing debate rather than a substitute for the shaping of National Qualifications Frameworks. The project "Baltic Education" has delivered a sizeable contribution to this strategy.

The Baltic Sea Region (BSR) is an area with a considerable number of different countries. These countries share common problems as they endeavour to cope with the same economic and demographic challenges and concerns. It is essential for this region to further develop vocational training, to improve quality and to establish transparency and recognition models. To solve these complex issues, the BSR-QF provides an orientation, allowing for classifications across the whole qualification range and also serving as a common ground for constructive discussions, conceptual considerations and individual progress.

The Baltic Sea Region Qualifications Framework

The BSR-QF comprises eight qualification levels that take into account acquired skills from the European Higher Education Area (EHEA) plus vocational qualifications and competences.

This concept is consistent with the recommendations of the European Commission. Table 1 shows the elaborated proposal for the BSR-QF. The following presents a brief overview of the respective competence levels of the BSR-QF. The following section provides more detailed information on the methodology and descriptors that have been developed and used for the BSR-QF.

Competence level 1 – Basic education

Skills profiles to be reached at this stage are general basic training skills and they will not be counted to vocational training or academic education. Basic training is a prerequisite to gain access to higher qualification levels. The development of learning skills still requires resolute continued guided support. It is not possible to assign this skills level to a specific domain. Therefore, qualifications in this level are domain independent.

Competence level 2 – No vocational training

Level 2 comprises the first level of vocational training (VET area). Qualifications at this stage are not specifically pronounced, since knowledge and skills are at an early stage of evolving. Methods and social skills are not yet domain-specific. 1 to 2-year qualification programmes, training phases and vocational training preparation phases are covered by this stage.

Tab.1: Baltic Sea Region-Qualifications Framework

Level	Education Degree	Framework for Qualification of the VET* area and EHEA**
1	*Basic Education*	-
2	*No Vocational Graduation* graduation/training after/for 1-2 years, and work and apprenticeship preparation phase (at the age of 15/16)	First cycle VET area

Level	Education Degree	Framework for Qualification of the VET* area and EHEA**
3	*Lower Vocational Graduation* certificate of apprenticeship (in 2-4 years), and no/limited professional or experience (certificate of apprenticeship + <5 years of profession experience)	Second cycle VET area
4	*Middle Vocational Graduation* long profession experience as skilled worker (certificate of apprenticeship + ≥5 years of profession experience); comprehensive further education; "young master craftsman" with no/limited professional experiences (<3 years of profession experience)	Third cycle VET area
5	*Upper Vocational Graduation* master craftsman with long profession experiences as master (≥3 years); "master craftsman plus"; long profession experiences and further education (certificate of apprenticeship + ≥8 years of profession experience); introductory study period	Fourth cycle VET area and short cycle academic area
6	Bachelor (academic bachelor's degree) and other similar qualifications and competences	Fifth cycle VET area and first cycle academic area
7	Master (academic master's degree) and other high qualifications and competences	Sixth cycle VET area and second cycle academic area
8	PhD and other very high qualifications and competences	Seventh cycle VET area and third cycle academic area

Competence level 3 – Lower vocational training

Level 3 covers complete vocational training from a training period of 2 to 4 years. Access to the competence level of a lower vocational training is possible after completion of a secondary school or after reaching the competence level 2. This involves professional skills, equivalent with an expertise level of an initial vocational training. The graduate has no or limited work experience. Qualifications at this level include a broad general education and an initial job specific expertise. Therefore, only specific parts of a domain will be covered in this qualification level. Completion of the skill level 3 is a precondition for achieving the competence levels 4 and 5.

Competence level 4 – Intermediate vocational education

Compared to Level 3, this level specifies a higher degree of professional and technical expertise. Vocational training qualifications, extensive advanced training, "Young master craftsman", and long work experience are covered by this stage. The level in this field is relatively high and all parts

of a professional domain are covered. Level 4 qualifications indicate great job specific knowledge and skills. In this level, a person can be regarded as a specialist who has the knowledge and skills to relatively independently solve problems. Finally, achieving level 4 along with extensive advanced training, allows a limited number of candidates with ambitious and superb qualifications to access an academic bachelor level, without having previously obtained a general qualification for university entrance.

Competence level 5 – Higher vocational education

At this stage, candidates already have a formal vocational qualification as a master craftsman, including follow-up trainings; they have long professional experience and thus a high degree of technical expertise. Each part of a domain is covered at a high level, but without scientific expertise. Knowledge acquired by candidates at this competence level comprise autonomous learning, broad theoretical and practical knowledge. At this relatively high level of competence basic academic studies are touched upon. Completing of the competence level 5 with comprehensive, previous vocational education and further training (e.g. as "Master Craftsman Plus") gives access to competence level 6, without having a general qualification for university entrance. It is possible to obtain credits for university entrance, based upon previously acquired knowledge (maximum 120 credit points). Nevertheless, persons who seek access to the bachelor level, have to pass an individual interview. Competence level 5 covers the short academic cycle with regard to the European Higher Education Area (EHEA). University students with circa 120 credit points are within competence level 5. [12]

Competence level 6 – Bachelor and other comparable education and skills

Candidates within this qualification range have already completed the first cycle of the EHR and the 5th level of vocational training. The academic bachelor's degree is obtained by students who usually scored 180-240 credit points[13]. Level 6 qualifications feature advanced theoretical knowledge and skills. This also applies to individuals with completed vocational training and notably domain-oriented knowledge. Precondition for access to the competence level 6 is the general qualification for university entrance or similar sophisticated competences and skills within a domain-specific education. Completing the qualification levels 4 and 5 also opens up access to the competence level 6.

Competence level 7 – Master and other higher qualification and skills

Having an outstanding domain-specific knowledge, candidates are at a significantly high level within this stage. They are highly qualified professionals, with advanced training and skills in a most deeply specific domain. Qualifications at this level include self-determined and theoretical learning. The master's degree is one of the conditions for reaching the third level of the academic cycle. Competence Level 7 is the second highest qualification of the EHR and the second highest level of the vocational training cycle.

Competence level 8 – PhD and other first-rate qualifications and skills

[12] cf. MINISTRY FOR SCIENCE, TECHNOLOGY, AND INNOVATION (Eds.) (2005): *A Framework for Qualifications in the European Higher Education Area.* Bologna Working Group on Qualifications Frameworks. Copenhagen.
[13] MINISTRY FOR SCIENCE, TECHNOLOGY, AND INNOVATION (Eds.) (2005): *A Framework for Qualifications in the European Higher Education Area.* Bologna Working Group on Qualifications Frameworks. Copenhagen.

A PhD title is one of the highest academic degrees and it is the highest level within the EHR system. An academic person at this proficiency level is a professional and expert. Competence level 8 is the highest vocational training cycle to be reached by individuals. These persons have outstanding expertise and intellectual abilities in a most highly specific domain field. Persons at qualification level 8 have leadership skills and experience as well as potential for critical, methodical analyses, assessments and presentations.

Methodology and Descriptors

The proficiency levels measure professional, personal skills, abilities and competences within a specific domain. It is a method to classify and assess qualifications in levels. It is not the acquired diplomas but skills that are subject to assessment in levels. Qualifications are understood as a set of skills. A competence is defined as the ability to meet tough requirements in a specific context. Competent execution or effective actions involve the mobilization of expertise, cognitive and practical skills as well as social and behavioural components such as attitudes, emotions, values and motivations.[14] Skills are more than school and work-related knowledge. It is therefore a consistent argument that (professional) skills comprehensively include social and personal competence. Skills, as they are set out in the BSR-QF, are not occupation-specific, but they are in fact aggregates. [15] Hence, educational degrees were used in the project to describe, illustrate and classify skills. This increases the legitimacy among stakeholders, builds on familiar ways of thinking and classification patterns and enables easy, transparent and unbureaucratic description and understanding.

Table 2 shows the descriptors for each skills level of the BSR-QF. The descriptors “expertise” and “competence” are equivalent to the descriptors in the EQF.

The Baltic Sea Region Qualifications Framework contributes to the discussion and advisory debate on the development of the National Qualifications Framework. The design is consistent with the structures and methods of the European Commission.[16] This BSR-QF contributes to the fostering of education and the economy of the Baltic States as it presents an instrument to reduce cross-border barriers, which limit the work-related mobility and productivity dependent thereon. Accordingly, the BSR-QF has been accepted by the members of the Hanseatic Parliament in the General Assembly on 8 November 2007 in Vilnius as a substantial support and development tool.

[14] D. S. RYCHEN/L. H. SALGANIK (2003): Key Competencies for a Successful Life and a Well-Functioning Society. DeSeCo Project report Summary, OECD, Paris, p. 2

[15] cf. BUNDESINSTITUT FÜR BERUFSBILDUNG (BIBB) (Eds.) (2005): *Fachlicher Prüfbericht zu den Grundbegriffen und Deskriptoren des Entwurfs für einen Europäischen Qualifikationsrahmen*. Bonn; and Hanf, Georg und Volker Rein (2005): *Towards a National Qualification Framework for Germany*. Federal Institute for Vocational Education and Training (BIBB), Bonn.

[16] cf. EUROPÄISCHE KOMMISSION (EC) (2005): *Towards a European Qualifications Framework for Lifelong Learning*. Commission Staff Working Document, SEC (2005) 957, Brussels; EUROPEAN COMMISSION (EC) (2006): *Implementing the Community Lisbon Programme. Proposal for a recommendation of the European Parliament and of the Council on the establishment of the European Qualifications Framework for lifelong learning*. COM (2006) 479 final, 2006/0163 (COD), Brussels; and Ministry of Science, Technology and Innovation (Eds.) (2005): *A Framework for Qualifications in the European Higher Education Area.* Bologna Working Group on Qualifications Frameworks, Copenhagen.

In the further work of the present project, the BSR-QF ensures orientation for grading, structuring and evaluation of individual professions.

Tab. 2: Descriptors for competence levels 1-8 (Source: Own research)

Level	Expertise*	(Methodological) Competence*	(Formal) education degree	Framework for Qualification of the VET area and EHEA
	In the BSR-QF, expertise is described as knowledge and skills (equivalent with EQF)	*In the BSR-QF, competence describes the degree of responsibility and autonomy*	*The (Formal) education degree describes the degree which can be reached by an individual*	*The framework VET area and EHEA is a modified and extended EHEA framework*
1	Basic general Education; basic skills required to carry out simple tasks	Work under direct supervision in a structured context	–	–
2	Basic factual knowledge of a field of work or study; basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools	Work under direct supervision in a structured context with some autonomy	-	-
3	Knowledge of facts, principles, processes and general concepts, in a domain; a range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools,	Take responsibility for completion of tasks in work; adapt own behaviour to circumstances in solving problems	graduation/training after/for 1-2 years, and work and apprenticeship preparation phase (at the age of 15/16)	First cycle VET First vocational training

	materials and information			
4	Factual and theoretical knowledge in broad contexts within a domain; a range of cognitive and practical skills required to generate solution to specific problems in a domain	Exercise self-management within the guidelines of work contexts that are usually predictable, but are subject to change supervise the routine work of others, taking some responsibility for the evaluation and improvement of work activities	Certificate of ap-prenticeship (in 3 - 4 years), and no/limited profes-sional or experi-ence (certificate of apprenticeship + < 3 years of profession experience)	Second cycle VET Complete vocational training
5	Comprehensive, specialised, factual and theoretical knowledge within a domain and an awareness of the boundaries of that knowledge; a comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems	Exercise management and supervision in contexts of work or study activities with unpredictable change; review and develop performance of self and others	Long profession experience as skilled worker (certificate of ap-prenticeship + ≥ 5 years of profes-sion experience); comprehensive further education	Third cycle VET Experienced qualified professional
6	Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles; advanced skills, demonstrating mastery and innovation required to solve complex and unpredictable	manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts take responsibility for managing professional	Bachelor (academic bachelor's degree) and other similar qualifications and competences Master craftsman and Technician with long profession experiences as master (≥ 3 years);	Fourth cycle VET First cycle academic area and professional Master

	problems in a specialised domain	development of individuals and groups	introductory study period	
7	Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking; critical awareness of knowledge issues in a field and at the interface between different fields; specialised problem-solving skills required in research and or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields	manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams	Master (academic master's degree) and other high qualifications and competences Master craftsman with training as a business economist in the skilled trades with long profession experiences as master (≥ 5 years); longer study period	Fifth cycle VET Second cycle academic area and Business Economist in trade
8	Knowledge at the most advanced frontier of a field of work or study and at the interface between domains; the most advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research and or innovation and to extend and redefine existing knowledge or professional practice	demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research.	PhD and other very high qualifications and competences	Sixth cycle VET Third cycle academic area

* European Commission (EC) (2006): Implementing the Community Lisbon Programme. Proposal for a recommendation of the European Parliament and of the Council on the establishment of the

European Qualifications Framework for lifelong learning. COM (2006) 479 final, 2006/0163 (COD), Brussels.

Structuring and evaluation

The objective of the Baltic Education Project was to develop, introduce and implement a system for mutual recognition of professional qualifications. This will be achieved by using the European Credit Transfer System of Vocational Education and Training (ECVET).[17] ECVET is a system that enables describing qualifications by transferable and accumulable learning units (in the form of knowledge, skills and competence) and corresponding allocated credit units.[18]

ECVET also perfectly complements the European Qualifications Framework.[19] In its guidelines, the European Commission outlined the overall concept as follows:

a) focus on learning outcomes expressed in terms of knowledge, skills and competence.

b) based on a process of qualification.

c) adapted to the demands of lifelong learning and all learning contexts, on an equal footing.

d) geared towards the mobility of people.[20]

Further ECVET consultation guidelines and regulations specify:

a) mobility of people undertaking training.

b) validation of the outcomes of lifelong learning.

c) transparency of qualifications.

d) mutual trust and cooperation between vocational training and education providers in Europe.[21]

The experience and methods of ECVET in the project “Baltic Education”, form the basis for the evaluation of the training programmes developed "Management and Technologies of Water, Wastewater, Waste and Circular Economy".

In a first step, the individual training modules are evaluated according to the principle "25 training hours = 1 credit point". Based on this starting point, in a second step the significance and content

[17] EUROPEAN COMMISSION (EC) (2006): European Credit System for Vocational Education and Training (ECVET). A system for the transfer, accumulation and recognition of learning outcomes in Europe. SEC (2006) 1431, Brussels, p. 3
[18] EUROPEAN COMMISSION (EC) (2006): European Credit System for Vocational Education and Training (ECVET). A system for the transfer, accumulation and recognition of learning outcomes in Europe. SEC (2006) 1431, Brussels, p. 3
[19] cf. EUROPEAN COMMISSION (EC) (2006): Implementing the Community Lisbon Programme. Proposal for a recommendation of the European Parliament and of the Council on the establishment of the European Qualifications Framework for lifelong learning. COM (2006) 479 final, 2006/0163 (COD), Brussels.
[20] EUROPEAN COMMISSION (EC) (2006): European Credit System for Vocational Education and Training (ECVET). A system for the transfer, accumulation and recognition of learning outcomes in Europe. SEC (2006) 1431, Brussels, p. 5
[21] EUROPEAN COMMISSION (EC) (2006): European Credit System for Vocational Education and Training (ECVET). A system for the transfer, accumulation and recognition of learning outcomes in Europe. SEC (2006) 1431, Brussels, p. 35

of each training module is evaluated by project partners and experts and then the credit points for each module are determined in a group evaluation.

Within the framework of the "Baltic Education" project, a procedure for the mutual international recognition of vocational education and further training qualifications was developed and agreed with all countries bordering the Baltic Sea. Following this agreement, the project developed and agreed a procedure for the recognition of qualifications from all training courses. The following procedure then follows for the recognition of the degrees of all training courses of the project.

- Lecturers/examiner rates the courses by assigning credit points.
- Mutual recognition of completion in the Baltic Sea countries follows upon fulfilment of the following conditions:
  a) The final exam was passed.
  b) The assessment of the course has resulted in at least 8o % of the possible credit points shown in Tables 3 to 5 (20% margin of tolerance).
  c) Skills were acquired in all three mandatory modules
  Where they do not yet exist, each of the future participants will receive an EU education passport in which the results are documented.

In the project " Efficient construction through digital technologies in the construction and finishing trade (DIG-CON)" two trainings were developed and implemented.

A Construction-Cooperation through digital technologies and tools

B Mastering the digital Transformation in SMEs in the construction sector

In both trainings all parts are classified as mandatory, in which knowledge and skills have to be acquired.

With regard to the assignment of the course in the BSR-QF, the classification of both trainings was made in competence level 5 “Experienced qualified professional”

The assessment in the project led to the following conclusions:

Table 3: Evaluation training A “Construction-Cooperation through digital technologies and tools” by credit points system

Part	**Credit Points**
Part 1 Classroom Teaching	2.5
Part 2 Learning Project	5,5
Part 3 Reporting and Reflection	2,0
Total	10,0

Table 4: Evaluation training B “Mastering the digital Transformation in SMEs in the construction sector” by credit points system

Part	Credit Points
Part 1 - Educational block A	2.5
Part 2 - Learning on the job A	4,5
Part 3 - Educational block B	2,0
Part 4 - Learning on the job B	4,5
Part 5 - Reporting Day	1,5
Total	15,0

Internationally recognised educational qualification

Participants can complete training A and/or training B. Upon completion of one of the training courses and the final examination, the participants acquire the recognised professional further training qualification of "Specialist for digitalisation and cooperation in construction (HWK)".

5. Implementation Reports

Latvian Chamber of Commerce and Industry[22]

Introduction

The demand for good apartments and houses has rarely been as high as it is now, and yet there is far too little affordable housing available. Hence, significant increases in efficiency and acceleration of construction planning and execution are much needed in the construction industry. Construction projects can be carried out more efficiently by applying targeted digital tools. In addition, digital technologies make the identification of risks in construction possible at an early stage so that they can be avoided.

Within the project, best practices on the digital tools and training programmes that are used in the construction sector were researched, as well as the training programme was developed. This training programme was developed using the KAIN (Knowledge Acquisition according to Individual Needs) method. The KAIN method aims to create a common knowledge base for participants with different experiences, taking into consideration their individual experiences, and to help develop and implement projects in their companies.

The trainings were carried out total in three sessions (17.10.2023, 18.10.2023, and 29.11.2023), where first two days were theory with some practical tasks, and third was dedicated to presentations and discussion, as well as the certification.

Taking into account the KAIN method, the training content was adjusted for the participants' needs. In order to do that, before the trainings, participants filled out the questionnaire to indicate their current knowledge and what are their expectations. After, the training content was adjusted accordingly.

The training expert Mr Roberts Gurtiņš pointed out: "BIM is not only a digital tool, but also a way to improve a company's competitiveness and create new services. BIM promotes business development and increases construction efficiency. In many parts of Europe, BIM is mandatory in public procurement. In Latvia, the use of BIM in public procurement will be mandatory from 2025. At the moment, it is evident in tenders that many companies do not qualify for BIM requirements or digital competences and are therefore excluded from the tender and further implementation of the project. Communication plays a special role in the BIM coordination process to improve the monitoring of error prevention and to better manage BIM projects."

Admission and organisation of the training

Latvian Chamber of Commerce and Industry promoted trainings using social media, website, and individual e-mails to member companies. Therefore, participation was open to every Latvian company, not only members of LCCI, who wanted to join and found the offered trainings beneficial for them, as well as they came from different fields. Additionally, individual phone calls were made to different company representatives to invite them to take part in trainings as well.

In total 10 participants from 5 companies took part in the trainings. Trainings were separated in 3 separate full day sessions (17.10.2023, 18.10.2023, and 29.11.2023). Between second and third

[22] Prepared by Jurijs Dubatovka, Latvian Chamber of Commerce and Industry

training days, the participants were working on their practical projects and carrying a lot of self-studies. Additionally, a WhatsApp group was created for all participants and training expert in order to keep the communication. As well, participants were able to ask their questions

Trainings itself took place in the premises of the Latvian Chamber of Commerce and Industry. Coffee breaks were ensured for the participants and training provider, taking into consideration the dietary restrictions of the participants.

Training was led by one expert:

- Mr Roberts Gruntiņš – Graduate of the Copenhagen School of Design and Technology's Bachelor of Architectural Technology and Construction Management programme. Robert's initial insight into construction and BIM came from a project-based education programme in Copenhagen. Later he worked as an intern in an international architectural firm on BIM model and site development. BIM knowledge and understanding has been expanded and strengthened in the Latvia based international company ITED SIA, where he as BIM Coordinator/Technician performs BIM coordination duties and ensures communication in BIM projects. Based on this experience, he has developed and taught one of the course modules - "Communication in BIM projects" at Riga Technical University Construction Digitalization Centre.

Participants profile and organisation of the training

Participants from Latvia were 20 to 60+ years old, from both genders, mostly with bachelor's degree and higher VET level education. They were members of the board, project administrators, construction projects managers, assistants to project managers, as well as BIM coordinators. Represented company sectors were: production and trade of electricity, electrical installation, retail, engineering activities and related technical consultancy, architectural activities.

Execution of the Training

Trainings were carried out using the KAIN method "Knowledge Acquisition according to Individual Needs". Trainings consisted of theoretical lectures, group tasks as well as the practical tasks that were carried out by the participants, using different free software's that were installed beforehand.

Curriculum:

1. Session (17.10.2023)

- Introduction and defining the specific development project within the company
- Introduction to the course
- The importance of effective communication
- Opportunities and advantages;
- Prerequisites, disadvantages
- Introduction to BIM and collaboration in BIM projects
- Basic principles of BIM project communication

2. Session (18.10.2023)

- Types of tools and their practical application
- Single Data Environment;
- Communication platforms and their principles;
- BIP definable items
- Opportunities and advantages;
- Preconditions, disadvantages
- Sharing the unified model;
- Register of bottlenecks/decisions and delegation,
- using BCF format files
- Options and advantages;
- Preconditions and drawbacks;
- Digital twins, as-built and asset information models;
- BIM model as a database;
- Volume and information extraction;

3. Session (29.11.2023)

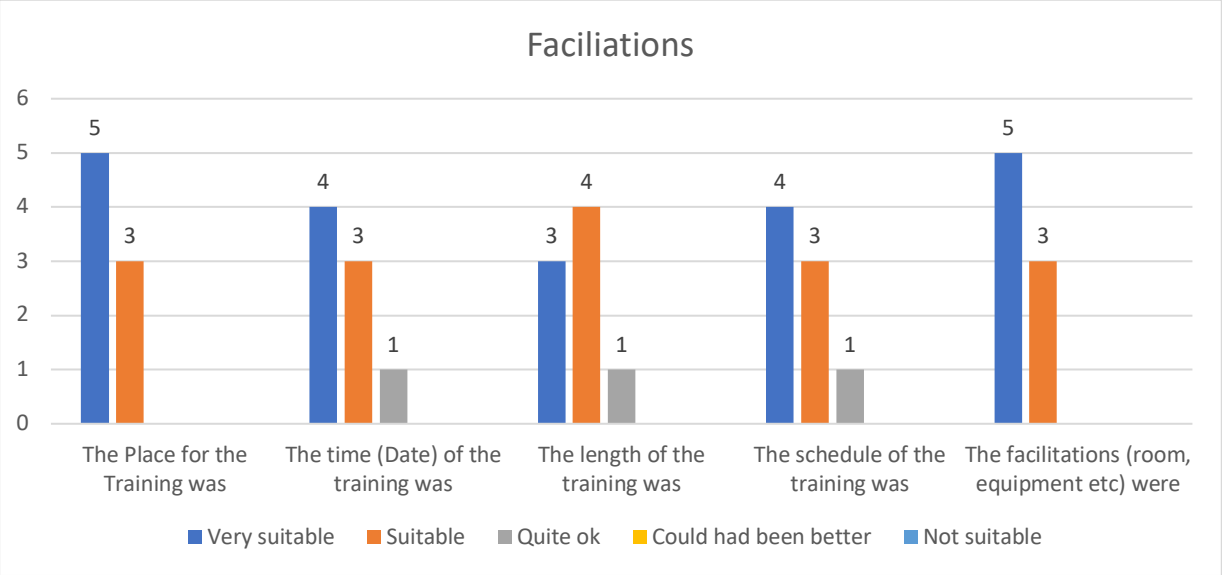
- Project presentations
- Discussion
- Awarding with the certificates

In total, participants were satisfied with the trainings. As one of the things they mentioned that could be improved – duration, as given timing felt a bit short.

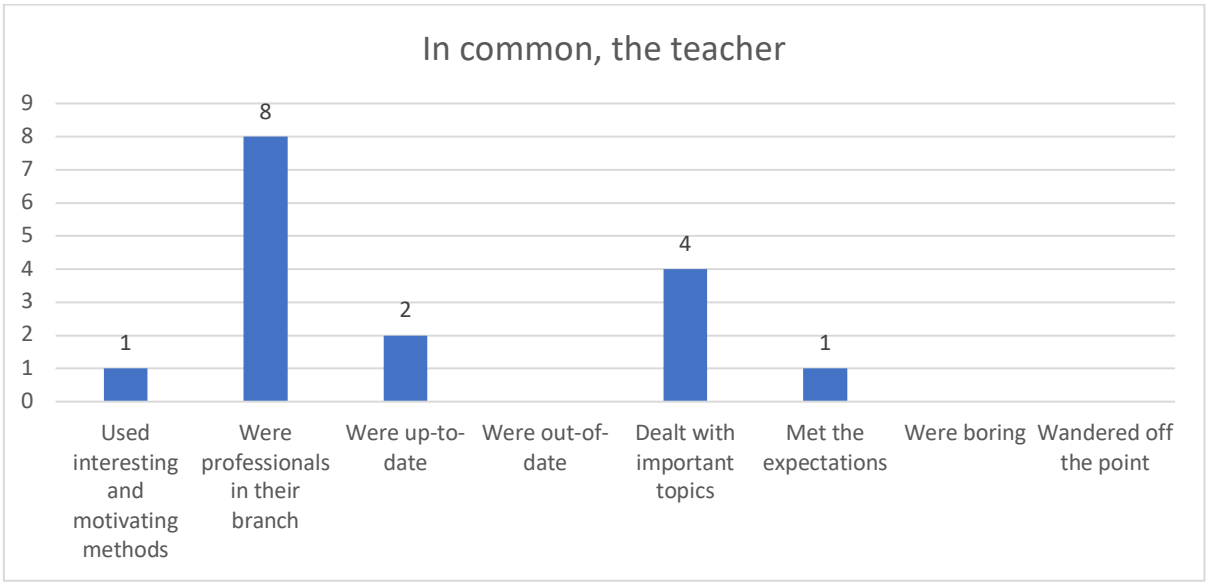
At the end of the training, the participants were given a certificate of training completion.

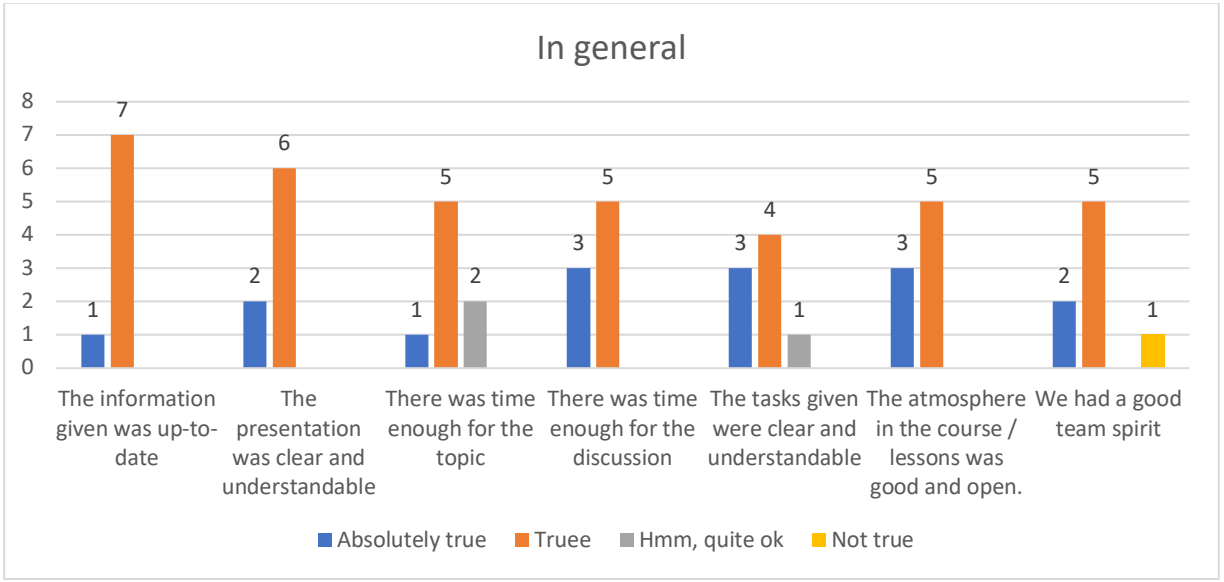
Main Findings and Conclusions

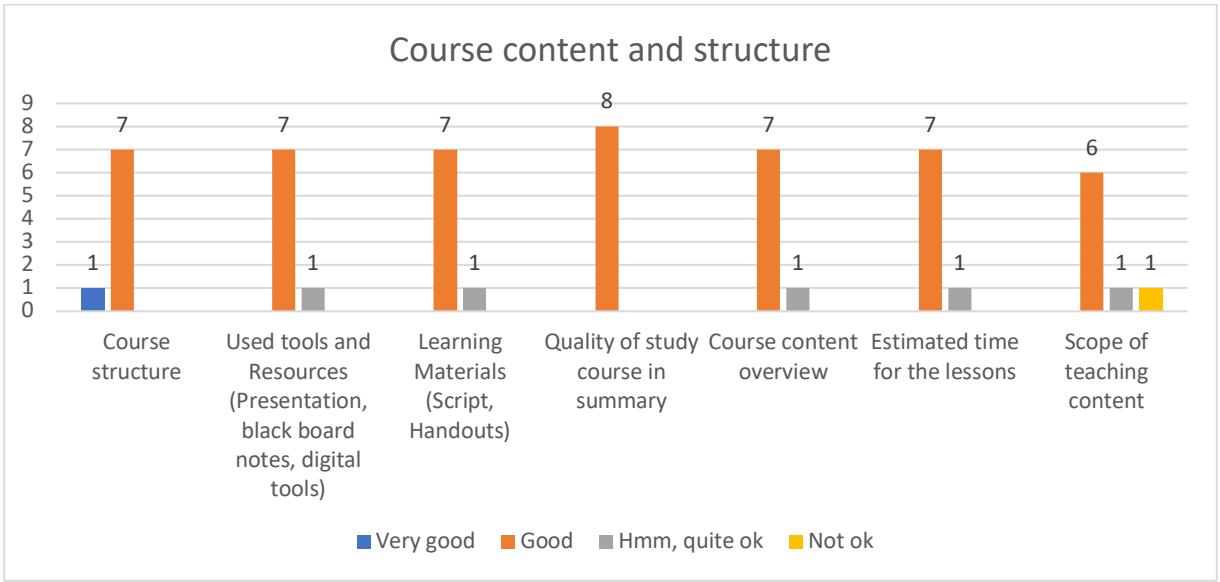
To draw conclusions and gather the feedback from the participants about the trainings, evaluation survey was used. It was translated to Latvian, printed and distributed to the participants at the end of training. In total, 8 completed surveys were gathered, as some of the participants did not show up to training. Below it is possible to see particular questions and answers given by participants.

