



Science Created by YOU

SCY Portfolio tools for learner and teacher DIII.2

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Science Created by You (SCY)
(Project number IST-212814)

Date: 24-02-2011

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Executive summary

This deliverable describes two of the tools that comprise the SCY Assessment Tool Suite: SCYePortfolio and SCYAssessment. Learners use SCYePortfolio to construct a working ePortfolio, to build a Mission Portfolio and to receive feedback on an assessed Mission Portfolio. Teachers use SCYAssessment to give summative assessment on a submitted assessment Mission Portfolio.

This deliverable is organised in five sections. Section one gives a general introduction to the SCY Assessment Tool Suite and the SCYePortfolio and SCYAssessment tools in particular. Section two presents an overview of the SCY Assessment Tool Suite. Sections three and four describe the SCYePortfolio and SCYAssessment tool specifications, respectively. Section five concludes and describes future development of the tools.

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1 Introduction

This report is the second deliverable of WPIII: Learner Centred Assessment. It describes two tools, SCYePortfolio and SCYAssessment, that support the summative assessment of ELOs developed by students during a Mission.

This report address two tasks:

Task III.3 SCY portfolio tool

Task III.4 Teacher portfolio assessment tool

In Task III.3 we have designed and developed the first version of a tool directed at learners, SCYePortfolio, that is used to construct portfolio items from emerging learning objects (ELOs). Using the tool, learners select and reflect over self-created learning objects that represent the knowledge and/or skills developed during a Mission and select and submit a collection of them for summative assessment. The final version of the tool¹ will be extended to support learners in the selection and presentation of ELOs to the outside world.

In Task III.4 we have designed and developed the first version of a tool directed at teachers, SCYAssessment, that is used for summative assessment of a submitted student portfolio. Using the tool, teachers summatively assess the ELOs and the related reflections and return the assessment to the student. The final version of the tool¹ will be extended to include more support for the assessment of individual ELOs.

Section 2 gives an overview of the SCY Assessment Tool Suite and relates it to the conceptual model of the SCY assessment framework presented in DIII.1.

Section 3 presents the SCYePortfolio tool specification.

Section 4 presents the SCYAssessment tool specification.

Section 5 concludes and points to future work.

2 The SCY Assessment Tool Suite

The *SCY Assessment Tool Suite* comprises three tools, SCYePortfolio, SCYAssessment and SCYFeedback. This deliverable addresses SCYePortfolio and SCYAssessment, while DIII.3 addresses SCYFeedback.

The three tools are part of the *SCY Assessment Framework*, which is composed of (from DIII.1):

1. SCY-Lab
2. The RoOLO repository contains all ELOs (including all versions of an ELO) that have been developed by all students during all Missions.

¹ The final version of the tools will be described in an Annex to this deliverable, due in M44.

3. The SCYFeedback tool with which students give and receive peer feedback on an individual ELO.
4. The SCYePortfolio tool that comprises several views, a working portfolio and various showcase portfolios.
5. The SCYAuthor tool for authoring the SCYePortfolio and SCYAssessment tool setup
6. SCYAssessment Tool with two views, one for teachers and one for peers.
7. *SCY-Lab* and *RoOLO* are included in the figure in order to give an understanding of the relationship of the SCY assessment components to one another and to the SCY-Lab. The SCYAuthor tool is included to complete the picture and to show how the teacher can author aspects of the SCYePortfolio and SCYAssessment setup.

In DIII.1 SCY Assessment Requirement report, a conceptual model of the SCY Assessment Framework that shows the relationship between the framework elements was presented, see figure 1.

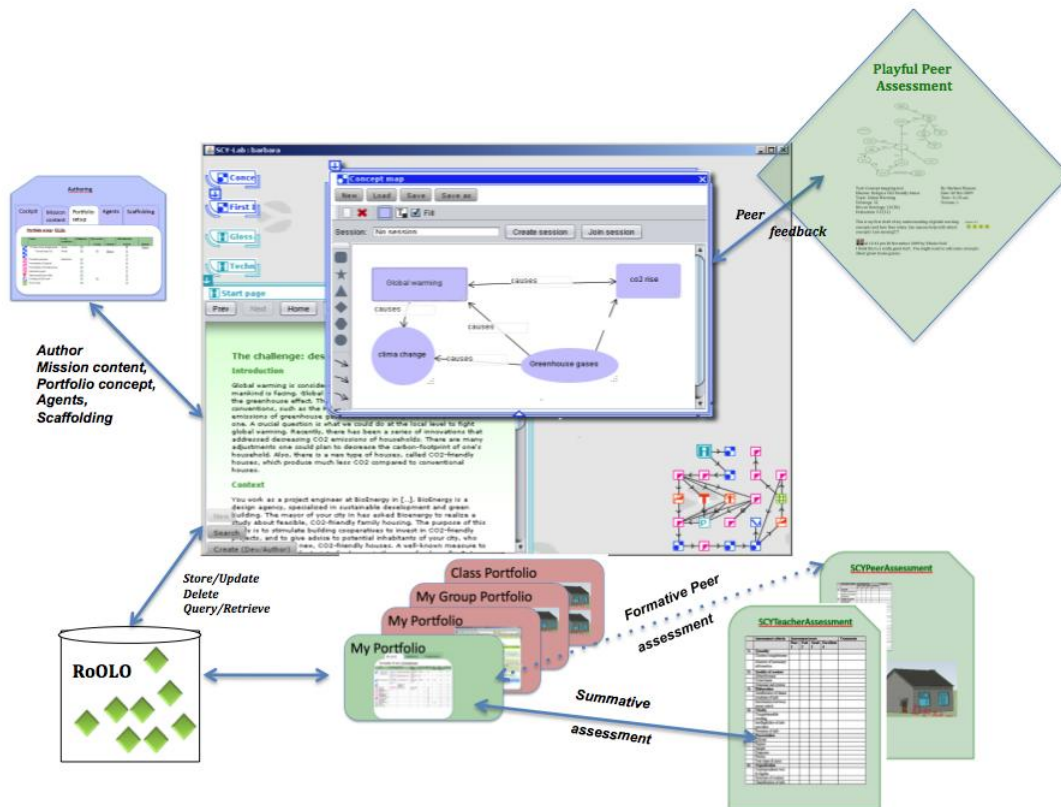


Figure 1 The Conceptual Model of SCY Assessment Framework (from DIII.1)

Work on the Assessment Tool Suite has clarified the following issues with respect to SCYePortfolio and SCYAssessment:

- The tool suite will be tailored to the needs of SCY Missions and set ELOs in focus (e.g., SCYePortfolio will not be a generic ePortfolio tool; SCYAssessment will be tailored for assessment of portfolios created within SCYePortfolio).

- In addition to a working portfolio, referred to as their ePortfolio, and a possible set of showcase portfolios, we have introduced the *Mission Portfolio*, which comprises 1) a collection of ELOs with reflections from one Mission, and 2) a collection of reflections over the same Mission. A Mission Portfolio is submitted for summative assessment by a teacher.
- Formative peer assessment is actually *peer feedback* as the students give feedback on their peer's ELOs.
- SCYAssessment has only a teacher view as it is a *summative assessment* tool.
- In the authoring tool the teacher specifies which ELOs the student must include in their Mission Portfolio, approves and/or adds to the list of learning goals provided with the Mission, indicates which reflection questions to have for each ELO and for the Mission in whole.

