

IMPROVING THE PROFESSIONAL SKILLS IN GREEN CONSTRUCTIONS THROUGH ONLINE TRAINING

Erasmus+ Strategic Partnership KA2

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Training of the trainers

08 - Final Report



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1. INTRODUCTION

New, digital media have already established themselves in the VET sector for general information and communication, and are now increasingly finding their way into the concrete teaching process. In distance learning, the use of new media for communication has long been self-evident. From this context, initial findings could be derived that communication events within teaching / learning contexts should be supported and moderated or in other words: e-tutorially supervised. Also in classroom teaching, new media can be used profitably, as long as they are not only used for material distribution. They enable a more flexible and individualized learning without having to renounce the exchange with other learners. However, this requires teachers to be able to cope with the new opportunities, not only from a technical point of view, but also from a didactical point of view.

In order to exploit these potentials, professional education must change:

- Teachers as well as students must develop a self-image for the use of new media in teaching as well as in learning. This does not happen automatically but requires strategic measures.
- E-Tutor training VET brings with it a variety of new teaching / learning scenarios, such as differentiate between:-
- "Enrichment concept",
- "Integrative concept" and
- "Concept of virtual teaching"

The spectrum of relevant e-learning scenarios has three categories:-

- "Digital media ... in face-to-face events",
- "As a complement to face-to-face events" or "as a major extension of face-to-face events"
- "As a substitute for face-to-face events".

2. THEORETICAL ASPECTS INVOLVED IN PRE-TRAINING OF TRAINERS

TEACHING / LEARNING SCENARIOS

Teaching / learning scenarios that follow **the "Enrichment concept"** serve to provide learners with additional information through the use of new media and thus to promote retention performance. Scenarios such as "teacher-centered, teaching with e-media", "cooperative learning with digital learning resources and tools" and "learning success assessment with e-assessment" fall under this concept. Presence teaching remains in the foreground.

In **the "Integrative Concept"**, presence and online phases are increasingly interwoven and coordinated. These scenarios are also known as "blended learning" or in the German-speaking world as "hybrid learning". The purpose of these scenarios is to use the respective advantages by mixing different teaching elements and to avoid disadvantages subdivide this scenario into two subcategories, in which, as already mentioned above, the use of media as a supplement or as an essential extension to classroom teaching differs weight. They include u.a. "Self-directed learning with e-tutorial guidance" and "Discovering learning with computer-based simulations" to these two subcategories.

The **"Virtual Teaching Concept"** is the furthest from conventional classroom teaching. With the use of videoconferencing systems or CSCL (Computer Supported Collaborative / Cooperative Learning) tools, the teaching is mainly computer-aided. Presence phases are often omitted completely or take place exclusively at the beginning or at the end of the event.

For the completed within the project "Green Building" - modules of interest at the Seminar TOT are: scenarios such as the integration concept and the virtualization concept.

INTERNET E-LEARNING

"Internet e-learning focuses on synchronous, bidirectional communication between teachers and students".

In most cases, the VET is a transmission of lectures or presentations via videoconferencing - either from one lecture hall to another (e.g. across campuses) or directly to students' computers.

It is the following scenarios:

- **"Remote Lecture Room"**: Two or more lecture halls are interconnected using a high-performance connection. The transmission takes place unilaterally from the lecturer's lecture hall to the listening lecture hall (s).
- **"Remote Interactive Seminar"**: In principle, it is the already mentioned scenario, except that here smaller seminar rooms are networked with each other. The differentiation is therefore to be considered purely technical.
- **"Interactive Home Learning"**: The learners sit at their own computer and receive the data streams from the lecture hall. At the same time, they are able to actively participate in the event via sound and whiteboard.

TELE-TEACHING

(Internet e-learning) is a tutor-centered teaching / learning scenario in which the lecturer - and with him / her the knowledge transfer through him / her - is in the foreground. "[This] form of tele learning fits in the most with the classical role allocation between lecturer and participant and is thus comparable to the objectivist-oriented frontal teaching".

