

WP16: Manual on how to organise, implement and evaluate eSchool4S web-based classrooms

Design of web-based classrooms and of e-teaching materials

Summary of WP6 and WP8 – You may write a summary on how the design of the web-based classrooms and the e-teaching materials were developed and what to consider from a technical perspective.

The design of the web-based classroom was built following the guidelines provided in the document “Structure and Didactic Concept for the eSchool4S-Moodle-Platform and Courses”.

1. Introduction

This document offers additional **tools for the authors of the eSchool4S learning platform** in order to structure and further improve the elaborated e-learning-materials addressed to secondary level students and teachers. Since the authors/partners come from different countries and organisations and have different backgrounds, they have elaborated courses in different formats so far. The topics to be addressed by the courses have been already defined in a collaborative process and the content of the courses as well as of some of the lessons have already been prepared. Nevertheless, the process is not yet finished.

Before presenting the didactic concept in detail, it is important to give an overview of the platform’s structure in order to better understand in which framework the different courses are to be placed and which didactic requirements have to be considered to guarantee overall coherence and homogeneity.

The main page contains important information about the eSchool4S platform’s objectives, its structure and an overview of eSchool4S courses:

- Teachers’ corner, accessible only by eSchool4S partners and teachers;
- What is Sustainable Development?
- Water;
- Climate Change;
- Sustainable Consumption; and
- Social Inclusion.

The thematic courses are available for all users of the platform (see figure 1).

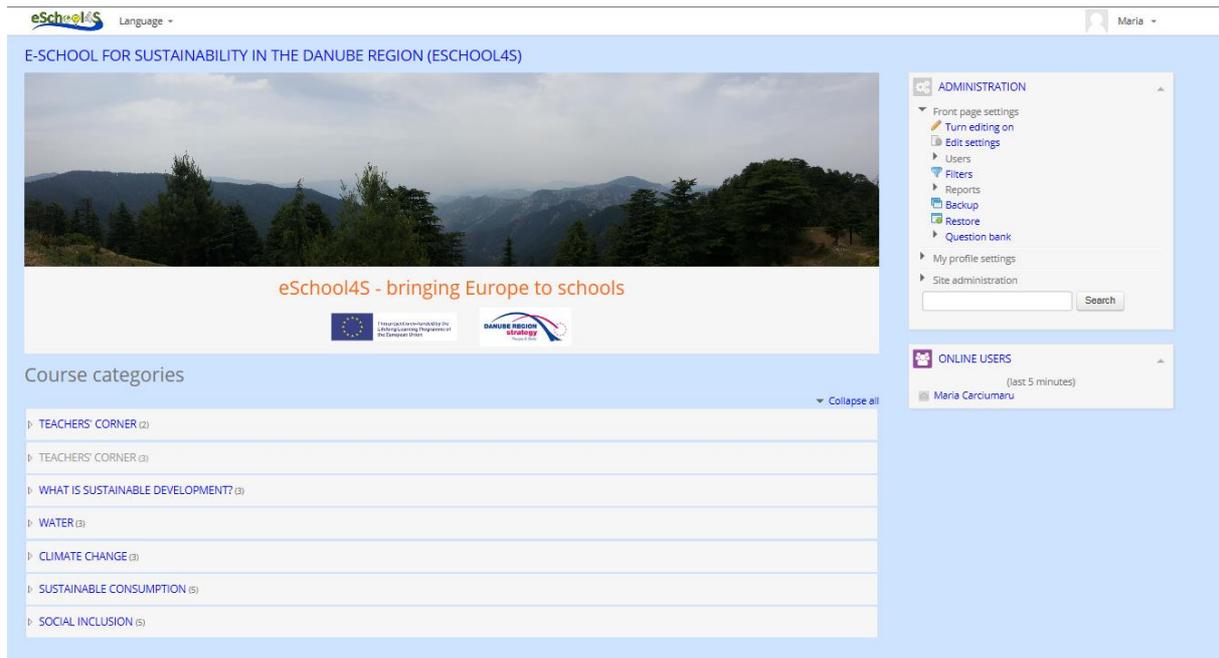


Figure 1: Main page eSchool4S Moodle platform

Every thematic course has an introduction text containing a short topic description; the course's learning objectives and lessons' index (figure 2) and at the end links to lessons.

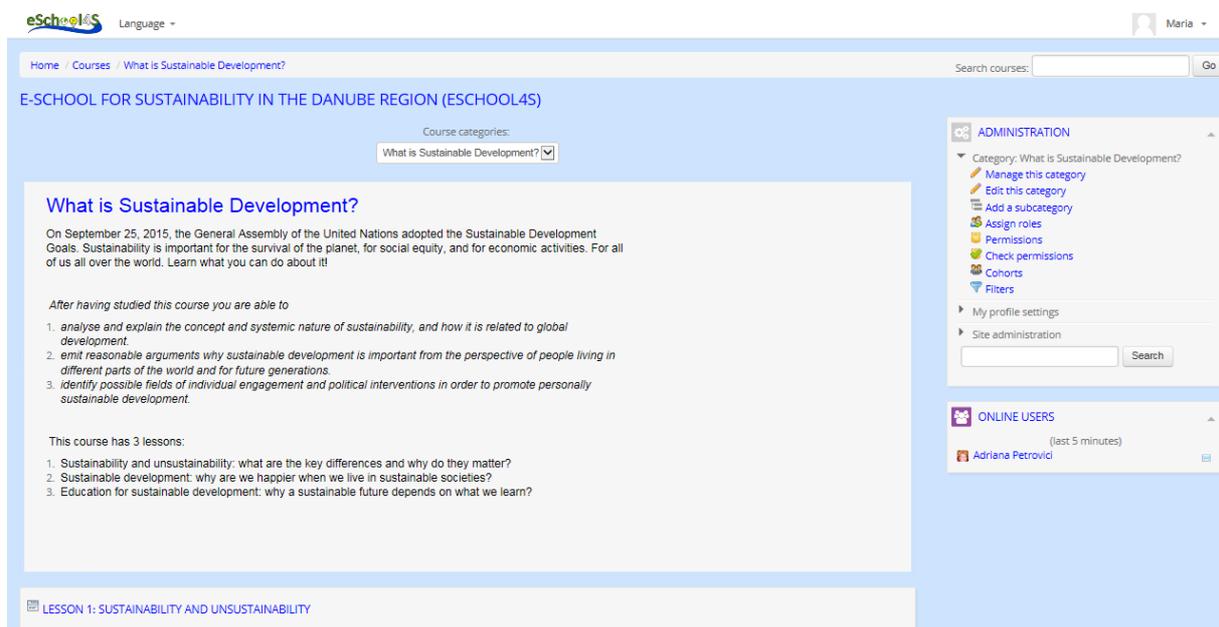


Figure 2: Example of course's main page "What is Sustainable Development?"