2.1 Workflow between SCY-Lab, SCYePortfolio and SCYAssessment

There is a tight connection between SCY-Lab, SCYePortfolio and SCYAssessment, as shown in figure 2 and explained here. The figure shows both a student SCY-Lab and SCYPortal² view, and a teacher SCY-Lab and SCYPortal view. The workflow is as follows:

1. The teacher fine-tunes the Mission and adds students to a Mission from the SCYAuthor tool (this enables students to now work in SCY-Lab and create ELOs which can be added to their ePortfolio).
2. The student is working in SCY-Lab and either 1) clicks on the ePortfolio icon and opens the SCYePortfolio tool, or 2) clicks on the **ADD to ePortfolio** button on the ELO on which they are working. In case 1 SCYePortfolio is opened on its main page. In case 2 the ELO is saved to the RoOLO and SCYePortfolio is opened to the Reflection on ELO page.
3. An agent picks up when a student submits a Mission Portfolio and gives a message to the teacher either by updating the status in the SCYAuthor Runtime view (on SCY-Lab portal), or in the future, by sending them an email, or indicating in SCY-Lab (? in figure 2, this is dependent upon teachers being able to have their own SCY-Lab for teachers' area). The automatic agent feature can also be turned off and replaced by a "manual update" function giving the teacher more control.
4. The teacher accesses the submitted Mission Portfolio in the SCYAssessment tool (from the SCYPortal), which communicates, with the RoOLO when the teacher views the Mission Portfolio.
5. An agent picks up when the teacher submits an assessed Mission Portfolio and gives a message to the student either by a SCY-Lab prompt (e.g., highlight around the ePortfolio icon) or, possibly, a pop-up message when the student logs into SCY-Lab the next time, etc.). Students will also be able to request "manual updates" from the tool, in order to check the status of their Mission Portfolios.

² SCYePortfolio and SCYAssessment are web-based tools that are included in the SCYPortal.

6. Once the student receives the assessment of the Mission Portfolio the student is able to revise and resubmit the Mission Portfolio (version 1 does not account for revision).

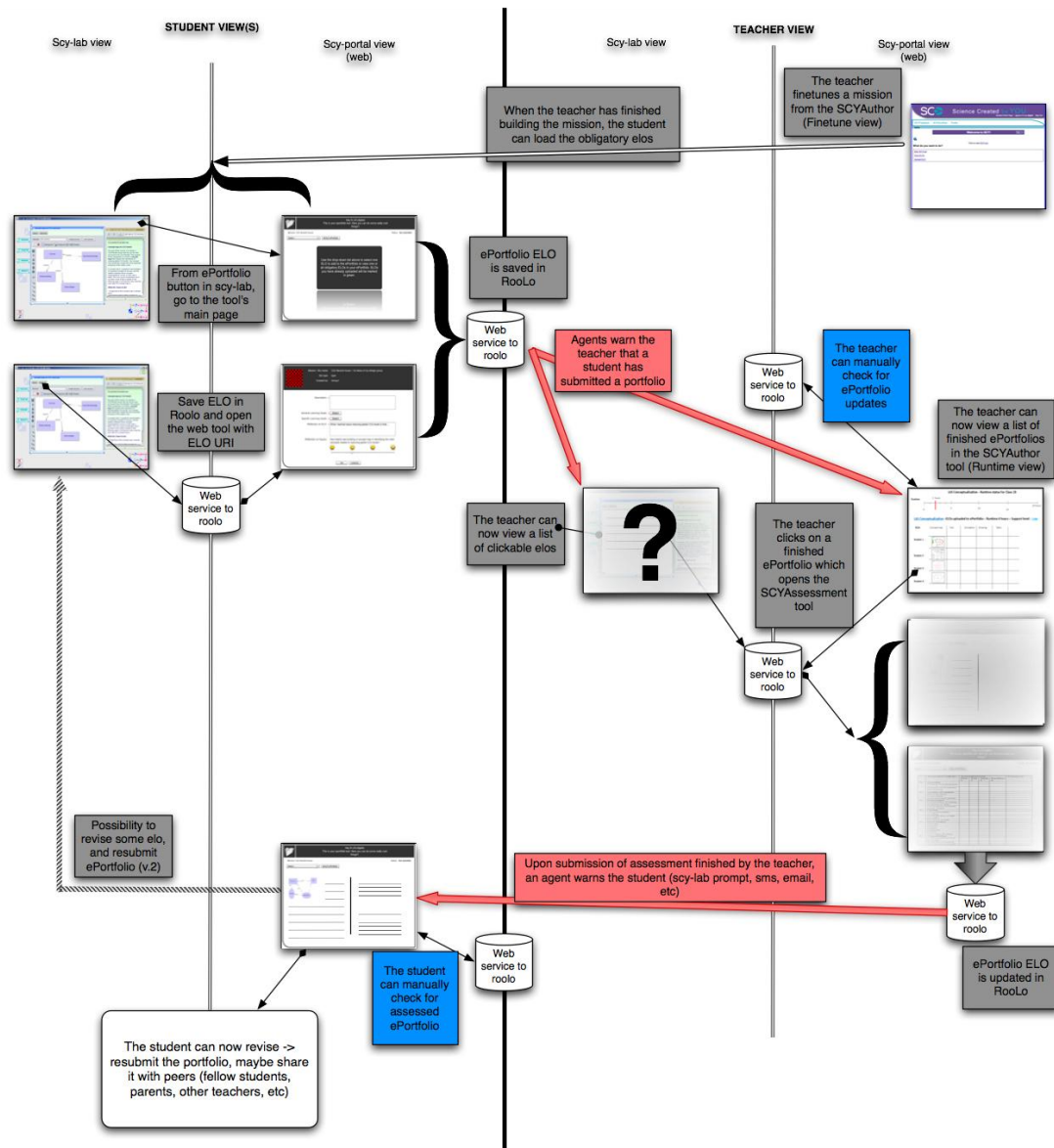


Figure 2 Workflow between SCY-Lab and SCYePortfolio and SCYAssessment

2.2 The design and development process

The design of the SCYePortfolio and SCYAssessment tools has been an iterative process³. The result of the first design meeting the following conclusions were made:

- Simplicity of functionality is to be preferred

³ The two partners UIB and UIO have been central in this work.

- Tool tailoring to Mission if necessary (in the 1st version)
- Seamless integration with SCY-Lab should be the goal
- SCY-fi – integration of the SCY layout is a requirement from the SCY project

Intense design meetings produced low fidelity prototypes that formed the basis for a first prototype. This was followed by rapid prototyping that included walkthroughs and discussions that again lead to new versions of the prototypes; the final result of which is version 1 of the tools.

2.3 SCYePortfolio and SCYAssessment technical overview

From a technical point of view, an ePortfolio can be seen as composed of three main elements (Ravet, 2005) as outlined in DIII.1:

- An archive or repository (a content management system or a database) of items collected (the hidden part).
- A series of views (profiles) or presentations on selected elements of the archive (the visible part).
- A series of services provided to ePortfolio owners to construct and exploit the contents (archive/repository and views/profiles), e.g., for managing assessment, planning learning or presenting a good view of the learner.

In SCY the archive or repository is the RoOLO, the views are the ePortfolio, the Mission Portfolio and the future Showcase Portfolio. The services are provided by SCYePortfolio where the student constructs an ePortfolio and creates a Mission Portfolio and by SCYAssessment, which supports the teacher in their assessment of a Mission Portfolio.

The tools are developed as an Adobe Flash client served through a web back end. The client is integrated into the SCY-back end framework via web technology that handles communication to RoOLO and all the SCY main architecture modules such as action logging and tuple spaces. This way, the flash application can communicate with other SCY-Lab tools via the web back end that serves as a proxy between the tool and the other SCY main modules.

System communication is handled in an ajax-like way, where the flash client polls for information from the server through a set of provided http URLs from the ToolURLProvider. The ToolURLProvider is a web service that serves as a proxy between SCY services and the web based client. It connects to all SCYServices, and offers these to the client through a set of provided URLs. Some of these URLs provide the client with application data such as portfolio contents, lists of obligatory ELOs etc, while others are specifically designed to give short messages with necessary real time data such as notifications from other components.

3 SCYePortfolio tool specification

3.1 Purpose of SCYePortfolio

SCYePortfolio is an ePortfolio tool with which students add ELOs to an ePortfolio and build Mission portfolios (i.e., a collection of obligatory ELOs) to submit to their teacher for summative assessment. Adding an ELO involves reflection over each ELO

as it is added, and building a Mission Portfolio requires selecting ELOs from the ePortfolio to be included and reflecting on the Mission experience as a whole. The structured reflection in which the student engages extends the learning process beyond the Mission and engages the student in meta-cognitive processes meant to deepen the learning experience and to develop higher-order thinking skills.