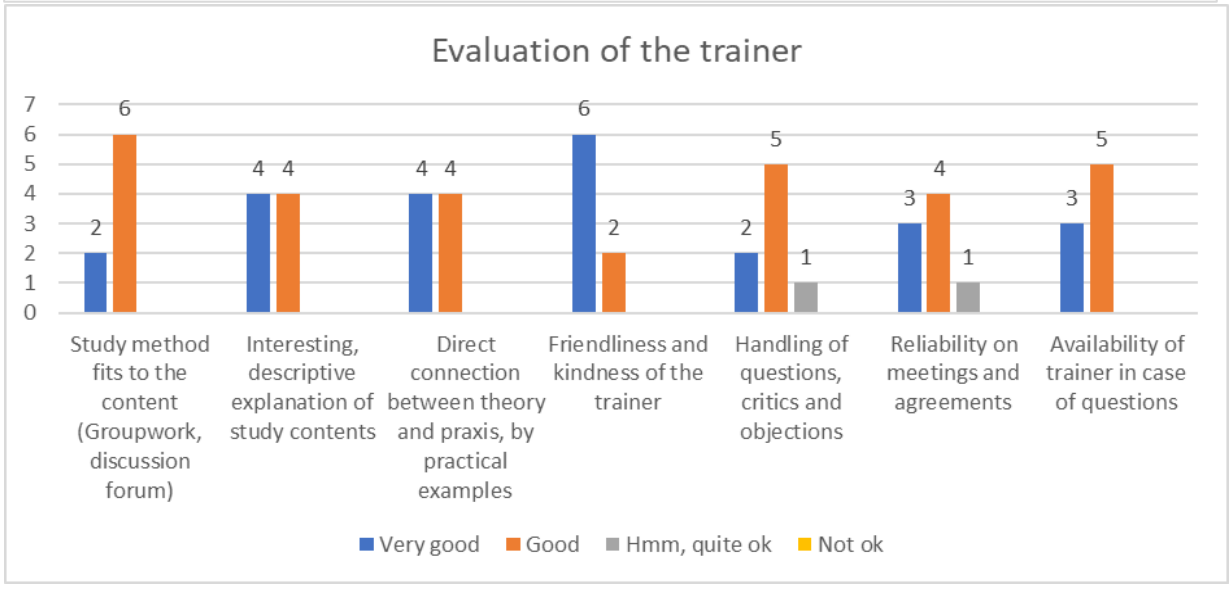

Faciliations
6
5
4
3
2
1
0
5
3
4
3
1
3
4
1
4
3
1
5
3
The Place for the Training was
The time (Date) of the training was
The length of the training was
The schedule of the training was
The facilitations (room, equipment etc) were
Very suitable
Suitable
Quite ok
Could had been better
Not suitable


In common, the topics were
8
7
6
5
4
3
2
1
0
7
2
2
Topical
Close to my needs
Out-of-date
Interesting
Up to date
Unnecessary
Important
Boring


In common, the teacher
9
8
7
6
5
4
3
2
1
0
1
8
2
4
1
Used interesting and motivating methods
Were professionals in their branch
Were up-to-date
Were out-of-date
Dealt with important topics
Met the expectations
Were boring
Wandered off the point


In general
The information given was up-to-date
The presentation was clear and understandable
There was time enough for the topic
There was time enough for the discussion
The tasks given were clear and understandable
The atmosphere in the course / lessons was good and open.
We had a good team spirit
Absolutely true
Truee
Hmm, quite ok
Not true


Course content and structure
Course structure
Used tools and Resources (Presentation, black board notes, digital tools)
Learning Materials (Script, Handouts)
Quality of study course in summary
Course content overview
Estimated time for the lessons
Scope of teaching content
Very good
Good
Hmm, quite ok
Not ok


Evaluation of the trainer
Study method fits to the content (Groupwork, discussion forum)
Interesting, descriptive explanation of study contents
Direct connection between theory and praxis, by practical examples
Friendliness and kindness of the trainer
Handling of questions, critics and objections
Reliability on meetings and agreements
Availability of trainer in case of questions
Very good
Good
Hmm, quite ok
Not ok

In general, participants were satisfied with the organisation and training content. However, one of the participants stated that the particular training content would be especially useful to those, who have no previous experience in BIM at all.
These trainings allowed to understand that such training programme and approach works. Due to limited time, participants had 6 weeks for the second part of the training, which was the project. As for other improvements, probably it could be useful to organise company visits or practical exchange of experience between company representatives, as sometimes such approach can lead to new solutions that can be taken up and implemented within other companies as well.
At the moment it is a bit difficult to say if trainings are going to be continued. One of the explanations, now there are quite a lot of different trainings offered on the market. Second, during the communication with company representatives, lot of them said that they are not interested in BIM, even though it will become mandatary in 2025. This seems to be a bit weird, taking that into account.

Implementation reports of specific development project within the company

Not all of the training participants managed to create or were willing to develop projects within their companies. Some of the participants fell ill and were not able to take part in the final day, and some of the participants just decided not to show up. In total 5 participants from 3 companies were active and managed to complete the projects. As 3 participants were from the same company, they had a common project.

Project No. 1

Name and address of the company: AS Latvenergo (Unified Data System)

Branch/focus of activity of the company: Production of electricity; Trade of electricity

Average number of employees of the company: 1270

Brief description of the development project: the company is planning to integrate unified data system. The main challenge is that they have no previous experience with such system and what are the steps to successfully integrate it.

Short description of the results: During the trainings company representatives gained a valuable insight in the BIM system and what are the first steps to integrate it in company processes. Following this, company reps were able to identify main steps and tasks that have to be carried at the very beginning.

Project implementation tasks:

- Define Project Objectives
- Establish a BIM Execution Plan
- Select BIM Software and Tools
- Establish Data Exchange Protocols
- Train Project Team
- Regularly Update

Short progress report of the project partner: Project allowed to understand and develop the first steps that must be taken. Based on these, additional research will be done to evaluate the best steps for the future and successful implementation.

Project No. 2

Name and address of the company: SIA Būvinženieru konstruktoru birojs

Branch/focus of activity of the company: Architectural activities

Average number of employees of the company: 14

Brief description of the development project: the company is developing project within the BIM environment. The project itself is Liepajas prison, projecting all relevant connections and utility networks, where everything is projected within the Dalux programme.

Short description of the results: During the trainings company understood which steps are crucial in such project and cannot be missed. Relevant changes will be done.

Project implementation tasks:

- Team Formation and Collaboration
- Modelling and Design
- Documentation and Visualisation
- Update BIM standards and protocols for future projects

Short progress report of the project partner: Project currently is being developed and will be implemented after approval.

Project No. 3

Name and address of the company: SIA Inženieru birojs PROFECTO

Branch/focus of activity of the company: Engineering activities and related technical consultancy

Average number of employees of the company: 13

Brief description of the development project: Development of a construction design for the rehabilitation of the concrete surfaces of the top beam supports of the Pļaviņas HPP

Short description of the results: Project was successfully implemented in 2019. Due to lessons learnt in the process, participant wanted to share his experience particularly about this project and get feedback from expert as well as the participants.

Project implementation tasks:

- Regularly exchange information and model updates among team members
- Ensure seamless integration of different software tools used in the BIM process
- Evaluate the success of the BIM implementation and identify areas for enhancement
- Track changes and maintain version control of the BIM models
- Manage project timelines, milestones, and deliverables

Short progress report of the project partner: The project was implemented already back in 2019. The participant wanted to share his experience and lessons he learned during the planning and execution of the project. Another interesting thing – the client of this project was AS Latvenergo, participants of which also participated in these trainings.

Chamber of Crafts and SME in Katowice, Poland[23]

Admission

The training is part of the WP 5 package. The curriculum was developed by Finland's DIG-CON project partner PP4 SAMK, while the assessment concept was developed by Germany's PP2 HS21 partner. The materials prepared by the SAMK partner were largely used to prepare the scope and topics of the training. An important element of the training was the implementation of the KAIN method, which is used for the practical use of knowledge and skills gained during the training.

We conducted a training on the use of digital technologies and cooperation, in which the KAIN method played an important role.

We started the training on 12.10.2023 and finished it on 9.11.2023. The first two meetings took place in the CCSK conference room, the following weeks were used by the participants to implement the selected project in their company, contacting the lecturers at the same time. At the last meeting, after joint discussions on the projects, certificates of participation were handed out (attached).

The training provided at the Chamber of Crafts and Crafts was not classified in the national lifelong learning system and cannot be directly assigned to the EQF level. This is an out-of-school training for adults who want to expand their knowledge of digitalization. The opportunity to take part in training on digitization allows you to implement new tools for cooperation between different departments in the company. Thanks to the knowledge gained, employees and entrepreneurs have the opportunity to learn and try out new programs that facilitate work in the office and on the construction site. Advertising on the Internet is not always convincing to launch a new application, a new program, so it is important to conduct this type of training to show how to use a given program and answer the questions asked and support users when trying to implement it in their company.

The KAIN method turned out to be an interesting way of testing. The participants adopted this method and tried to implement the project in their company. The presentation of certificates to the participants of the training was also positive.

Reception and organisation of the training

The target group in the curriculum could be architects and engineers, as well as entrepreneurs and managers of small and medium-sized construction and finishing companies, as well as qualified employees of the construction and finishing industry and students of further vocational training. This time, we have gathered masters of the construction industry who provide services and employees of construction and finishing companies.

[23] Prepared by Anna Palowska, Chamber of Crafts and SME in Katowice, Poland

The first way to inform about the possibility of taking part in the training was to send a mailing to guilds and companies in the construction industry. Another way to attract training participants was to inform them about the possibility of taking part in the training by phone. We were also able to inform craftsmen directly about the training, during other conferences (2 conferences: Festival of Professions in Koszęcin in June 2023, Educational Council with representatives of the Guilds). We also encouraged people to participate in the exams that take place in our Chamber. Several master's examinees took part in the training. There were also employees of construction companies delegated by the owner. In the end, a group of 12 people was gathered.

The training took place in the CCSK conference room. The first one took place on 12.10.2023, the next one on 13.10.2023 and the last one on 9.11.2023. For 4 weeks, the participants had time to implement the project in their workplace. Already during the first two meetings, they showed interest in the topic by asking about various issues. During the self-study, several people contacted the lecturer to discuss the matter.

Organization of the implementation

The lecturer received training materials prepared by the PP4 SAMK partner. He adapted his presentation to the realities of the construction industry in Poland. He organized an on-line meeting with a representative of the company involved in the implementation of the Moniti program. Some of the participants took advantage of the free trial version of the program and talked about the advantages of the program during the last meeting at CCSK.

The lecture was conducted by Mr. Artur Ledwoń, experienced in working with people as an entrepreneur and trainer. Since 2007, he has been associated with the construction industry as a company owner. The certified construction technician has won two championship titles. For personal and business development, he completed courses related to construction activities. Member of the Examination Committee at the Chamber of Crafts in Katowice in construction professions – supports the development of professionals, Member of the Board of the Guild – works for the promotion and development of construction craftsmanship, Member of the Construction and Building Materials Committee at the Polish Craft Association in Warsaw – enables the shaping of industry policy. He takes an active part in study visits to European cities, where he can learn about and compare construction practices in other countries. Its aim is to develop the construction industry by introducing new technologies and innovative solutions in the construction industry, promoting craftsmanship among young people, training and educating professionals, which will contribute to improving the quality of services in the construction sector. Thanks to his extensive practice, he conducts trainings based on examples and technological innovations used in Poland on the construction site.

The lecturer answered the questions put to him. The atmosphere during the training was relaxed, so the participants were not ashamed to ask questions. He was in contact with several participants after the training to give them advice on the programs they were using.

Considerations for the implementation of the trainees in the company or organisation: the order of the accompanying coaching, the frequency and intensity of the consultations, the thematic focus of the consultations, etc.

During the implementation of projects in the company, the lecturer contacted 5 participants of the training who needed help in using the programs. It was mainly about support in terms of the use of the program.

The participants of the training were from the sector of small and medium-sized enterprises. We are glad that they were able to come to our training during the high working season and that they were interested in it.

The training in the hall was conducted in 3 days. The first two concerned the presentation of programs that the participants were later to use in their work. For four weeks, they tested the corresponding program: Moniti, MS OneDrive, Miro digital whiteboards, Google Drive. The last day was devoted to discussing the tested programs, discussing together and handing over certificates.

Course content: Further training on the use of digital technologies and collaboration

I. Course Introduction

II. KAIN method

III. Digitalisation and collaboration

IV. Theory of cooperation and civic participation

V. Threats of civic activism

VI. Legislation and regulations

VII. Security and security of cooperation

VIII. Ways to collaborate

IX. Creative problem solving

X. Digital collaboration tools

XI. Project

Lecturers' observations and opinions

It is good that there are projects in which you can present programs that facilitate work in the construction industry and beyond. Training employees from small and medium-sized enterprises helps you grow your business and work more efficiently. They don't always have time to check out new digital programs, and they have been trained in how to use them during the training. There was a clear interest in the topic among the participants.

After analysing the questionnaires, the participants had a positive perception of the meeting place, time and schedule. The subject matter of the meeting was interesting, up-to-date and important for the audience. The lecturer was professional in his industry, had up-to-date knowledge, the way the training was conducted was interesting, there was time for talks, he presented the topics in a clear way.

Summary of the implementation evaluation

The conclusions have already been set out in the previous paragraphs. As you can see, there is potential in conducting such trainings. It is worth conducting such trainings. Micro, small and medium-sized enterprises cannot always afford to spend financially, and thanks to EU projects, it is available to them and allows them to develop their enterprises.

Strengths and benefits of training

We are glad that we managed to gather a group of participants. The advantage of the training was the possibility of connecting with a representative of the company promoting the Moniti application – monitoring the working time.

Tips for future reference, suggestions for possible improvements or further development

The curriculum, the proposed materials for the preparation of the training were adequate. In our opinion, the method and preparation of the training was appropriate.

Due to the connection of the Chamber of Crafts with the construction and finishing industry by conducting journeyman's and master's vocational exams, we would like to continue the possibility of education for people who choose a profession. It is worth making people aware of the opportunities offered by digitization. Nowadays, every company needs to implement tools that are helpful in new technology, which is why such training is needed.

Reports on the implementation of a specific development project

Moniti App Report

The Moniti application is a program that is used to monitor the working time of employees. In addition to this basic function, the program also has the ability to monitor employees' GPS, assign tasks to specific people, but also the function of reporting employee holidays and absences. I heard about this application for the first time during a training,

and due to the many functions of a given application, as well as the possibility of moving away from the paper form of employee work supervision, we decided to introduce it in our company. As we are a construction company, we started the implementation with manual workers working on the construction site

and commuting to specific locations. For this reason, we have chosen the option of monitoring the working time by employees individually using a phone, because Moniti also offers other possibilities of monitoring work, e.g. by one person supervising the entire group of employees.

The process of implementing the application itself was not a difficult process and went quite quickly, due to the simple operation of the application. Registering your company and employees in the app is easy, especially since Moniti offers help with setting up an account and setting up data. All you need to register specific employees is a contact phone number. Employees who agreed to test the program, along with registering in the application by the administrator, received a text message redirecting them to download the program to their phones. After downloading, they automatically logged in to their profile, where they already had their network set up, basic information in the form of the rate per hour, the number of hours they work per day, or the department in which they work.

Employees also do not require too much time to work with the application on a daily basis. When employees start work, they only click a button in the app on their phone, and from that moment on, the app both monitors the time and tracks employees using GPS. On the other hand, in the administrator panel, after the employee starts work, a tile appears that informs about the employee's working time, but also data on the location or the number of kilometers traveled in connection with, for example, the route by car. In the event that employees forget to start work, as an administrator we can also enter the number of hours they "forgot" about. In the case of leave or L4, employees report their absenteeism using the application by selecting the appropriate application – previously prepared by the administrator. As an administrator, we have to approve the employee's absence, after which they are entered in the work status and the final report on an ongoing basis. As an administrator, we can also supervise the amount of remaining leave of employees, so that we can decide on the absences granted without calculation.

The application has the ability to generate reports, which is one of the most important aspects of this program for us employers. Thanks to the generated, automatic reports, we can determine the working time of employees, the location of a given day, or the number of absences in a given month in a few seconds, and then determine employee salaries. In addition, thanks to arrangements with a Moniti representative, we have created our custom report combining the most important information that interests us the most.

From our perspective and that of our employees, testing the application in the company can be assessed as positive. First of all, employees do not have to remember to enter the working hours on a given day on the list. Especially since quite often this list was forgotten and filled in after some time. From our perspective as an employer, the application presents us with the most important information that we need to supervise employees and their work, but also data to determine employee payouts. After a period of testing the application, we decided to keep Moniti in our company and extend this application to a larger number of our employees.

Microsoft Project – Raport

MS Project is an application that is used to support the management of projects in enterprises. In our company, we have introduced it as an employee who is responsible for supervising the process of project execution. This application was used primarily to generate schedules of the work being carried out. Thanks to the functions of this program, we were able to assign resources to specific tasks in the right amount and in a non-overlapping way. MS Project also allowed us to manage the costs of the project more easily, thanks to the preview of the costs spent in relation to the progress of work. The implementation of the application in our company went quite smoothly, although in order to fully use the program well and use every function that the software has, it was necessary to use the program's instructions. However, the introduction of MS Project resulted in easy task and project management. Definitely, this application is valuable and necessary for management in the company, so we plan to introduce this program for all employees of the company.

One Drive Report

After the training and the programs, we learned, we decided to implement the One Drive service in the company. We used this application because of the large number of documents in

electronic form that we generate and send, but we do not have them fully organized and stored in the right way. This service is a kind of virtual disk (cloud) that allows you to store various types of files on it. For this reason, we have set up our company account, to which all employees have been given access. In cooperation, we have established a file naming system, as well as established chronologies for assigning given files in relation to the created folders. Such activities made it easy to keep order among the documents, but also to find materials easily. Thanks to the fact that the documents are in the "cloud", our employees can work on one document together, seeing the data they enter. The introduced service has had a positive impact on improving the work of employees and, above all, accelerating the performance of duties. We can evaluate the introduced service positively.

Microsoft Teams – Raport

We decided to implement Microsoft Teams in our company. This was due to the fact that most of our employees perform their duties on the go, or remotely from home. Microsoft Teams has enabled us to improve collaboration between team members. Testing the app was quite intuitive, thanks to the fact that it is easy to use. A very big advantage of the application is the ability to assign tasks to employees, which can be segregated according to urgency. Thanks to this, we can monitor the progress of the work on an ongoing basis. The application also allows for video conferences, and thanks to the fact that this application is available for both phones and laptops, we can conduct conversations with employees at any time. Evaluating the app in the end, I found it useful.

Miro – Report

For the testing period, we chose the Miro app. It is a digital whiteboard that allows you to perform different visualizations in one place. The implemented application was not an advanced program, so a moment of work in the environment of this application allowed us to discover the possibilities of the program. A big plus is the fact that the basic, and perfectly sufficient, function of the program is completely free. We used this board to record our company processes. Employees can work on the board simultaneously from different devices, so everyone can control how the processes are written out and can enter their comments on them. The application can be considered necessary.

Ipartestületek Országos Szövetsége, Hungary[24]

Introduction

This training and coaching process was included in the WP5 package, many thematic elements of this training curriculum were developed by Satakunta University of Applied Sciences, project partner number PP4 and the Buxtehude University of Applied Sciences (HS21), project partner number PP2, and we tried to take it into account as much as possible when we implemented our training and coaching programme.

The training and cooperation process implemented by IPOSZ is largely determined by the fact that IPOSZ is a national umbrella organization of micro and small enterprises and that many professional associations active in the construction industry belong to IPOSZ. These professional

[24] Prepared by Tamás Rettich. Hungarian Association of Craftmen's Corporation

branch associations active in the construction industry and their member companies were involved in this training with the aim of supporting new forms of cooperation. However we should add that these involved branch associations do not cover the entire spectrum of the construction industry. There are still many construction trades whose professional associations have not yet been involved in this construction industry cooperation that has just started, and the involvement of these professional branch associations is definitely a goal to be achieved in the future.

There are two main types of communication and cooperation in the construction projects implemented by the micro and small business member companies of IPOSZ::

The two basic types:

1. The customer/client is in direct contact with a contractor/construction company who organizes possible subcontractors. Thus, the project is managed by the given contractor, who is responsible for the coordination of the subcontractors and their work.

2. The client organizes the project and coordinates the work of the contractors. Communication between contractors is organized by the client.

The essence of coordinating a construction project is communication, sharing data and information, and documenting agreements, offers and contracts. It is important that the changes that occurred during the project, as well as the actual implementation, are documented and handed over to the client.

In the case of several entrepreneurs, maintaining contact with each other and passing on data and information about the work performed is also a significant risk factor from the point of view of implementation.

The purpose of the training was to familiarize the entrepreneurs with the legal basis of cooperation in the construction industry, as well as with the applicable digital communication solutions that can promote cooperation.. The training material discusses suitable solutions based on common communication situations, presenting their advantages and the conditions for their application. With the proper use of digital solutions, communication can be more effective, agreements can be documented, and misunderstandings can be reduced. Misunderstandings are a serious risk in most construction projects. Communication between the customer and the contractor, as well as between businesses representing different professions, is the basic condition for a successful project that brings satisfaction to all participants. The two parties, or in the case of several companies, have different levels of knowledge and information regarding construction, which must be taken into account in communication. Digital tools can also play a significant role in bridging this different level of knowledge, which in several cases also support the process visually.

During the training, all this knowledge was transferred, fully adapted to the needs of the participants, in online and personal form, sometimes in group training days, and sometimes in the form of individual consultation, which the instructors continued with the participants.

Implementation

The first day of training was preceded by a long preparation process, part of which was the study of the curriculum received from project partners. We conducted negotiations with all our professional associations active in the construction industry in order to find out what the needs of the companies working in the given profession are for the players working in other construction industry professions. How does each construction trade see the possibilities and necessity of cooperation with other construction trades.

The timing of the trainings was adapted to the economic activities of the participants. We held our first meeting on 10th of October in 2023.

In the first two workshops, with the participation of a large number of member companies, we reviewed the legal and contractual conditions of cooperation in the construction industry, as well as all the new digital channels through which this cooperation can work.

The last day of implementation was April 11, 2024, when the participating professional organizations presented their ideas in a day-long information event at Construma, Hungary's largest construction industry exhibition, about the forms and advantages of cooperation between construction industry actors.

The April 11 event ended with a round table discussion, where representatives of 7 different construction industry professions gave their comments.

At the same time, we should by no means consider this event as the last stage of the cooperation process. The IPOSZ tries to continue this cooperation between its professional organizations operating in the construction industry both within the framework of the Dig-Con project and after the end of the project, and if possible, IPOSZ also tries to involve representatives and associations of other construction trades in this cooperation.

This cooperation between professional associations and their member companies appeared later in other work packages of the Dig-Con project. For example, we have specifically invited participants to the various digital trainings organized within the framework of WP6 so that representatives of as many construction trades as possible were present at the same time and we could present the applicability of digital solutions to as many construction trades as possible.

The training fits into the overall adult-education phase of the national system of trainings, but a direct EQF level can not be classified to it. It is an out-of-school-system training took place at the member organizations of IPOSZ and organised by IPOSZ.

This training perfectly explained the basics of the digital solutions that could help SME owners, entrepreneurs and their professional associations operating in construction and finishing trades. Everyone managed to acquire new skills and new knowledge, which are necessary for the exchange of information, data storage and for the smooth cooperation during the construction process. The construction industry is currently one of the most dynamic sectors of the economy, and the governmental measures and society's attention have recently been increasingly focused on this sector. Newly built apartments must meet new certifications and, above all, new energy requirements, so it is extremely important that both employers and employees in the

construction industry should be aware of the changes and be able to apply the new IT tools and technologies in practice.

The knowledge presented at the training was implemented in detail during the coaching process tailored to the companies' and professional associations' needs. The topics used in the training could be used of course also in the training of enterprises of other sizes and applicable for other professional branch associations in the field of construction. It should be emphasized that the training has elements that can be used to develop certain basic skills among the whole population and thus help to develop a better digitalized relationship between businesses and businesses and between businesses and consumers.

Micro and small enterprises and their professional associations have special training needs. These specific needs must be fully taken into account if we want to successfully transfer modern digital knowledge to them. In the field of the construction industry, special attention must also be paid to the timing of training courses. For example, it is clear that it is not worth organizing training for them in the summer, during the biggest construction works take place.

Such short-term training courses as we provided in this project must be widespread in adult education. The experiences of this project could help making decision-makers aware of the need to finance similar short-term additional trainings for micro companies and for their professional associations.

The purpose of the training was to shape the cooperation attitude of domestic construction contractors, to strengthen their commitment to cooperate with others.

During the training, we sought answers to questions such as:

- How does the cooperation between construction professions look like at this moment?

- How could this be improved?

- How important is the communication?

- How do the different professions in the construction industry build on each other?

- To what extent do you feel that the professions operate independently of each other?

- What expectations do the individual professions have for the profession that worked before them on the construction site?

- And finally, could you imagine communicating with other professions on a common platform?

It is natural that the digital world makes it easier to answer these questions, as there are more and more tools and applications that allow us to message each other remotely, ask questions, answer them, send drawings, plans, etc..

During the negotiations, it became clear that we must provide interior designers with a special role in the development of forms of cooperation, because this is a profession that has the most influence and also depends on the quality of other construction professions. In addition, an important aspect is that the interior design profession is predominantly, 95%, represented by

women, who are much more open to cooperation than average, which can be a good catalyst and basis for further work.

The aim of the training was to learn about the legal framework of cooperation and the tools and applications with which businesses can cooperate more effectively from planning to implementation, in order to achieve better customer satisfaction. The primary consideration is to meet the needs of the customers as best as possible and to improve the quality. All of this requires serious coordination, communication, and cooperation on the part of all the professional areas involved in the construction.

Digitization in the second decade of the 21th century, it accelerated and took such concrete forms that coexistence with it must be thought through in all areas of life, including the construction industry too. This applies to all individuals and businesses, whose everyday communication the digitalization impacts more and more widely. Regardless of the size of the company, no one can be exempt from the effects of the changes, whether they are employees or employers. Everyone must learn new skills and new knowledge if they want to cooperate with others and to participate in information exchange, data storage and all other activities that affect the life of construction companies.

Admission and organisation of the training

IPOSZ is a national umbrella organization and its member associations include more than 20 professional associations representing a wide variety of professions, such as hairdressers, bakers, photographers, etc. Of course, many professional organizations come from the field of the construction industry, and they are also connected to IPOSZ, they represent the following professions:

- room painter, plasterer, wallpaper
- carpenter
- stonemason
- gas fitter
- electrician
- interior designer
- air conditioning technician
- roofing

The businesses operating in these professions all carry out construction work and are involved in construction at various stages of a construction project. It is extremely important that these professions know each other and to know which profession is coming in the construction process after which profession.

Among the professions listed, one profession requires much more complex knowledge: the interior designer. A good interior designer must be aware of the properties of all building

materials, their ability how to be installed, and must know the tricks of all construction trades, to know what an interior designer plans how will it be realized.