Lessons are subtopics of the course. In order to allow easy orientation for target groups (students and teachers), lessons have to be standardized via predefined fixed structure, which is simple and clearly organized. Basically, a lesson contains the following items: welcome, introduction and learning activities (figure 3).

The screenshot displays the Moodle interface for a course titled 'Lesson 1: Sustainability and unsustainability'. The main content area is divided into several sections: 'LESSON 1' with a 'News forum' icon, a 'WELCOME' section with introductory text and learning objectives, an 'INTRODUCTION' section with a paragraph about global sustainability, and 'LEARNING ACTIVITIES' at the bottom. The right sidebar contains a 'NAVIGATION' menu with links to Home, My home, Site pages, My profile, and the current course. Below this is a 'SEARCH FORUMS' section with a search input field and a 'Go' button. The bottom right corner shows an 'ADMINISTRATION' menu with options like Turn editing on, Edit settings, Users, Filters, Reports, Grades, Badges, Backup, and Restore. The top of the page shows the eSchool4S logo, a language dropdown, and a user profile for 'Maria' with a 'Turn editing on' button.

Figure 3: Example of a lesson's structure

The teachers' corner contains several communication/information exchange formats, such as: (country-) forums, questionnaires from teachers' training; instructions for copyright; additional reading on Education for Sustainable Development (ESD) as well as additional information for thematic courses. In the block "additional information for thematic courses" e-learning materials' developers/partners will upload useful information for teachers on how the courses/lessons are structured, on their objectives, learning activities, methodology, etc. (see figure 4).

The main aims of the teacher's corner are to promote exchange among teachers and course developers/partners and to provide teachers with useful inputs which address their particular needs and interests.(see figure 4)

Figure 4: Structure of the teachers' corner

After having defined the general structure of the platform, a next necessary step is to achieve a common understanding regarding the objectives of the courses and lessons. This means that the structure of the **content** should respond to the requirements of the overall goal and context of the project and also consider the already available learning materials. Moreover, it is important to have a common understanding regarding the type of **learning objectives** students should achieve in an ESD course. They should acquire competencies, which relate to the cognitive domain as well as to the ability to act.

Following instruments were developed by the project coordinator in order to help the developers to define the objectives of particular courses; to specify the thematic areas and

competences to be acquired by the students; to structure courses and to write/further develop lessons according to the standardized lesson's structure.

- **Tool A. Overview of competencies and thematic areas** presents a chart, which relates the competencies to the thematic areas. The list of competencies and the table help to keep in mind which competencies are relevant for ESD and to design learning activities, which actively promote them.
- **Tool B. Course / Lesson Description** is a tool for the further improvement of courses / lessons. It is the main tool for the conceptual and didactic development of a lesson BEFORE starting the writing and structuring of new lessons or the revision and improvement of already existing material. A lesson is a subtopic of a course. Each lesson, therefore, aims at contributing to a specific course objective and will address several different competencies. The lessons will then be a learning journey, which lead to a specific learning objective at course level. This learning objective – expressed in the form of competencies – will then appear in tool A. Filling in tool A will then help to have a proper overview of the intended objectives of each course and then, in a bigger matrix, of all the courses that are contained in the platform.

Please consider that in the planning process it is important to work simultaneously with tool A and B.

- **Tool C. Structure of a Moodle Lesson** will guide the actual writing and structuring process of one lesson on the basis of the information contained in tool B. This means that the work with tool B has created the conceptual and didactic basis for writing the lessons in a format that will fit directly into the Moodle format.

2. Tool A: Overview of competencies and thematic areas/courses

The following table is a tool for properly defining learning objectives to be achieved within the different courses and lessons. Learning about sustainability is not only about introducing specific content but should help the learners to build competencies. They should learn to understand, analyse, emit judgements and have a proper understanding of how they could behave and act. In order to make sure that every course covers all competency areas it is helpful to fill in Table 1 while designing the lessons.

For instance, in Germany, the interdisciplinary **competency domains and core competencies** for education for sustainable development are the outcome of a thorough discussion process among teachers, teacher trainers and curriculum planners and relate to other internationally acknowledged competency models from OECD and UNESCO. They correspond to some of Bloom's learning domains but do not pretend to cover all of them.¹

¹ A Cross-Curricular Framework for Global Development Education in the Context of Education for Sustainable Development. BMZ/KMK with Engagement Global. Germany 2007 and 2015 Global learning, http://www.globaleslernen.de/sites/globaleslernen.de/files/files/link-elements/orientierungsrahmen_20f_c3_bcr_20globales_20lernen_20-20englisch.pdf, please refer especially to Chapter 3.

The specific competencies to be achieved in each course should relate also to the objectives of the specific subject areas. This is the approach which will guide the further work of the eSchool4S.

Table 1 introduces to the competency domains, the core competencies of each competency domain and presents an example where the specific competencies to be achieved by the course “What is Sustainable Development?” are included in the formulation of concrete learning objectives in the different domains. In this example the aims formulated by the authors of the course “What is Sustainable Development?”, Zuzana Štefániková and Marta Jendeková, have been adapted to the competency framework and extended especially to the third competency domain (Action).