In this respect, it is not surprising that tele-teaching in the VET is mainly used as a substitute for lectures. Tele-Teaching enables a large number of learners to be reached anywhere and at the same time.

However, the above-mentioned possibility for bidirectional communication is subject to restrictions: on the one hand there can be delays due to poor data connections, on the other hand it becomes impossible for a correspondingly high number of participating students to react synchronously to their comments.

In this respect, the possibility of bidirectional communication often becomes only a one-way communication, which in turn leads to a mediating role of the teacher. Therefore, this teaching / learning scenario is not a scenario that classically refers to e-tutoring. Nevertheless, it can be part of supervised tele-learning.

OPEN TELE-LEARNING

"In open tele-learning, a single learner accesses learning materials on the net;" The processing of the materials is mostly self-directed without the initiated cooperation with other learners. "Ideally [the learners] stand out from the offers the network's 'virtual timetable' from the various facilities and

places, distance education offers, databases, multimedia archives, etc.". As a rule, open tele-learning is not supported by e-tutorials. "However, it can be offered as an optional service".

In the teaching / learning scenario open tele-learning, self-directed learning plays a major role. Content, location, time and duration are freely chosen by the learner. If the course conception is counted among the tasks of e-tutorial support, this poses a particular challenge "lack of adaptability", "insufficient support" and "insufficient motivation" as difficulties in self-directed learning with the computer out.

In the conception, these difficulties must be addressed by considering as many learning pathways as possible, offering different support options as well as optional support. Open tele-learning can be combined with supervised tele-learning, but generally also plays a subordinate role in terms of tutorial care.

ASSISTED TELE-LEARNING (WEB BASED LEARNING)

As the name implies, supervised tele-learning is the teaching / learning scenario that is most important in the context of e-tutoring. At the heart of this teaching / learning scenario is "Taking care of remote learners working on tutoring tasks". Through targeted learning tasks, the learners are to be supported and thereby counteracted a fleeting occupation with the learning content. The tutorial support is thus closely related to the provision and support in the processing of learning tasks. Also many more tasks belong to the spectrum e-tutor lecher care.

In general, e-tutoring involves both individual learners and groups. However, individual care is very time-consuming and comparable to traditional private lessons. Therefore, we can also speak of "tele-coaching" here. This variant allows learners to "help in more personal matters". Between the teacher and the learner "there is an intensive synchronous as well as asynchronous communication".

Assisted tele-learning is characterized by the fact that it creates a good framework for cooperative learning within a group. The clocked distribution of learning materials and tasks promotes access by learners in a fixed time window. "The learning content is selected and edited by a single group, using all available synchronous and asynchronous means of communication." As a result, the learning process is mostly done by the learners themselves supportive among others in the group finding process as well as in the processing of the learning tasks to the side.

The role of the teacher changes in this teaching / learning scenario from "say on the stage" to "guide on the side". Questions concerning the interaction between the teachers and the learners are increasingly coming back to the forefront of the didactic discussion. There are "new, both technical and communication practical requirements, which require a more or less extensive training [for the teachers, author's]".

These explanations make it clear that, in particular, this teaching / learning scenario is important in the context of the initial question, since it already points to the changing role of teachers and the associated educational and development needs.

3. SCHEDULE FOR PROGRAM TRAINING OF TRAINERS

DAY 1 (21.01.2019)		Day 2 (22.01.2019)		Day 3 (23.01.2019)	
8:00 – 9:00	Welcome Introduction	8:00-9:00	Discussion and analysis of work on the first day.	8:00-9:00	Discussion and analysis of work on the second day.
9:00 – 9:40	Presentation of the participants. Organizational questions.	9:00-13:00	Demonstration and evaluation of work with module 1.	9:00-13:00	Demonstration and evaluation of work with module 2.
9:45 - 13:00	Specific knowledge and skills for effective work and teaching with the e-platform MOODLE		Teamwork and recommendations for the design layout of the module Lesson, tests, video.		Teamwork and recommendations for the design layout of the module Lesson, tests, video.
13:00 -14:00	Lunch	13:00-14:00	Lunch	13:00-14:00	Lunch
14:00 -15:30	Questions and Answers	14:00 -15:30	Discuss the didactic and pedagogical features of Module 1.	14:00 -15:30	Discuss the didactic and pedagogical features of Module 2.