Using the SCYePortfolio tool students can:

- Add ELOs to their working ePortfolio
- Build a Mission Portfolio (e.g., CO₂ Friendly House portfolio)
- Submit a Mission Portfolio for assessment, and
- Receive and view the summative assessment of an assessed Mission portfolio

When adding an ELO to their ePortfolio a student must give a description of the ELO, identify the specific and general learning goals the ELO addresses, and answer some specific reflection questions authored by the teacher⁴. The student builds a Mission portfolio by selecting an ELO to be included for each ELO category⁵, and then reflecting over different aspects of the Mission such as inquiry, collaboration, or their own effort. Once a Mission portfolio is complete, it can be submitted to the teacher for summative assessment. Once the teacher has assessed the Mission Portfolio, the student receives notice that their Mission Portfolio has been assessed, and they can view the summative assessment.

ELOs can be added to the ePortfolio as the Mission progresses, or they can be added all at once when the Mission is complete as part of an Evaluation or Reflection LAS.

3.2 ELOs consumed and produced

The SCYePortfolio tool consumes any type of ELO that has been produced during a Mission and produces a portfolio ELO.

ELO type	portfolio
technical format	text/xml
logical representation	set of annotated ELOs
functional role	storage for a collection of ELOs with reflections

3.3 Activities supported in the SCYePortfolio tool

With reference to deliverable *DI.1 SCY-Lab Component Specification*, the SCYePortfolio tool may be used in activities such as:

⁴ SCYAuthor (cf. DVII.3) is used by the teacher to specify which ELOs must be included in the ePortfolio and to specify the reflection questions to be associated with each ELO and with the entire ELO collection.

⁵ It is possible for the student to have added several ELOs to each category in their ePortfolio; in the Mission portfolio, however, one of these has to be chosen.

Reflection LAS

- *Reflect on knowledge and skills*
- *Reflect on individual and group processes*

Evaluation LAS

- *Evaluate ELO (own)*
- *Evaluate processes*

3.4 Impression of the SCYePortfolio tool

Illustrations of the SCYePortfolio tool are shown in Figures 3-8. Figure 3 shows the first screen the student encounters when opening the ePortfolio from the ePortfolio ICON in SCY-Lab. The student is presented a drop-down menu that lists the categories of ELOs that a student needs to add to the ePortfolio⁶. After selecting an ELO category, the **ADD ELO** button becomes active. Once an ELO has been added to at least one⁷ category, the **BUILD Mission Portfolio** button becomes active. The student can switch between language interfaces by clicking on en (English), fr (French), no (Norwegian), gr (Greek), ee (Estonian) or nl (Dutch) in the top right hand corner.

⁶ In version 1 we restrict the ELOs that can be added to those that the teacher identified as obligatory; the teacher authors this list of obligatory ELOs in SCYAuthor before the Mission begins.

⁷ Originally we decided that there had to be at least one ELO per category but it this would restrict the students from deciding to only submit a partially complete Mission portfolio.

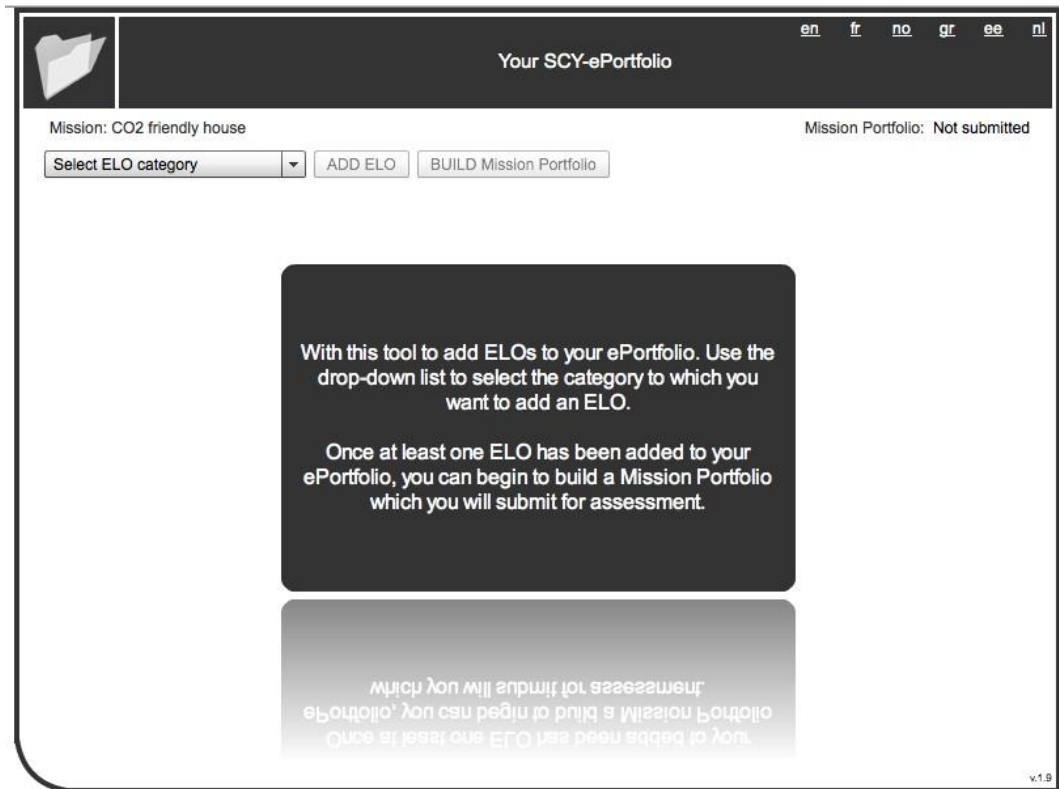


Figure 3. First screen of the SCYePortfolio tool

Figure 4 shows a gallery of ELOs⁸ from which the student can select one to add to his/her ePortfolio. The selection is done by clicking in the radio button in the top right hand corner of the ELO thumbnail. The student can enlarge the thumbnail by clicking on it (see ELO furthest to the right).

⁸ In version 1 this is the result of a search for ELOs matching the ELO title selected on the screen shown in figure 1



Figure 4. List of student ELOs of a selected type

Once the student has selected an ELO and clicked on the **Add to ePortfolio** button (see figure 4), the student is asked to reflect over the ELO and its relationship to the Mission. Figure 5 shows the screen where the student describes the ELO, selects the specific and general learning goals that the ELO addresses and reflects over the ELO, and in this case on the Inquiry process⁹. Once this is complete the student selects **OK** and the ELO is added to the ePortfolio. If the student is working on an ELO in SCY-Lab and selects the **ADD to ePortfolio** button on the tool, the student is taken right to this screen, as the ELO to be added is implicit¹⁰.

⁹ The teacher authors the questions on which the student must reflect in SCYAuthor before the Mission starts.

¹⁰ The ELO title to which the ELO is to be added is derived from the meta-data stored in the RoOLO.

Mission / Elo category: CO2 friendly house / Concept map
 Elo type:
 ELO file name: My_first_ideas_test
 Created by: Me
 Date: 10.02.2010 10:00

Complete the form below with your reflection on the various elements of the ELO

Description: This is the concept map of my first ideas of topics related to first ideas of a CO2 friendly house.

General Learning Goal(s): Select 1 general learning goal(s) selected

Specific Learning Goal(s): Select 1 specific learning goal(s) selected

Reflection on ELO: The most important thing about CO2 friendly houses is the area.

Reflection on Inquiry: How helpful was building a concept map in identifying the main concepts related to reducing global CO2 levels?

1 2 3 4

FINISHED CANCEL

Figure 5. Description and reflection screen for adding an ELO to the ePortfolio

Figure 6 shows the screen, accessed by the **BUILD ePortfolio** button (see figure 2), where the students build the Mission portfolio¹¹ (i.e., the collection of ELOs that the teacher has deemed obligatory for this Mission) that they will submit for assessment. Each obligatory ELO to be included in the Mission portfolio is represented by a pane (identified by the obligatory ELO title). In each pane the student selects which ELO to be included by clicking in the radio button on the top right hand corner of an ELO thumbnail (if only 1 ELO has been added, that ELO is by default selected). Once an ELO has been selected in each pane, the student can **VIEW** the Mission portfolio.