Table 1: Tool A			
Competency domains	RECOGNITION	EVALUATION	ACTION
	Students are able to		
Core Competencies <input type="checkbox"/> Course (thematic areas) <input type="checkbox"/> Lessons	1. acquire and process information 2. recognize diversity 3. analyse global change 4. differentiate between structural levels /levels of social action	5. shift of perspective/ empathy 6. critically reflect and form their opinion	7. recognize realms of and co-responsibility and accept this challenge 8. contribute to overcome socio-cultural barriers by constructive communication and conflict management 9. contribute to society's capability to act on global change 10. participate in and pursue personally – thanks to their personal judgment – goals of sustainable development
Course I: Introduction in Sustainable Development	<i>Students are able to ...</i>		

<p>Lesson 1. Sustainability and unsustainability</p>	<ul style="list-style-type: none"> • <i>understand the systemic character of sustainable development</i> • <i>realise the importance of sustainability for human life;</i> • <i>realise what is disrupting sustainability;</i> 	<ul style="list-style-type: none"> • <i>reflect the needs of people from other regions and future generations in relation to their own situation</i> • <i>develop their own attitude towards sustainability</i> 	<ul style="list-style-type: none"> • <i>recognize opportunities for personal engagement in change processes</i>
<p>Lesson 2. Sustainable development</p>	<ul style="list-style-type: none"> • <i>realise key aspects/ dimensions of sustainable development;</i> • <i>reflect upon the Sustainable Development Goals of the UN;</i> • <i>realise how sustainability is interconnected to happiness;</i> 	<ul style="list-style-type: none"> • <i>recognize the importance of the SDGs for local, regional and global development</i> • <i>reflect critically on their own interests in the context of a holistic development approach.</i> 	<ul style="list-style-type: none"> • <i>form their own opinion on sustainable development policies and develop perspectives of possible action</i>
<p>Lesson 3. Education for sustainable development</p>	<ul style="list-style-type: none"> • <i>understand the role of education in shaping our values and attitudes;</i> • <i>reflect about trends in the development of human societies;</i> 	<ul style="list-style-type: none"> • <i>realise the importance of their own and other peoples' values for SD.</i> 	<ul style="list-style-type: none"> • <i>identify sustainability topics in other school subjects as well as in mass media and analyse their relevance for possible action.</i>

The objectives defined in this table are to be added to each Moodle-Course as background information, see as example the already uploaded course “What is Sustainable Development?” under “Welcome” for each lesson. Additionally Tool A is to be uploaded on teachers’ corner, under the block “Additional information on thematic courses 2-6”. Please fill in the corresponding template in the attachment 1 for your course.

3. Tool B: Course and lesson description

Tool B is, on the one hand, a planning tool for authors/partners for designing the course and the corresponding lessons; and on the other hand and at a later stage a planning tool for teachers when deciding how to integrate the eSchool4S courses (or parts of them) in their classes:

- You will need to formulate a description of the course containing the general information presented in the first table below.
- Then you will have to continue with a more detailed description of the lessons including the items of the second table below.
- As a third step you will have to define criteria that allow the teacher to assess to what extent learners have acquired the expected competencies, as shown in the third table below.
- After that, please provide a list containing bibliography and links as in the fourth table below.

Please fill in the information in the three tables below before actually writing/further improving your courses and lessons in order to make sure that the planning is complete and coherent.

Here you will find the tables which were completed for the course “What is Sustainable Development?” developed by Zuzana Štefániková and Marta Jendeková as well as some additional recommendations (times new roman). You will upload the tables below completed for your courses and lessons on the teachers’ corner under “Additional information for thematic courses” of the platform. You will find the corresponding templates to fill in the Attachment 2.

I. General information

Title of the course	The title should relate clearly to the content of the course as well as reflect the content of the lessons. <i>What is Sustainable Development?</i>
Related to the following subject areas (i.e. history, geography, physics, etc.)	This information is very important for teachers and schools that want to use the course. Then they can supply the necessary subject knowledge and embed the course in a broader context. Possibly a course may relate to more than one subject area. In this case the teachers of the concerned subjects may plan how they would use the course together.

	<i>Geography, civic education, philosophy, English</i>		
Learning objective of the course	<p>This objective should be communicated also to the students. It should be easily understandable.</p> <p><i>When you finish the course “What is Sustainable Development?” you will be able to reflect on this question and explain what conclusions are important globally and for your own life.</i></p>		
Competency domains	Recognition	Evaluation	Action
Specific competencies to achieve in the respective competency domain	<p><i>Students are able to</i></p> <ul style="list-style-type: none"> <i>understand the systemic character of sustainable development</i> <i>realise the importance of sustainability for human life;</i> <i>realise what is disrupting sustainability;</i> <i>realise key aspects/ dimensions of sustainable development;</i> <i>reflect upon the Sustainable Development Goals of the UN;</i> <i>realise how sustainability is interconnected to happiness;</i> <i>understand the role of education in shaping our values and attitudes;</i> <i>reflect about trends in the development of human societies;</i> 	<p><i>Students are able to</i></p> <ul style="list-style-type: none"> <i>reflect the needs of people from other regions and future generations in relation to their own situation</i> <i>develop their own attitude towards sustainability</i> <i>recognize the importance of the SDGs for local, regional and global development</i> <i>reflect critically on their own interests in the context of a holistic development approach.</i> <i>realise the importance of their own and other peoples´ values for SD.</i> 	<p><i>Students are able to</i></p> <ul style="list-style-type: none"> <i>recognize opportunities for personal engagement in change processes</i> <i>form their own opinion on sustainable development policies and develop perspectives of possible action</i> <i>identify sustainability topics in other school subjects as well as in mass media and analyse their relevance for possible action.</i>

Learning hours	Online/classroom: it is important to design the lessons in such a way that the teacher may choose if he/she wants the students to work on the lesson online or if the teacher organises the activities in the classroom. In any case you should put here the number of learning hours it will take a teacher to teach this lesson/course. 24	Home/groupwork: Here will appear the number of hours students need to solve the tasks. This time should be realistic both with regard to the kind of task as well as with the time students dispose of. 5
Number of lessons	3	
Author(s)	Zuzana Štefániková, Marta Jendeková	

II. Description of lessons

Title of lessons	Description of lesson content	Methodologies and learning activities	Learning materials	Means of evaluation	Learning hours
Short and smart	Short overview on topic, helps to understand the coherence of the sequence of lesson	The learning activities should be appropriate to the respective content and objective, and differ from lesson to lesson in order to maintain the interest of learners. They should be appropriate to help students develop the intended competencies.	They are up to date and represent current scientific knowledge; they correspond to the learning activities.	Appropriate to the objective of the course. The teacher should decide if the evaluation will be done online or in the classroom	This is important in order to help teachers plan their lessons!