15:30 – 15:45	BREAK	15:30 – 15:45	BREAK	15:30 – 15:45	BREAK
15:45-17:00	Individual work on the graphical and unified architectural layout of the modules. Group work and Individual training Design	15:45-17:00	Discussion and preparation of a tutorial on how to work with a module1.	15:45-17:00	Discussion and preparation of a tutorial on how to work with a module2.
17:00	End of the first day	17:00	End of the second day	17:00	End of the third day
DAY 4 (24.01.2019)		Day 5 (25.01.2019)		Day 6 (26.01.2019)	
8:00 – 9:00	Discussion and analysis for work on the third day.	8:00-9:00	Discussion and analysis for work on the fourth day.	9:00 – 17:00	Cultural program; Riga - <u>Rezekne</u>
9:00 – 13:00	Demonstration and evaluation of work with module 3. Teamwork and recommendations for the design layout of the module Lesson, tests, video.	9:00-13:00	Demonstrate and evaluate the overall design of the entire product.		

13:00 -14:00	Lunch	13:00-14:00	Lunch
14:00 -15:30	Discuss the didactic and pedagogical features of Module 3.	14:00 -15:30	Discussion and preparation of a general guide for the teacher in the work with the modules - graphic layout.
15:30 – 15:45	BREAK	15:30 – 15:45	BREAK
15:45-17:00	Discussion and preparation of a tutorial on how to work with a module 3.	15:45-17:00	Evaluation of the results of the training, questionnaire and acceptance of the protocol. Issuing Certificates!
17:00	End of the fourth day	17:00	End of TOT

4. TRAINING OF TRAINERS EVENT

In the framework of our project, we have created training modules that take into account the needs and requirements of the construction industry and the construction workers themselves with competences in the field of Green Construction. These training modules aim to accelerate the process of entry of Green Construction into the construction industry. The training modules are intended mainly for construction workers. The modules were prepared to be presented to candidate trainers for the completion of this training. The main purpose of this meeting is to increase the number of trainers who apply the training module and to disseminate them. In order to ensure the sustainability of these training modules both during and after the project, we have provided joint staff training within the project. This activity took place in 21st - 26st January, 2019, under the coordination of RTA. With the participation of 18 people, the training activity was successful.

The trainees who participated in this training were representatives of partner institutions. The training modules were provided to the staff attending the event by the project partners who developed the modules - Veda Consult presented Module 1, "Materials" ECESI - Module 2, Energy Efficiency RTA - Passive House and Dictionary. After the goals and content of the training modules we created within the project were explained, the teaching methods were explained in detail. The event below lists five days of local and transnational presentations on the teaching of module content and the use of the online platform.

TOT, 21st JANUARY 2019, REZEKNE, LATVIA

FIRST DAY

After the arrival of the participants to the event location, opening speech was given by the representative and project coordinator of RTA, Prof. Lyubomir. Lazov. He gave information about the aims and intellectual outputs of the project. Information about the TOT program and the project was presented from Projects Expert PAWEL CACIVKIN. Specific knowledge and skills for effective work and Lecturer teaching with e-platform MOODLE were presented by Mihails Kijasko from Computer Office of RTA.

After, question and answers began the individual work on the graphical and unified architectural layout of the modules. With Group Work and Individual Training, the first working day of the event ended. After the end of the working day, the TOT participants visited the new building of the Laser Technology Center.