¹¹ The Mission portfolio is called by its name, e.g., My CO₂ Friendly House Portfolio

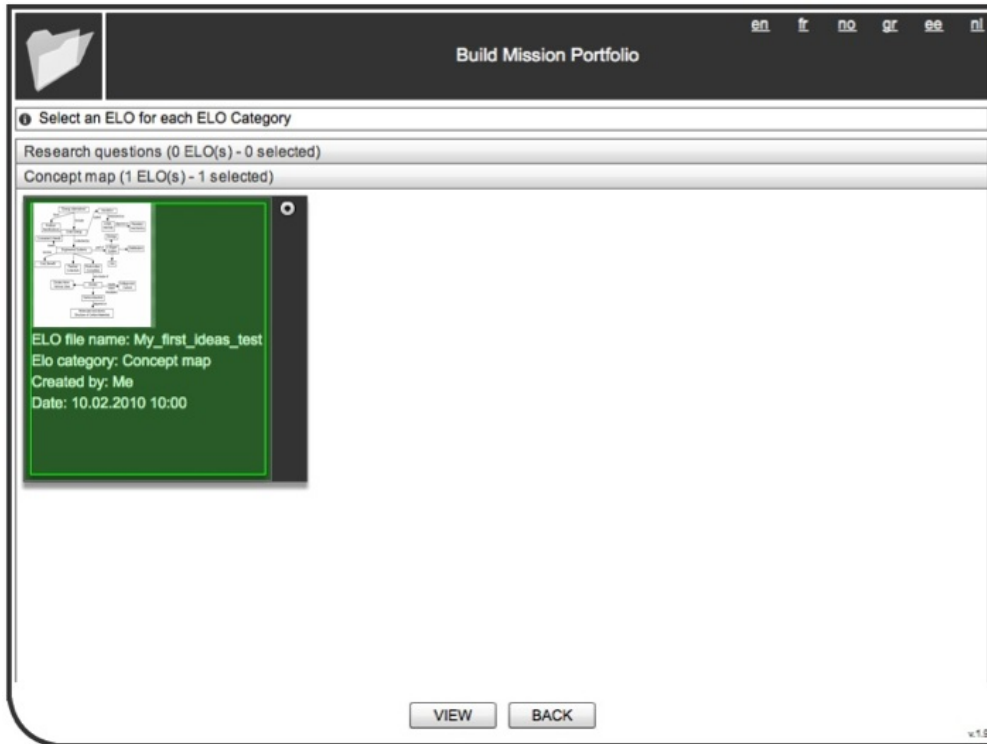


Figure 6. Screen for selecting an ELO (1st ideas of my design group pane)

Figure 7 shows the reflection screen where students are to reflect over the learning process in the Mission. In this version students are asked to reflect on the Mission, on Collaboration, on Inquiry and on their Effort¹². Once this reflection is complete, the student can **SUBMIT** the ePortfolio for teacher assessment.

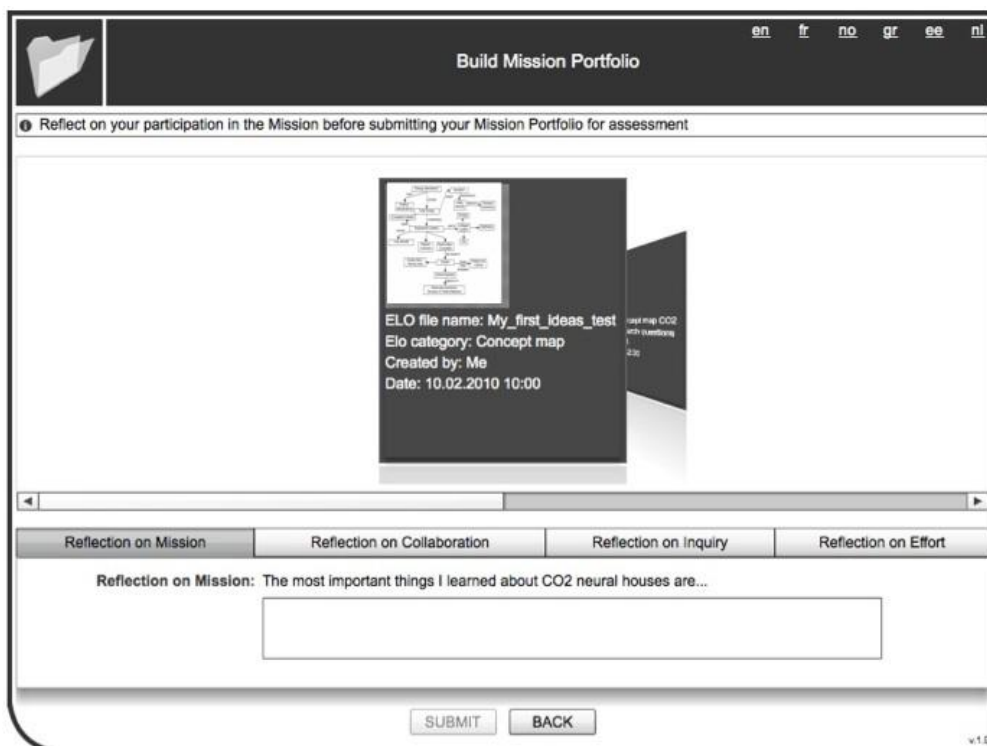


Figure 7. Reflection on ELO collection before submitting a Mission Portfolio

¹² The teacher authors these categories and questions with SCYAuthor before the Mission begins.

Once the student is informed (via the SCYPortal or on the ePortfolio icon in SCY-Lab) that their Mission Portfolio has been assessed, they can view the feedback. Figures 8 and 9 show the teacher’s feedback on the Assessed ELOs and on the Assessed Mission Portfolio, respectively.