Title of lessons	Description of lesson content	Methodologies and learning activities	Learning materials	Means of evaluation	Learning hours
1. <i>Sustainability and unsustainability</i>	<p><i>Most pressing global issues; interconnection between global issues > systemic character of global issues;</i></p> <p><i>Introduction to and definition of sustainability and un-sustainability</i></p>	<p><i>Individual reflection on personal priority list of pressing global issues. Comparison with priority list of EU countries.</i></p> <p><i>Establish links between pressing global issues by drawing a line between related issues.</i></p> <p><i>Analyse in the classroom video clips on sustainability and unsustainability, reflect and discuss definitions, and answer questionnaire.</i></p>	<p><i>List of global issues and chart for individual or group work.</i></p> <p><i>Video clips on sustainability and un-sustainability.</i></p>	<p><i>Individual presentation: How and why global issues are interrelated?</i></p> <p><i>Group work: Relation between sustainability topics to local living conditions.</i></p> <p><i>Questionnaire sustainable/unsustainable</i></p>	<p><i>7 hours in the classroom, 2 hours for students to prepare individual and group presentations .</i></p>
2. <i>Sustainable development</i>					
3. <i>Education for sustainable development</i>					

III. Evaluation criteria

It is very important to consider criteria that allow the teacher to assess that the learners have acquired the expected competencies in the following dimensions.

Recognition	Evaluation	Action
<p><i>The students are able to analyse and explain the concept and systemic nature of sustainability, and how it is related to global development. They understand the role of education for sustainable development.</i></p>	<p><i>The students can emit reasonable arguments why sustainable development is important from the perspective of people living in different parts of the world and for future generations. They understand and evaluate the relevance of globally shared values.</i></p>	<p><i>The students are able to identify possible fields of individual engagement and political interventions in order to promote personally sustainable development.</i></p>

IV. Bibliography and links

Lesson	Bibliography and links
	The authors have to make sure that the copyright rules be respected. Project coordinator has given specific information. Links should be complemented with information on which day the link has been used.
1. Sustainability and unsustainability	<p><i>Special Eurobarometer "Climate Change" 372, October 2011.</i> http://ec.europa.eu/public_opinion/archives/ebs/ebs_372_en.pdf</p> <p><i>Interconnections among global issues. Adapted from Teaching and Learning for a Sustainable Future. A multimedia teacher education programme. UNESCO at</i> http://www.unesco.org/education/tlsf/mods/theme_a/mod01.html?panel=2#top</p> <p><i>What is sustainability:</i> https://www.youtube.com/watch?v=beidaN3SNdA</p> <p><i>World Commission on Environment and Development (1987) Our Common Future,</i> http://www.un-documents.net/our-common-future.pdf</p> <p><i>Parliamentary Commissioner for the Environment (2004) See Change: Learning and Education for Sustainability,</i> New Zealand Government, Wellington, p.14.</p> <p><i>Teaching and Learning for a Sustainable Future. A multimedia teacher education programme. UNESCO</i> http://www.unesco.org/education/tlsf/mods/theme_a/mod01.html?panel=3#top</p> <p><i>4 root causes of unsustainability.</i> https://www.youtube.com/watch?v=2Gng0tfOuNM</p>

2. Sustainability and unsustainability	
3. Education for sustainable development	

4. Tool C: Structure of a Lesson

Having used the tools described above and filled in the corresponding tables for planning and designing your course and lessons, you have already done the most important conceptual work. With Tool C you will be able to actually write, further improve and appropriately structure the lessons for the students. At the same time you will provide additional and useful guidance for the teachers.

The structure of a Moodle-Lesson will include the following items:

- Welcome
- Introduction
- Learning activities
- Check for results

Please see the sample-course: “What is Sustainable Development?” which has been already uploaded to the platform to get a clear idea about the structure of lessons for students. In the Attachment 3: Tool C you will find the corresponding templates for the information addressed to the teachers as well as concrete examples. Please fill in the templates which will appear in the teachers’ corner.

	Students	Teachers
Welcome	Short text about the topic of the lesson and what is expected as learning outcome.	Students should be conscious about what they are supposed to learn, so they can become responsible of their own learning process.
Introduction	Start with a question, a short anecdote, a video clip, a quiz, whatever approach you consider appropriate to the objective of the lesson, which help students become aware of the specific challenge, dilemma, problem that will be discussed and analysed.	<ul style="list-style-type: none"> • Background information for the teacher on the objectives, the topic and the methodology of the lesson (Tool B, attachment 2). • Explain why you start with this specific activity and how it should be implemented especially in the case the teacher will organise this activity in the classroom and not online.
Learning activities	<p>Develop a variety of learning activities, which should lead to a wide range of competencies, which you have defined while planning the module and lessons. As the competency domains cover a very broad range of competencies, it is necessary to develop a broad range of different types of activities:</p> <ul style="list-style-type: none"> • Imagine the activities from the perspective of the learners and what they should be able to do at the end of the lesson. • Before giving specific input promote the active reflection of learners to raise their expectations regarding the new information: <i>quiz, questionnaire, group discussion, small internet research, formulating of hypothesis, voting for alternatives, etc.</i> • Give the new input via <i>readings (PDF), personal search of information on websites, video clips.</i> 	<ul style="list-style-type: none"> • Explain the activities in a very clear and concise way for the students. That helps teachers to implement them accordingly. • Give teachers additional information on why you chose a specific activity in order to make sure that they understand well your didactic intentions. • Give teachers suggestions how to implement the activities if students don't have access to computers. • If they do have access promote the active use of internet by orienting them in learning how to search information, exchange with people from other countries. • Especially promote links and exchanges with other countries in the Danube region. • Please refer to corresponding template in the attachment 3 and examples from the course "What is Sustainable Development?", lesson 1

	<ul style="list-style-type: none"> Promote the active participation and communication between students in online group activities or in the classroom. Learning is also the fruit of discussion and group research. Promote individual or group-wise elaboration of results. 	
Check results for	Design an activity for the evaluation of the learning outcomes regarding the specific competencies you want to achieve. The activity should open the possibility to answer at different levels of competency.	<p>Explain teachers how to evaluate the competencies:</p> <ul style="list-style-type: none"> – Have the students understood the main topics? – Are they able to discuss them and draw their personal conclusions? – Are they able to relate their reflections to global or personal values? – Are they able to understand and explain possible levels of political or personal action?
Formal aspects	<ul style="list-style-type: none"> The structure contained in this column is the way you should structure your lesson for students in Moodle. Describe the activities in the central part of the Moodle page and position external links after the explanation of the activity. Links should not appear in the navigation column where learners and teachers need to find a clear structure which is respected in all modules and courses. For blocks “welcome”-“check for results” use font type Arial, size 4 (14pt) For questions / tasks use font type use font type Courier New, size 4 (14pt) For enumeration use symbol • 	The information contained in this column (tools A/attachment 1, B/attachment 2 and C/attachment 3) should appear in the teachers’ corner.