TOT, 22nd JANUARY 2019, REZEKNE, LATVIA

SECOND DAY

The second day of the Event has begun with discussion and analysis of the work on the first day. The representative from Veda Consult led the work on the demonstration and evaluation of Module 1. Teamwork and recommendations for the design layout of the Module, lessons, tests and video were led by Prof. Lyubomir Lazov.

Afternoon work began with Discuss the didactic and pedagogical features of Module 1. Work on day two ended with a discussion and preparation of participants on how to work with module 1.



TOT, 23rd JANUARY 2019, REZEKNE, LATVIA

THIRD DAY

The event started with a Discussion and analysis of the work on the second day. The representative from ECESI led the work on the demonstration and evaluation of Module 2. Teamwork and recommendations for the design layout of the Module, lessons, tests and video were led by Dr. Tsanko Karadzov.

Afternoon work began with Discuss the didactic and pedagogical features of Module 2. Work on day two ended with a discussion and preparation of participants on how to work with module 2.



TOT, 24th JANUARY 2019, REZEKNE/ LATVIA**FOURTH DAY**

The event started with a discussion and analysis of the work on the third day. The work was carried out by Prof. Lyubomir Lazov to introduce the Training Module 3: Passive house. Prof. Lyubomir Lazov led the work on the demonstration and evaluation of Module 3. Teamwork and recommendations for the design layout of the Module, lessons, tests and video were led by Prof. Lyubomir Lazov.

**LTT, 17th MAY 2019, GAZIANTEP, TURKEY****FIFTH DAY**

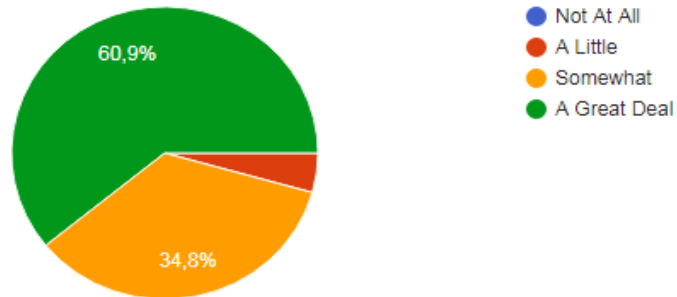
All participants discussed the preparation of a general guide for the trainers in that work with the modules/ graphic layout. In the afternoon, participants evaluated the TOT event. After the minutes of the project were accepted, the participants received certificates for successful participation in the training.

5. GENERAL EVALUATION OF THE TRAINING

Assessment of each Trainer’s competency through self-assessment will be undertaken. Questionnaires for trainers evaluate the results of training. Collecting feedback on the learning outcomes of all partner countries in order, if necessary, to correct the contents of the training modules.

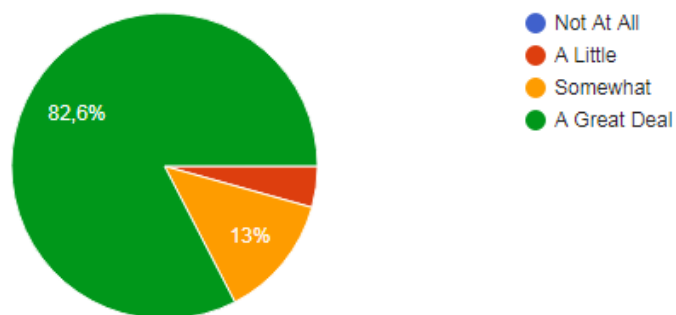
1. What is Green construction and why is it important?