Knowledge of these new materials and new technologies requires mutual cooperation, since the contractors of the various finishing trades must be able to actually build what the designer has planned

We organized this training mostly for professional associations operating in construction and finishing trades and for their member companies.

Prior to the course, we held separate consultations with all professional organizations in order to learn their opinions and expectations about a collaboration that includes other professions in the construction industry. After that, we asked the professional organizations to delegate participants from among their members who took part in the various training days.

Between the individual training days, we consulted with the professional organizations and continuously incorporated their needs into the further shaping of the cooperation process.

Quite diverse professions were represented, since topic of cooperation affects many different professions from carpenters or painters til electricians, both small and large businesses.

The main target group of the training was micro-enterprises, as IPOSZ's members mainly come from this sector and their professional branch associations.

For them, the acquisition of digitalization skills is important, on the one hand, for the construction industry services that they provide directly to the population. In addition, perhaps even more emphatically, the acquisition of digital knowledge is important for them when they cooperate, do subcontracting and supplier activities and various economic collaborations with large companies and service networks. This can only be done with high-level digital knowledge.

Thus, it is the fundamental interest of micro-enterprises and their professional associations operating in the construction industry to develop their digital skills.

Micro-enterprises mainly operate in a specific business area. But it is also extremely important for them to be able to expand beyond their usual customer base, using the latest technologies.

The training aimed at micro and small businesses, with the aim of revealing the current state of their digital maturity, as well as providing them with first-hand information about the areas to be developed in the field of cooperation within construction industry.

During the selection, we also focused on broadening the range of women's businesses among the participants, although it can still be said today that mainly men are active in the construction industry, but for example, women are already predominantly active in interior design.

When inviting the training applicants, we assumed that the participants can handle their smartphones and laptops at an everyday users skill level, and that the participants would rather use the free of charge consumer applications and services. Ennek megfelelően állítottuk össze a tananyagot.

We started from the assumption that after getting to know the simpler tools, it will be more appropriate to explore the more complex applications.

It was basically the task of the involved professional organizations to nominate the participants. Of course, we first held a detailed discussion with the leaders of all professional organizations about what the topic of the training would be, what advantages it could mean for the professional organization, and what kind of participants we were expecting for the training. We are convinced that if we are not able to address the many thousands of family and micro businesses on a wider scale in time with appropriate training, then an employment crisis may arise, as they will not be able to perform their construction work at a high level. Digitization is bringing new devices and technical solutions, and the operation of these new devices require new knowledge. There are signs that problems are already starting to appear in this area due to the lack of knowledge. Therefore trainings can contribute to the prevention of problems in the field of employment. These type of trainings help to avoid or reduce the occurrence of employment crisis situations and fundamentally help the cooperation between the actors of the construction industry.

IPOSZ' professional organizations are present throughout the country, they have member companies everywhere in the country.

We provided the opportunity for participants from further distances to take part in the training.

The training was advertised on the IPOSZ' websites. Direct marketing strategies (phone calls and e-mails and many face-to-face conversations) were used to reach most of the participants. The professional organizations of IPOSZ played a particularly active role in recruiting participants. Our trade associations operating in the field of construction were notified about the planned course. The participants were gathered via this way. The participants came from different professions of the construction sector. By the way, this presented us with a difficult task in terms of organizing the events, as well as the trainer in terms of coaching.

Because the representatives of the various professions know very well themselves how important it is to have cooperation between the various professions for each construction work. In many cases, they create this cooperation themselves, because it is in their interest to constantly know about the work that representatives of other professions are doing. For large construction projects, special personnel and special programs help to make this cooperation work almost automatically. In the case of small companies with a few employees, the companies themselves must establish this cooperation, for which digital tools can now also be used.

This economic necessity and interest resulted in the participants willingly coming to the training.

On the individual training days, xx people participated:

- On October 10, 2023, 35 people participated in the online training

- On October 24, 2023, 25 people participated in the online training

- On November 29, 2023, 11 people participated in the online training

- On February 24, 2024, 17 people participated in the online training

- On March 09, 2024, 26 people participated in the training

- On March 28, 2024, 26 people participated in the training

- On April 11, 2024, 23 people participated in the training

During the organization of this training, the demand arose from our members that not everyone could attend the training days in person due to the distance, so they asked us to hold online trainings as well.

The in-person training days were also significant cooperation events, where many more people actually participated than signed the participant list.

Organisation of the implementation

During the coaching process, the trainers visited all professional associations and their member companies in person, as well as consulted with them several times online.

The organization of the implementation was carried out by the staff of the IPOSZ together with external experts and with the experts of interior designer branch member association of IPOSZ which were involved in the implementation.

The lead trainers came from our interior designer association, called LOSZ.

In addition to them, experts of various construction digital solutions also gave lectures, who presented the possibilities offered their software's too. Apart from them, digital solutions that could also help the cooperation were also presented to the participants. The presentations given by the experts fit into the curriculum, which is attached.

Considering the already mentioned difficult circumstances, the large distances, the organization required more time and energy than usually. The organization was also complicated by the fact that we had to carry out extensive background information activities beforehand in order to explain the objectives and essence of the project, since the area where the training took place is extremely new in Hungary within the micro and small enterprises and their professional associations.

We have selected instructors who are capable of holding similar training for other branches. The selected instructors maintain excellent professional relations with several leading companies providing digital solutions for the construction sector. Several experts from these digital companies were involved in certain parts of the training so that the companies participating in the training could gain even broader knowledge of the latest digital methods in the field of construction. All the instructors have appropriate competencies in the fields of their relevant digital solutions.

Training carried out and curriculum applied

The part of the project, on the one hand, defined the main digital aspects for the participating construction businesses and presented them specific implementation methods, based on which they were able to further develop their own business activities and their cooperation with other players of the construction process. During the coaching, this activity was further developed into

the specific applicability at each professional associations, and the counselling took place in their local environment. This opportunity for individual coaching tailored to the needs of the professional associations has not ended, as they can still contact the instructors and also the IPOSZ.

As a general comment, it can be stated that during the implementation, we reviewed an extremely wide range of digital solutions and adapted them to the needs of the participating professional associations.

In some cases, the cooperation between the various professional associations had a difficult start. There were professional associations that thought they were better and more advanced than other associations and tended to approach the others from a 'high horse'. This then passed as they got to know each other better and became able to mutually appreciate the virtues of other organisations.

We delivered all the professional materials, and the collection of best practices prepared by the project partners to our member professional associations operating in the construction industry. The experiences and the training materials provided by the project partners were widely discussed with the membership of IPOSZ, as well as with professionals involved in the sector. As a result of this dialogue, a training material consisting of 2 main chapters was created by IPOSZ, which was distributed and taught at the training and cooperation days described below.

The two chapters explain the followings:

1. Construction project management

a. The construction projects are implemented in cooperation between several professions.

b. During construction, the biggest risk is the matching of interdependent activities (matching tasks, tools, materials, work area, availability of human resources).

c. The successful implementation of construction industry projects primarily depends on cooperation and the timely availability of the necessary resources.

d. It is important for construction project planning

- planning the investment process,

- defining and building on the necessary professional work,

- determination of collision points,

- breaking down the schedule,

- determination of material flow,

- waste management,

- as well as risk assessment and management planning.

e. ....

2. BIM approach, methodology and areas of utilization

a. BIM accompanies the entire life cycle of the building from design to operation and creates value during each phase in terms of understanding, implementation, cooperation and follow-up between professions.

b. Benefits of BIM

c. Dimensions of BIM

i. 2D Two-dimensional representation

ii. 3D Three-dimensional modeling

iii. 4D Scheduling and time factor planning

iv. 5D Cost planning

v. 6D Planning of energy and building physics data

vi. 7D Operation planning and monitoring

d. BIM areas of use

i. .....

In addition to these, the training covered, among others, the following topics:

- legal regulation of contracts
- special legislation on construction works
- contract signing process, antecedents, sanctions
- contract content
- contract types
- Definition of cooperating partners, their responsibilities
- Performance, quality of service
- Delay, incorrect performance
- Warranty, guarantee
- Data protection
- Marketing plan
- Goal, strategy
- Competitor analysis
- Market analysis, SWOT analysis
- Tactics, tools

We must point out that the training materials prepared by the Satakunta University of Applied Sciences and Buxtehude University of Applied Sciences helped us a lot in the designing of the training, the elements of which we took into account in the training in Hungary. We must also note, however, that for the training in Hungary we had to take into account the existing economic and technical environment, and the often-different development level and economic opportunities exist in Hungary for small businesses. We always do our utmost to ensure that the good practices of other countries could be continuously implemented in Hungary, and we consider this to be a priority task and benefit of the project.

The training material has been prepared and tested, the instructors/teachers are available, and if adequate financial support can be provided, this type of cooperation can be implemented and deepened later.

Observations and feedback from lecturers

The instructors were in constant contact with the participants during the entire duration of the training.

Full-scale cooperation can only be established if a fair, reliable craftsmen' qualification system is established, and a database of these reliable craftsmen is created. All of this requires a huge amount of work from the professional organizations in order to create a certification system that is recognized by both clients and construction companies. While our days are characterized by the freedom to start a business without regulations.

In addition, this high-quality work can only be maintained if all businesses continuously educate themselves, continuously learn about new materials and new technologies. This requires constant training. There is a need for market-based training as well as state-supported professional training.

Strengths of the training as seen by the participants

See participants' descriptions of their development and questionaries circulated at the end of the training phase. Based on the completed evaluation forms, it can be concluded that the participants were largely satisfied with the training. The training was rated as useful what encouraged the participants for further develop their digital skills.

According to our assessment, one of the peculiarities and not a weakness of the training was that it was attended mostly by the smallest enterprises and their professional associations. In this way, we were able to get to know their reactions and test the training at their level of development. We were glad that small businesses and their professional associations took part in the training, because in Hungary companies with very few employees make up the largest part of businesses. Even today, it is typical for large companies to use digital tools that support cooperation.

Today, this cannot be widely said about smaller businesses, although many of them already use digital devices. This is because if they want to work with a larger company, they can only do so through these modern digital channels.

The use of digital solutions in construction processes in the case of such small businesses sometimes exceeds their financial capabilities, although it is clear that most of the digital

solutions are available for them and their use can be really effective for the micro companies. They often did not make use of digital tools in a small business, but they are ready to learn easy-to-learn, easy-to-use solutions. For some digital solutions, they need external service providers who can provide immediate assistance. But short-term, practice-oriented training courses, where small businesses can improve their digital skills, can help a lot.

Main Findings and Conclusions

We have already summarized certain conclusions in the points above. In addition, we must emphasize once again that much more projects, support, information, persuasion and services are needed in order to speed up the catching up of the micro business sector in this area. Our very important comment is that this is extremely necessary, because it is precisely the small businesses that are in direct contact with their consumers and are particularly good at developing their products and services by getting to know the new digital solutions.

A great advantage of the training was that the professional organizations got involved in the implementation, and they can transfer the knowledge acquired during the training to their member companies. Thus, the training had a significant multiplier effect. This helped to crystallize the general elements of cooperation, which can then be used for a wide variety of construction professions and of course supplemented with professional specifics.

The strength of the training, in our opinion, is exactly what we explained earlier, that we managed to attract companies working in the most diverse professions in the construction sector and their professional associations to the training. Another strength of the training was that we were able to do this taking into account the experiences of the international project partners.

For this training and coaching, the instructors basically came from our professional associations who are in daily contact with businesses operating in the profession. It was a very significant experience for us. Small businesses themselves are rarely able to define their own development directions as accurately as a dedicated expert of the professional association can.

This training was a very good example of how the economic life of small businesses can be significantly helped by receiving guidance from experienced consultants of the professional associations.

It is important to create a database that includes good industrialists. Today, one of the biggest difficulties for customers is to find a reliable specialist. And if a representative of a profession knows representatives of other professions and can recommend them to the customer, that is very beneficial. This type of cooperation is the guarantee of high-quality construction.

In any case, the practice should continue so that dedicated experts can help small businesses to find the best ways of cooperation with their practical advice. Of course, this also helps the work of the professional associations, as they receive direct confirmation of the usability of the methods they develop.

During the training, we were able to identify the most important operational competencies that are still largely missing from the daily operations of small construction businesses. Based on all these experiences, we.....

There are still many professions active in the construction industry whose professional organizations we have not yet started cooperating with. We will definitely contact the professional associations of these trades and they must also be involved in this national cooperation within the construction industry.

The experiences of the companies participating in the training show that what they learned during the training was associated with concrete economic results and an increase in their income. These positive experiences are shared with other businesses, so it is expected that similar cooperation courses will be organized even after the project.

The extraordinary advantage of our industry associations' network is that they usually have the necessary premises and infrastructure for such trainings and their network is nationwide.

6. Evaluation Concept[25]

Introduction

The focus of evaluation depends on goals of the process evaluated. Concerning the evaluation also further aspects such as Timeline and the opportunity to impact is to be considered. In common, evaluations tend to be multilevel and have a look at both towards and backwards. The aim of the evaluation is to support implementing and improving of the training; thus, the evaluation is multilevel, and the focus is on issues that we have an opportunity to impact on.

The evaluation should be scheduled so, that the whole course is still in the memory of respondents. If the course is single activity like lecture, practical training, or e-learning session, this is no problem. The evaluation survey or interview can be conducted immediately after the training without any risk on confusions concerning the target of the evaluation. But if there are more activities, the course lasts weeks or months, or consists of many meetings with certain interval, the risk of bias, caused by uncertainty about which part the survey or interview deals with, increases. This means that in such cases either the survey should be conducted separately after each phase or questions should be written so, that the risk of bias becomes minimized.

The process

In best cases, the evaluation survey and the report cover the evaluated course as a whole. This is not always possible, because e.g., the training may have been divided into parts with long periods between each, or parts of the course are quite different from each other. In such cases, it is recommendable to conduct the evaluation and write the report separately in each phase to avoid bias caused by time. These individual reports can then be summarised in concluding report.

This evaluation concept covers different types of courses. Some of these can be evaluated as a whole, but some must be evaluated phase by phase or can be evaluated only partially. However, the evaluation method, phases and tools are similar in each case.

The evaluation is planned to be conducted in paper form as well as using the online survey application Zensus. Both of them enable the anonymity of the respondents. The participants can decide themselves which way of evaluation they want to use.

The Evaluation process should follow the concept:

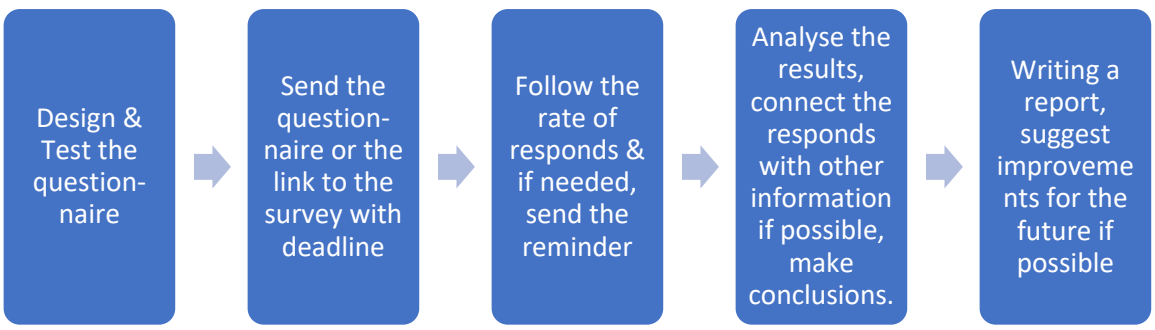


Figure 6: Evaluation Prozess

[25] Compiled by Tamas Ferenczi (M.Sc.) and Andreas D. Weise (Prof. Dr.-Ing.), Buxtehude University of Applied Sciences, Germany

Target groups of the evaluation

The main target group is those participating the courses, i.e., students participating the course.

Questionnaires and duties of each test facilitator

The questionnaires will be prepared course by course. The finishing of each questionnaire will be made when the programme of the course to be tested and evaluated is available (Table 1). The facilitator of the test sends the programme to HS21 early enough so that HS21 has at least two weeks to finish the questionnaire for the training in question. HS21 will send the links to each questionnaire to the facilitator who delivers the links and instructs the target groups to complete the questionnaire. The questionnaire will be also prepared to be printed in pdf and will send out to the facilitator to be printed and then to hand out to the participants.

Needs to translate the questionnaire?

If the questionnaire needs to be translated to domestic language, a facilitator should announce this at least 2 weeks before the training starts. HS21 will then send a preliminary questionnaire of each target group to be translated. Facilitator will send the translated (or proofed, if HS21 has made the translation) version to HS21 together with the training programme latest two weeks before the planned test course starts.

When the course starts

In the beginning of each course, the facilitator informs, that the course will be evaluated, and that participants will receive a link to the evaluation questionnaire in the end of the course. Participants should be informed that the evaluation helps the facilitators to develop and improve the course in the future.

When the course ends

In the end of the course, facilitator gives the link to the survey to students, or hands out the questionnaire in printed form, reminding them that each answer is important, and informs the period when the evaluation survey is active. It is recommended that Questionnaires online as well es in printed form be filled out immediately. One participant should fill the questionnaire only once. After one week the responding period will be finished. Also, teachers and employers should be given links to their own surveys, if such are required in the training in question.

After the responding period has finished, HS21 will collect the results from the online system, analyse them and write a report. Printed questionnaires filled by participants must be scanned and sent to HS21 via Email within the responding period. HS21 will take these also into the analysis.

Table: Summary of the duties, process and schedule of the test

Deadline and responsible party	**Task**
Latest two (1) weeks before the start of the course / training facilitator of the course should	• inform HS21 about the schedule of the course, • inform HS21 whether the questionnaires should be translated or not. If translation is needed, return the questionnaires included with translations written on the form. • send HS21 a brief info about the curricula (only **names** and **e-mail addresses** of the teachers, and **topics** they will teach are required).

Within two (1) weeks calculated from receiving the information listed above, HS21 will	• create the specific survey for this course, • translate the questionnaire • send the links to surveys to the facilitator and inform the deadline for the responding. • Send the questionnaires via Email to be printed.
When the course starts, facilitator will Inform the participants, teachers, and enterprises that	• the course will be evaluated, • the link to the evaluation survey or the questionnaires in printed form will be given in the end of the course or phase of the course, and • that it is important for developing the course that everyone complete the questionnaire once!
When the course or phase of the course ends, facilitator will	• deliver the links to survey to each group of respondents (participants, teachers, enterprises) either by e-mail or in other acceptable way • give the opportunity to fill out the questionnaires in paper form • inform the respondents about the deadlines, and • remind them about the importance of the evaluation. • Scan the printed questionnaires filled by participants and send to HS21 via Email within the responding period.
When the given deadline has been passed, HS21 will	• receive all scanned printed questionnaires filled by participants in paper form • open the online database and collect and analyse the results, • write a report, and • send the report to be discussed.

The report

In the report, following issues will be reported: A rough description of the group of respondents, have they been satisfied with the facilitations, topics, teachers, and their group, do they believe that the training has been beneficial, and what could have been made in other way. Furthermore, in certain courses and trainings also teachers' and employers' opinions will be surveyed and reported. These cases will be agreed together and announced separately.

In the end of each report there will be a concluding section that summarizes the findings and gives some suggestions concerning the opportunities to improve and develop the curriculum and / or facilitations. If wanted and agreed, all the evaluations will be summarized together.

Appendices

Appendix A The template of the questionnaire for participants of training	
Appendix B The template of the questionnaire for training lecturers	
Appendix C The template of the questionnaire for companies that KAIN method related projects were carried out in	

Appendix A The template of the questionnaire for participants of training

A1. Background information

1.1. In which country did you did you take the course for further training?

◯ Germany ◯ Hungary ◯ Poland

◯ Latvia ◯ Finland

◯ Other Country: .....

1.2. What is your highest education?

◯ Doctor or resp. ◯ Master of Science ◯ Bachelor

◯ Master VET ◯ Vocational Education ◯ Matriculation Exam

◯ Comprehensive School ◯ None

1.3. Employment: At the moment you are

◯ working ◯ studying ◯ unemployed

◯ retired ◯ other: .....

1.4. In which branch you are / were / will be working or studying

◯ Education and training ◯ Consulting ◯ Construction

◯ Finishing ◯ Electrician ◯ Plumber

◯ Architect ◯ Construction Eng. ◯ Electrical Eng.

◯ Piping Eng. ◯ Public Authority ◯ Other: .....

1.5. Experience in the branch

◯ 0 - 5 years ◯ 6 - 10 years

◯ 11 - 20 years ◯ More than 20 years

1.6. Age: At the moment you are

◯ Less than 30 year old ◯ 30 – 60 year old ◯ More than 60 year old

1.7. Gender: Are you

◯ Female ◯ Male ◯ Other ◯ Do not want to say

A2. The study course (Part 1 – Class room learning, day 1 and day 2)

2.1. Facilitations:

	Very suitable	Suitable	Quite ok	Could had been better	Not suitable
The Place for the Training was	◯	◯	◯	◯	◯
The time (Date) of the training was	◯	◯	◯	◯	◯
The length of the training was	◯	◯	◯	◯	◯
The schedule of the training was	◯	◯	◯	◯	◯
The facilitations (room, equipment etc) were	◯	◯	◯	◯	◯

2.2. In common, the topics were (5 choices max):

◯ Topical ◯ Interesting ◯ Important

◯ Close to my needs ◯ Up to date ◯ Boring

◯ Out-of-date ◯ Unnecessary

2.3. In common, the teachers (5 choices max):

◯ Used interesting and motivating methods ◯ Dealt with important topics

◯ Were professionals in their branch ◯ Met the expectations

◯ Were up-to-date ◯ Were boring

◯ Were out-of-date ◯ Wandered off the point

2.4. In general

	Absolutely true	True	Hmm, quite ok	Not true
The information given was up-to-date	◯	◯	◯	◯
The presentation was clear and understandable	◯	◯	◯	◯
There was time enough for the topic	◯	◯	◯	◯
There was time enough for the discussion	◯	◯	◯	◯
The tasks given were clear and understandable	◯	◯	◯	◯
The atmosphere in the course / lessons was good and open.	◯	◯	◯	◯
We had a good team spirit	◯	◯	◯	◯

2.5. Course content and structure

	Very good	good	Hmm, quite ok	Not ok

Course structure	○	○	○	○
Used tools and Resources (Presentation, black board notes, digital tools)	○	○	○	○
Learning Materials (Script, Handouts)	○	○	○	○
Quality of study course in summary	○	○	○	○
Course content overview	○	○	○	○
Estimated time for the lessons	○	○	○	○
Scope of teaching content	○	○	○	○

2.6. Evaluation of the trainer

	Very good	good	Hmm, quite ok	Not ok
Study method fits to the content (Groupwork, discussion forum)	○	○	○	○
Interesting, descriptive explanation of study contents	○	○	○	○
Direkt connection between theory and praxis, by practical examples	○	○	○	○
Friendliness and kindness of the trainer	○	○	○	○
Handling of questions, critics and objections	○	○	○	○
Reliability on meetings and agreements	○	○	○	○
Availability of trainer in case of questions	○	○	○	○

2.7. What would you like to say to teachers / facilitators. What could have done better, what should not be changed etc. Do you have any suggestions for improving the spatial and/or technical equipment?

A3. <u>Project phase (Part 2 – Self learning and project work)</u>

3.1. Prescribe shortly your project work

.....
.....

.....
.....

.....
.....

3.2. How much time was reserved for this phase?

◯ 8 weeks ◯ 9 weeks ◯ 10 weeks ◯ 12 weeks

3.3. About the project phase

	Absolutely true	Generally true	Partially true	Not true
The time period was well reserved for the project phase	◯	◯	◯	◯
The tasks and goals for the project phase were well explained	◯	◯	◯	◯
I knew well, what my tasks are and which project I will work on	◯	◯	◯	◯
The project was well connected to the topics of the course before	◯	◯	◯	◯
The project was connected to collaboration or civic participation	◯	◯	◯	◯
Tools presented in the course were used in the learning project	◯	◯	◯	◯
The learning project was strongly integrated in the company	◯	◯	◯	◯
The learning project was realized and implemented in the company	◯	◯	◯	◯
Due to the project phase I learned several new skills in digital collaboration	◯	◯	◯	◯
The learning project was completed by myself	◯	◯	◯	◯

3.4. What would you like to say to trainers? What could have done better, what should not be changed etc. Do you have any suggestions regarding the project phase?

A4. Reporting and reflection phase (Part 3 – Reporting day)

4.1. How many projects were presented and discussed on this day?

◯ less than 3 ◯ 3 - 5 ◯ 6 - 9 ◯ more than 10

4.2. About the reporting day

	Absolutely true	Generally true	Partially true	Not true
The projects were presented by participants	◯	◯	◯	◯
The time schedule for this day was well prepared	◯	◯	◯	◯
Enough time were given for discussion about the projects	◯	◯	◯	◯
Failures, lessons learned were also included	◯	◯	◯	◯
Conversations about the projects were possible	◯	◯	◯	◯
I have gained knew knowledge and experiences by other projects	◯	◯	◯	◯
The presented projects are well suitable to realize in my company	◯	◯	◯	◯
The concluding lecture was well structured	◯	◯	◯	◯

4.3. What would you like to say to the trainers? What could have done better, what should not be changed etc. Do you have any suggestions regarding the reporting day?

Appendix B The template of the questionnaire for training lecturers

B1. Background information

1.1. In which country did you did you trained the course?

◯ Germany ◯ Hungary ◯ Poland

◯ Latvia ◯ Finland

◯ Other Country: .....

1.2. What is your highest education?

◯ Doctor or resp. ◯ Master of Science ◯ Bachelor

◯ Master VET ◯ Vocational Education ◯ Matriculation Exam

◯ Comprehensive School ◯ None

1.3. Employment: At the moment you are

◯ working ◯ studying ◯ unemployed

◯ retired ◯ other: .....

1.4. In which branch you are / were / will be working or studying

◯ Education and training ◯ Consulting ◯ Construction

◯ Finishing ◯ Electrician ◯ Plumber

◯ Architect ◯ Construction Eng. ◯ Electrical Eng.

◯ Piping Eng. ◯ Public Authority ◯ Other: .....

1.5. Experience in the branch

◯ 0 - 5 years ◯ 6 - 10 years

◯ 11 - 20 years ◯ More than 20 years

1.6. Age: At the moment you are

◯ Less than 30 year old ◯ 30 – 60 year old ◯ More than 60 year old

1.7. Gender: Are you

◯ Female ◯ Male ◯ Other ◯ Do not want to say

B2. <u>The Study Course / Lessons (Part 1 – Class room learning, day 1 and day 2)</u>

2.1. Facilitations:

	Very suitable	Suitable	Quite ok	Could had been better	Not suitable
The Place for the Training was	◯	◯	◯	◯	◯
The time (Date) of the training was	◯	◯	◯	◯	◯

The length of the training was	◯	◯	◯	◯	◯
The schedule of the training was	◯	◯	◯	◯	◯
The facilitations (room, equipment etc) were	◯	◯	◯	◯	◯

2.2. In common, the participants (5 choices max):

◯ Were interested and motivated in learning new methods

◯ Had experience in their branch ◯ Have participated in discussions

◯ Had enough knowledge ◯ Were bored

◯ Were not qualified enough for the course ◯ Had no attention

2.3. In general

	Absolutely true	Generally true	Partially true	Not true
There was time enough for the topic	◯	◯	◯	◯
There was time enough for the discussion	◯	◯	◯	◯
The tasks given were clear and understandable	◯	◯	◯	◯
The atmosphere in the course / lessons was good and open.	◯	◯	◯	◯
We had a good team spirit	◯	◯	◯	◯
Different methods were used e.g. groupwork, discussion forum,	◯	◯	◯	◯
Different practical examples were presented and discussed	◯	◯	◯	◯
Different learning tools were used e.g. Power Point slides, online learning platform, Videos etc.	◯	◯	◯	◯

2.4. What could have done better, what should not be changed etc. Do you have any suggestions or lessons learned for improving the spatial and/or technical equipment?

B3. <u>Reporting and reflection phase (Part 3 – Reporting day)</u>

3.1. How many projects were presented and discussed on this day?

◯ less than 3 ◯ 3 - 5 ◯ 6 - 9 ◯ more than 10

3.2. About the reporting day

	Absolutely true	Generally true	Partially true	Not true
The projects were presented by participants	◯	◯	◯	◯
The time schedule for this day was well prepared	◯	◯	◯	◯
Enough time were given for discussion about the projects	◯	◯	◯	◯
Failures, lessons learned were also included	◯	◯	◯	◯
Conversations about the projects were possible	◯	◯	◯	◯
The concluding lecture was interactive, the high participation of the participants	◯	◯	◯	◯

3.3. What could have done better, what should not be changed etc. Do you have any suggestions or lessons learned regarding the reporting day?

Appendix C The template of the questionnaire for companies

C1. Background information

1.1. In which country were you participated in further training?

◯ Germany ◯ Hungary ◯ Poland

◯ Latvia ◯ Finland

◯ Other Country: .....

1.2. How many employees do your company have?

◯ 1-man-business ◯ less than 10 ◯ between 10 - 20

◯ between 20 - 50 ◯ between 50 - 100 ◯ between 100 - 500

◯ between 500 - 1000 ◯ more than 1000

1.3. How many company locations do your company have?

◯ 1 ◯ 2 ◯ 3 - 5

◯ 5 - 10 ◯ more than 10

1.4. In which branch are you active?

◯ Education and training ◯ Consulting ◯ Construction

◯ Finishing ◯ Electrician ◯ Plumber

◯ Architect ◯ Construction Eng. ◯ Electrical Eng.