	<ul style="list-style-type: none">• For your further orientation refer to the course “What is Sustainable Development?” uploaded on the platform	
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Attachment 1: Tool A

Table 1: Tool A			
Competency domains	RECOGNITION	EVALUATION	ACTION
	Students are able to		
Core Competencies <input type="checkbox"/> Course (thematic areas) <input type="checkbox"/> Lessons	1. acquire and process information 2. recognize diversity 3. analyse global change 4. differentiate between structural levels /levels of social action	5. shift of perspective/ empathy 6. critically reflect and form their opinion	7. recognize realms of and co-responsibility and accept this challenge 8. contribute to overcome socio-cultural barriers by constructive communication and conflict management 9. contribute to society's capability to act on global change 10. participate in and pursue personally – thanks to their personal judgment – goals of sustainable development
Course X: XXX	<i>Students are able to...</i>		
Lesson X. XXXX	•	•	•

Lesson X. XXXX	•	•	•
Lesson X. XXXX	•	•	•

Attachment 2: Tool B

I. General information

Title of the course	The title should relate clearly to the content of the course as well as reflect the content of the lessons. XXX		
Related to the following subject areas (i.e. history, geography, physics, etc.)	This information is very important for teachers and schools that want to use the course. Then they can supply the necessary subject knowledge and embed the course in a broader context. Possibly a course may relate to more than one subject area. In this case the teachers of the concerned subjects may plan how they would use the course together. XXX		
Learning objective of the course	This objective should be communicated also to the students. It should be easily understandable. XXX		
Competency domains	Recognition	Evaluation	Action
Specific competencies to achieve in the respective competency domain	•	•	•
Learning hours	Online/classroom: it is important to design the lessons in such a way that the teacher may choose if he/she wants the students to work on the lesson online or if the teacher organises the activities in the classroom. In any case you should put here the number of learning hours it will take a Home/groupwork: Here will appear the number of hours students need to solve the tasks. This time should be realistic both with regard to the kind of task as well as with the time students dispose of.		

	teacher to teach this lesson/course. XXX	XXX
Number of lessons	XXX	
Author(s)	XXX	

Attachment 2: Tool B

II. Description of lessons

Title of lessons	Description of lesson content	Methodologies and learning activities	Learning materials	Means of evaluation	Learning hours
Short and smart	Short overview on topic, helps to understand the coherence of the sequence of lesson	The learning activities should be appropriate to the respective content and objective, and differ from lesson to lesson in order to maintain the interest of learners. They should be appropriate to help students develop the intended competencies.	They are up to date and represent current scientific knowledge; they correspond to the learning activities.	Appropriate to the objective of the course. The teacher should decide if the evaluation will be done online or in the classroom	This is important in order to help teachers plan their lessons!
1. XXX					
2. XXX					
3. XXX					

III. Evaluation criteria

Recognition	Evaluation	Action

IV. Bibliography and links

Lesson	Bibliography and links
	The authors have to make sure that the copyright rules be respected. Project coordinator has given specific information. Links should be complemented with information on which day the link has been used.
1. XXX	
2. XXX	
3. XXX	

Attachment 3: Tool C

Additional information for teachers

Course: XXX

Lesson: XXX

Activity 1: XXX

Background	
Objective	
Task	
Learning material	
Teaching time	

Attachment 3: Examples Tool C

Additional information for teachers

Course: I. What is sustainable development?

Lesson: 1. Sustainability and unsustainability

Activity 1: Global Issues

Background	The world has become a global village. The interconnectedness of economies and societies, as well as the fact that we live all on the same planet makes it a necessity to be able to understand global issues and their relationship to specific local and regional issues.
Objective	Students become familiar with the most important global issues and are able to reflect on them.
Task	<p>Step 1: Start by introducing to the topic: What do you think are global problems? Imagine world leaders sitting together expecting your input: What should they care about? (10 min. plenary)</p> <p>Students discuss with their neighbour and try to agree on a list on what they consider the most pressing global issues. <i>Personal reflection and dialogue contribute to students' raising their own questions and awareness for the topic. It promotes their curiosity whether their list corresponds to others' priorities.</i></p> <p>Step 2 + 3: Students read the list of global issues prioritized by EU citizens. Make sure they understand the meaning of each of them. Then ask them to discuss this list and compare it with their own. (15 min.) <i>You can extend this step by asking the students to research on Internet of these global issues in order to understand better what each of them means.</i></p> <p>At least 3 groups put their priority lists on the board and explain why they come up with these global issues. (10 min.) It is not necessary to agree on a final list but to advance arguments for their choice of issues and priorities.</p>
Learning material	Links: http://ec.europa.eu/public_opinion/archives/ebs/ebs_372_en.pdf Optional internet research
Teaching time	1 hour

Please use 2,5 x 6 cm for all logos

Activity 2: Interconnections among Global Issues

Background	<p>We live in a world of growing complexity where we need to learn to live with uncertainty: The global issues are related to each other. This implies that we cannot address any of them individually, and that we cannot easily foresee what will happen in other dimensions as we address one of them. If all issues are interconnected we live in a complex system. As we learn that we live in systems we learn to understand that it is not easy to chose options for action and that we need a solid foundation of knowledge and values that help us to find our way for a sustainable future.</p> <p>The tasks of this activity help students to get a first even superficial understanding of the systemic nature of the relationship among global issues. In this course system thinking in relation to sustainability will be a recurrent topic. If you are aware of other activities that help to get a proper understanding of what systemic means, please insert them where you consider it helpful for the learning process.</p>
Objective	<p>Students understand that all global issues are related to each other and have a first insight into what systemic means.</p>
Task	<p>Step 1: Start with task 1. They will recognize the global issues they have been working on during the last activity. Now they should do the first activity individually. Make sure they understand well the task. It is not important to resolve it quickly but to find reasons why the specific global issues are related. Then ask students which issues are related and the reasons why.</p> <p>Step 2: Project the second map (see link) and compare with the results of step 1. The students should understand the complexity of relationships and the fact that one can go deeper and deeper in the details and find still more facts about how things are related.</p> <p>Step 3: Watch the video together twice. First time: Stop after every explanation of one aspect of systems and make sure that students have even a superficial understanding of it's meaning. It is not possible to understand system thinking the first time you come across it.</p>
Learning material	<p>Links: Step 1: http://www.unesco.org/education/tlsf/mods/theme_a/mod01.html?panel=2#top</p> <p>Step 2: https://gc21.giz.de/ibt/var/app/wp342P/1827/wp-content/uploads/2013/03/1_3_Net_global_challenges.pdf</p> <p>Step 3: https://www.youtube.com/watch?v=rDxOyJxgJeA</p> <p>More background information on systems: https://en.wikipedia.org/wiki/System</p>
Teaching time	<p>1 – 2 hours</p>