23 отговора



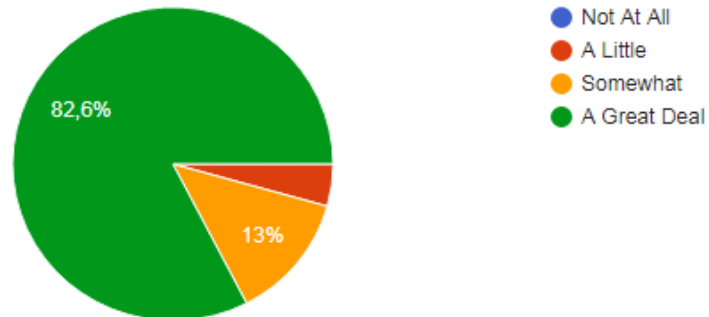
2. What are the sources of green building materials?

23 отговора



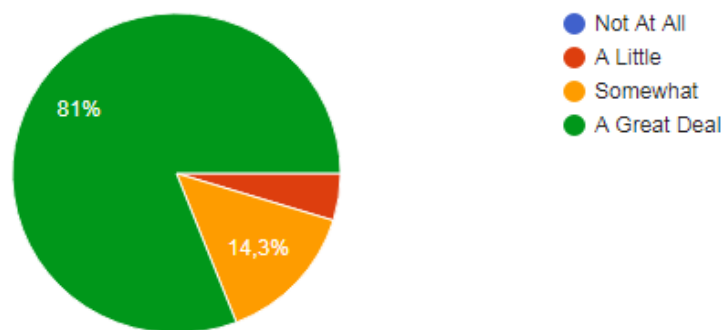
4. What is energy efficiency of buildings?

23 отговора



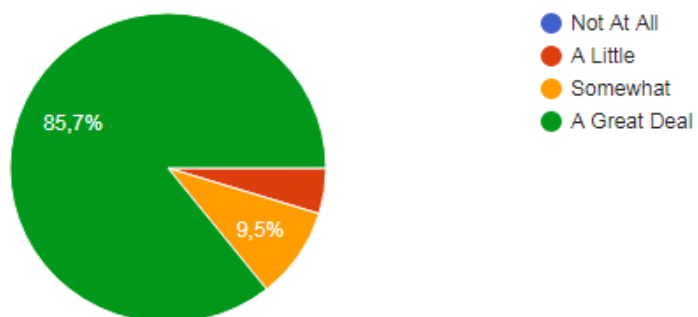
5. What are the energy efficiency measures of buildings?

21 отговора



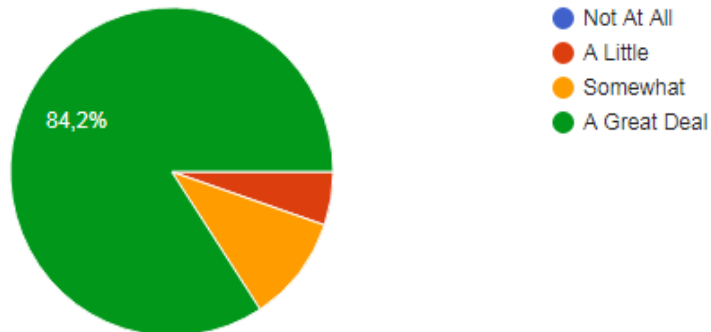
6. Energy renovation of buildings?

21 отговора



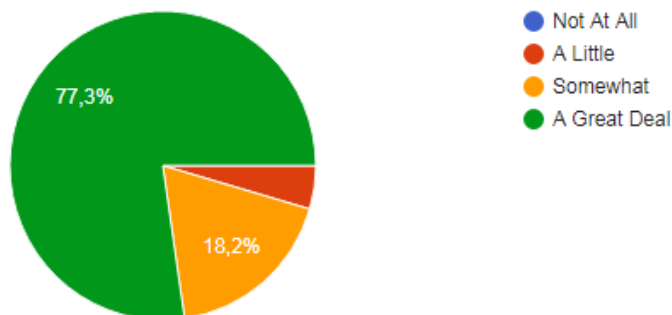
7. The options of Facade thermal insulation?