◯ Piping Eng. ◯ Public Authority ◯ Other: .....

1.5. Experience in the branch

◯ 0 - 5 years ◯ 6 - 10 years

◯ 11 - 20 years ◯ More than 20 years

1.6. Your company is

◯ in the public sector ◯ private, inland ◯ international

C2. <u>Project phase (Part 2 – Self learning and project work)</u>

2.1. Prescribe shortly the project work, that were completed in your company:

.....
.....

.....
.....

.....
.....

2.2. How much time was reserved for this phase?

◯ 8 weeks ◯ 9 weeks ◯ 10 weeks ◯ 12 weeks

2.3. About the project phase

	Absolutely true	Generally true	Partially true	Not true

The time period was well reserved for the project phase	○	○	○	○
The tasks and goals for the project phase were well explained	○	○	○	○
The project was well integrated into the company	○	○	○	○
The project was connected to collaboration or civic participation	○	○	○	○
More digital tools were used in the learning project	○	○	○	○
The learning project was realized and implemented in the company	○	○	○	○
Our company gained new skills and knowledge in digital collaboration by the project	○	○	○	○
The learning project was self-completed by the course participant	○	○	○	○
Due to the project we use more digital tools now than before	○	○	○	○

2.4. What would you like to say to trainers? What could have done better, what should not be changed etc. Do you have any suggestions regarding the project phase?

7. Evaluation Report[26]

Introduction

The focus of evaluation depends on goals of the process evaluated. Concerning the evaluation also further aspects such as Timeline and the opportunity to impact is to be considered. In common, evaluations tend to be multilevel and have a look at both towards and backwards. The aim of the evaluation is to support implementing and improving of the training, thus, the evaluation is multilevel, and the focus is on issues that we have an opportunity to impact on.

The evaluation should be scheduled so, that the whole course is still in the memory of respondents. If the course is single activity like lecture, practical training, or e-learning session, this is no problem. The evaluation survey or interview can be conducted immediately after the training without any risk on confusions concerning the target of the evaluation. But if there are more activities, the course lasts weeks or months, or consists of many meetings with certain interval, the risk of bias, caused by uncertainty about which part the survey or interview deals with, increases. This means that in such cases either the survey should be conducted separately after each phase or questions should be written so, that the risk of bias becomes minimized.

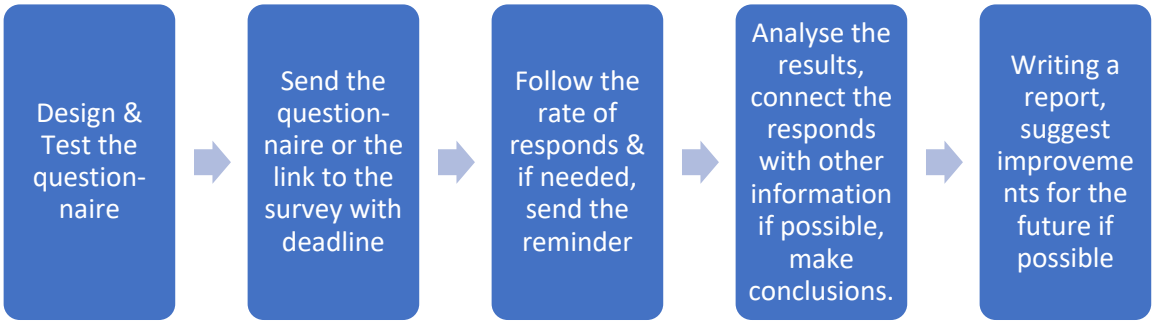
The process

In best cases, the evaluation survey and the report cover the evaluated course as a whole. This is not always possible, because e.g., the training may have been divided into parts with long periods between each, or parts of the course are quite different from each other. In such cases, it is recommendable to conduct the evaluation and write the report separately in each phase to avoid bias caused by time. These individual reports can then be summarised in concluding report.

This evaluation concept covers different types of courses. Some of these can be evaluated as a whole, but some must be evaluated phase by phase or can be evaluated only partially. However, the evaluation method, phases and tools are similar in each case.

The evaluation is planned to be conducted in paper form as well as using the online survey application Zensus. Both of them enable the anonymity of the respondents. The participants can decide themselves which way of evaluation they want to use.

The Evaluation process should follow the concept:



[26] Compiled by Tamas Ferenczi (M.Sc.) and Andreas D. Weise (Prof. Dr.-Ing.), Buxtehude University of Applied Sciences, Germany

Figure 7: Evaluation Prozess

Target groups of the evaluation

The main target group is those participating the courses, i.e., students participating the course.

Questionnaires and duties of each test facilitator

The questionnaires will be prepared course by course. The finishing of each questionnaire will be made when the programme of the course to be tested and evaluated is available (Table 1). The facilitator of the test sends the programme to HS21 early enough so that HS21 has at least two weeks to finish the questionnaire for the training in question. HS21 will send the links to each questionnaire to the facilitator who delivers the links and instructs the target groups to complete the questionnaire. The questionnaire will be also prepared to be printed in pdf and will sent out to the facilitator to be printed and then to hand out to the participants.

Needs to translate the questionnaire?

If the questionnaire needs to be translated to domestic language, a facilitator should announce this at least 2 weeks before the training starts. HS21 will then send a preliminary questionnaire of each target group to be translated. Facilitator will send the translated (or proofed, if HS21 has made the translation) version to HS21 together with the training programme latest two weeks before the planned test course starts.

When the course starts

In the beginning of each course, the facilitator informs, that the course will be evaluated, and that participants will receive a link to the evaluation questionnaire in the end of the course. Participants should be informed that the evaluation helps the facilitators to develop and improve the course in the future.

When the course ends

In the end of the course, facilitator gives the link to the survey to students, or hands out the questionnaire in printed form, reminding them that each answer is important, and informs the period when the evaluation survey is active. It is recommended that Questionnaires online as well es in printed form be filled out immediately. One participant should fill the questionnaire only once. After one week the responding period will be finished. Also teachers and employers should be given links to their own surveys, if such are required in the training in question.

After the responding period has finished, HS21 will collect the results from the online system, analyse them and write a report. Printed questionnaires filled by participants must be scanned and sent to HS21 via Email within the responding period. HS21 will take these also into the analysis.

Table: Summary of the duties, process and schedule of the test

Deadline and responsible party	**Task**
Latest two (1) weeks before the start of the course / training facilitator of the course should	• inform HS21 about the schedule of the course, • inform HS21 whether the questionnaires should be translated or not. If translation is needed, return the questionnaires included with translations written on the form. • send HS21 a brief info about the curricula (only **names** and **e-mail addresses** of the teachers, and **topics** they will teach are required).

Within two (1) weeks calculated from receiving the information listed above, HS21 will	• create the specific survey for this course, • translate the questionnaire • send the links to surveys to the facilitator and inform the deadline for the responding. • Send the questionnaires via Email to be printed.
When the course starts, facilitator will Inform the participants, teachers, and enterprises that	• the course will be evaluated, • the link to the evaluation survey or the questionnaires in printed form will be given in the end of the course or phase of the course, and • that it is important for developing the course that everyone complete the questionnaire once!
When the course or phase of the course ends, facilitator will	• deliver the links to survey to each group of respondents (participants, teachers, enterprises) either by e-mail or in other acceptable way • give the opportunity to fill out the questionnaires in paper form • inform the respondents about the deadlines, and • remind them about the importance of the evaluation. • Scan the printed questionnaires filled by participants and send to HS21 via Email within the responding period.
When the given deadline has been passed, HS21 will	• receive all scanned printed questionnaires filled by participants in paper form • open the online database and collect and analyse the results, • write a report, and • send the report to be discussed.

The report

In the report, following issues will be reported: A rough description of the group of respondents, have they been satisfied with the facilitations, topics, teachers, and their group, do they believe that the training has been beneficial, and what could have been made in other way. Furthermore, in certain courses and trainings also teachers' and employers' opinions will be surveyed and reported. These cases will be agreed together and announced separately.

In the end of each report there will be a concluding section that summarizes the findings and gives some suggestions concerning the opportunities to improve and develop the curriculum and / or facilitations. If wanted and agreed, all the evaluations will be summarized together.

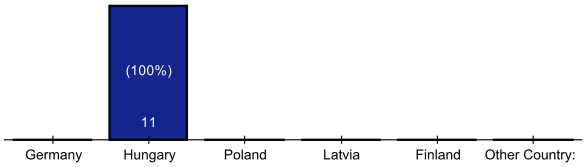
The results of the evaluation

In this report, the results of evaluations of three test course implemented in Latvia, Poland, and Hungary will be reported. The country-specific findings will be first presented and summarized, and after this, there will be a concluding section that summarizes the findings and gives some suggestions concerning the opportunities to improve and develop the curriculum and / or facilitations.

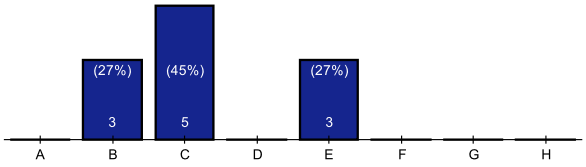
Hungary

Participants – Students

Demography

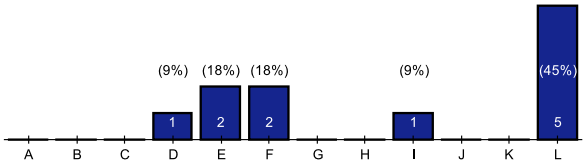


1.1. In which country did you did you take the course for further training?



1.2. What is your highest education?
A Doctor or resp. (0)
B Master of Science (3)
C Bachelor (5)
D Master VET (0)
E Vocational Education (3)
F Matriculation Exam (0)
G Comprehensive School (0)
H None (0)

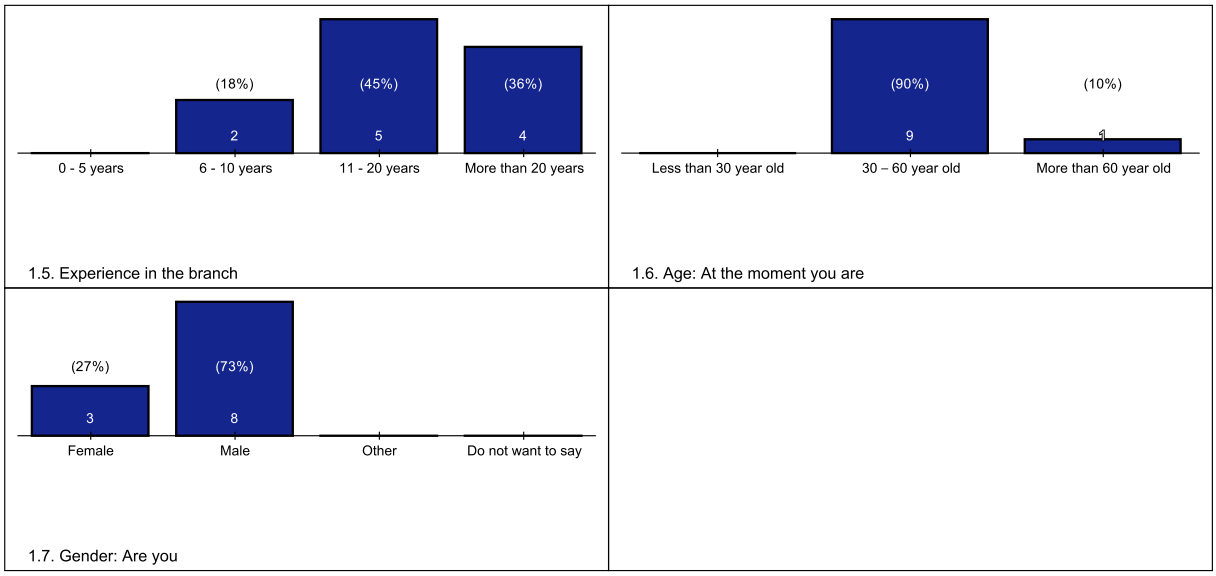
1.3. Employment: At the moment you are



1.4. In which branch you are / were / will be working or studying
A Education and training (0)
B Consulting (0)
C Construction (0)
D Finishing (1)
E Electrician (2)
F Plumber (2)
G Architect (0)
H Construction Eng. (0)
I Electrical Eng. (1)
J Piping Eng. (0)
K Public Authority (0)
L Other: (5)

Answers for other:

- Interior decorator *(3 Mal)*
- Stone carver
- Woodworker

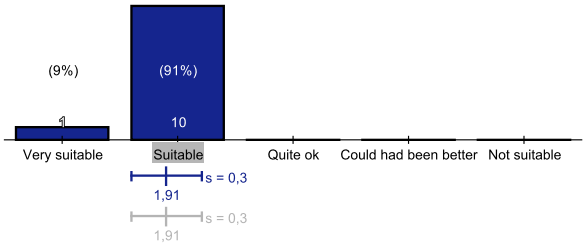


The evaluation survey was responded by 11 participants the course. The age distribution of participants skews towards older:90of participants falling within the age range between 30 and 60 years. In terms of gender representation, males dominate the sample with proportion of 73%. All of the participants are currently engaged in working as employees.

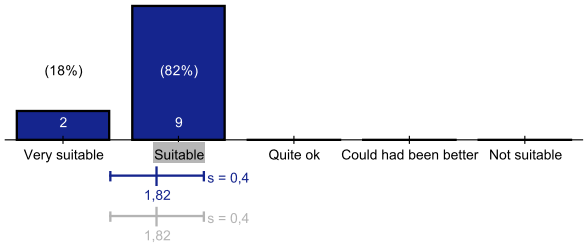
In terms of education, half of the students did not have higher education (50%) Other have pursued higher degrees like matriculation exam (38%) and one student pursued Master of science.

In terms of field of work, the participants are working in different branches. 1 Person in finishing (9%), 3 persons as electricians or electric engineers (27%), 2 persons as plumbers (18%), 3 persons as interior decorator (27%) others as stone carver or woodworker. 45% of the participants have less than between 11-20 years working experience, 36% have more than 20 years' experience, and 18% between 6-10 years' experience in their branch.

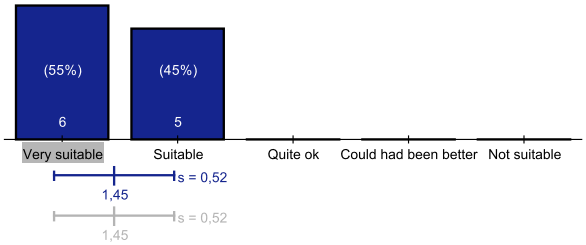
Study course Part 1 – Class room learning



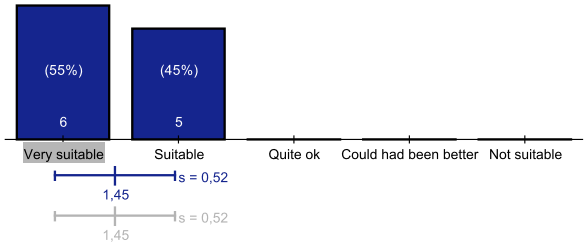
The Place for the Training was



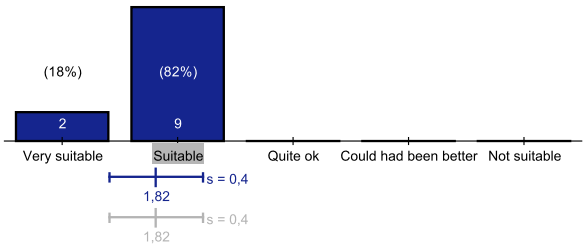
The time (Date) of the training was



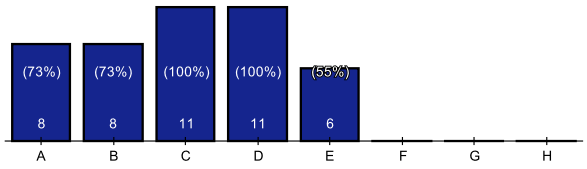
The length of the training was



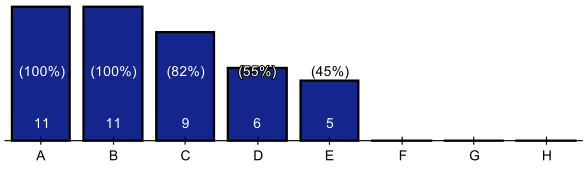
The schedule of the training was



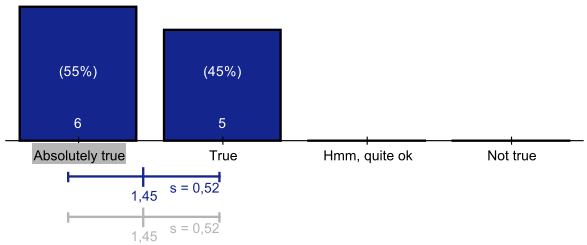
The facilitations (room, equipment etc) were



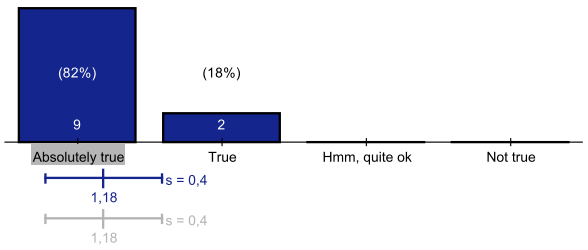
2.2. In common, the topics were (5 choices max):
A Topical (8)
B Interesting (8)
C Important (11)
D Close to my needs (11)
E Up to date (6)
F Boring (0)
G Out-of-date (0)
H Unnecessary (0)



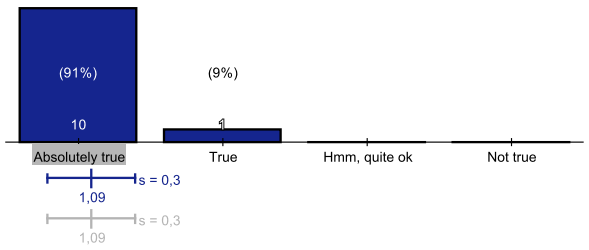
2.3. In common, the teachers (5 choices max):
A Used interesting and motivating methods (11)
B Dealt with important topics (11)
C Were professionals in their branch (9)
D Met the expectations (6)
E Were up-to-date (5)
F Were boring (0)
G Were out-of-date (0)
H Wandered off the point (0)



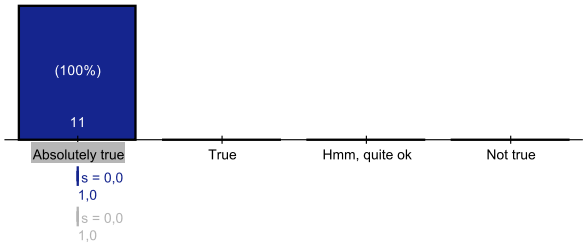
The information given was up-to-date



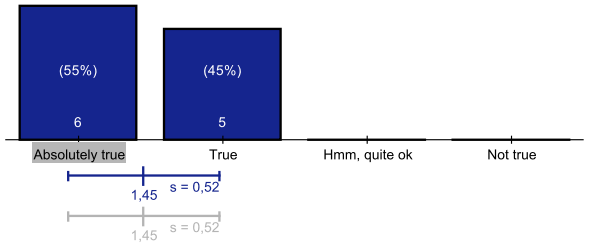
The presentation was clear and understandable



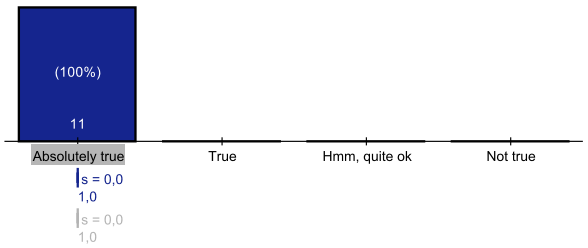
There was time enough for the topic



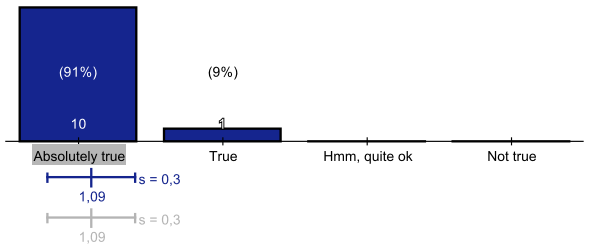
There was time enough for the discussion



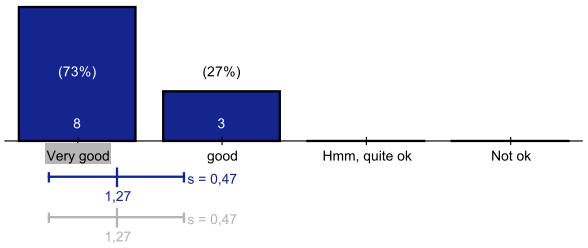
The tasks given were clear and understandable



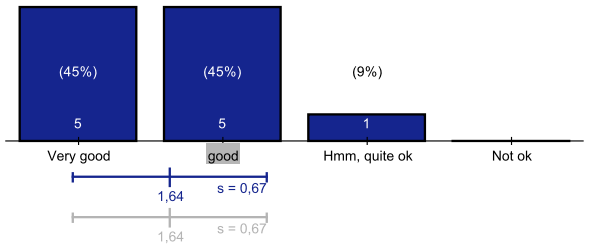
The atmosphere in the course / lessons was good and open.



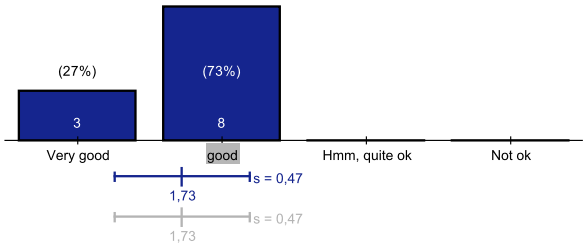
We had a good team spirit



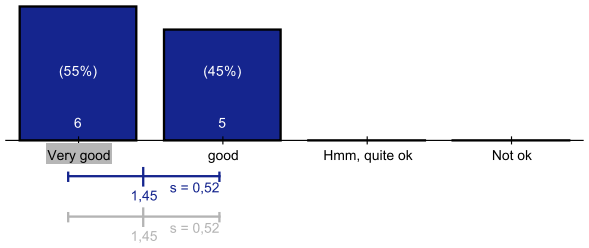
Course structure



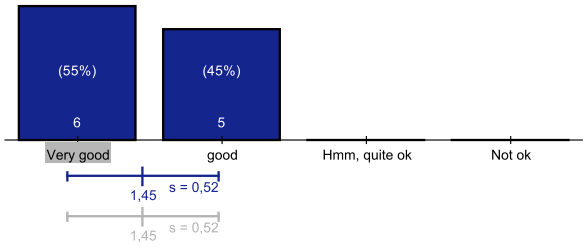
Used tools and Resources (Presentation, black board notes, digital tools)



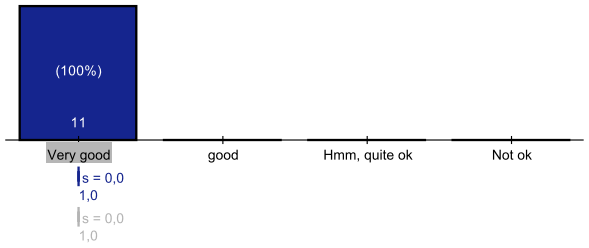
Learning Materials (Script, Handouts)



Quality of study course in summary



Course content overview



Estimated time for the lessons

Overall, the feedback on facilitations indicates a generally positive perception among students, with a majority rating various aspects as "suitable" or "very suitable."

Students also shared their perceptions on topics and teachers. Most of participants expressed positive views finding the topics interesting, important, close to their profession, up to date and the teachers professional, dealing with interesting topics and using motivating teaching methods. Many participants found the presented topics to be topical, up to date, and relevant to their needs, while also perceiving the teachers as meeting expectations.

Overall, data indicates a positive reception from all participants.

Free form answers

The free Form answers from the students are also confirm these evaluation results:

2.7. What would you like to say to teachers / facilitators? What could have done better, what should not be changed etc. Do you have any suggestions for improving the spatial and/or technical equipment?

• *I am very happy that, in addition to establishing a national system of cooperation, I had the opportunity to implement cooperation in a concrete entrepreneurial environment. I consider it very important that my own business could benefit from this training.*

• *I am very happy that I got to know representatives of other professions, because there is a lot of overlap between our professions. It is very important to get to know each other's innovations and professional developments. We were happy to share the new robotic solutions or digital solutions of professions. We are always happy to see representatives of other professions at our professional presentations and we will also be happy to visit them.*

• *It is a very important initiative, it is necessary to promote cooperation between our professions. At the same time, it is unfortunate that although young people seem to use their digital devices a lot, at the same time they cannot use them as real digital devices. The lack of young skilled workers who can use digital technology is a very serious difficulty.*

• *It is important to get to know the customer in order to help him formulate his needs. Very often, we can get to know this customer demand only in cooperation with fellow professions, for which the use of digital tools is an advantage. Maybe it would have been worthwhile to include some customers in the training itself.*

• *It is very important to be able to mutually learn about the latest results of the various construction trades. We took part in a very useful forward-looking training.*

• *It was very good to hear that at the local level we are already using the digital collaboration methods we heard about. This was an important confirmation of our operation. In addition, of course, we heard a lot of new methods.*

• *The initiative is very good. We ourselves have implemented many developments in recent years, with which we tried to improve the popularity of our profession and the professional preparation of our employees. It was good to learn from others what paths they took. We look forward to the details and the joint implementation.*

• *The participating businesses came from a wide variety of professions. All of them carry out their activities with decades of experience and it is not expected that they will be able to change their thinking immediately. It is a useful initiative to strengthen digital cooperation between construction companies, but its implementation will probably be a long process in many cases.*

• *The training captured very well what is the most important aspect for improving cooperation: dialogue, meeting the needs of customers as best as possible, improving quality.*

• *The training was absolutely filling the gap, as it helped the cooperation between the construction trades.*

• *We are happy about this new initiative. We have considered cooperation within the profession to be important, and we see the sense in expanding this cooperation further.*

Prescription of project work by the participants

• *I have been working as an interior decorator for more than a decade, but it was good to learn new things and establish new collaborations.*

• *In my own company, we hold weekly meetings between representatives of the various disciplines. For this, we use modern digital solutions. At the same time, it is common experience that the skilled workers carrying out the execution cannot read the digital plans, they still prefer to work on paper. A significant change is needed in secondary vocational education.*

• *I was very happy to share my knowledge about Archline 3D design with representatives of other construction industry co-professions, because in the end they will build what we interior designers design anyway.*

• *Serious coordination and cooperation was achieved with all relevant professional actors. There was a continuous transfer of each other's experiences. In the past period, the individual associate professions have acquired and disseminated a lot of new digital knowledge among their own members. It's great that now these new digital skills are being shared.*

• *The digitization of professional cooperation has enabled us to share our latest technical knowledge with hundreds of professional communities. During the development process, we faced serious ethical and competitive problems, which also required the mentor's support.*

• *There are many good practices in concrete implementations for supporting collaboration between colleagues with digital tools. It was interesting to see and hear that similar or very similar digital methods work in other parts of the country.*

• *We also gladly invited representatives of other professions to our conferences and participated in their professional events. It was interesting to experience that this professional cooperation had already started among many of our member companies.*

• *We assessed the theoretical possibilities of cooperation and created the foundations for cooperation between practical professions. The professions have typically communicated with each other up to now, but they have not done so effectively enough until now. Digital solutions are a huge help in this.*

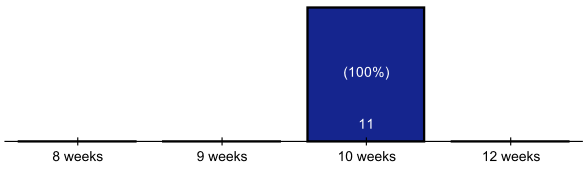
• *We gladly presented our projects and learned from other related professions. The member companies were able to further expand their knowledge and many concrete collaborations were started.*

• *We have renewed our online specialist database, which we can share with representatives of other professions if needed. Due to the recent energy crisis and uncertain economic conditions, the need and demand for the installation of heat pumps has skyrocketed. At the same time, faulty designs and constructions also increased. Another key challenge is the professional and safety issues of switching to new, alternative refrigerants. In this regard, we offer further training to fill professional gaps, primarily for air conditioning technicians, but we are very happy that representatives of other related professions also get involved.*

• *Within the interior design professional organization, we first considered the possibilities of cooperation with other professions in a narrower management circle. Within our profession, we*

have already tried to take advantage of the opportunities offered by digitization and we have been happy to share them with players from other professions.

Evaluation of Project Phase – Self learning and project work



3.2. How much time was reserved for this phase?

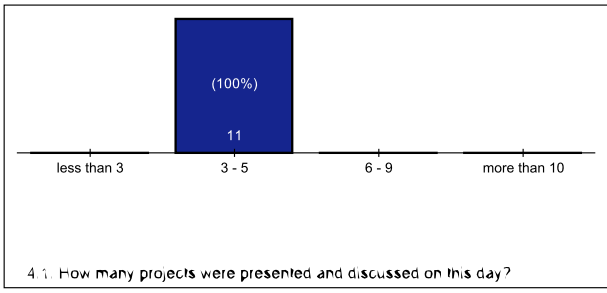
Free form answers

What would you like to say to trainers? Do you have any suggestions regarding the project phase?