Activity 3: Definition of sustainability

Background	The notion of sustainability has a long history, which will be discussed in Lesson 2 of this course. This activity is an introduction, which gives some definitions as well as the explanation how scientist arrived at these definitions and the systemic nature of earth systems.
Objective	Students get an overview on what sustainability means and the systemic nature of sustainability.
Task	<p>Step 1: Analyse the two definitions of sustainability and try to interpret what they mean. Do they relate to global issues? How?</p> <p>Step 2: Watch the video. Stop after every sequence and make sure students understand it.</p> <p>Step 3: Form small groups and ask students to reflect on why sustainability is in danger. They should post their results on moodle or share it in the classroom.</p>
Learning material	<p>Links: Step 1: http://www.un-documents.net/our-common-future.pdf</p> <p>Step 2: https://www.youtube.com/watch?v=beidaN3SNdA</p> <p>More background information on sustainability: https://en.wikipedia.org/wiki/Sustainability</p>
Teaching time	1 – 2 hours

Activity 4: What is unsustainability?

Background	At the beginning of this lesson students discussed the pressing global problems. They show that we live in a non-sustainable world. The previous exercise gave some definitions and a basic understanding of sustainability.
Objective	Students have a first understanding of the difference between sustainability and unsustainability and are able to classify their own behaviour.
Task	<p>Step 1: Watch the video. Stop after every sequence and make sure students understand it.</p> <p>Step 2: Then ask if they recognize unsustainability in their own surroundings and contrast it with things they would classify as sustainable. How people can differentiate between sustainable and unsustainable things?</p>

	<p>Step 3: Distribute the questionnaire, which helps to evaluate the understanding of sustainable and unsustainable but also to discuss these differences. If you use it for evaluation purposes it is nevertheless important to discuss the content in order to make sure everybody understands and is capable to evaluate oneself what is sustainable and what not.</p>
Learning material	<p>Links:</p> <p>Step 1: https://www.youtube.com/watch?v=2Gng0tfOuNM</p> <p>Step 2:</p> <p>https://qc21.giz.de/ibt/var/app/wp342P/1827/wp-content/uploads/2013/02/Unit-1.2_Activity_1.pdf</p> <p>More background information on sustainability:</p> <p>https://en.wikipedia.org/wiki/Sustainability</p> <p>Interesting also for students, animation:</p> <p>https://www.youtube.com/watch?v=6tUHNT6fvcE</p> <p>Important discussion on Planetary boundaries and a safe space for humanity: http://www.stockholmresilience.org/21/research/research-programmes/planetary-boundaries.html</p> <p>Interesting paper from Oxfam integrating different dimensions of sustainability: https://www.oxfam.org/sites/www.oxfam.org/files/dp-a-safe-and-just-space-for-humanity-130212-en.pdf</p>
Teaching time	1 – 2 hours

The platform has been built on the technologies offered by the open source learning environment offered by Moodle. Moodle installation runs on the same server as the website of <http://www.eschool4s.eu> and can be accessed either from the given website or directly at the address <http://moodle.eschool4s.eu/>.

Once a user enters the website he/she is welcomed by the simple entry screen where one can either log in or create a new account. Thereafter the person is taken directly to the list of courses (see the screenshot at the document “Structure and Didactic Concept for the eSchool4S-Moodle-Platform and Courses”) available at the learning platform. The courses are also in detail described in the above mentioned document. Important in this stage is that:

Only authenticated users (users with the log in name and password) can actively participate in the courses.

Visitors can access the courses without logging in using the “guest access” but their activities are limited to viewing the content of the courses.

The rest is included once again in the above mentioned document. Perhaps important to mention is that during the lifetime of the project the Moodle platform went through a number of testings, consequent modifications, repeated testings, improvements and unification of its interface.

Finally, regarding the technical requirements for using the education platform. Moodle itself is browser base and therefore it has no special technical requirements. Sensible advice though is to use up to date browsers and to use common sense with security settings. In general, Moodle is just a web site and one can access it or not. Recommended browsers are Firefox, Chrome and also Internet Explorer.

Planning and organization of the implementation of web-based classrooms (Christiane – LAK)

What are we doing during the second testing phase and why: testing the usability and effectiveness of the platform in practice with students and teachers

The first testing phase represented the prototype of our eSchool4S moodle platform. Each country provided a teacher to test the courses with their classes. It served us as first step into teaching sustainability via an online platform linked to the Danube region and its culture. Being an unproven set-up of template lessons the platform was revised and adjusted to the needs and demands of teachers and students according to its content evaluation after the first testing phase.

The second testing phase then concentrated more on the usability and effectiveness of the platform in practice with students and teachers. A minimum of three teachers per country with their classes tested our revised moodle platform. Our focus laid on the user-friendliness of the the classrooms and lessons such as the handling and the comprehensibility of the applied language (level and complexity of English) on the one side. On the other side the students' learning experience played a big role in the later evaluation of the second testing phase: attracting attention, arising interest, adding learning value were our buzz words.

2. Who participated in the testing phases: 26 teachers from 10 partner countries with their students

For the first testing phase each partner country was supposed to provide one teacher with its class to test the moodle classrooms. Eventually, we had seven teachers from 7 different countries and their classes with different school backgrounds and different language levels (but all on secondary level) that tested each a different moodle course and gave their feedback afterwards.

As the eSchool4S moodle platform after its revision was not any longer just a prototype, we invited more teachers with their classes to test our online lessons: 16 teachers and approx. 170 students from 9 different countries took part in the second testing phase and gave valuable feedback on our lessons.

3. How to organize a testing phase – how to proceed and what to consider

The chronological proceedings foresee that – first of all – the test object must be fully ready for testing. This includes an internal pretesting of all functions and contents that will be published. If the contents prove to be ready for the launch, the testing period is set and the access und participation information (e.g. contents, person in charge, trouble shooting, etc.) are forwarded to the testers. Attached to this document you will find the prepared invitation for the teachers. Concerning the invitation of the second testing phase, we differentiated between teachers that were involved a second time in the classroom testing and the teachers that were involved for the first time.

The invited testers (here teachers) are requested to give their full name and e-mail address as well as the choice of course they plan to test. After the first (two) week(s) the testers will receive an e-mail with a (brief) interims questionnaire to make sure the testing is successful and to troubleshoot any occurring problems.