19 отговора



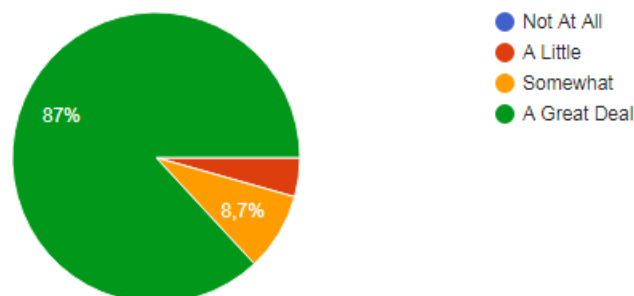
8. The Importance of Renewable Energy Sources for the Energy Efficiency of Buildings?

22 отговора



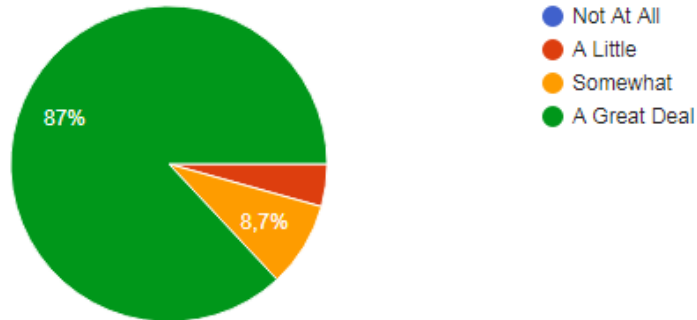
9. Train construction workers and students about the importance and measures to increase energy efficiency in construction

23 отговора



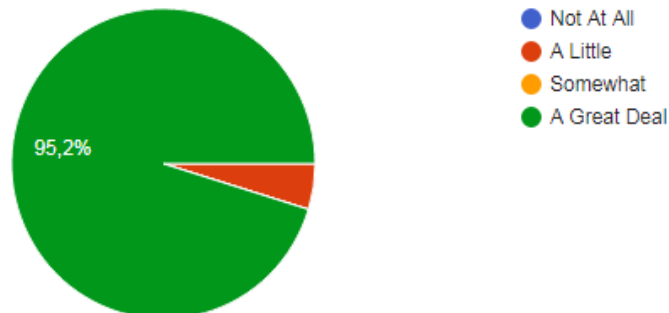
10. Introduce the target group to the application of green building materials?

23 отговора



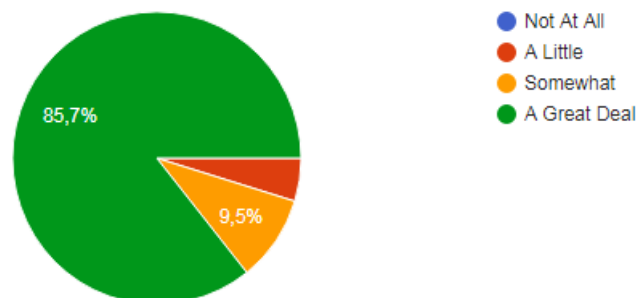
11. Familiarize the target group with the role of green building to ensure a healthy lifestyleur specific item here?

21 отговора



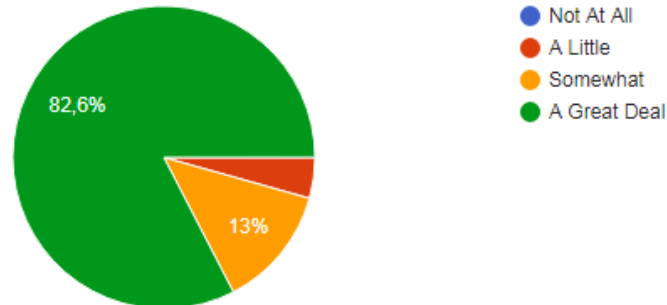
12. How confident are you that you have the information needed to train others on green construction?