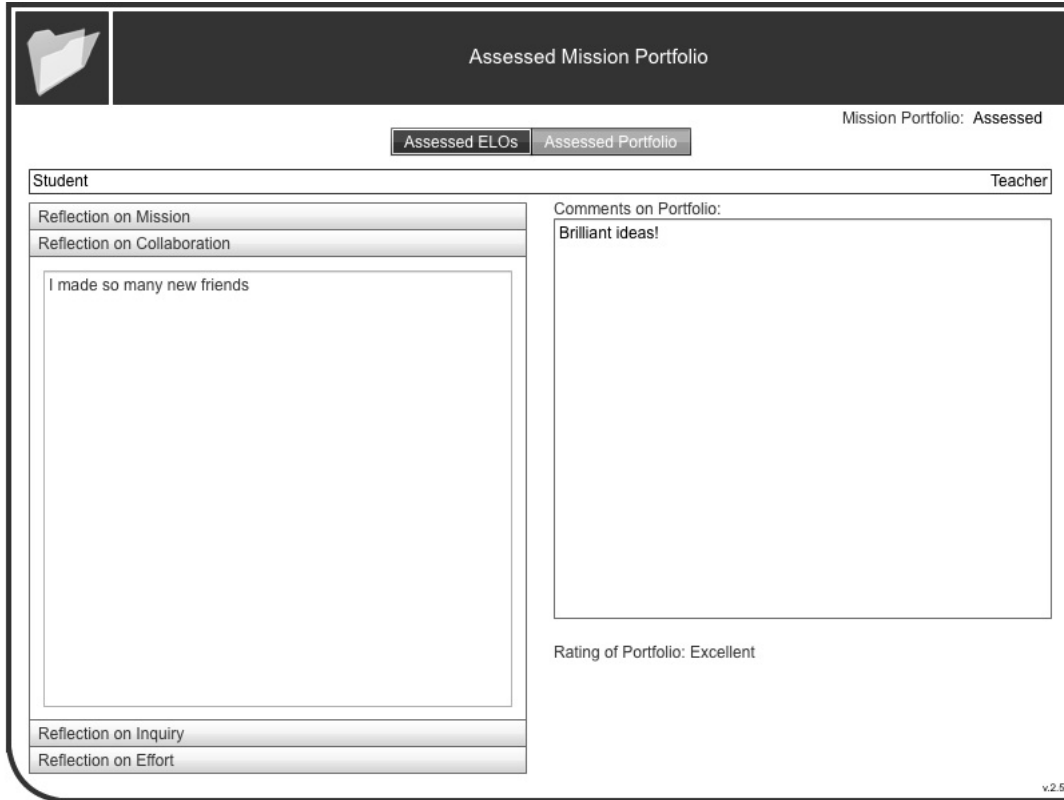


Figure 8. Teacher feedback on ELOs

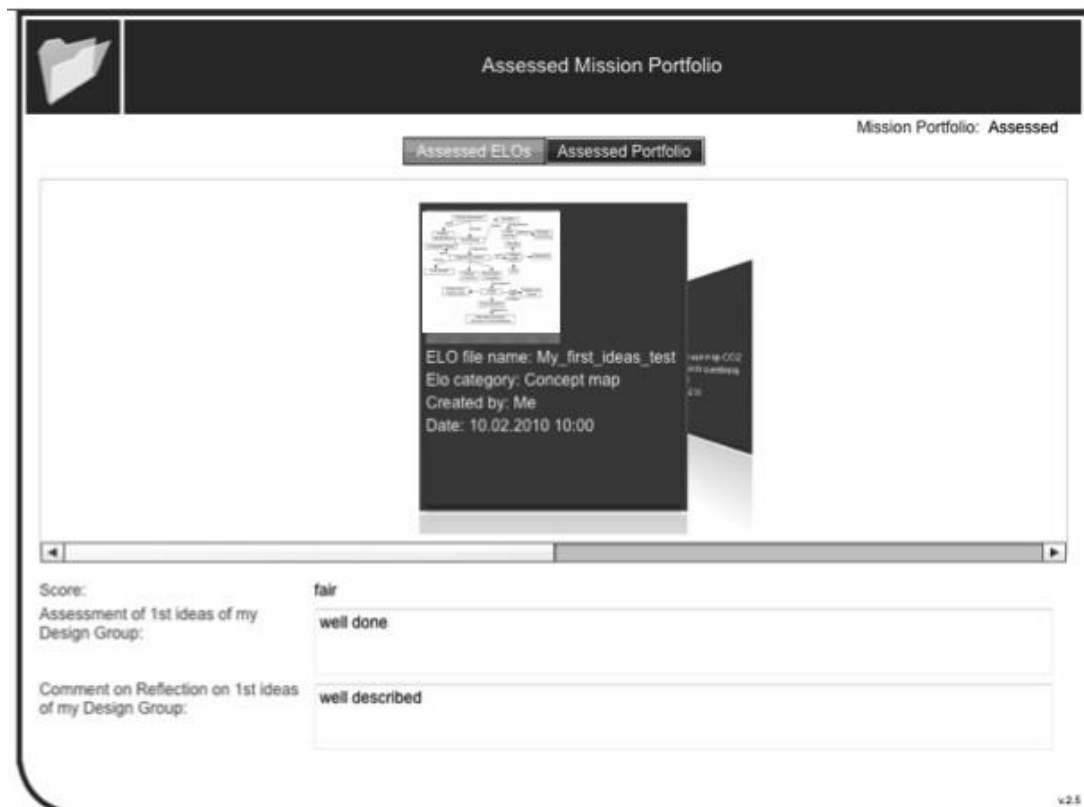


Figure 9. Teacher feedback on Mission Portfolio

3.5 Level of integration

The SCYePortfolio tool is a web tool that is integrated into the SCY-Lab workflow when a student either 1) presses on the [Add to ePortfolio](#) button on a tool, or 2) opens the SCYePortfolio tool by clicking on the ePortfolio ICON in SCY-Lab.

The SCYePortfolio tool is integrated into the SCYFramework as SCY-fi level 3. For level 1, the tool produces and manipulates Portfolio ELOs that are added to, and retrieved from, the RoOLO. For level 2 the tools are connected to the notification services in order to be notified when ELOs have been added to the portfolio from SCY-Lab. For level 3, the tool communicates with other tools by calling URLs on the server side that again dispatch these messages to the necessary services that connect directly to services that can communicate with tools in the SCY-Lab. The tool is not SCY-fi level 4, since it runs outside SCY-Lab.

3.6 Support and Scaffolding

SCYePortfolio supports reflection over learning by providing a means of organising and reflecting over the ELOs that have been produced during a Mission and reflecting over their role in the Mission.

3.7 Action Logging

The SCYePortfolio tool stores action log information of all relevant user activities. The action log format has been created in collaboration with WPV to meet the requirements of the pedagogical agents and other analysis components.

Action	Properties
tool_start	none
portfolio_category_changed	oldValue, newValue
add_elo_button_clicked	none
build_portfolio_button_clicked	none
view_finished_portfolio_button_clicked	None
add_elo_to_portfolio_button_pressed	None
cancel_search_button_pressed	None
search_for_elos_started	None
reflection_on_elo_started	Elouri
reflection_on_elo_finished	Elouri
reflection_on_elo_canceled	none
delete_elo_from_portfolio	deletedElo
edit_elo	edit_elo
build_eportfolio_view_started	None
build_eportfolio_view_finished	None
eportfolio_submitted_for_assessment	None
review_assessed_eportfolio_view_started	None
review_assessed_eportfolio_view_finished	none

4 SCYAssessment tool specification

4.1 Purpose of the SCYAssessment tool

SCYAssessment is a tool with which teachers assess submitted Mission Portfolios (summative assessment). In a SCY approach, ELOs provide the basis for demonstrating both general science and inquiry skills, thus summative assessment revolves around ELOs. In addition to these skills, the summative assessment will look at both collaboration and the student's effort.

Using the SCYAssessment tool (version 1) teachers can:

- Assess and score individual ELOs
- Comment on and score the student's reflection over individual ELOs
- Comment and score the student's reflection over the entire Mission
- Submit the summative assessment

Assessing an ELO and its reflection involves assessing and scoring the ELO, and commenting on the student's reflection (including a description of the ELO, the general and specific learning goals chosen, and the reflection on how the ELO helped the inquiry process). Assessing the overall Mission Portfolio involves commenting on the student's reflections over the Mission, collaboration, inquiry, and own effort.

SCYAssessment supports teachers in their summative assessment by providing flexibility in the organisation and accessing of the ELOs and Mission portfolios, and by integrating teacher specified assessment instruments. For example, in version 1, teachers are provided with an overview, organised by ELO and student, of submitted Mission Portfolios. From this overview they can choose to view a single student's

Mission Portfolio, or view an individual ELO and its reflection. In version 2 this will be extended to enable teachers to organise ELOs according to, for example, their score, and in this way the teacher can more easily move between student's ELOs to compare them. Another example is that assessment instruments¹³ such as an expert concept map, an assessment rubric or a list of concepts to be included in a text, is easily accessible during the assessment of an individual ELO.

4.2 ELOs consumed and produced

The SCYAssessment tool consumes a collection of portfolio ELOs, produced by the SCYePortfolio tool, which have been submitted for assessment and produces a portfolio ELO.

ELO type	portfolio
technical format	text/xml
logical representation	set of annotated Mission Portfolios
functional role	collection of Mission Portfolios with assessment comments and scores

4.3 Activities supported in the SCYAssessment tool

With reference to deliverable *DI.1 SCY-Lab Component Specification*, the SCYAssessment tool may be used in activities such as:

Reflection LAS

- *Reflect on knowledge and skills*
- *Reflect on individual and group processes*

Evaluation LAS

- *Evaluate ELO*
- *Evaluate processes*

4.4 Impression of the SCYAssessment tool

Illustrations of the SCYAssessment tool are shown in Figures 10-16. Figure 10 shows the screen the teacher encounters after opening the tool from the SCY web portal. From this screen the teacher can click on the **VIEW STUDENTS** button to navigate to the Mission Portfolio screen where s/he can access the Mission Portfolios that have been submitted by the students.

¹³ This assessment help is authored in SCYAuthor before the teacher embarks on the summative assessment.