- *Even more joint professional events would be needed, as there is a lot of overlap between construction professions. It would be worthwhile to share each other's databases. We definitely want to continue the cooperation.*
- *I believe that a lot of time is still needed for the cooperation between the representatives of the construction trades to become widespread and for its practice to become a daily operational practice. Technically, a lot has already been done for this, but the mentality and entrepreneurial behavior must also change a lot.*

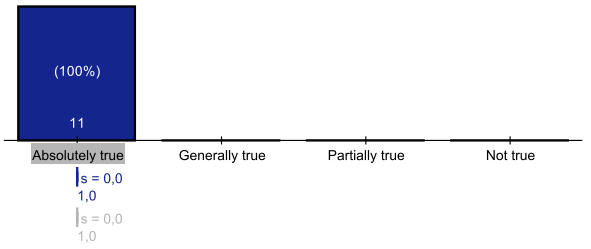
- *I definitely want to continue the cooperation. I long for new professional knowledge and professional relationships.*
- *It would be great if a separate profession could be created that would direct on the digital collaboration between construction companies. A responsible construction manager who is always present and always knows what are the customer needs.*
- *It would be very important to share the databases of professionals in the co-professions with each other. Mutual trust and unconditional acceptance of other values is extremely important.*
- *Let's involve the customers even more, raise their level of knowledge.*

Reporting und reflection phase (Reporting Day)

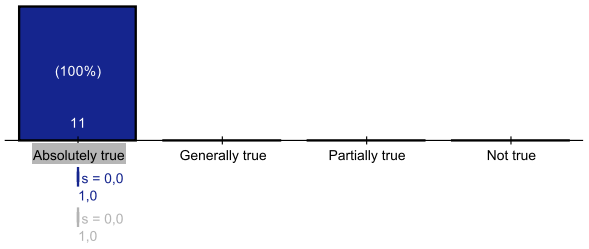


4.1. How many projects were presented and discussed on this day?

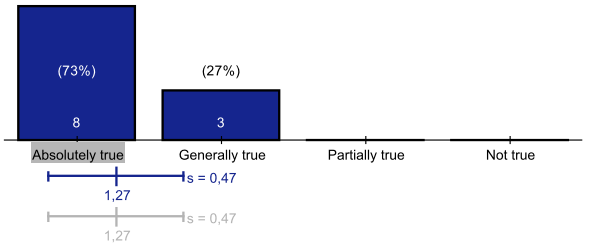
4.2. About the reporting day



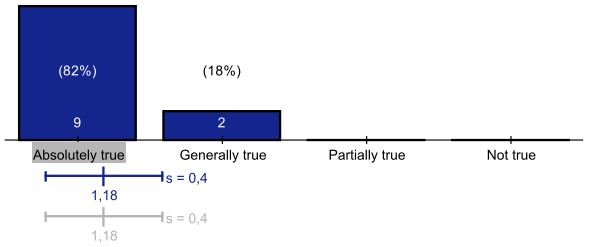
The projects were presented by participants



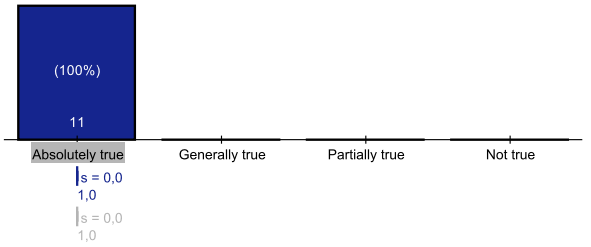
The time schedule for this day was well prepared



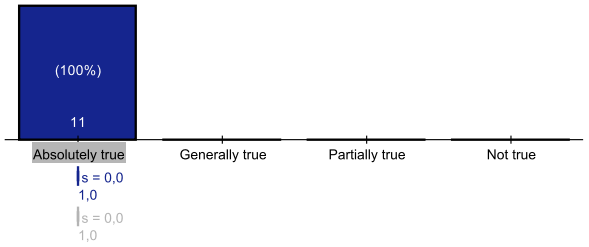
Enough time were given for discussion about the projects



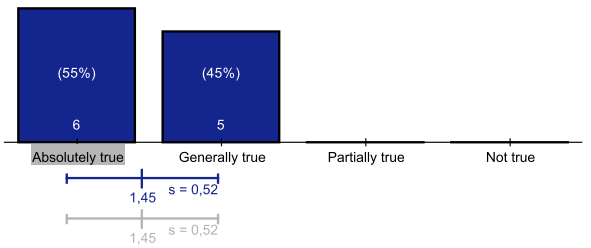
Failures, lessons learned were also included



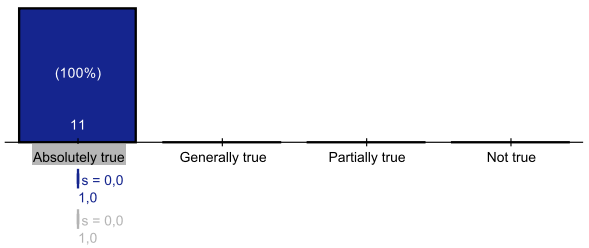
Conversations about the projects were possible



I have gained knew knowledge and experiences by other projects



The presented projects are well suitable to realize in my company



The concluding lecture was well structured

Free form answers

4.3. What would you like to say to the trainers? What could have done better, what should not be changed etc. Do you have any suggestions regarding the reporting day? Free answer from the students.

- *Everyone is running forever, doing new jobs, and we also have less and less time. The timing of these further trainings is very important.*
- *Forms of cooperation have worked well in the past. Today, however, digitalization can significantly help the work and cooperation of construction workers. We are a final profession, but at the same time, we must be able to connect, see the digital plans, and be able to follow the changes that occur in them. It's good that we got help with this during the training.*
- *For us, it is very important in professional cooperation to communicate with each other or even with the customer on platforms that all participants can use and understand. The most important goal of digital cooperation between professions is the quality implementation of the customers' needs.*
- *It would be important to prepare even more communication materials about the experiences of cooperation and make them widely available. Let the population also learn about the great prospects for cooperation between construction trades.*
- *It would be worthwhile to devote more time to the presentation of the presented projects, but of course we know that all participants have the least amount of time.*
- *It would be worthwhile to organize multi-day specialist meetings on the experiences of cooperation between individual member companies.*
- *I would like to continue the relationship with both the instructors and the other professionals.*
- *Thank you for the opportunity to participate in this project.*
- *The errors presented in the projects should be further analyzed and possible better solutions should be found for them.*
- *This established professional cooperation provides an excellent basis for further development and the inclusion of new professions in the cooperation.*

Conclusion

In summary, the students generally express high levels of satisfaction appreciating content, importance and relevance of the given information.

Free form answers support this by indicating that students enjoyed the classes, found the lectures interesting, useful, and informative, the presentation and teaching manner of professors engaging and supportive. Further and detailed trainings are also welcome by the participants.

Enterprises – Employers

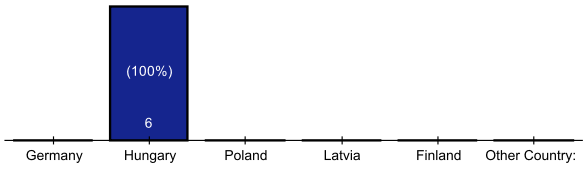
Involved hungarian enterprises

Six hungarian enterprises completed the questionnaire. The most of them are middle sized enterprises with between 50 – 100 employees, and one had between 20 and 50 employees.

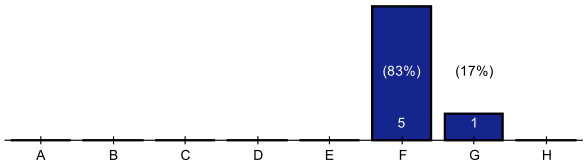
Two of the companies had 11 – 20 years experience in the branch and four companies had more the 20 years experience. The operation fields of the companies were rather mixed: finishing industry, electrician, plumber, interior decorator, refrigerator, stone carver.

The topics the course dealt with were considered to be topical, up-to-date, important, and interesting. The place, time, length, and schedule of the training were considered to be either excellent or good. On point of view of the companies, the course was seen beneficial, and participants were satisfied with it.

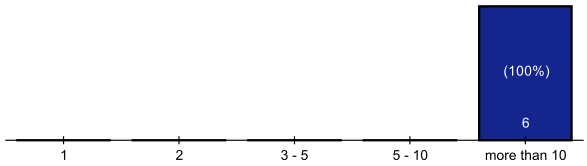
As a conclusion it can be said that both the employers and employees gained beneficial information and skills during the course, which was well implemented, also considering the place, time, and other facilitations.



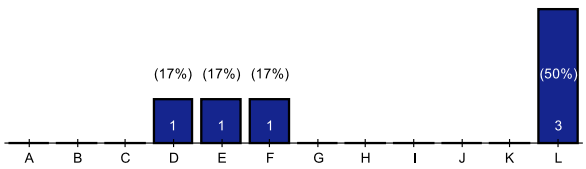
1.1. In which country were you participated in further training?



1.2. How many employees do your company have?
A 1-man-business (0)
B less than 10 (0)
C between 10 - 20 (0)
D between 20 - 50 (0)
E between 50 - 100 (0)
F between 100 - 500 (5)
G between 500 - 1000 (1)
H more than 1000 (0)



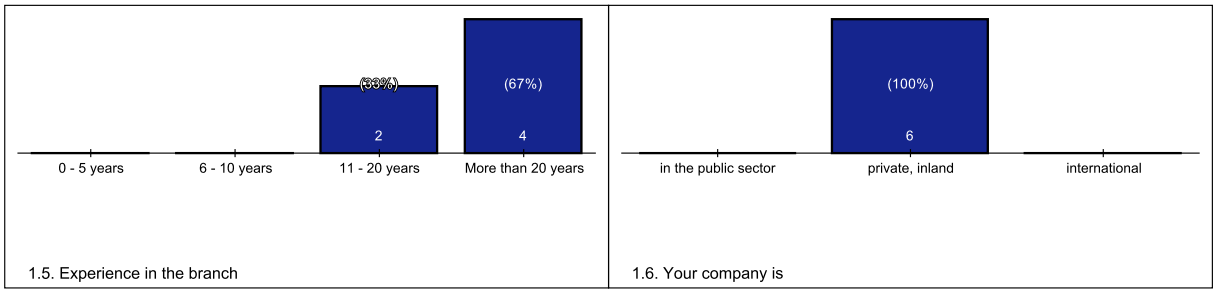
1.3. How many company locations do your company have?



1.4. In which branch are you active?
A Education and training (0)
B Consulting (0)
C Construction (0)
D Finishing (1)
E Electrician (1)
F Plumber (1)
G Architect (0)
H Construction Eng. (0)
I Electrical Eng. (0)
J Piping Eng. (0)
K Public Authority (0)
L Other: (3)

Sonstiges-Antworten

- Interior decorator
- Refrigerator and air-conditioning
- Stone carver

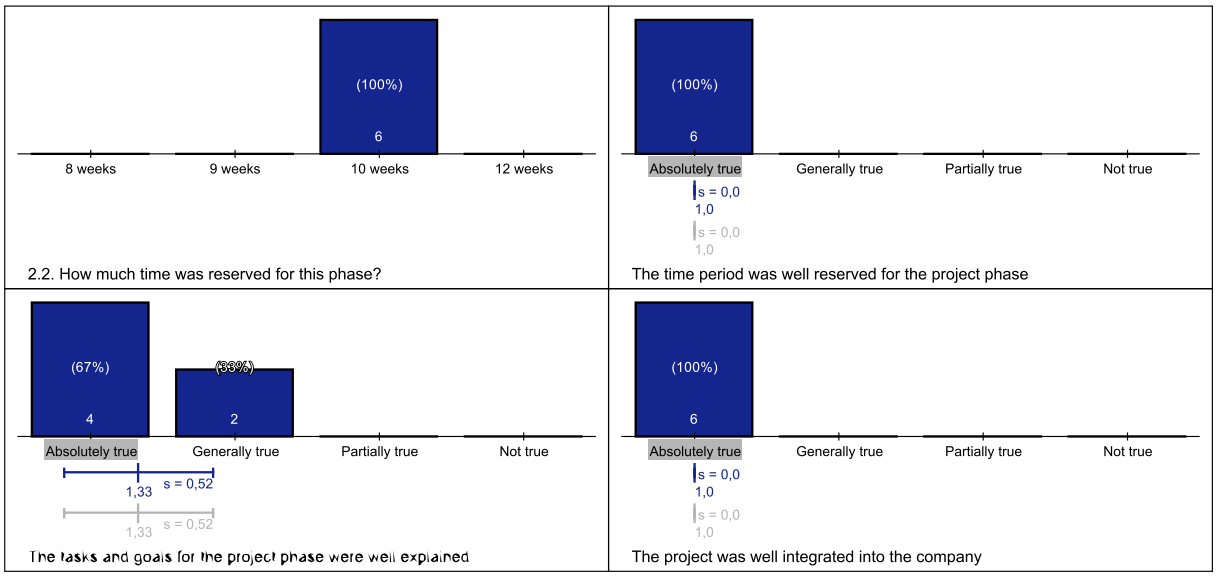


Prescription of the project work, that were completed in the companies:

1. Serious coordination and cooperation was achieved with all relevant professional actors. There was a continuous transfer of each other's experiences. In the past period, the individual associate professions have acquired and disseminated a lot of new digital knowledge among their own members. It's great that now these new digital skills are being shared
2. There are many good practices in concrete implementations for supporting collaboration between colleagues with digital tools. It was interesting to see and hear that similar or very similar digital methods work in other parts of the country. We are very happy that the professional and personal relationship between the electrician members of our association and the entrepreneurs of other related professions has strengthened, because in today's digital age, the overlap between the individual professions is even greater.
3. We assessed the theoretical possibilities of cooperation and created the foundations for cooperation between practical professions. The professions have typically communicated with each other up to now, but they have not done so effectively enough until now. Digital solutions are a huge help in this. For us, it is very important in professional cooperation to communicate with each other or even with the customer on platforms that all participants can use and understand. The most important goal of digital cooperation between professions is the quality implementation of the customers' needs.
4. We have renewed our online specialist database, which we can share with representatives of other professions if needed. Due to the recent energy crisis and uncertain economic conditions, the need and demand for the installation of heat pumps has skyrocketed. At the same time, faulty designs and constructions also increased. Another key challenge is the professional and safety issues of switching to new, alternative refrigerants. In this regard, we offer further training to fill professional gaps, primarily for air conditioning technicians, but we are very happy that representatives of other related professions also get involved.
5. We ourselves have implemented many developments in recent years, with which we tried to improve the popularity of our profession and the professional preparation of our employees. It was good to learn from other professional organisations what paths they took. The career guidance session held together with them was very useful, and we learned a lot from each other at each other's events, where the most modern digital technologies were also presented.
6. Within the interior decorator professional organization, we first considered the possibilities of cooperation with other professions in a narrower management circle. Within our profession, we have already tried to take advantage of the opportunities offered by digitization and we have been happy to share them with players from other professions. A very interesting feature of our profession is that 95% of women work as

interior designers, and their plans will then be drawn up by male contractors, since electricians, tilers, painters, and carpenters are basically men. In order for the apartment to end up looking the same as we, the interior designers, designed it, we need to know the specifics of all associated professions, and we also need to know the technological innovations and digital renewal of these professions

Project Phase – Self learning and project work in enterprises



Free form answers

As a company, would you like to say to trainers? What could have done better, what should not be changed etc. Do you have any suggestions regarding the project phase?

- *Even more joint professional events would be needed, as there is a lot of overlap between construction professions. It would be worthwhile to share each other's databases. We definitely want to continue the cooperation.*
- *Let's involve the customers even more, raise their level of knowledge.*
- *The interests of many different professions must be coordinated, which also means many different spiritual personalities. No matter how much we talk about digital processes and development, the individual's psychological qualities and communication skills have perhaps become even more important than before. As female entrepreneurs, we feel this particularly well, almost the human psyche must develop together with digital tools.*
- *This established professional cooperation provides an excellent basis for further development and the inclusion of new professions in the cooperation.*
- *We must definitely continue the cooperation, let's get to know each other's professions and professional innovations.*

Conclusion

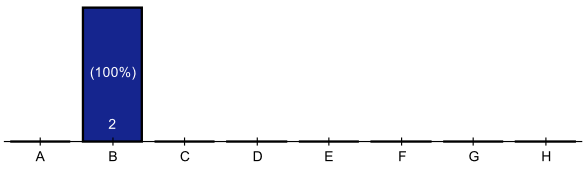
As a conclusion it can be said that both the employers and employees gained beneficial information and skills during the course, which was well implemented, also considering the place, time, and other facilitations.

Lecturers

Demography

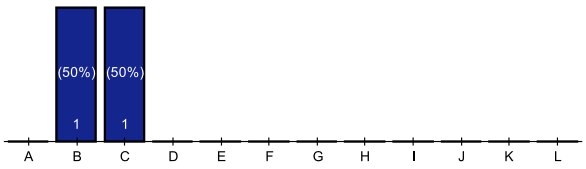
The evaluation survey received responses from both lecturers who taught the courses, resulting in a response rate of 100 per cent. All lecturers fall within the age range of 30 to 60 years old, both of them were male. Regarding profession, one lecturer come from the consulting sector and one from the finishing industry.

In terms of education, both lecturers hold Master of Science degrees. Both lecturers responded that their experience in the branch ranges from 11 to 20 years.

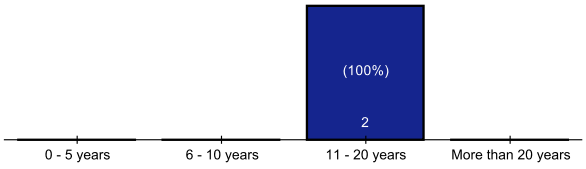


1.2. What is your highest education?
A Doctor or resp. (0)
B Master of Science (2)
C Bachelor (0)
D Master VET (0)
E Vocational Education (0)
F Matriculation Exam (0)
G Comprehensive School (0)
H None (0)

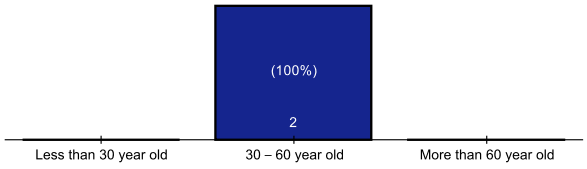
1.3. Employment: At the moment you are



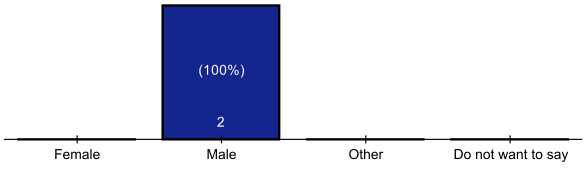
1.4. In which branch you are / were / will be working or studying
A Education and training (0)
B Consulting (1)
C Construction (1)
D Finishing (0)
E Electrician (0)
F Plumber (0)
G Architect (0)
H Construction Eng. (0)
I Electrical Eng. (0)
J Piping Eng. (0)
K Public Authority (0)
L Other: (0)



1.5. Experience in the branch



1.6. Age: At the moment you are

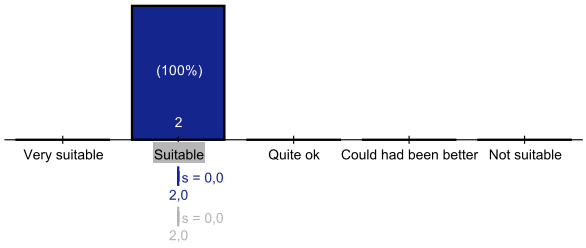


1.7. Gender: Are you

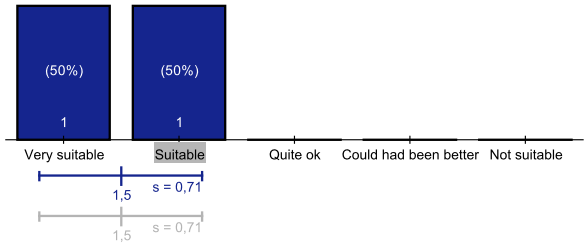
Study Course Part1 – Class room learning

Feedback on facilitations reveals a notably positive perception among the lecturers, with all respondents rating every aspect as either “very good” or “very suitable.” Each lecturer consistently rated the place for the training and all associated facilitations, including room and equipment, as highly suitable. Moreover, they highly appraised aspects such as the timing, duration, and scheduling of the training sessions. This collective feedback underscores the

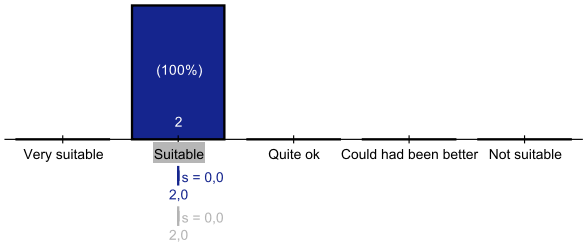
overall satisfaction and effectiveness of the facilitations provided, reflecting a strong affirmation from the lecturers involved.



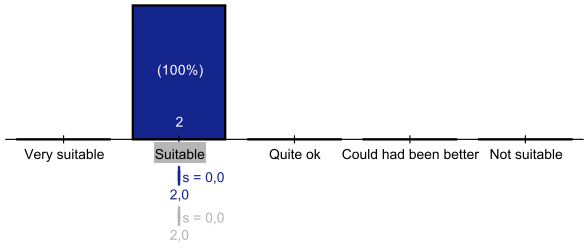
The Place for the Training was



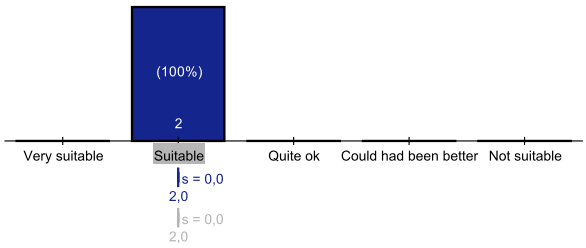
The time (Date) of the training was



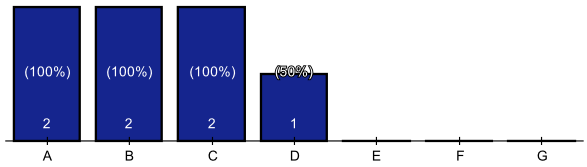
The length of the training was



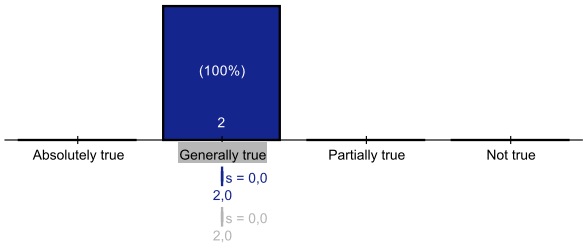
The schedule of the training was



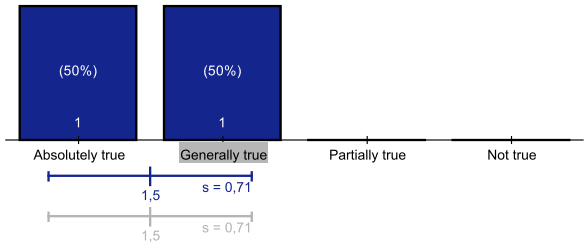
The facilitations (room, equipment etc) were



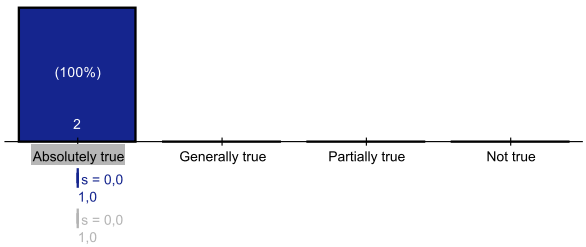
2.2. In common, the participants (5 choices max):
A Were interested and motivated in learning new methods (2)
B Had experience in their branch (2)
C Have participated in discussions (2)
D Had enough preknowledge (1)
E Were bored (0)
F Were not qualified enough for the course (0)
G Had no attention (0)



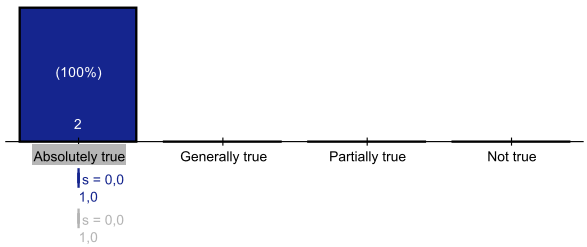
There was time enough for the topic



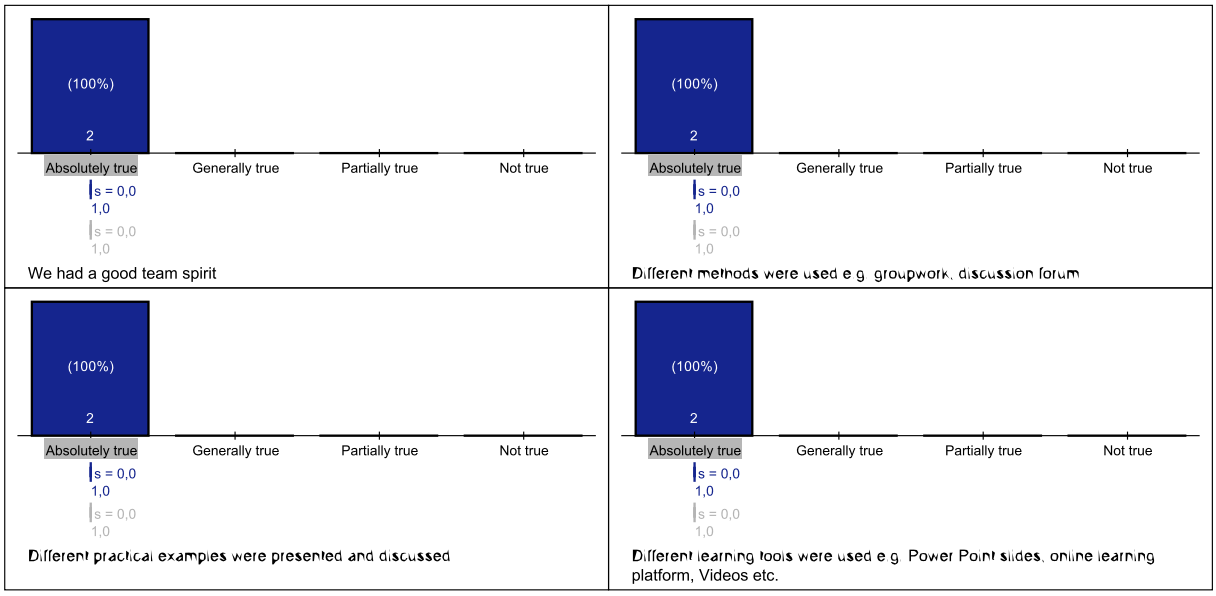
There was time enough for the discussion



The tasks given were clear and understandable



The atmosphere in the course / lessons was good and open.