21 отговора



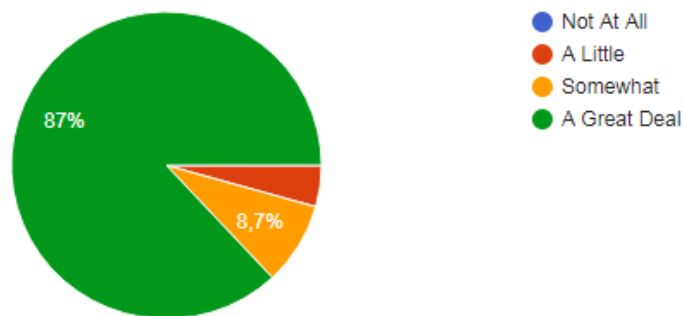
13. How comfortable would you be in training others about green construction?

23 отговора



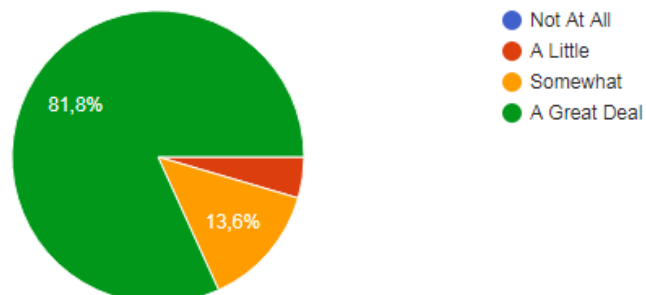
14. How satisfied are you with the skills you gained from this training?

23 отговора



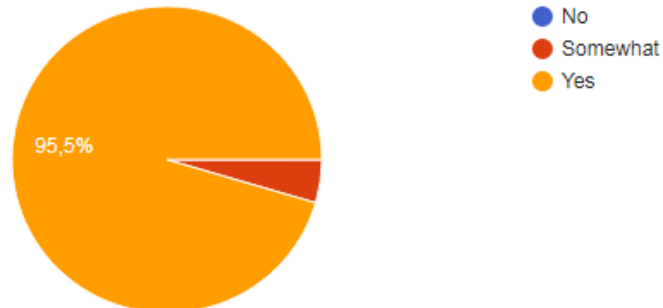
15. How likely is it that you will train others on green construction?

22 отговора



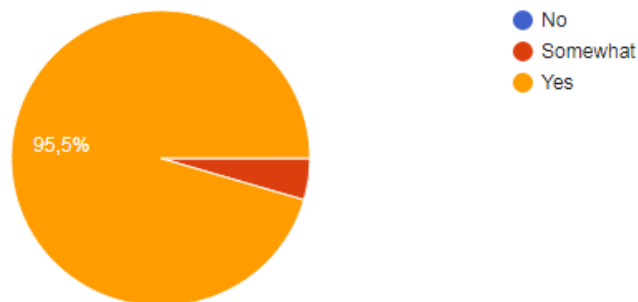
16. Was the information at the training presented clearly?