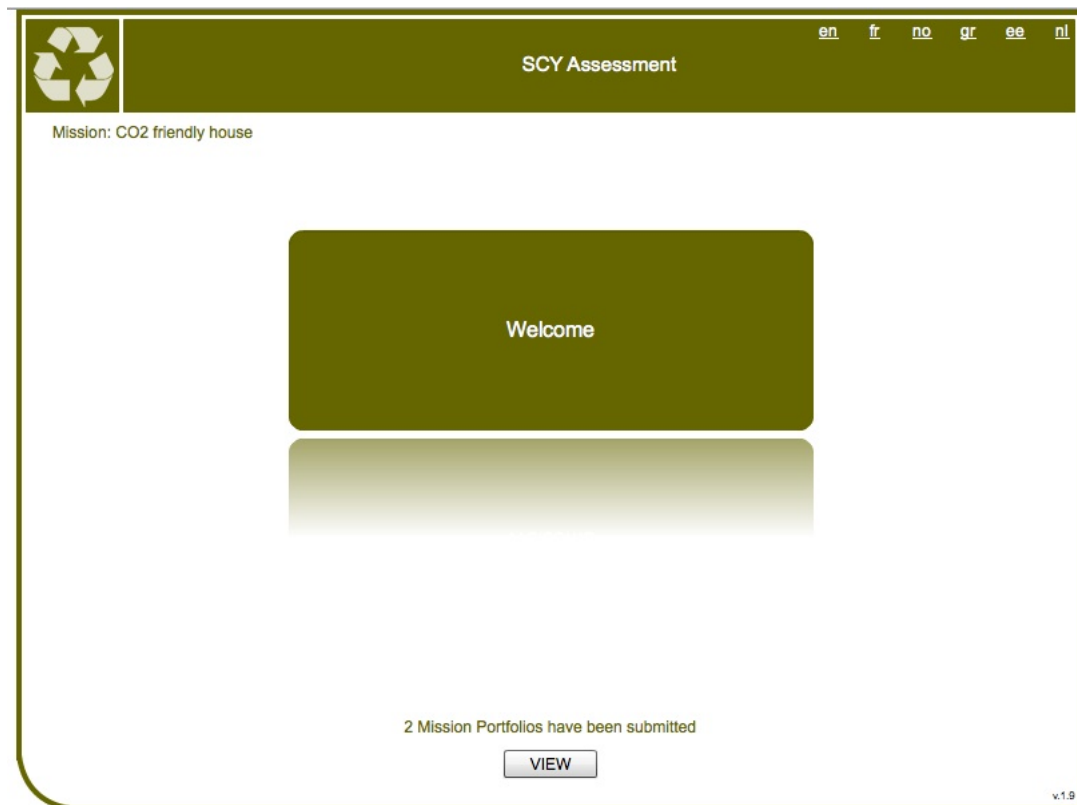


Figure 10. Opening screen of SCYAssessment

From the Student Mission Portfolio screen, see figure 11, the teacher has an overview of the student Mission Portfolios and can navigate to assess an ELO (see figure 12), assess a Mission Portfolio (see figure 16), or even get an overview of all ELOs within an ELO category (see figure 14). To give the teacher a quick overview of which students have submitted a Mission Portfolio, an accordion menu, organised by student name, is used. Beside each student name there is a status indicating how many ELOs have been assessed (of a total) and whether or not the Mission Portfolio as a whole has been assessed. The teacher flips between students by clicking on their name.

The ELOs in a Mission Portfolio are represented by a named icon, see figure 11, which is either assessed (●) or not assessed (○). The teacher can choose to assess an individual ELO (click on the ○ ELO icon), or can choose to see the collection of all ELOs (submitted by all students) within one ELO category (click on the ELO category name, e.g., 1st ideas of my design group).

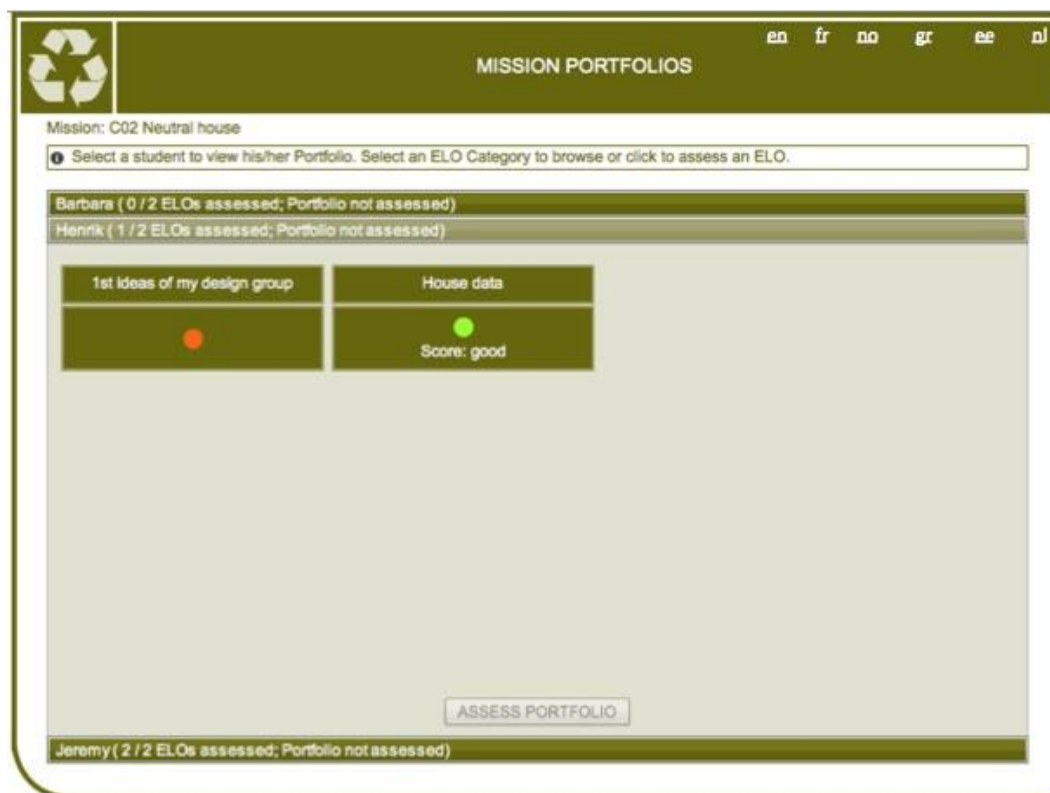


Figure 11. Mission Portfolio screen from SCYAssessment

In order to assess a single ELO the teacher clicks on the ● on the ELO icon and is moved to the ELO assessment screen, see figure 12. The ELO assessment screen is divided into the presentation of the ELO together with its reflections (left side) and the assessment of the ELO (right side). The presentation of the ELO includes both a thumbnail of the ELO and the student's reflections on the ELO (clicking through the accordion panes Description, General Learning Goals, Specific Learning Goals, Reflection on ELO and Reflection on Inquiry). To facilitate assessment of the ELO, the teacher can click on the thumbnail of the ELO and the full ELO (e.g., a concept map, text, or rubric) is displayed over the thumbnail and accordion panel, see figure 13. The teacher's assessment of the ELO is entered as comments in the comment box and by scoring the ELO, see right hand side of the screen in Figure 12. To comment on the ELO reflection, the teacher opens the Comment on Reflection pane. If the teacher authored an assessment instrument¹⁴, then they can click on its thumbnail, see figure 12, and it is displayed on the right hand side of the screen, see figure 13. In this way the full ELO and the assessment instrument can be seen side by side.

¹⁴ The teacher authors an assessment instrument, such as an expert concept map, a rubric, an answer sheet, etc., in SCYAuthor.