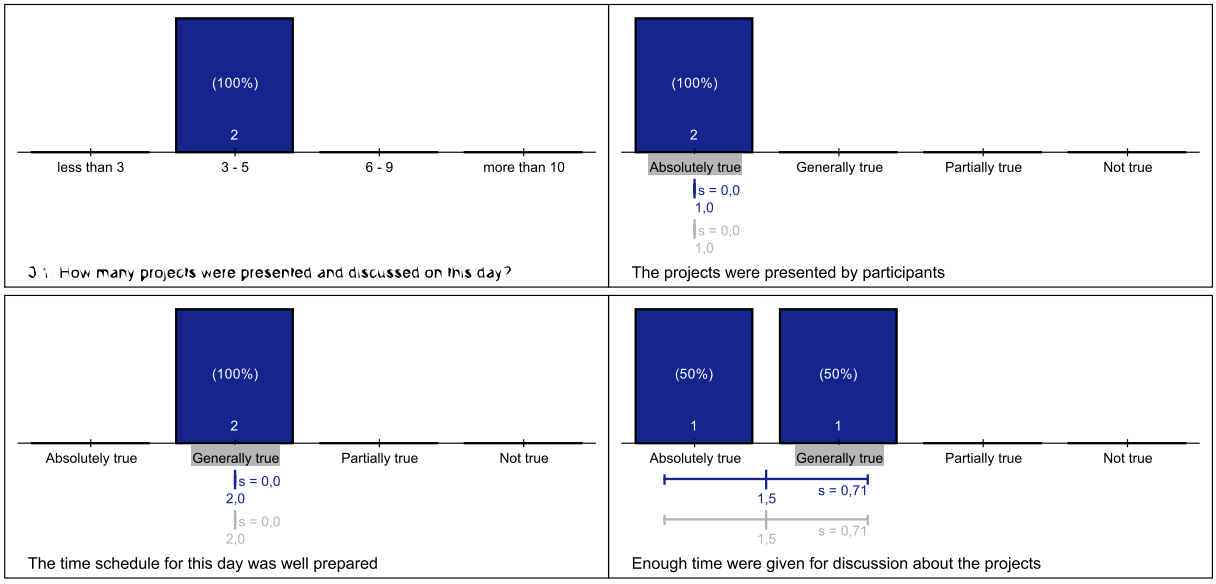


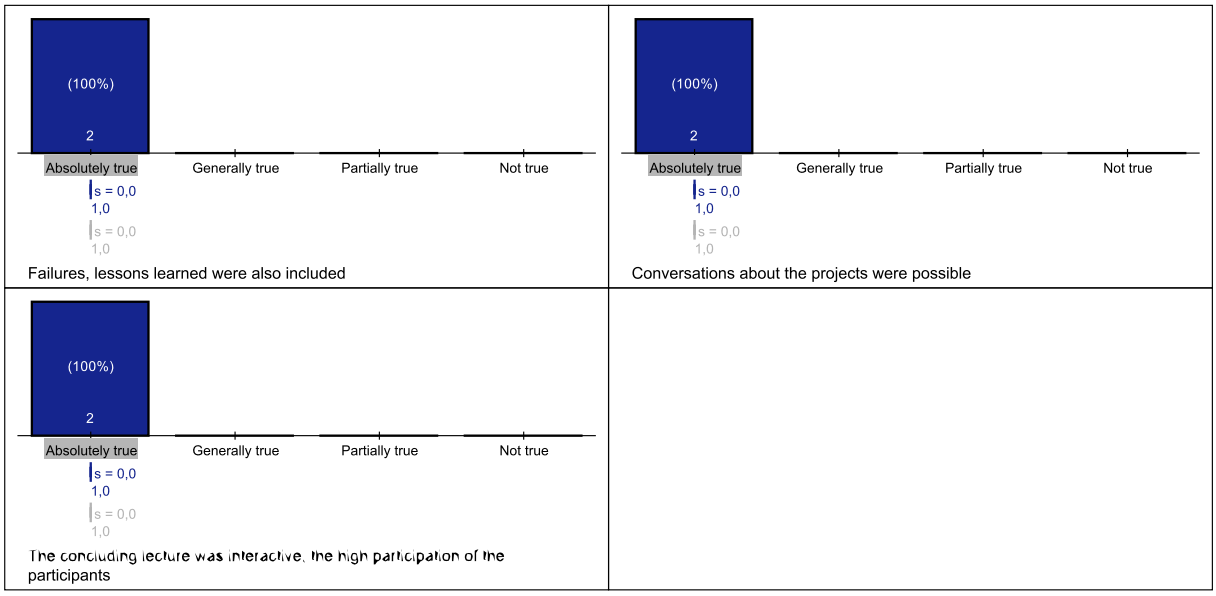
Free form answers

What could have done better, what should not be changed etc. Do you have any suggestions or lessons learned for improving the spatial and/or technicalequipment?

• Today, in the business world, it can be said that large companies already know and apply the latest digital technologies perfectly. Even among the smallest microenterprises, we can find a good number of those who are already familiar with the most modern digital solutions and technologies. Unfortunately, the broadest circle, the wide circle of small businesses, is not yet familiar with the good practices of digital collaboration. This training was also very beneficial for them.

Reporting and reflection phase (Reporting day)





Free form answers

What could have done better, what should not be changed etc. Do you have any suggestions or lessons learned regarding the reporting day?

In the professions that are facing more and more challenges, if at some point the execution does not go as planned, then it has to be repaired, which costs a lot of money.

Coordination, communication, maintaining digital contact with each other is very important. It is important that professions know and be able to use these platforms.

When we talk about a smart apartment, there is an automatic system between the sensors and the switches, for which representatives of various professions must be

trained. Those responsible for smart home solutions must also work together with representatives of even more traditional craft trades so that each piece could work properly.

Conclusion

Overall, the feedback from lecturers provides valuable insights for improving curriculum delivery and student engagement in future courses. All lecturers agreed on the relevance and interest of course topics, the suitability of facilitations and noted students' active engagement. Consensus was strong on certain aspects like task clarity and information delivery.

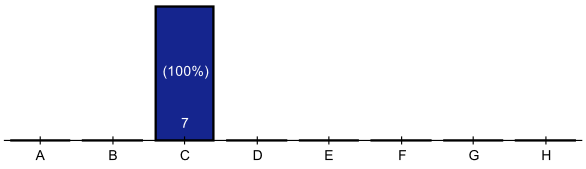
Latvia

Participants – Students

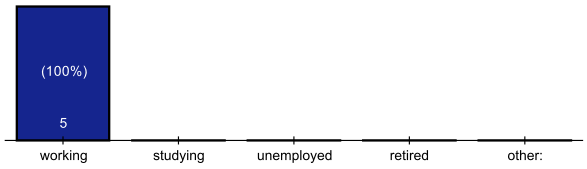
Demography

The evaluation survey was responded by 8 participants of the course. The age distribution of students skews a wide range. 1 Person was younger than 30 years old, 6 participants were between 30 and 60 years old and one person was older than 60 years old. In terms of gender representation, males dominate the sample with proportion of 75 per cent, while females comprise the remaining portion (25%). In terms of education, all of students holds bachelor's degrees.

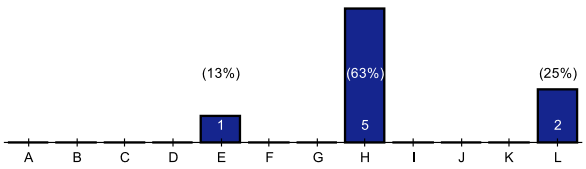
In terms of field of study or work, the students are distributed across construction engineering (63%), energy sector (25%), and electrician branch (13%), A vast majority of students (63%) boast substantial experience ranging from 6 to 10 years, with a smaller portion (13%) having less than 5 years of experience, 26% have more than 11 years experience in the branch.



1.2. What is your highest education?
A Doctor or resp. (0)
B Master of Science (0)
C Bachelor (7)
D Master VET (0)
E Vocational Education (0)
F Matriculation Exam (0)
G Comprehensive School (0)
H None (0)

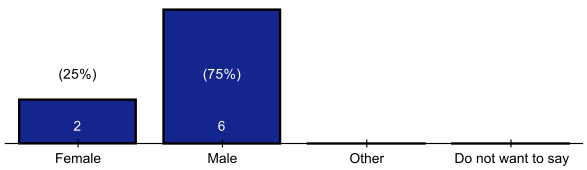


1.3. Employment: At the moment you are

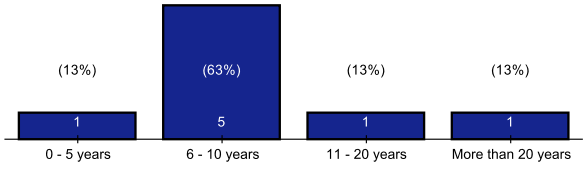


1.4. In which branch you are / were / will be working or studying
A Education and training (0)
B Consulting (0)
C Construction (0)
D Finishing (0)
E Electrician (1)
F Plumber (0)
G Architect (0)
H Construction Eng. (5)
I Electrical Eng. (0)
J Piping Eng. (0)
K Public Authority (0)
L Other: (2)

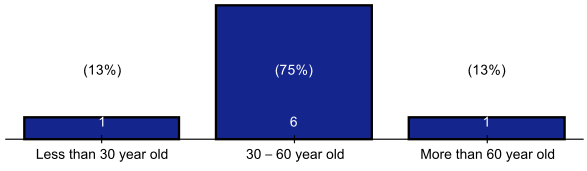
Other Answers: Energy Sector (2 times)



1.7. Gender: Are you

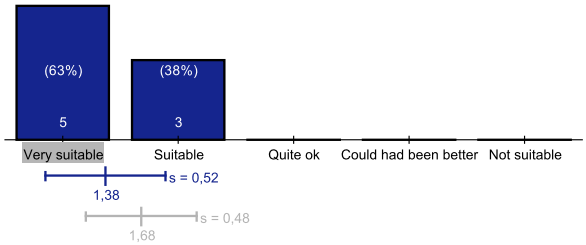


1.5. Experience in the branch

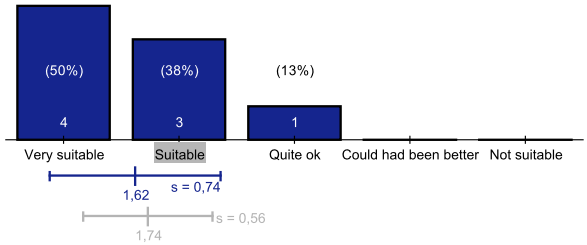


1.6. Age: At the moment you are

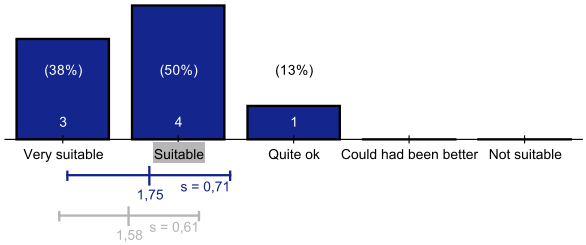
Study course Part 1 – Class room learning



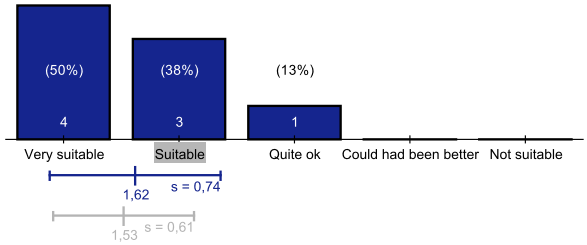
The Place for the Training was



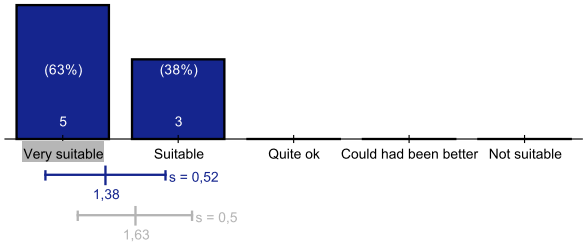
The time (Date) of the training was



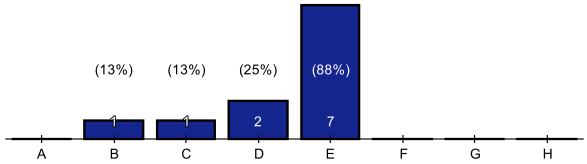
The length of the training was



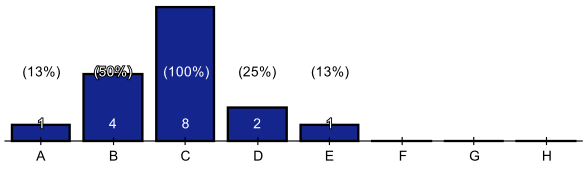
The schedule of the training was



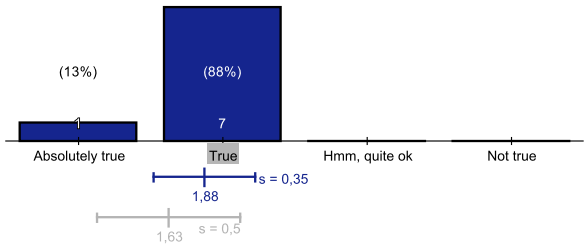
The facilitations (room, equipment etc) were



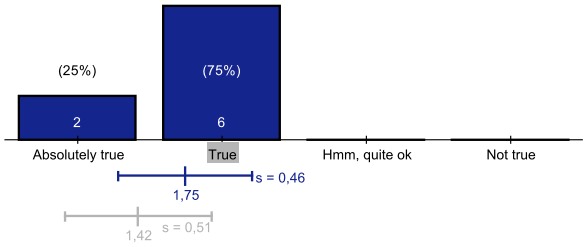
2.2. In common, the topics were (5 choices max):
A Topical (0)
B Interesting (1)
C Important (1)
D Close to my needs (2)
E Up to date (7)
F Boring (0)
G Out-of-date (0)
H Unnecessary (0)



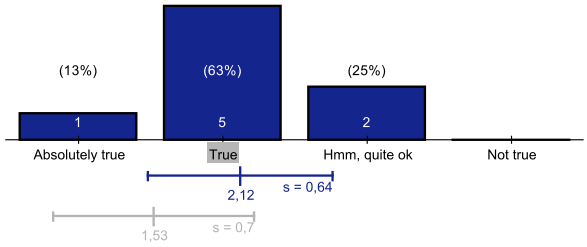
2.3. In common, the teachers (5 choices max):
A Used interesting and motivating methods (1)
B Dealt with important topics (4)
C Were professionals in their branch (8)
D Met the expectations (2)
E Were up-to-date (1)
F Were boring (0)
G Were out-of-date (0)
H Wandered off the point (0)



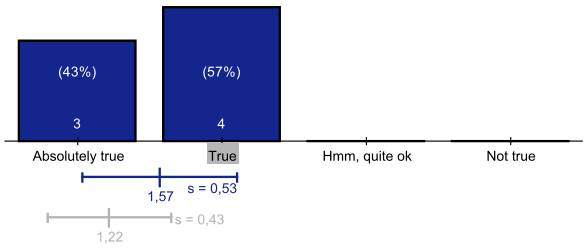
The information given was up-to-date



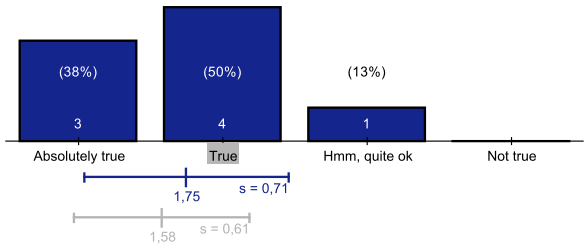
The presentation was clear and understandable



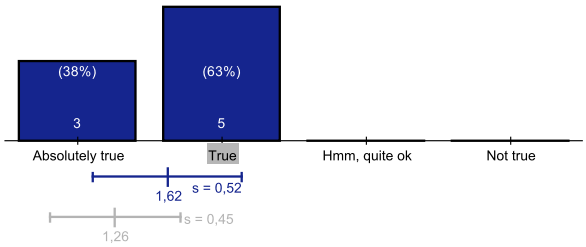
There was time enough for the topic



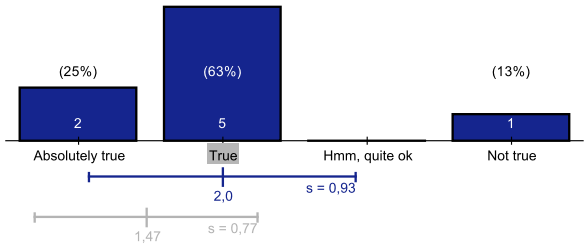
There was time enough for the discussion



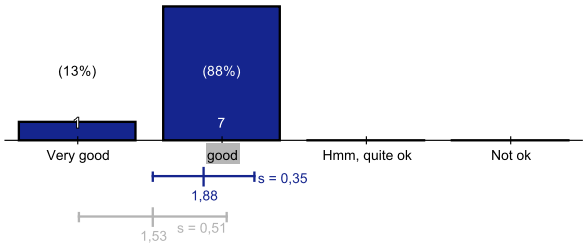
The tasks given were clear and understandable



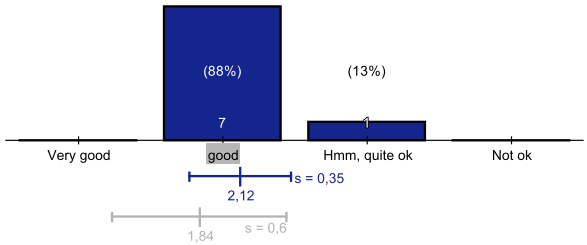
The atmosphere in the course / lessons was good and open.



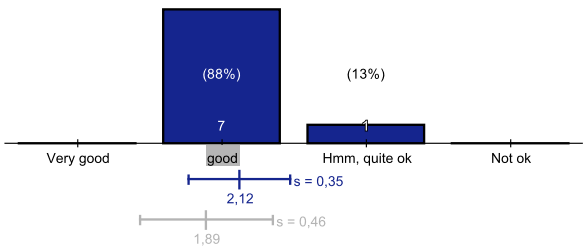
We had a good team spirit



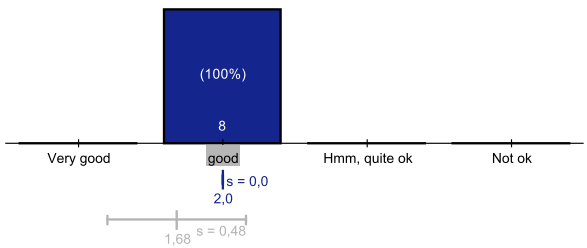
Course structure



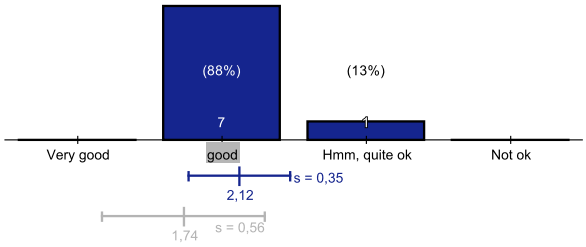
Used tools and Resources (Presentation, black board notes, digital tools)



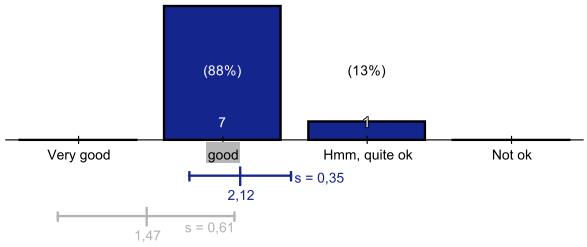
Learning Materials (Script, Handouts)



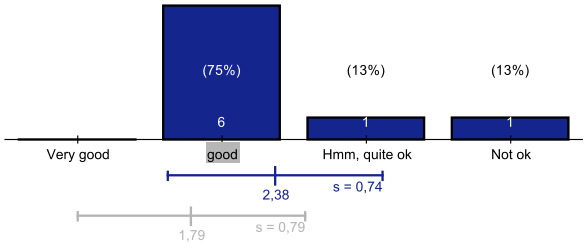
Quality of study course in summary



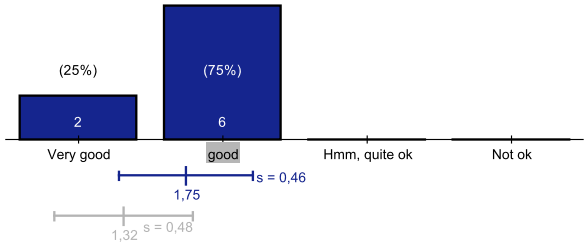
Course content overview



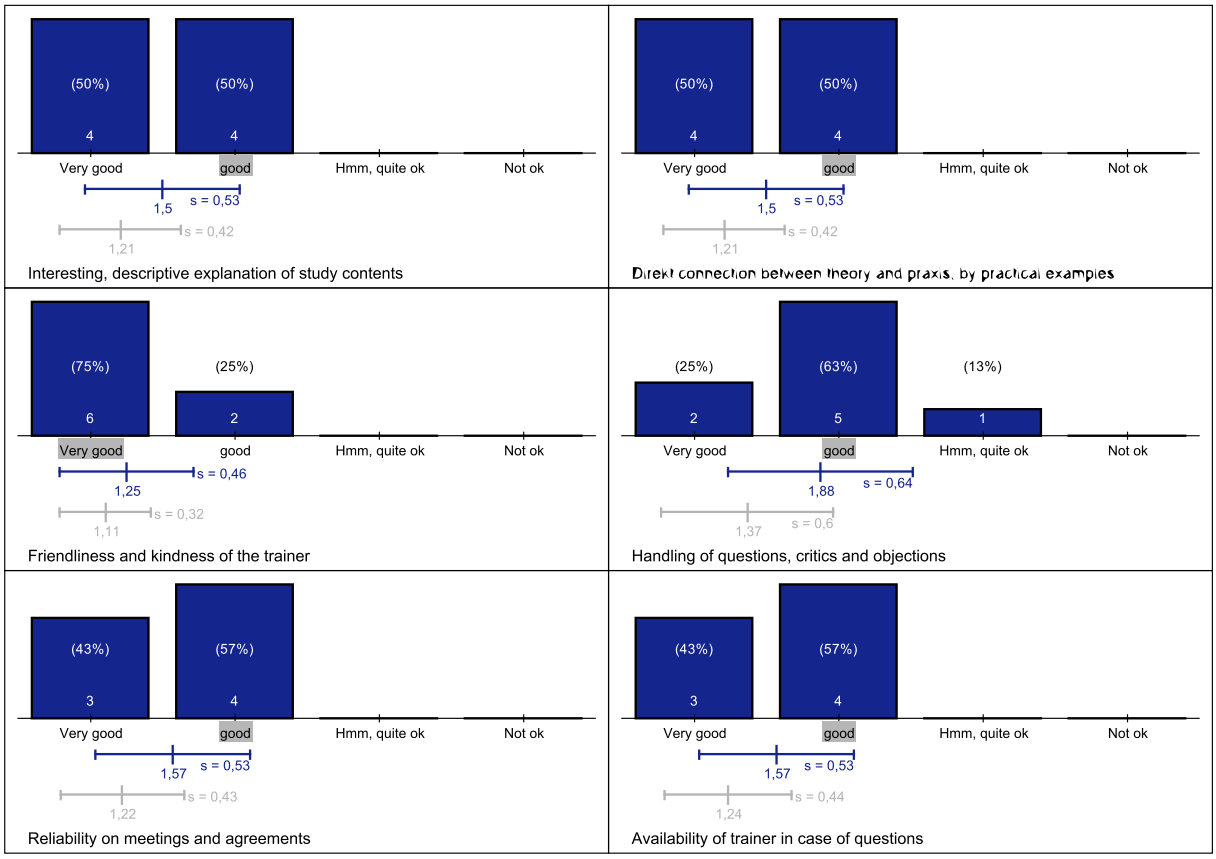
Estimated time for the lessons



Scope of teaching content



Study method fits to the content (Groupwork, discussion forum)

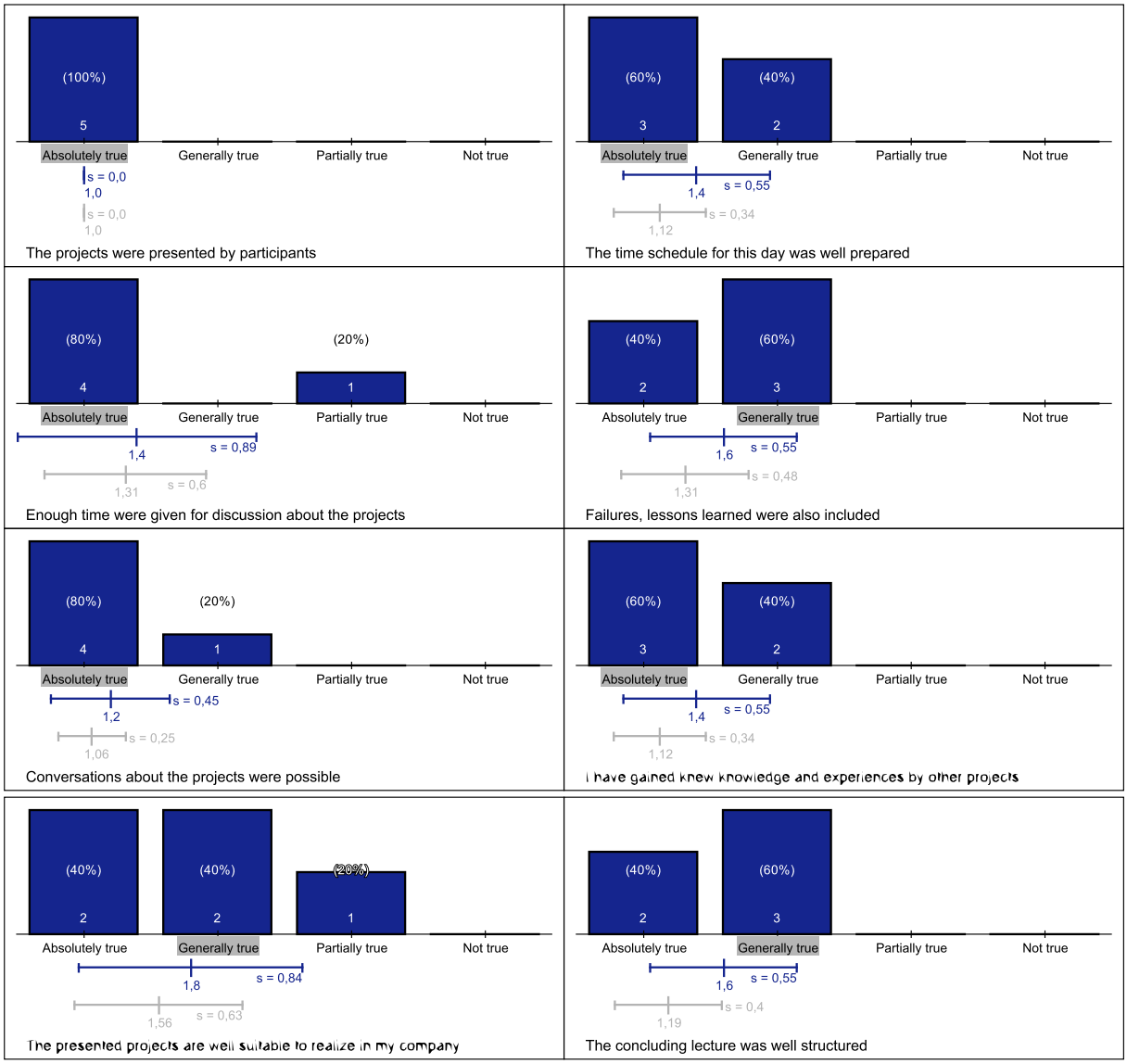


Free form answers

What would you like to say to trainers? What could have done better, what should not be changed etc. Do you have any suggestions regarding the project phase?

- *Less about history, one slide would be enough*
- *More about BIM external network would be necessary*
- *Send the presentations before the training so that notes can be taken on them during the training.*
- *The course is fit better for those, who are not so familiar with the digitisation. Maybe for the next time, the training course could be called – BIM for beginners, or something like this.*
- *The software was good, but the software tools could have been used more.*

Reporting und reflection phase (Reporting Day)



Free form answers

What would you like to say to the trainers? What could have done better, what should not be changed etc. Do you have any suggestions regarding the reporting day?

- *More about external networks please*
- *No comments/suggestions, the training course was designed well.*
- *The organization and content were good*

Conclusion

In summary, the students generally express high levels of satisfaction appreciating content, importance and relevance of the given information.

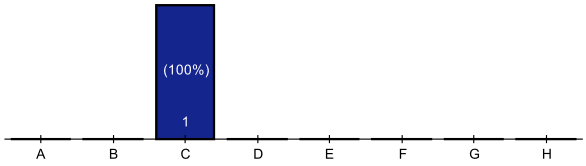
Free form answers support this by indicating that students enjoyed the classes, found the lectures interesting, useful, and informative, the presentation and teaching manner of

professors engaging and supportive. Further and detailed trainings are also welcome by the participants.

Lecturers

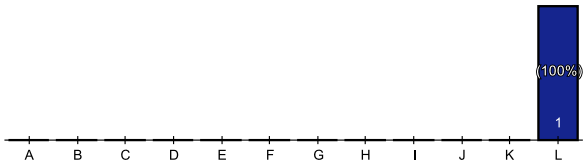
Demography

The evaluation survey received responses from one lecturer, who taught the courses. He has an age of between 30 to 60 years old. Regarding profession, the lecturer is working as a BIM Coordinator in Latvia. In terms of education, the lecturer has a Bachelor of Science degrees.



1.2. What is your highest education?
A Doctor or resp. (0)
B Master of Science (0)
C Bachelor (1)
D Master VET (0)
E Vocational Education (0)
F Matriculation Exam (0)
G Comprehensive School (0)
H None (0)

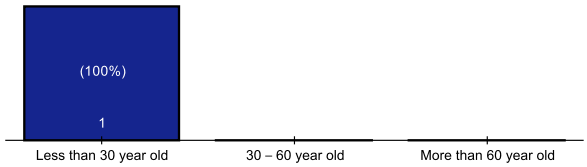
1.3. Employment: At the moment you are



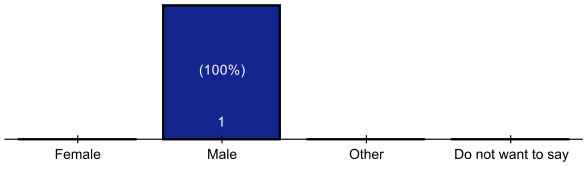
1.4. In which branch you are / were / will be working or studying
A Education and training (0)
B Consulting (0)
C Construction (0)
D Finishing (0)
E Electrician (0)
F Plumber (0)
G Architect (0)
H Construction Eng. (0)
I Electrical Eng. (0)
J Piping Eng. (0)
K Public Authority (0)
L Other: (1)

Other Answers: BIM Coordinator

1.5. Experience in the branch



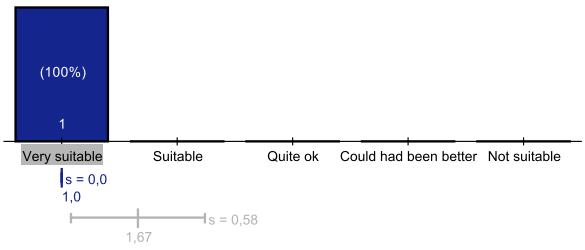
1.6. Age: At the moment you are



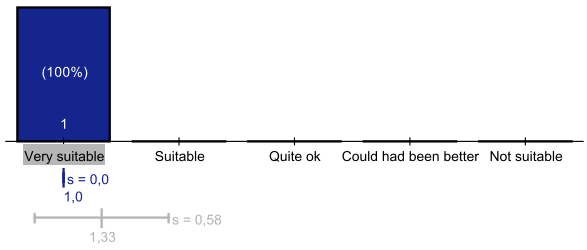
1.7. Gender: Are you

Study Course Part1 – Class room learning

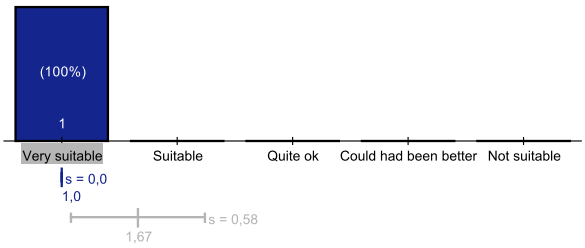
Feedback on facilitations reveals a notably positive perception by the lecturer, rating every aspect as either “very good” or “very suitable.” The lecturer consistently rated the place for the training and all associated facilitations, including room and equipment, as highly suitable. Moreover, they highly appraised aspects such as the timing, duration, and scheduling of the training sessions.