22 отговора



17. Was there enough time provided for each section of the training curriculum?

22 отговора



18. What obstacles, if any, will make it difficult for you to train others on this topic?

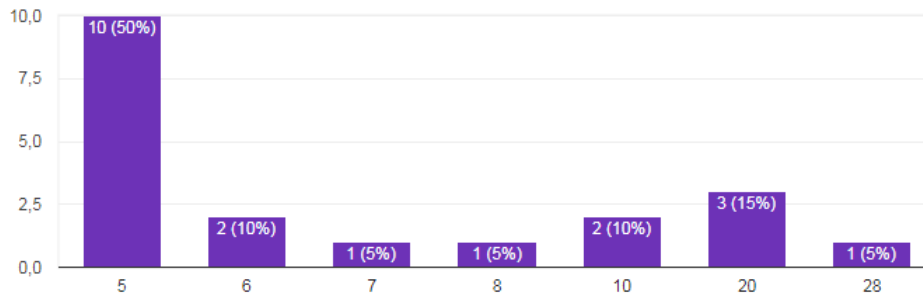
20 отговора

no
I have no obstacles.
5-10
No obstacles
5

19. Within the next six months, how many trainings do you anticipate conducting?

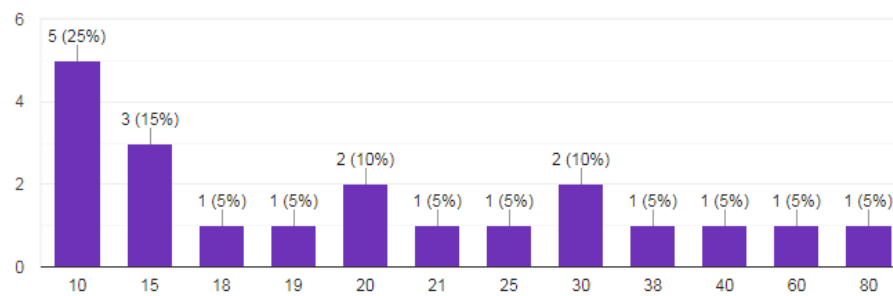


20 отговора



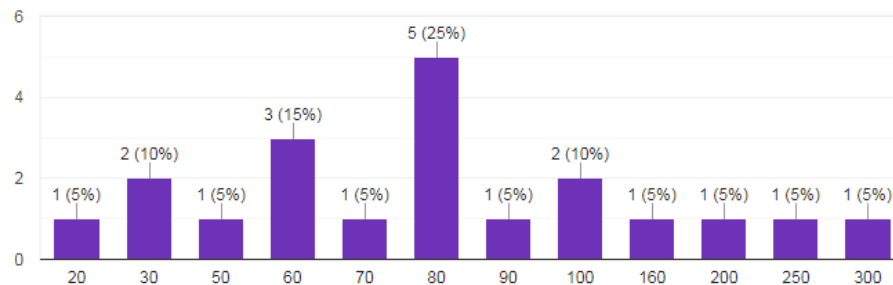
20. Within the next year, how many trainings do you anticipate conducting?

20 отговора



21. Within the next 3 years, how many trainings do you anticipate conducting?

20 отговора



6. CONCLUSION

The purpose of the event was to familiarize the trainers from the partner institutions with the content and teaching methods of the modules developed under the project and to enable them to acquire skills for working with the electronic platform on which the modules are placed. Prof. L. Lazov answered in detail the questions of all trainees. All participants acquired the skills to work with the electronic platform and apply the training modules in training of construction workers in their own countries and institutions. All trainees left the event, declaring that they were ready to train on the modules of the Green Building training product. The results of the study show that trainees will demonstrate knowledge of eco-friendly construction, eco-friendly materials and the energy efficiency of real estate. The training assists trainers with materials on the importance and measures of improving energy efficiency in construction. Learners appreciate the knowledge gained about green building and its importance in ensuring a healthy lifestyle and safeguarding our planet for future generations.

All trainers declare that they are ready to train construction workers and students on the modules of the Green Building training product developed within the project.

7. EVENT PARTICIPANTS

1. Lyubomir LAZOV (RTA Project Coordinator),
2. Erika Teirumnieka (RTA),
3. Mihails KIJASKO (RTA),
4. Aleksejs ZORINS (RTA),
5. Stanislavs PLEIKSNIS (RTA),
6. Lars KEMPT (Schnellkraft Germany GmbH),
7. Daniela CUBASH (Schnellkraft Germany GmbH),
8. Romy Göckeritz (Schnellkraft Germany GmbH),
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10. Magdalena VASILEVA (Veda Consult Ltd),
11. Svetla SAVCHEVA (Veda Consult Ltd),
12. Maria HARTYÁNYI, iTStudy Hungary Kft,
13. Jozsef LENGYEL, iTStudy Hungary Kft,
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16. Tsanko KARADZHOV (ECESI).

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