Figure 12. ELO Assessment screen from SCYAssessment

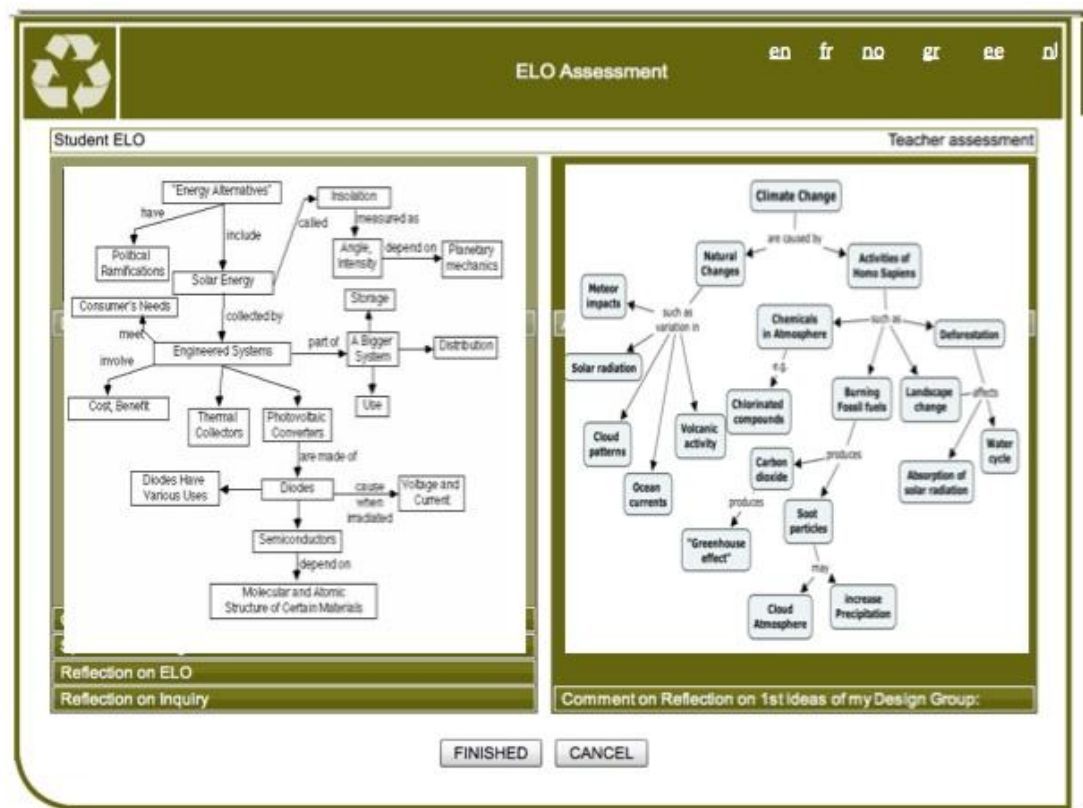


Figure 13. ELO Assessment screen with ELO and expert ELO open (to be in version 2)

To facilitate the assessment of ELOs within one ELO category the teacher can choose to see the collection of all ELOs within one category (from the different student's Mission Portfolios), see figure 14. Here, ELOs are sorted, by score, into not assessed, poor, fair, good or excellent panes. The teacher gets a quick overview of how many ELOs have each score. The teacher can compare two ELOs by checking the compare radio buttons in bottom left of two ELOs and clicking the **Compare ELOs** button when activated. The ELOs can be in any of the 5 frames, for example one from the unassessed pane and one from excellent pane.

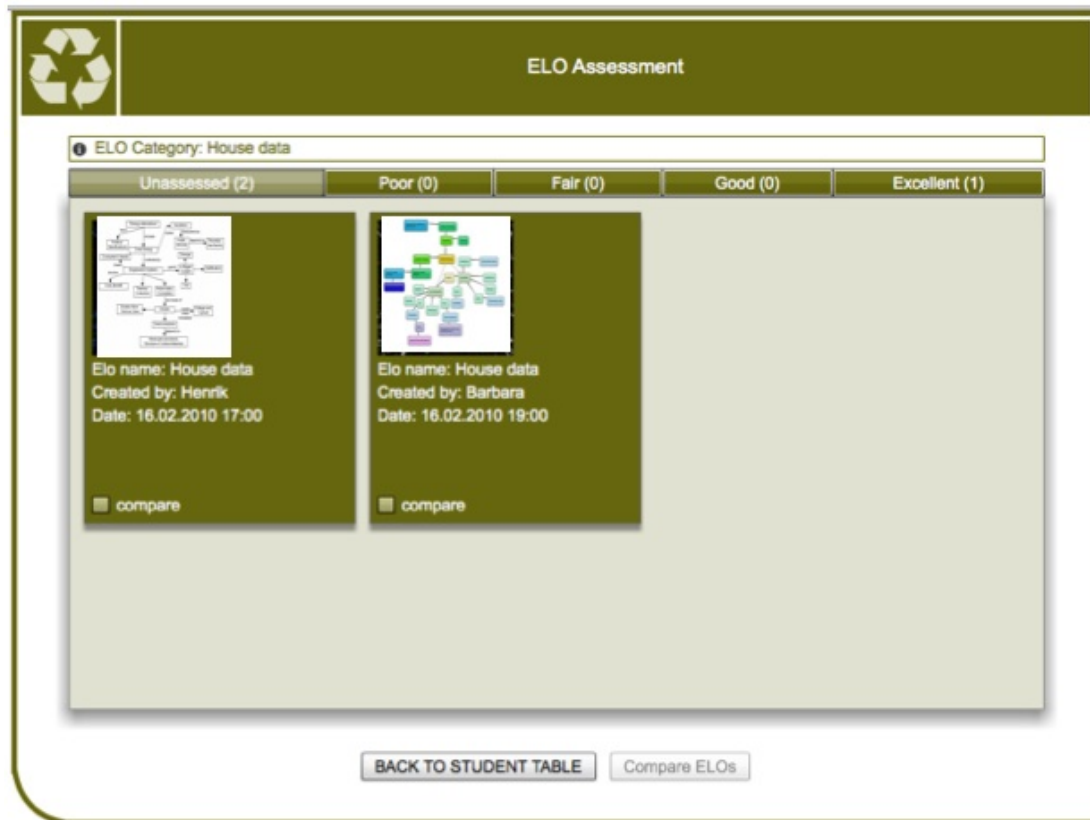


Figure 14. ELO sorting screen from SCYAssessment

The compare screen is shown in figure 15. Here the teacher can flip through both the student's ELOs and through his/her own comments on the ELOs (if the ELO has been assessed). In version 1 the teacher has to choose to **EDIT Assessment** and go to the assessment screen (figure x) to assess the ELO (if not assessed) or edit the assessment (if already assessed).

The screenshot shows a web-based interface titled "ELO Assessment" with a recycling logo in the top left. It is divided into two columns, "ELO 1" and "ELO 2".

ELO 1:

- Elo name: A brilliant idea
- Created by: Henrik
- Date: 16.02.2010 16:00
- Description: My coc design description
- General Learning Goals
- Specific Learning Goals
- Reflection on ELO
- Reflection on Inquiry
- Assessment of 1st Ideas of my Design Group:
- Comment on Reflection on 1st Ideas of my Design Group:

ELO 2:

- Elo name: My_first_ideas_final
- Created by: Jeremy
- Date: 16.02.2010 14:00
- Description: It may also be objected that my opening remark about the appealing character of Pyrrhonism is wrong or surprising, given that it is not possible for anyone to think that the stance I have presented is attractive and worth adopting. For instance, not only does the Skeptic not promise that the suspensive attitude will certainly make possible the attainment of ataraxia, but he does not even regard this as an aim that is intrinsic to his philosophy. To this objection, I would first reply that the appeal of Skepticism seems to lie in the sort of rational chance that this philosophy may entail in
- General Learning Goals
- Specific Learning Goals
- Reflection on ELO
- Reflection on Inquiry
- Assessment of 1st Ideas of my Design Group:
- Comment on Reflection on 1st Ideas of my Design Group:

A "CANCEL" button is located at the bottom center of the interface.

Figure 15. Compare two ELOs

Once every ELO in a student's Mission Portfolio has been assessed (see Jeremy's Portfolio in figure 11) the teacher can assess the Portfolio as a whole. Figure 16 shows the Mission Portfolio assessment screen where the teacher can browse through the assessed ELOs and can access the student's reflections on the Mission, Collaboration, Inquiry and Effort. The teacher can comment on, and score the Mission Portfolio as a whole before submitting the assessment.