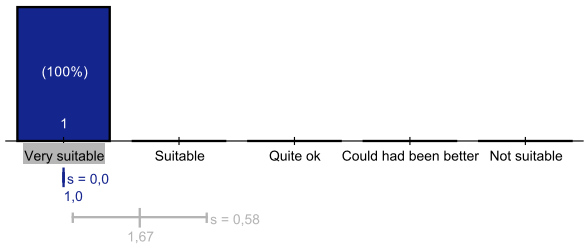
The Place for the Training was



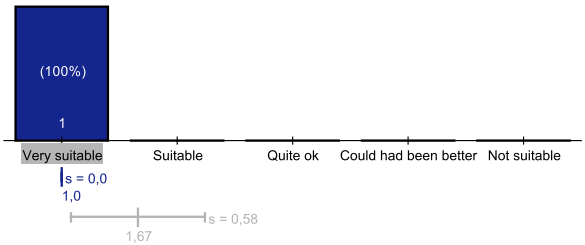
The time (Date) of the training was



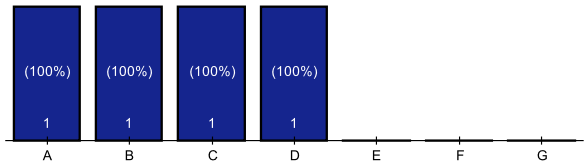
The length of the training was



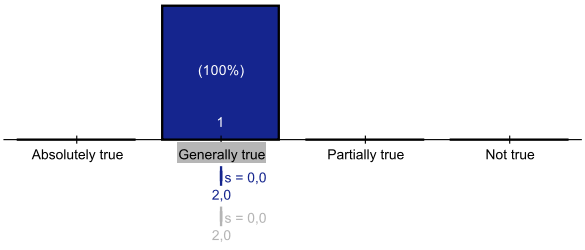
The schedule of the training was



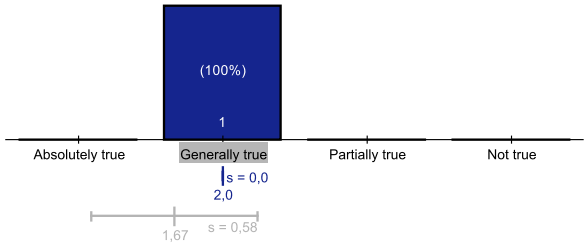
The facilitations (room, equipment etc) were



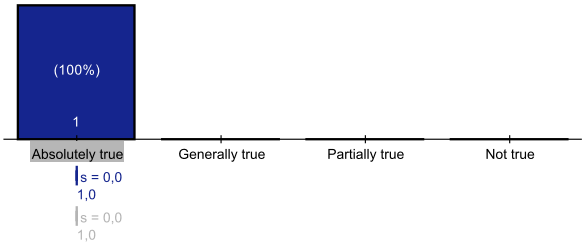
2.2. In common, the participants (5 choices max):
A Were interested and motivated in learning new methods (1)
B Had experience in their branch (1)
C Have participated in discussions (1)
D Had enough preknowledge (1)
E Were bored (0)
F Were not qualified enough for the course (0)
G Had no attention (0)



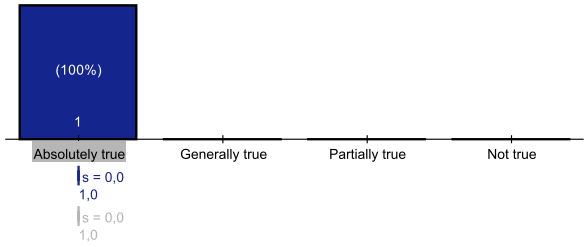
There was time enough for the topic



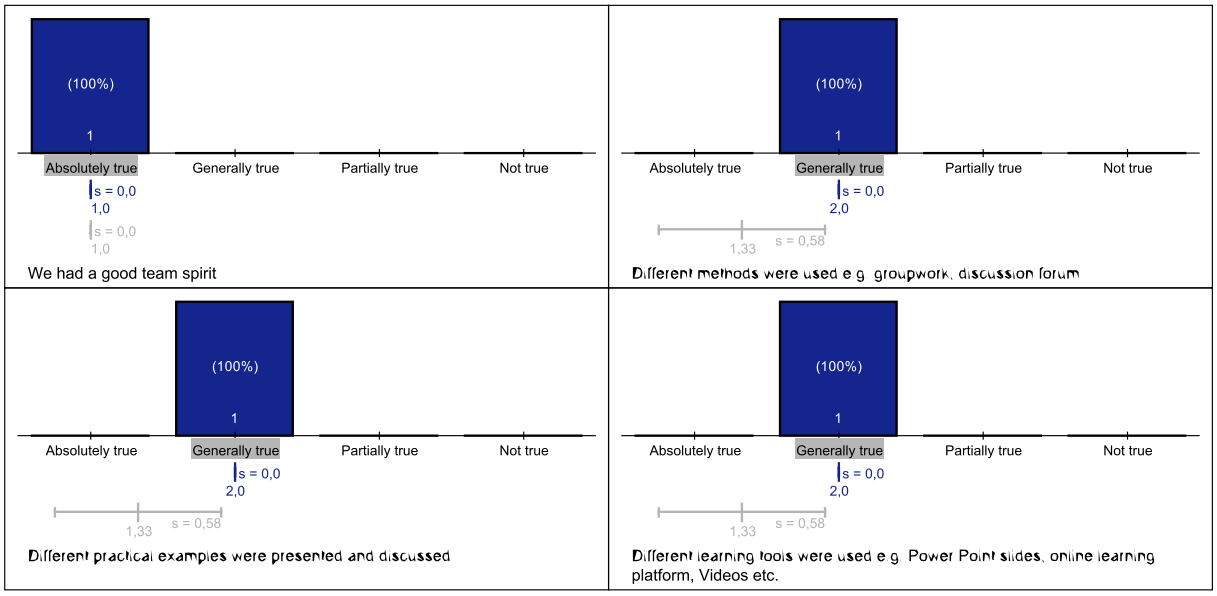
There was time enough for the discussion



The tasks given were clear and understandable



The atmosphere in the course / lessons was good and open.

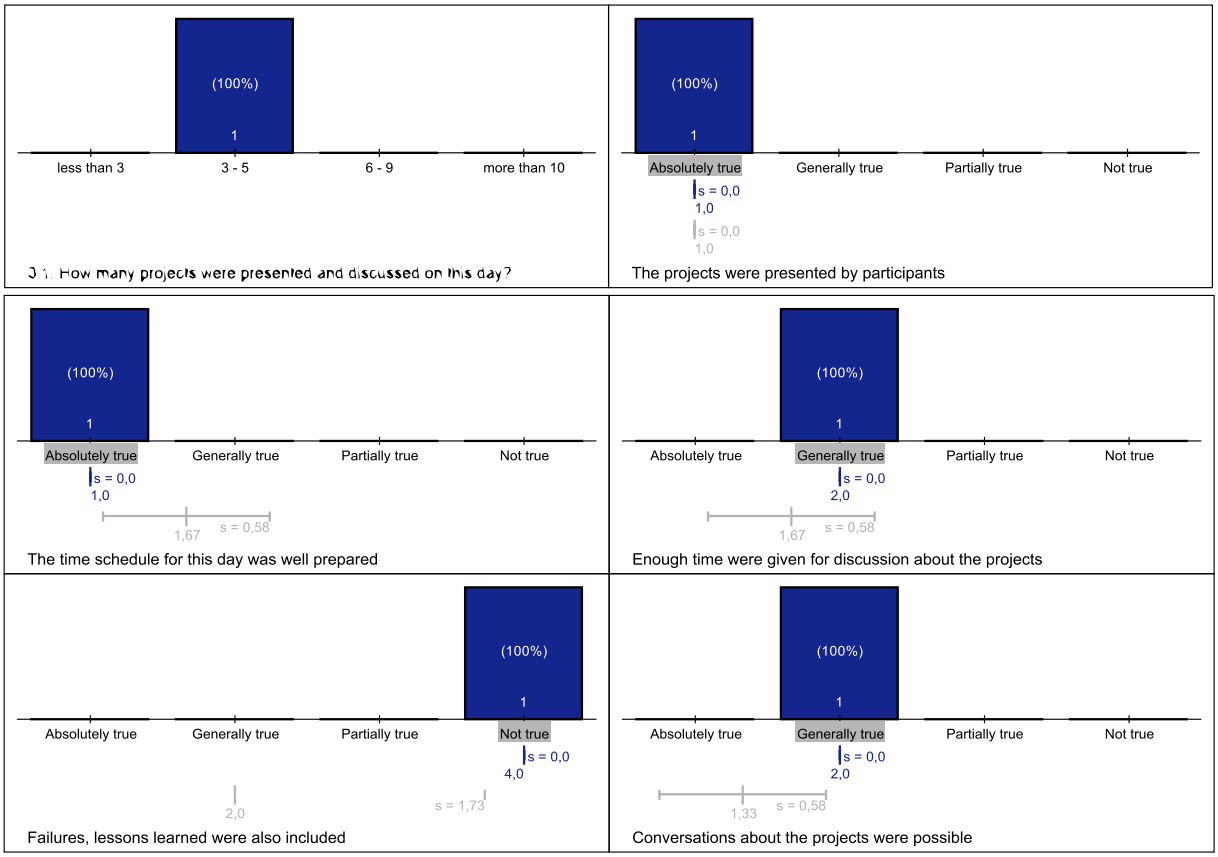


Free form answers

What could have done better, what should not be changed etc. Do you have any suggestions or lessons learned for improving the spatial and/or technical equipment?

- *It would be easier if the participants would have access to premium versions of the tools.*

Reporting and reflection phase (Reporting day)



Free form answers

What could have done better, what should not be changed etc. Do you have any suggestions or lessons learned regarding the reporting day?

• not all participants were present, so we got to witness only 5 presentations. Some of the participants did not explain their project and aim, which made providing feedback more difficult.

Conclusion

Overall, the feedback from the lecturer provides valuable insights for improving curriculum delivery and student engagement in future courses. The lecturer agreed on the relevance and interest of course topics, the suitability of facilitations and noted students' active engagement.

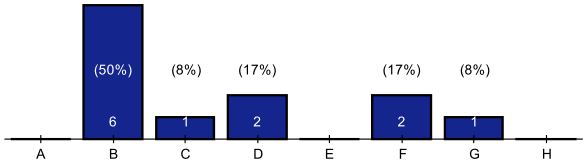
Poland

Participants – Students

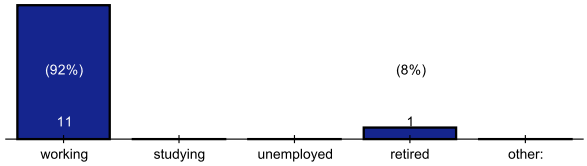
Demography

The evaluation survey was responded by all 12 participants of the course. The age distribution of students skews a wide range. 2 Persons were younger than 30 years old, 8 participants were between 30 and 60 years old and 2 persons were older than 60 years old. In terms of gender representation, males dominate the sample with proportion of 75 per cent, while females comprise the remaining portion (25%). In terms of education, 50% of students holds Master of Science degrees, 17% Master Vocation Educational Training, 17% matriculation exam and 8% bachelor's degree.

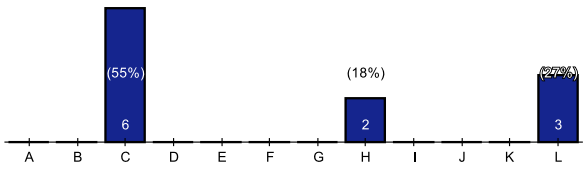
In terms of field of study or work, the students are active in the construction. A vast majority of students (58%) have working experience ranging from mor than 20 years, with a smaller portion (33%) having less than 5 years of experience, 8% have 11 -20 years' experience in the branch.



1.2. What is your highest education?
A Doctor or resp. (0)
B Master of Science (6)
C Bachelor (1)
D Master VET (2)
E Vocational Education (0)
F Matriculation Exam (2)
G Comprehensive School (1)
H None (0)

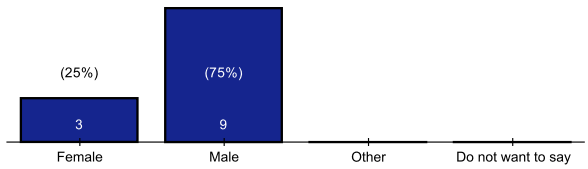


1.3. Employment: At the moment you are

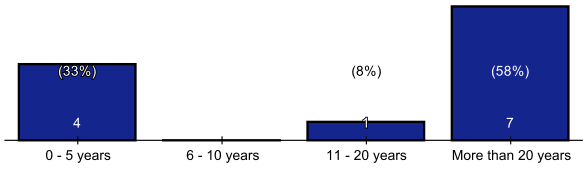


1.4. In which branch you are / were / will be working or studying
A Education and training (0)
B Consulting (0)
C Construction (6)
D Finishing (0)
E Electrician (0)
F Plumber (0)
G Architect (0)
H Construction Eng. (2)
I Electrical Eng. (0)
J Piping Eng. (0)
K Public Authority (0)
L Other: (3)

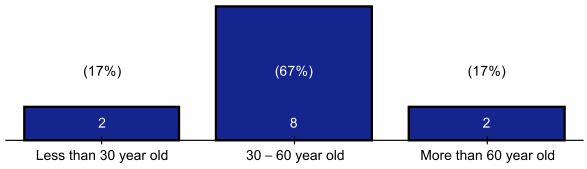
Answers for others:
Chimney Sweep, Services (2 times)



1.7. Gender: Are you

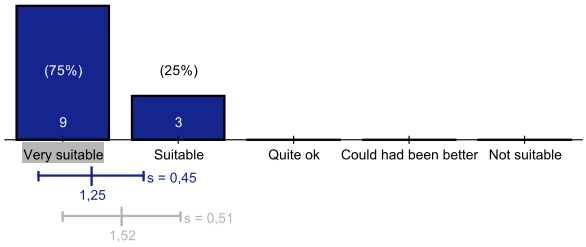


1.5. Experience in the branch

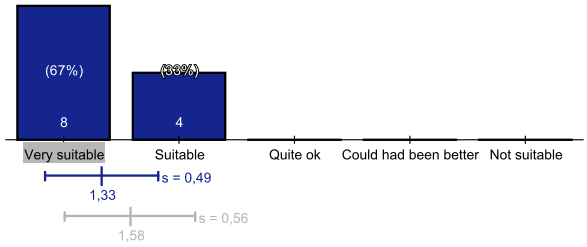


1.6. Age: At the moment you are

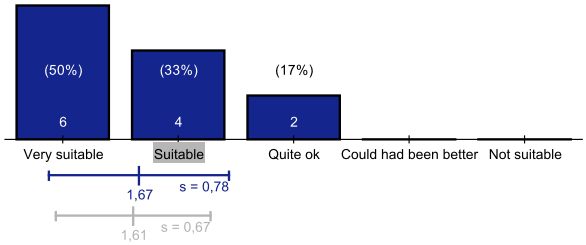
Study course Part 1 – Class room learning



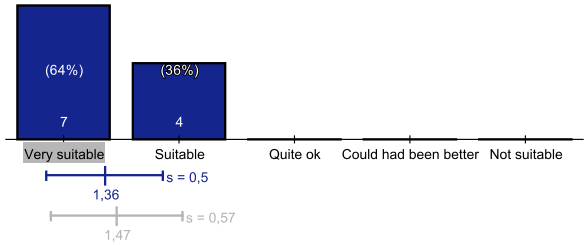
The Place for the Training was



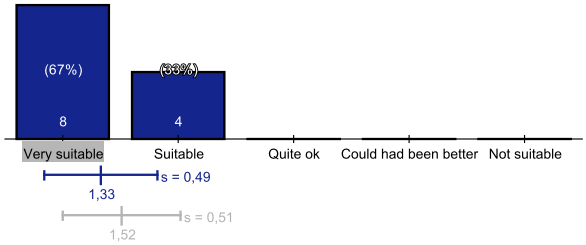
The time (Date) of the training was



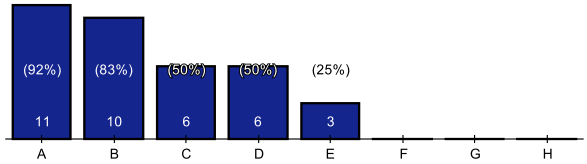
The length of the training was



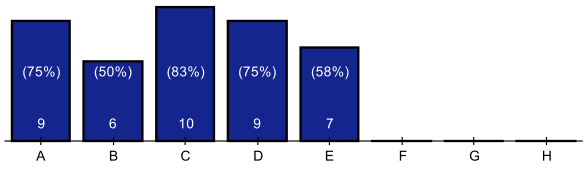
The schedule of the training was



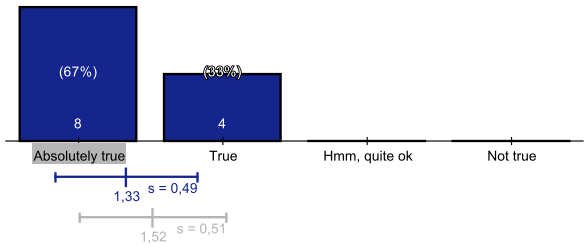
The facilitations (room, equipment etc) were



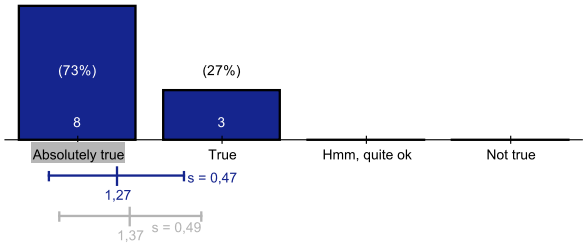
2.2. In common, the topics were (5 choices max):
A Topical (11)
B Interesting (10)
C Important (6)
D Close to my needs (6)
E Up to date (3)
F Boring (0)
G Out-of-date (0)
H Unnecessary (0)



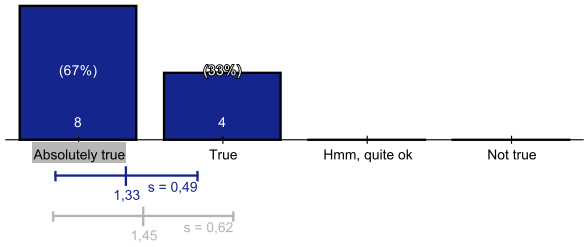
2.3. In common, the teachers (5 choices max):
A Used interesting and motivating methods (9)
B Dealt with important topics (6)
C Were professionals in their branch (10)
D Met the expectations (9)
E Were up-to-date (7)
F Were boring (0)
G Were out-of-date (0)
H Wandered off the point (0)



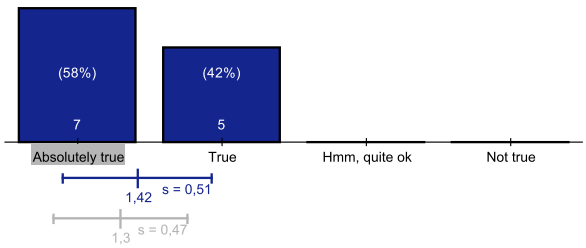
The information given was up-to-date



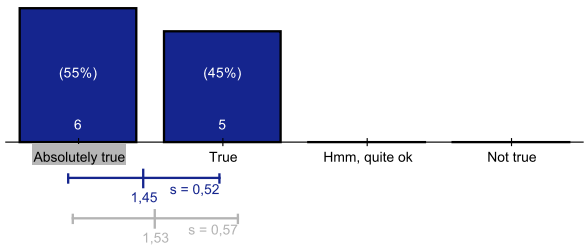
The presentation was clear and understandable



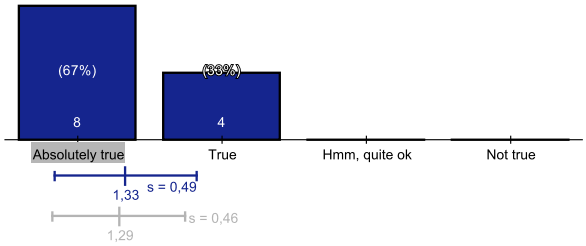
There was time enough for the topic



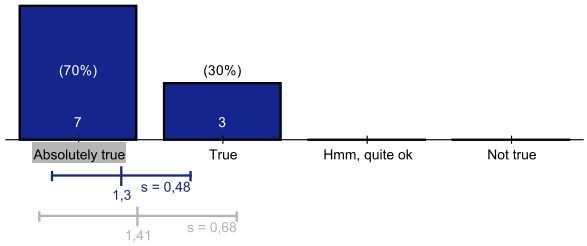
There was time enough for the discussion



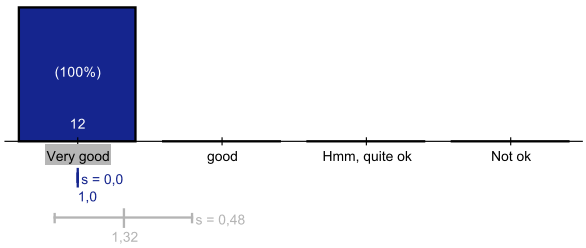
The tasks given were clear and understandable



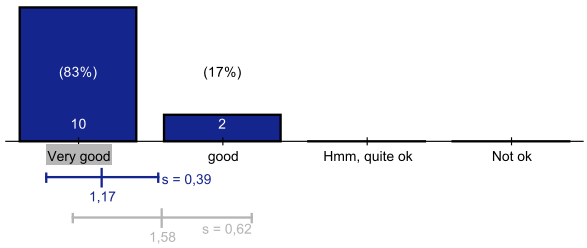
The atmosphere in the course / lessons was good and open.



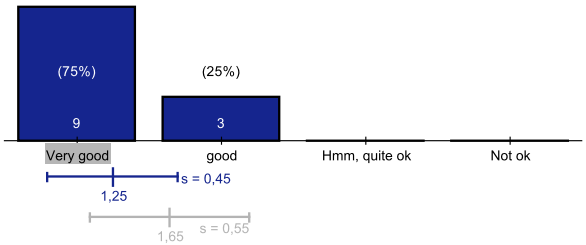
We had a good team spirit



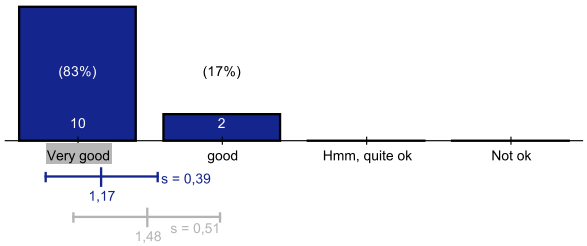
Course structure



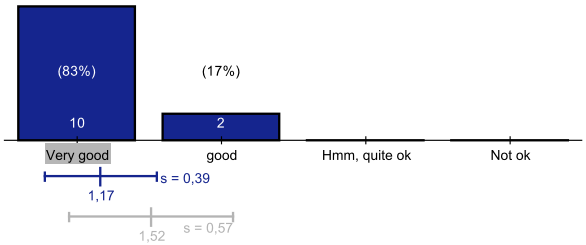
Used tools and Resources (Presentation, black board notes, digital tools)



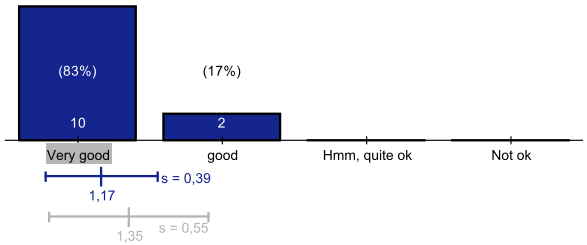
Learning Materials (Script, Handouts)



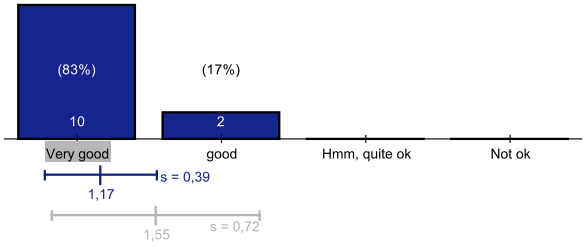
Quality of study course in summary



Course content overview



Estimated time for the lessons



Scope of teaching content

Free form answers

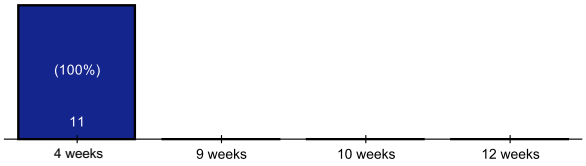
What would you like to say to teachers / facilitators. What could have done better, what should not be changed etc. Do you have any suggestions for improving the spatial and/or technical equipment?

- *improve the quality of online meetings. Poor audibility for those behind.*
- *It was good that there was an opportunity to discuss it together*
- *Keep up the good work*
- *Nothing more, nothing less*
- *Perfection and accuracy*
- *Very well prepared presentation*

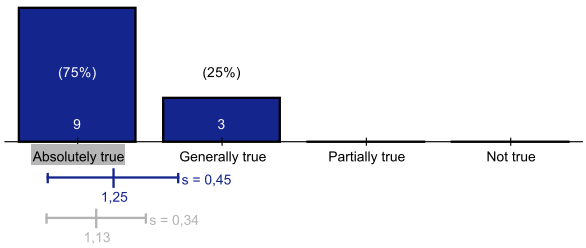
Prescription of project work by the participants

- *creating company procedures with the use of a digital whiteboard – MIRO application*
- *Digital Miro board – creating and writing procedures and assigning tasks to employees*
- *digital MIRO whiteboard – assigning tasks to employees*
- *I've been using a digital whiteboard – it worked well for the company. It was possible to give tasks to employees in this program.*
- *I checked out the One Drive project*
- *I got acquainted with the MONTI program - discussion with colleagues*
- *I put a lot of time into working on the project, I tried to do everything exactly - One Drive*
- *It was good that there was an opportunity to discuss it together*
- *organize your business documents in One Drive*
- *organize your One Drive folders*
- *The work was intensive. I've tried to pay attention to all parts and aspects. I implement intensively shown content. Digital whiteboards are the perfect materials for the job.*
- *The work was very interesting. It took me a lot of time, but I deepened my knowledge and thanks to that I use the skills I have acquired. One Drive*

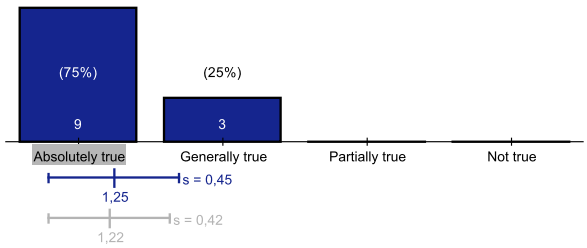
Evaluation of Project Phase – Self learning and project work



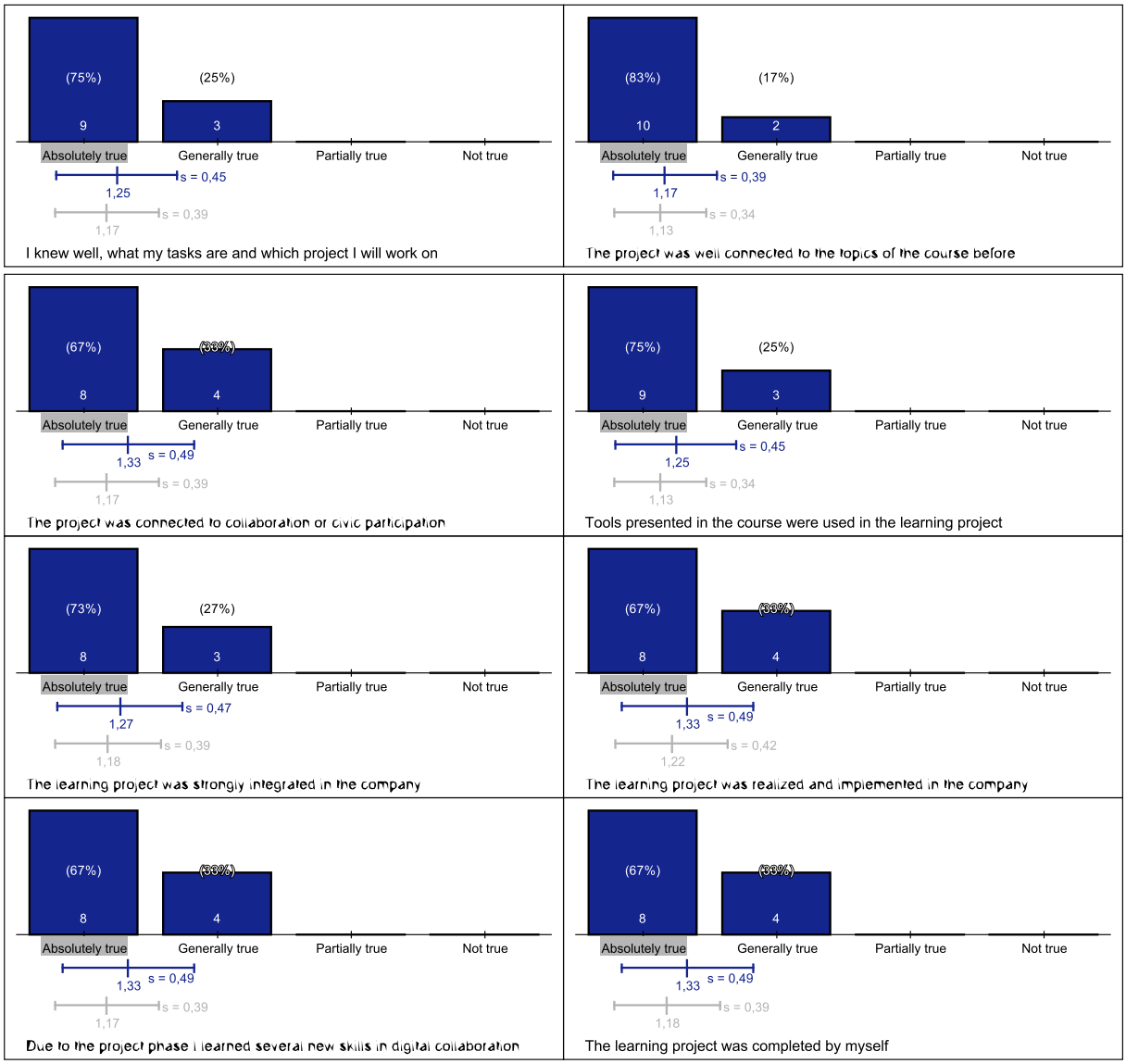
3.2. How much time was reserved for this phase?