After the testing period, the courses will be evaluated by all testers (teachers and students) and a report will be generated including suggestions and measures for improvement.

As incentive and to put emphasis on the value the teachers and students added by their testing we honoured their contribution by a certificate that proved their competencies in handling a moodle classroom (see attachment).



Aspects to be considered for the organisation:

- Never expect all invited testers to complete the testing.
- Expect technical failures.
- Make sure to have a person in charge that deals with requests of the testers (at any time).
- Invite reliable and motivated testers.



This project is co-funded by the Lifelong Learning Programme of the European Union



We need your second feedback for our eSchool4S moodle courses!

Dear teachers,

We thank you very much for your cooperation during the first testing phase. That was immensely helpful for our work. In the meantime we have revised and modified all our moodle courses according to your profound feedback.

Now it's time to have a second look at the new versions of the eSchool4S moodle courses.

→ You have already tested one course on our moodle platform and got acquainted with the course structure and handling. There are other courses available on the platform, namely:

- [Danube - River of United Europe](#)
- [What is Sustainable Development?](#)
- [Water](#)
- [Climate Change](#)
- [Sustainable Consumption](#)
- [Social Inclusion](#)

We kindly ask you now **to select a different course and test the contents** with your class. Please, be aware that we might ask you to test another course in case not all courses are covered. You may find important information on the course and lessons in the teachers' corner. Especially the additional information for thematic courses will help you with the preparation of your course.

After this second testing phase we will ask you and your students to give your feedback through a questionnaire once again. We are dependent on your response as your feedback will help us to further improve the courses if necessary and make them as fruitful and target-oriented as possible. Please support your students with the completion of the questionnaire.

Please note:

The testing phase starts on **Friday, 29th April 2016 and lasts until Friday, 10th June 2016.**

If there are any error messages or technical problems during the test phase, please make a screenshot of the error message or the technical problems with date and time and send all to me. We will fix the problem instantly.

All participating teachers and students will be awarded with the **eSchool4S certificate** on this phase.

We are very happy that you are supporting our project and are looking forward to your second feedback!

!Please inform me by e-mail until 25th April 2016 which course you selected for the second testing!



This project is co-funded by the
Lifelong Learning Programme of
the European Union



Test our eSchool4S courses!

Dear teachers,

We thank you very much for your readiness to participate in the next phase of our eSchool4S project.

eSchool4S is offering teachers in the Danube region the opportunity to upgrade their teaching methods and use new online teaching materials.

The aim of our project is to create **a multi-national and multi-level network** involving stakeholders in the education sector, teacher training institutions, schools, teachers, and classes in the joint development of testing, demonstration and dissemination of innovative e-teaching concepts for secondary schools in the Danube region.

The overall theme of the web lessons is **Sustainable Development** and all its dimensions – environmental, economic and social. With this we want to raise awareness of the most pressing global issues, their interconnectedness as well as the situation on regional and local levels. And this is where you come in!

Now there are the following courses available on the platform, namely:

- Danube - river of united Europe
- What is Sustainable Development?
- Water
- Climate Change
- Sustainable Consumption
- Social Inclusion

We kindly ask you **to select one course and test the contents** with your class. Please, be aware that we might ask you to test another course in case not all courses are covered. You may find important information on the course and lessons in the [teachers' corner](#). Especially the additional information for thematic courses will help you with the preparation of your course.

After the testing phase we will ask you and your students to give your feedback through a questionnaire. We are dependent on your response as your feedback will help us to improve the courses if necessary and make them as fruitful and target-oriented as possible. Please support your students with the completion of the questionnaire.

Please note:

The testing phase starts on **Friday, 29th April 2016** and lasts until **Friday, 10th June 2016**.



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We are very happy that you are supporting our project and are looking forward to your feedback!

!Please inform me by e-mail until 25th April 2016 which course you selected for testing!



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the European Union



CERTIFICATE

XXX

has become a

certified eSchool4S teacher

This certificate is awarded in recognition of your commitment and the successful completion of an eSchool4S training program within the project „E-School for Sustainability in the Danube Region eSchool4S“ during our first testing phase from 18th January until 6th February 2016.

The above teacher has accomplished the following aims:

- Analysis of the topic sustainable development in a regional, national and international context
- Handling of Moodle courses
- Teaching sustainable development through web-based classrooms
- Teaching students on how to use Moodle
- Critical review of Moodle courses in reference to their usability and usefulness

Place, Date

Christiane Spies
Landesakademie / State Academy
Esslingen for eSchool4S



This project is co-funded by the
Lifelong Learning Programme of
the European Union



CERTIFICATE

XXX

has become a
certified eSchool4S student

This certificate has been awarded in recognition of your commitment and successful completion of an eSchool4S training programme within the project

“E-School for Sustainability in the Danube Region”: eSchool4S during the second testing phase from 29th April until 10th June, 2016.

The above-mentioned student has accomplished the following:

- Analysis of the topic of “Sustainable Development” in a regional, national and international context
- Handling of Moodle courses
- Learning about sustainable development through web-based classrooms
- Development of competences relevant for sustainable development: critical thinking, forming an opinion, learning how to act and to live in a more sustainable way.

PLACE, 10/06/2016

Place, Date

YOUR NAME
YOUR INSTITUTION for
eSchool4S



Evaluation of web-based classrooms (Christine/ Reinhard – PHT)

Summary of evaluation within WP12 and WP14 – you may describe in short how to proceed with the evaluation (where to put the survey (Moodle, Google forms etc.) and where/how to get the results/ graphs and how to write an evaluation report.

We recommend inserting the questionnaires of WP12 and WP14

The evaluation of the Moodle courses was carried after both the first and the second trialling phase. The aim of the first evaluation was to gain insights into the way the courses were received in general and to learn about ways to improve the courses for the second phase.

Questionnaire Phase 1

In order to find out more about the way in which the Moodle courses were received and with a view to enhancing the quality of the course, the eSchools4S consortium designed questionnaires for users, i.e. for students and for teachers.