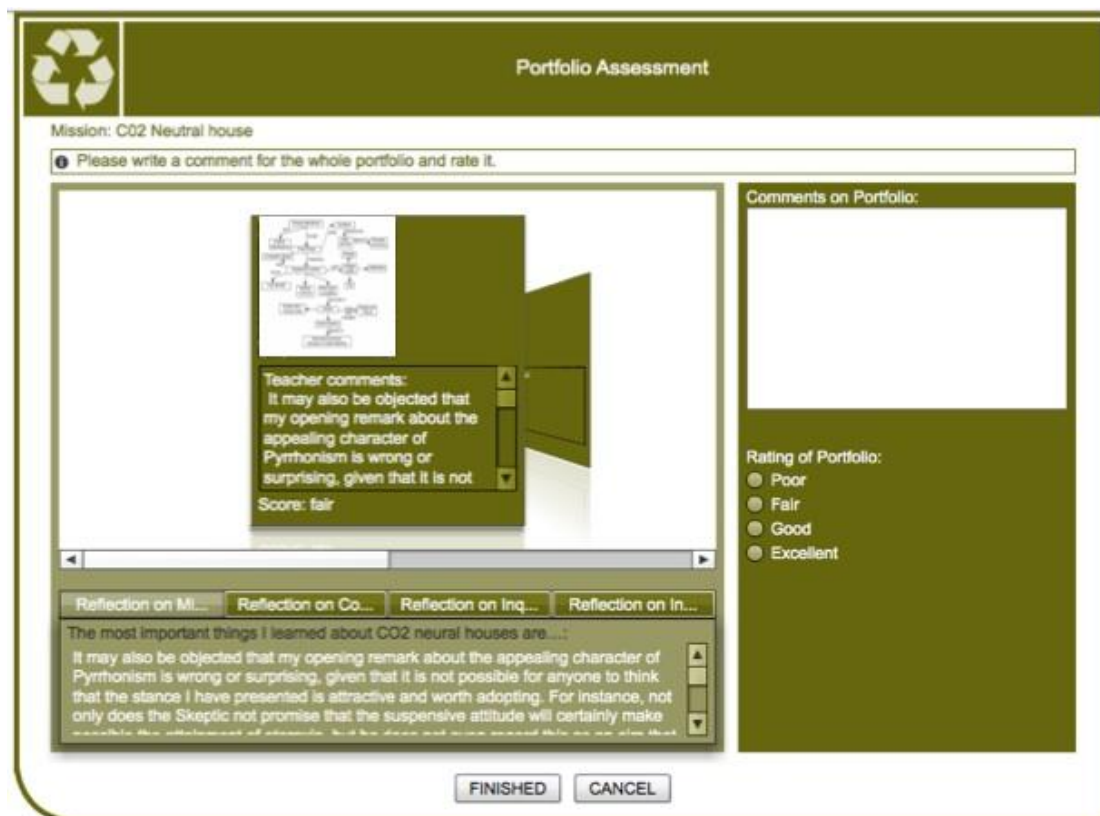


Figure 16. Mission Portfolio Assessment screen from SCYAssessment

4.5 Level of integration

The SCYAssessment tool is a standalone web tool that receives information from SCY-Lab as to when an ePortfolio has been submitted for assessment and sends relevant information to SCY-Lab so that the agents can gather information to indicate that the ePortfolio assessment is complete and the student needs to be informed of this.

The SCYAssessment tool is a web tool that is integrated into the SCY-Lab workflow when a teacher opens the SCYAssessment tool from the SCY web portal.

The SCYAssessment tool is integrated into the SCYFramework as SCY-fi level 3. For level 1, the tool produces and manipulates Portfolio ELOs that are added to, and retrieved from, the RoOLO. For level 2 the tools are connected to the notification services in order to be notified when a Mission Portfolio has been submitted for assessment. For level 3, the tool communicates with other tools by calling URLs on the server side that again dispatch these messages to the necessary services that connect directly to services that can communicate with tools in the SCY-Lab. The tool is not SCY-fi level 4, since it runs outside SCY-Lab.

4.6 Support and Scaffolding

SCYAssessment supports the assessment process by organising the assessment of individual ELOs in a way that the teacher can easily compare ELOs within an ELO category and by providing integrated access to an assessment instrument for an ELO category. The organization of the student Mission Portfolios in an accordion menu supports a quick overview of who has submitted and what has been assessed, and the support for sorting of ELOs by scores helps with the assessment process.

4.7 Action Logging

The SCYAssessment tool stores action log information of all relevant user activities. The action log format has been created in collaboration with WPV to meet the requirements of the pedagogical agents and other analysis components.

Action	Properties
tool_start	None
view_student_table_button_pressed	None
introduction_view_finished	None
introduction_view_started	None
student_table_view_started	None
student_table_tab_changed	oldSelectedTab, newSelectedTab
elo_category_view_started	None
elo_category_view_finished	None
elo_assess_view_started	None
elo_assess_view_finished	None
elo_compare_view_finished	None
assess_portfolio_button_clicked	None
portfolio_assess_view_finished	None
portfolio_assess_view_started	None
assess_category_button_clicked	None
assess_elo_button_clicked	elo_uri

5 Conclusions and further development

This deliverable has described the first version of two assessment tools: SCYePortfolio for learners and SCYAssessment for teachers. The final version of the assessment tools will be presented in an annex to DIII.2 and DIII.3 in M44.

5.1 Design and Development Challenges

SCY partner personnel including instructional designers, researchers, programmers, and teachers have been used in the design and/or development of the tools.

The design and developed proved to be challenging for several reasons. First, in SCY, assessment is both an approach and the tools, and the assessment tool development is intricately intertwined with the design of how to do the assessment in an ELO centered approach. Second, development is more than a technical development as it is dependent upon feedback both on the approach and the tool, and how they are integrated. *How to do the assessment* is more difficult than the development of the tool. While it has been determined how the summative assessment will be done, we really need field testing of the approach and the tools during the next field trials in order to see how everything fits together (authoring of the assessment, viewing cockpit activity, creating of ePortfolio and Mission portfolio, and summative assessment by the teachers when the Mission is complete).

A third challenge was the integration of the tools into SCY-Lab and the SCY workflow, which has now been accomplished.

5.2 Testing in Missions

The assessment tools have not yet been tested during a Mission, with real users, but this is scheduled to take place in the upcoming trials planned for spring 2011 (March and May/June). Feedback from these trials will feed into the development of the tools that will be updated accordingly. Research on assessment will be carried out in the final field trials to be carried out in the fall of 2011 (November).

For example, in summative assessment the teachers receive a collection of ELOs in a Portfolio together with a set of reflections (in version 1 it is the anchor ELOs) that they will assess after the Mission is over. We do not know if this choice of ELOs and the reflections provided is enough for teachers to carry out their summative evaluation. If it is, then fine. If not, then it requires rethinking what they are given and this may in return influence tweaking of the ePortfolio tool. Similarly, we cannot answer if our peer assessment tool (DIII.3) will work as we envisage, and even more importantly how the entire SCY assessment system (peer feedback, ePortfolio building, ePortfolio assessment) will work together.

5.3 Future versions

The tools delivered with this document are SCYePortfolio version 1 and SCYAssessment version 1. In order to deliver solid tools it is imperative that the tools be tested and evaluated during the Mission trials, and then appropriate adjustments are made.

SCYePortfolio version 1 is in many ways tailored to Mission 1 and its needs. The tools will, however, be tested with both Mission 1 (March 2011 in Oslo) and in Mission 3 (May/June 2011 in Bergen).

The ELOs that can be added to the ePortfolio are pre-defined by the teacher (in the authoring tool) pre-Mission. We will consider opening this to include any ELO that the student would like to add (in addition to those the teacher deems obligatory). Furthermore, at present, there are only a Working Portfolios and a Mission Portfolios; the final version of SCYePortfolio will also support Showcase Portfolios.

SCYAssessment version 1 is similarly tailored to the Mission Portfolios that are submitted from SCYePortfolio and any changes to these will have to be reflected in this tool. SCYAssessment will also be enhanced to include ELO assessment “aids” such as rubrics, expert solutions, question answers, simulation values, lists of topics to include in an essay, etc., which will be easily assessable in the ELO Assessment screen, see Figure 12.

Furthermore, when the integrated assessment tools are tested, then the agents that will function on the assessment tools can be fine-tuned and implemented.