The time period was well reserved for the project phase



The tasks and goals for the project phase were well explained

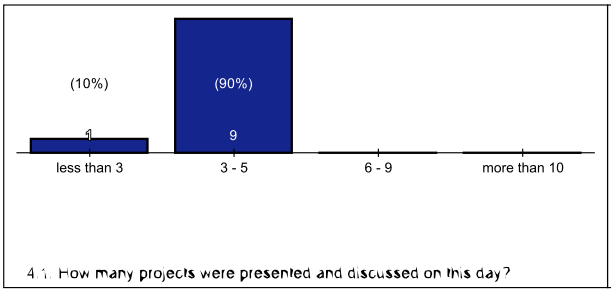


Free form answers

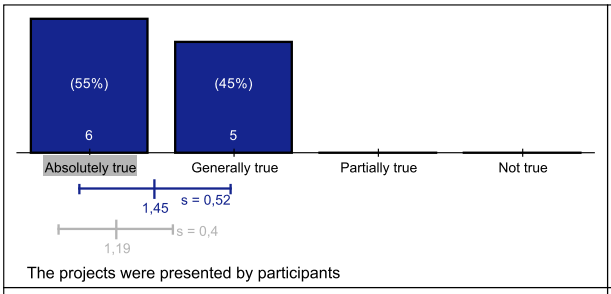
What would you like to say to trainers? What could have done better, what should not be changed etc. Do you have any suggestions regarding the project phase?

- *A perfect balance between topic and time for discussion*
- *Don't change anything. wonderfully :)*
- *It's a good idea to take a deep breath instead of "Y"*
- *Thank you for your support beyond the training in the testing phase*

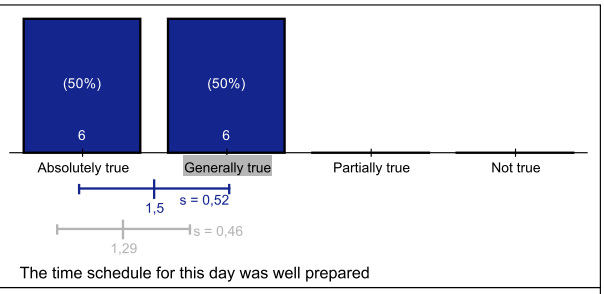
Reporting and reflection phase (Reporting day)



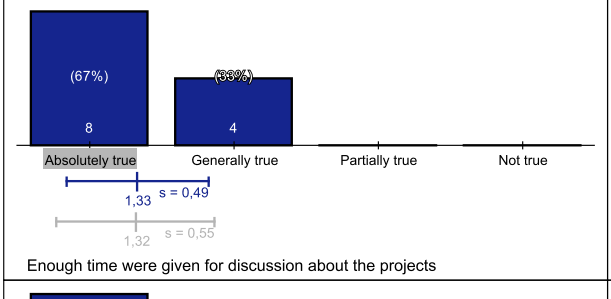
4.1. How many projects were presented and discussed on this day?



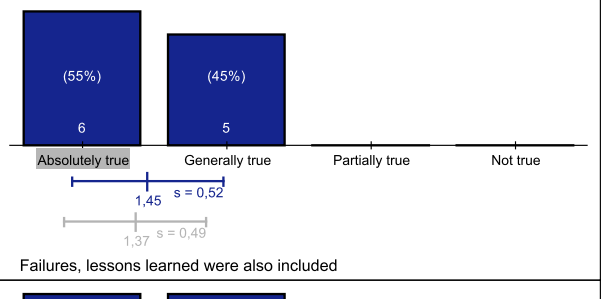
The projects were presented by participants



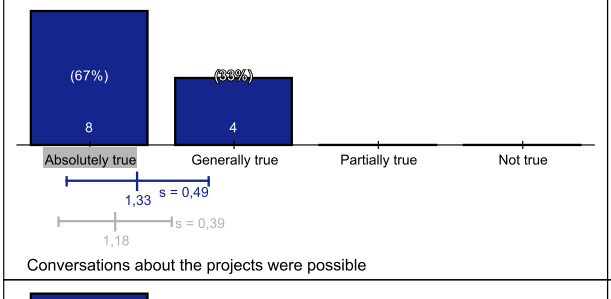
The time schedule for this day was well prepared



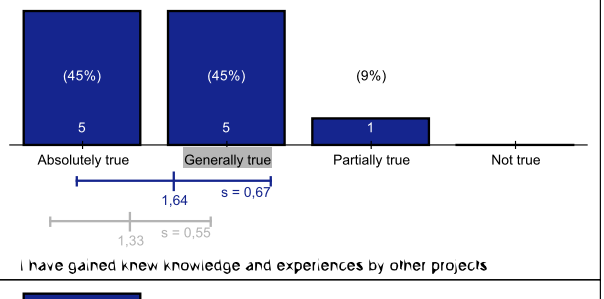
Enough time were given for discussion about the projects



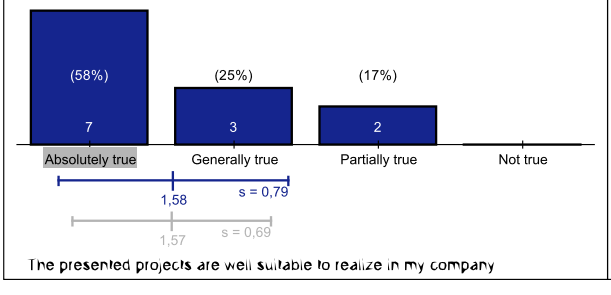
Failures, lessons learned were also included



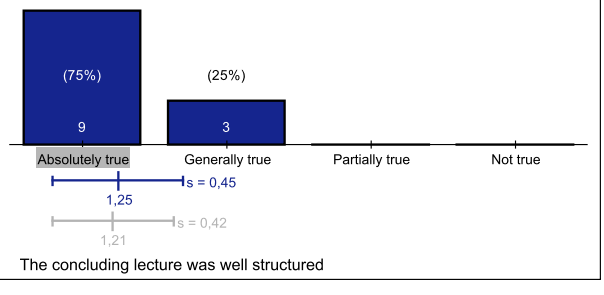
Conversations about the projects were possible



I have gained knew knowledge and experiences by other projects



The presented projects are well suitable to realize in my company



The concluding lecture was well structured

Free form answers

What would you like to say to the trainers? What could have done better, what should not be changed etc. Do you have any suggestions regarding the reporting day?

- *Don't get complacent :) it's never so good that it can't be better :)*
- *Please continue at this pace and with such commitment.*
- *spend more time on individual projects*
- *Thank you for giving me the opportunity to take part in the training*

Conclusion

In summary, the students generally express high levels of satisfaction appreciating content, importance and relevance of the given information. Free form answers support this by indicating that students enjoyed the classes, found the lectures interesting, useful, and informative.

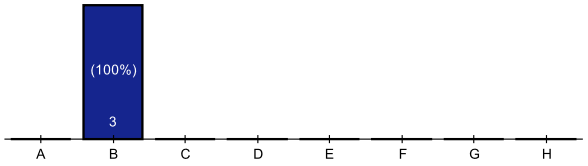
Enterprises – Employers

Involved polish enterprises

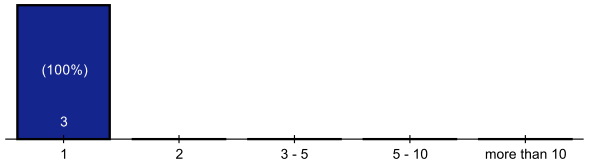
Three polish enterprises completed the questionnaire. All of them are small sized enterprises with less than 10 employees.

The companies have more than 20 years' experience in the branch. The operation fields of the companies are in the construction sector.

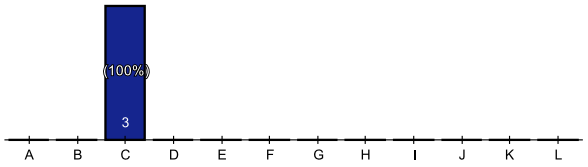
As a conclusion it can be said that both the employers and employees gained beneficial information and skills during the course, which was well implemented, also considering the place, time, and other facilitations.



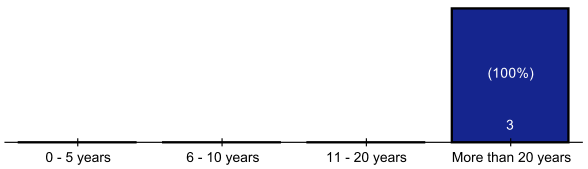
1.2. How many employees do your company have?
A 1-man-business (0)
B less than 10 (3)
C between 10 - 20 (0)
D between 20 - 50 (0)
E between 50 - 100 (0)
F between 100 - 500 (0)
G between 500 - 1000 (0)
H more than 1000 (0)



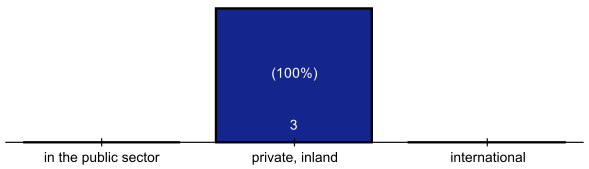
1.3. How many company locations do your company have?



1.4. In which branch are you active?
A Education and training (0)
B Consulting (0)
C Construction (3)
D Finishing (0)
E Electrician (0)
F Plumber (0)
G Architect (0)
H Construction Eng. (0)
I Electrical Eng. (0)
J Piping Eng. (0)
K Public Authority (0)
L Other: (0)



1.5. Experience in the branch



1.6. Your company is

Prescription of the project work, that were completed in the companies:

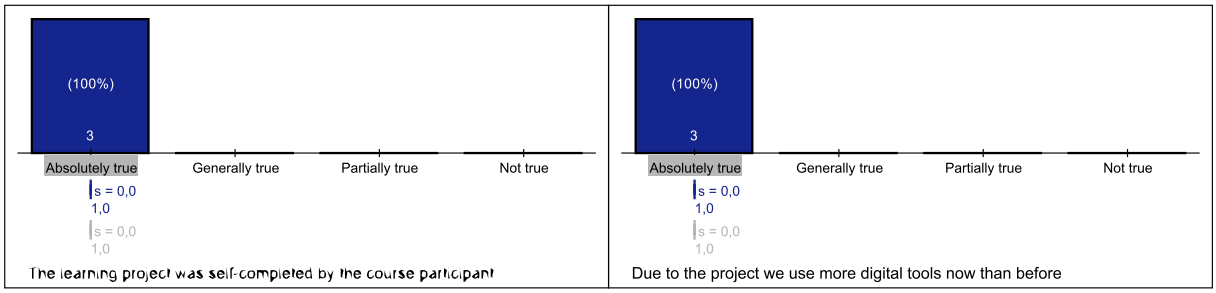
• *implementation of MS Project, an application supporting project management in the company. The application was used to generate schedules of works carried out by the company along with assigning them to them Resources.*
The introduced system enabled easy management of tasks and projects carried out by employees, as well as continuous supervision over the progress of projects

• *Introducing One Drive to keep company documents in a properly accepted order.*
The use of the service has been positively received by employees.
The introduced application made it easy to keep order among documents, easily find materials and quickly exchange information between employees.

• *Microsoft teams - an application introduced to improve cooperation between team members.*
The program allows you to assign tasks to employees so that they can be easily managed.

The application also enables videoconferences, which made it possible to conduct regular meetings on the progress of work performed by our company.

Project Phase – Self learning and project work in enterprises



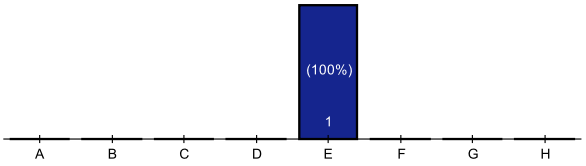
Conclusion

As a conclusion it can be said that both the employers and employees gained beneficial information and skills during the course, which was well implemented, also considering the place, time, and other facilitations.

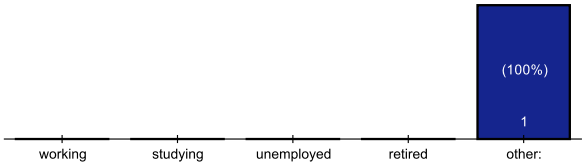
Lecturers

Demography

The evaluation survey received responses from one lecturer, who taught the courses. He has an age of between 30 to 60 years old. Regarding profession, the lecturer is working in the construction sector in Poland and is the owner of a general construction company. In terms of education, the lecturer has a vocational education.

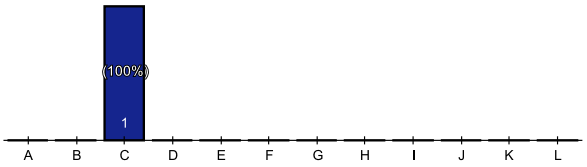


1.2. What is your highest education?
A Doctor or resp. (0)
B Master of Science (0)
C Bachelor (0)
D Master VET (0)
E Vocational Education (1)
F Matriculation Exam (0)
G Comprehensive School (0)
H None (0)

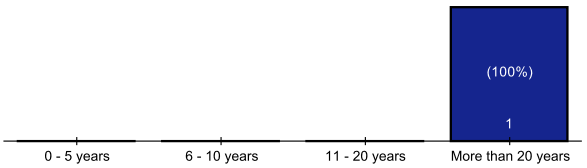


1.3. Employment: At the moment you are

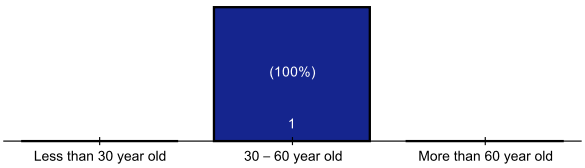
Answers for other:
Owner of a construction company



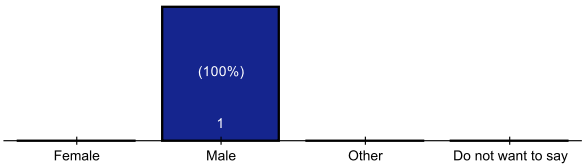
1.4. In which branch you are / were / will be working or studying
A Education and training (0)
B Consulting (0)
C Construction (1)
D Finishing (0)
E Electrician (0)
F Plumber (0)
G Architect (0)
H Construction Eng. (0)
I Electrical Eng. (0)
J Piping Eng. (0)
K Public Authority (0)
L Other: (0)



1.5. Experience in the branch



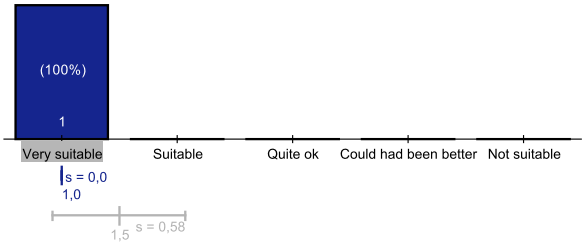
1.6. Age: At the moment you are



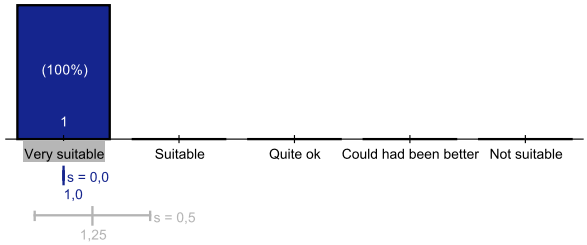
1.7. Gender: Are you

Study Course Part1 – Class room learning

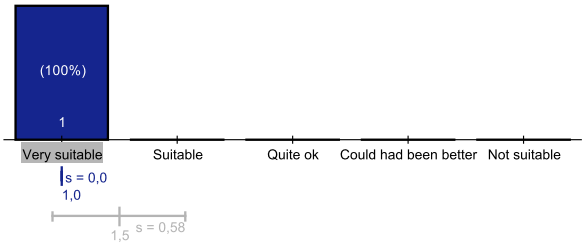
Feedback on facilitations reveals a notably positive perception by the lecturer, rating every aspect as either “very good” or “very suitable.” The lecturer consistently rated the place for the training and all associated facilitations, including room and equipment, as highly suitable. Moreover, they highly appraised aspects such as the timing, duration, and scheduling of the training sessions.



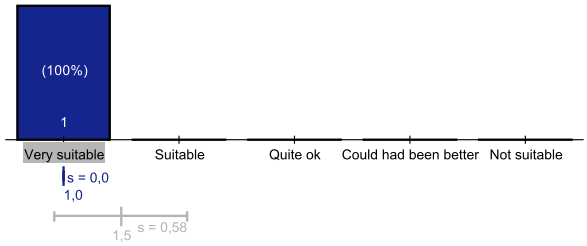
The Place for the Training was



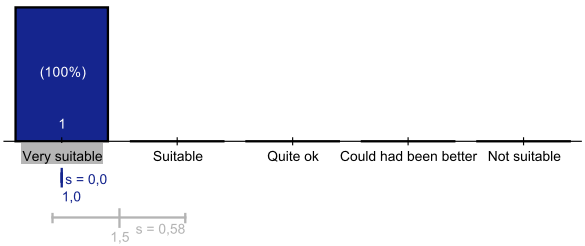
The time (Date) of the training was



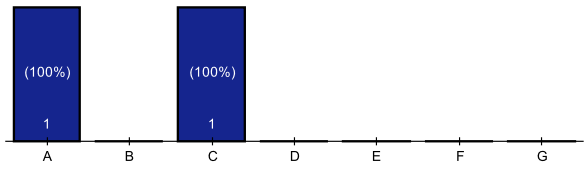
The length of the training was



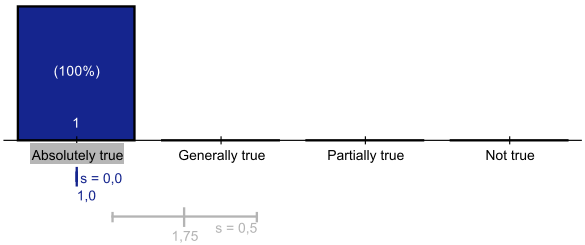
The schedule of the training was



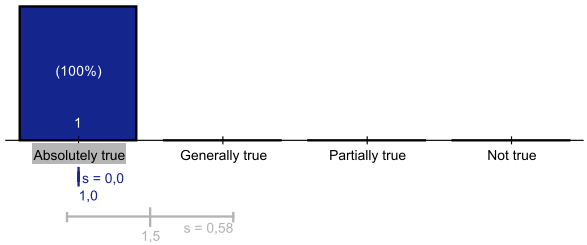
The facilitations (room, equipment etc) were



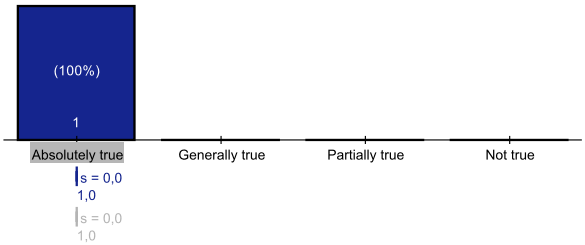
2.2. In common, the participants (5 choices max):
A Were interested and motivated in learning new methods (1)
B Had experience in their branch (0)
C Have participated in discussions (1)
D Had enough preknowledge (0)
E Were bored (0)
F Were not qualified enough for the course (0)
G Had no attention (0)



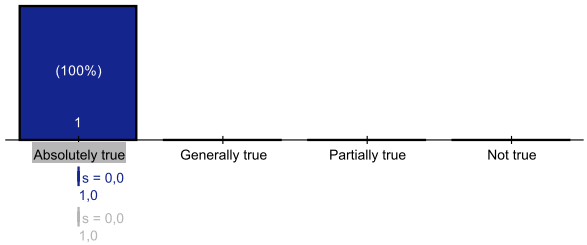
There was time enough for the topic



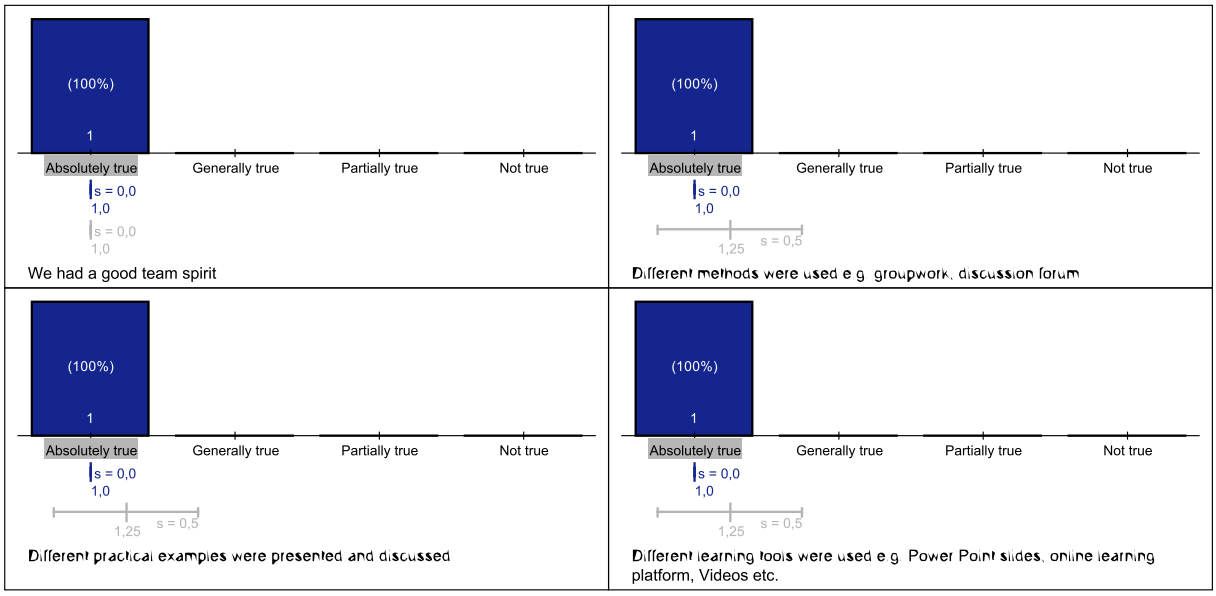
There was time enough for the discussion



The tasks given were clear and understandable



The atmosphere in the course / lessons was good and open.

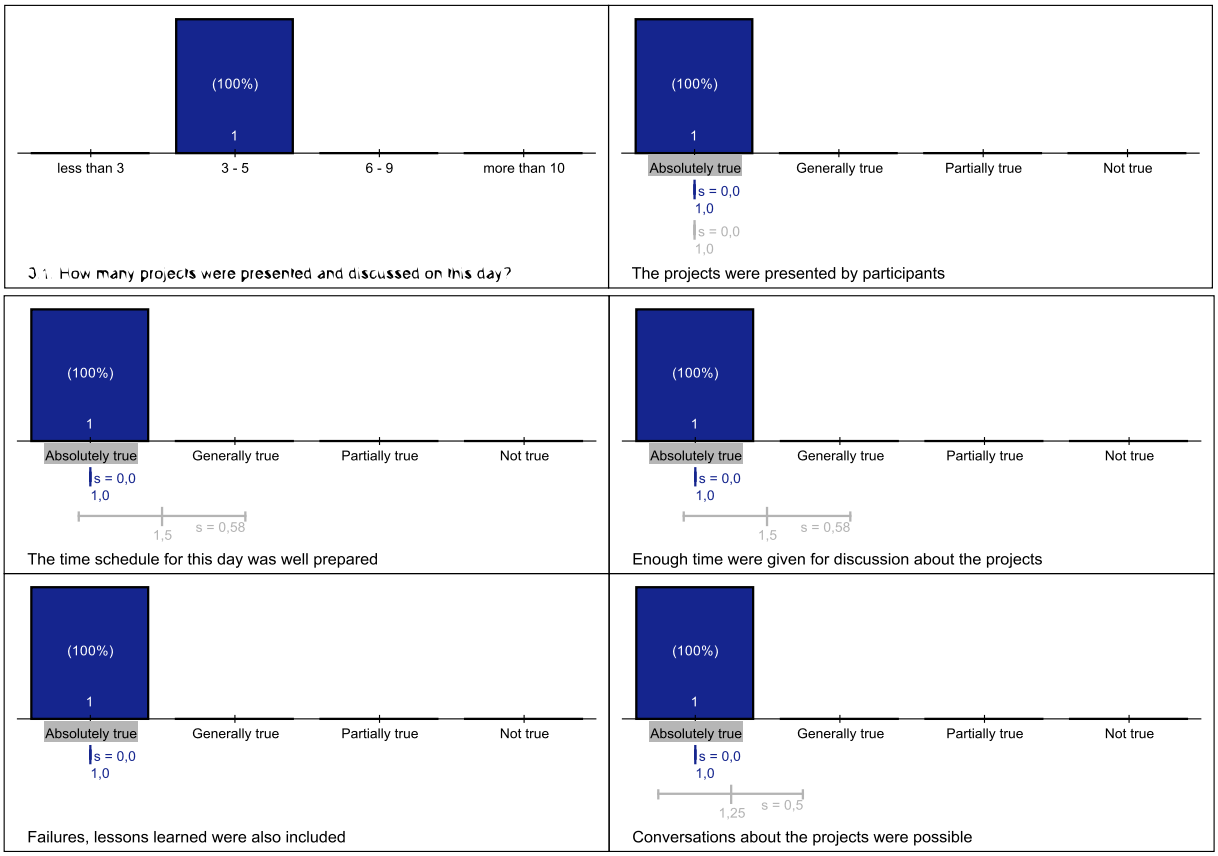


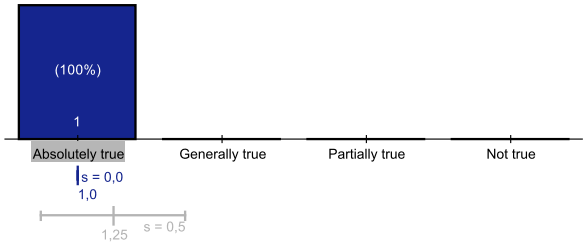
Free form answers

What could have done better, what should not be changed etc. Do you have any suggestions or lessons learned for improving the spatial and/or technical equipment?

• The training room was fine. Plenty of space, table layout adapted to the visibility of the presentation. On the tables there is space for refreshments and drinks.

Reporting and reflection phase (Reporting day)



 The concluding lecture was interactive, the high participation of the participants	

Free form answers

What could have done better, what should not be changed etc. Do you have any suggestions or lessons learned regarding the reporting day?

• Do not change: discussions on the implementation of projects. The participants did not have prepared notes, but everyone could say to what extent they had implemented a given project in their work.

Conclusion

Overall, the feedback from the lecturer provides valuable insights for improving curriculum delivery and student engagement in future courses. The lecturer agreed on the relevance and interest of course topics, the suitability of facilitations and noted students' active engagement.

Appendices

Appendix A The template of the questionnaire for participants of training	
Appendix B The template of the questionnaire for training lecturers	
Appendix C The template of the questionnaire for companies that KAIN method related projects were carried out in	