I. Structure

I.i. Students

The student questionnaire including the following categories:

Part 1: Personal information

Part 2: User-friendliness - handling & language

Part 3: Content & Structure

Part 4: Learning experience

Part 5: General feedback

21 questions were asked overall, whereby 5 questions comprised two sub-categories:

1. What country do you live in?
2. How many years did you learn English so far? Please choose the number of years from the list below.
3. What is your sex?
4. How old are you?
5. Choose the name of the course you worked with from the list below.
6. The moodle platform was easy to use.
7. The texts of the online course were easy to understand.
8.
 - a. The lessons helped me to understand the main topic of the course.
 - b. To improve my understanding of the course's topic, you could improve the lessons as follows:
9. The teacher helped me to understand the main topic of the course.
10. The most interesting things about the course were:
11.
 - a. The learning material helped me to understand the main topic of the lesson.
 - b. To improve my understanding of the lesson's topic, you could improve the learning material as follows:
12.
 - a. The learning activities helped me to understand the main topic of the lesson
 - b. To improve my understanding of the lesson's topic, you could improve the learning activities as follows:
13.
 - a. The collaborative actions with other students and/or the teacher helped me to understand the main topic of the lesson
 - b. To improve my understanding of the lesson's topic, you could improve the collaborative actions as follows:
14. ...understand sustainability.



15.analyze if activities are sustainable.
16. ... have an opinion about sustainable activities.
17. ... know how to act sustainably in my environment.
18. be inspired by sustainable actions.
19. learn more about sustainability in my country, in Europe and in the world
20. ...live more sustainable
21. Please tell us your additional comments here:

I.i. Teachers' questionnaire

The teachers' questionnaire comprised 26 questions in six categories.

Personal indications

1. What country do you live in?
2. How many years did you learn English so far? Please choose the number of years from the list below.
3. What is your sex?
4. How old are you?
5. Choose the name of the course you worked with from the list below.

User-friendliness

6. The moodle platform was easy to use.
7. The texts of the online course were easy to understand.
8. The structure of the course was clear.

Preparation of courses

9.
 - a. The teachers corner was helpful to prepare the lessons of the course.
 - b. To improve my preparation of the lessons of the course, you could improve the teachers corner as follows:
10.
 - a. The additional information for thematic courses in the teachers corner, if available for your course, were helpful to prepare the lessons of the course.
 - b. To improve my preparation of the lessons of the course, you could improve the additional information for thematic courses in the teachers corner as follows:
11.
 - a. The learning material was helpful to prepare the lessons of the course.
 - b. To improve my preparation of the lessons of the course, you could improve the learning material as follows:

Teaching experience

12.
 - a. The learning activities were helpful to prepare the lessons of the course.
 - b. to improve my preparation of the lessons of the course, you could improve the learning activities as follows:
13. The content of the course was appropriate for your students. Student competencies after course
14. ...learned self-directly.
15. ... communicated with me about the topic of the lesson.
16. ... communicated to each other about the topic of the lesson.
17. ... worked together in groups on the topic of the lesson.
18. I was able to help the students to understand the main topic of the course.

Students competences after course

19. ...understand sustainability.
20. ... analyze if activities are sustainable.
21. ... have an opinion about sustainable activities.
22. ... know how to act sustainably in their environment.
23. ...be inspired by sustainable actions.(12 responses)
24. ... learn more about sustainability in their country, in Europe and in the world.
25. ...live more sustainable

General Feedback - Additional comments



The second questionnaire was revised after the review of the results of the first questionnaire and discussions during the meeting in Sofia. It was decided that certain questions needed to be simplified or rephrased.

The revised version was completed both by student participants and by teachers after the second phase of course implementation.

The second questionnaire was slightly condensed and some questions simplified. Here there was particular focus on learning as experienced by school students and how teachers estimated learning outcomes.

I. Structure of Second questionnaire

I.i. Students

The student questionnaire now included the following categories:

Part 1: Personal information

Part 2: User-friendliness - handling & language

Part 3: Content & Structure

Part 4: Learning experience

Part 5: General feedback

In order to increase the attractiveness for school students the overall number of questions was reduced slightly from 21 to 19. The number of open questions in an attempt to enhance the quality of responses.

The questions were now as follows:

Part 1: Personal information

22. What country do you live in?

23. How many years have you learned English? Please choose the number of years from the list below.

24. Female or male?

25. How old are you?

26. Choose the name of the course you worked with from the list below.

Part 2: Userfriendliness

27. The moodle platform was easy to use

28. The texts of the online course were easy to understand

Part 3: Content & structure

29. Understanding

- The lessons helped me to understand the main topic of the course.

- To improve my understanding of the course's topic, you could improve the lessons as follows:

30. The teacher helped me to understand the main topic of the course.

31. The most interesting things about the course were...

32. Learning material

- The learning material helped me to understand the main topic of the lesson.

- To improve my understanding of the lesson's topic, you could improve the learning material as follows:

33. Learning activities

- The learning activities helped me to understand the main topic of the lesson.

- To improve my understanding of the lesson's topic, you could improve the learning activities

- as follows:

34. The collaborative actions with other students and/or the teacher helped me to understand the main topic of the lesson

Part 4: Learning experience



The course helped me to:

35. understand sustainability
36. analyse if activities are sustainable
37. have an opinion about sustainable activities
38. know how to act sustainably in my environment
39. learn more about sustainability in my country, in Europe & in the world

Part 5

Additional comments

I.i. Teachers' questionnaire

The teachers' questionnaire comprised 26 questions in six categories.

Part 1: Personal indications

26. What country do you live in?
27. My language level is: (CEFR level)
28. Female/ male?
29. In my teaching (generally) I use e-learning platforms.
30. Choose the name of the course you worked with from the list below.

Part 2: User-friendliness

31. The moodle platform was easy to use.
32. The texts of the online course were easy to understand.
33. The structure of the course was clear.

Part 3: Preparation of courses

34. Did you use the teachers' corner?
 - a. The teachers corner was helpful to prepare the lessons of the course.
 - b. To improve my preparation of the lessons of the course, you could improve the teachers corner as follows:
35. To improve my preparation of the lessons of the course, you could improve the additional information for thematic courses in the teachers corner as follows:
36. Learning material
 - a. The learning material was helpful to prepare the lessons of the course.
 - b. To improve my preparation of the lessons of the course, you could improve the learning material as follows:
37. Learning activities
 - a. The learning activities were helpful to prepare the lessons of the course.
 - b. to improve my preparation of the lessons of the course, you could improve the learning activities as follows:

Part 4: Teaching experience

38. The content of the course was appropriate for your students. How old are your students?
Perceived learning outcomes:
39. Students learnt in a self-directed way
40. Communicated with me about the topic
41. Communicated with each other about the topic of the lesson.
42. Worked together in groups on the topic of the lesson.

General Feedback

43. Additional comments



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