How to set up an interactive assessment on the TEAL2.O platform

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Improving Access to Science and Technology Higher Education in Resource-Poor Institutions through an Open Platform for Technology Enabled Active Learning Environment

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INTRODUCTION

The main two types of assessment are formative and summative. The first one can be used even during the learning process to show the extent to which students assimilate the knowledge, and to identify the difficulties in understanding and acquiring the presented knowledge. The formative assessment is an intermediate assessment that applies mostly to course modules or chapters. Usually, it is not used for grading students.

The summative assessment on the other hand aims to provide the teacher (and student) with a clear picture of the extent to which the students have grasped the knowledge, and to what extent they are able to use and apply this knowledge. Summative assessment results can even show if the student is able to link different pieces of knowledge and make connections. The summative assessment is usually applied at the end of the course and is used to grade the students.

To assist with assessment, the TEAL2.O platform provides dedicated tools.

The present document guides the user in setting up an interactive assessment in the form of a H5P Interactive Activity. The assessment activities can be embedded into an interactive course presentation. The options for assessment activities are presented in Table 1.

Table 1. Objects used for Interactive Assessment (main menu)

<table>
<thead>
<tr>
<th>Object</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fill in the Blanks</td>
<td><img src="image1.png" alt="Image" /></td>
</tr>
<tr>
<td>Single Choice Set</td>
<td><img src="image2.png" alt="Image" /></td>
</tr>
<tr>
<td>Multiple Choice</td>
<td><img src="image3.png" alt="Image" /></td>
</tr>
<tr>
<td>True/False Question</td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
<tr>
<td>Drag and Drop</td>
<td><img src="image5.png" alt="Image" /></td>
</tr>
</tbody>
</table>
Table 2. Objects used for Interactive Assessment (secondary menu)

<table>
<thead>
<tr>
<th>Drag the Words</th>
<th>Mark the Words</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="Drag_the_Words.png" alt="Drag the Words image" /></td>
<td><img src="Mark_the_Words.png" alt="Mark the Words image" /></td>
</tr>
</tbody>
</table>
Setting up Interactive Assessment as an Interactive Course Presentation Resource

An assessment can be designed as a collection of assessment activities grouped in a Course Presentation. This kind of resource has the advantage that it offers the possibility to display an Overview and a Summary that synthesizes the results of all assessing activities. When the activities used to build the assessment can be approached interactively, the assessment becomes more attractive for the students on the one hand, and ensures better assessment on the other hand. The interactive feature of an assessment can be provided by the facilities offered by a Course presentation resource.

To set up an assessment, the first step is to create and open a Course presentation, and switch to Settings mode from the Activity list at the top-left corner of the screen (Fig. 1).

![Fig. 1. Switching to Settings mode](image)

Now, the editing menu will be available. Create the starting slides (a cover and an overview slide), and then a new one where to place the first assessment activity. Each new activity will be placed on a new slide. If needed, videos or pictures can be placed on separate slides, to support the next questions.

**Fill in the Blanks**

This type of assessment displays a text from which some words are missing. The student is asked to type the appropriate (missing) words. The text should have been presented to the students during the teaching – it could consist of definitions or consecrated statements. The missing words should be important ones, part of syntagms, so they do not create confusion.
Assessment

Please fill in the missing words:
The [ ] relationship between MCS and PCS is given by the [ ] and orientation of the axes in the two CSs.

Fig. 2. Fill in the Blanks. The appearance in Interactive content mode

- Insert the activity on the slide by clicking the appropriate button in the menu (Fig. 3)
- Edit the activity, using the Edit button. Type the text you want to be displayed.

Fig. 3. Fill in the Blanks. The button in the menu

- Place the missing words between the * sign (asterisk), as in the example below (Fig. 4).

Fig. 4. Emphasizing the missing word in the editing process

- When editing is completed, press the Done button to return to the slide.
- Several statements can be placed on the same slide.
A Check button accompanies the Fill in the Blanks activity. By pressing it, the result is displayed (Fig. 6): the correct answers are marked green, and the wrong or missing ones, red. Each correct filled-in word increases the score by 1, and each wrong one decreases it by 1.

Several PDs can be set and stored behind G54, ..., G59 codes. While running the CNC program, one can Shift between the PDs stored, according to the needs.

Each Fig. 5. Fill in the Blanks. Before pressing Check

Assessment

Please fill in the missing words:

A The qualitative relationship between MCS and PCS is given by the direction and orientation of the axes in the two CSs.

B The quantitative relationship between the two CSs is established by the user, in terms of the offsets of PD reported to MCS.

Several PDs can be set and stored behind G54, ..., G59 codes. While running the CNC program, one can Shift between the PDs stored, according to the needs.

Fig. 6. Fill in the Blanks. After pressing the Check button

→ Single Choice Set

This activity challenges the students to answer questions that display several answers. Only one of those answers is correct. The order the answers are listed is randomly generated.

→ Insert the activity on the slide

→ Edit the activity by clicking the Edit button (Fig. 7).
Editing requires typing the question and the different answers in the appropriate fields of the form (Fig. 8). The correct answer must always be typed at the top of the answers list. One may add answers by pressing the button Add answer, and a new question by pressing the ADD QUESTION button.
When all the wanted questions and their answers have been edited, press the *Done* button to go back to the slide.

While working in the slide, it is possible to arrange the object (move, resize) using the tools offered in the menu. Alternatively, the squares at the corners and at the middle of the edges can be used to handle the size and position of the object (Fig. 9).
When switching to Interactive content, during running the assessment, all the questions of the Single Choice Set will be displayed successively on the same slide. After the student selects an answer, it is marked in different color depending on whether it is correct or wrong (Fig. 10). If the selected answer is wrong, the correct one is emphasized. For each correct answer selected, the general score increases by 1. Wrong answers are not penalized.

![Fig. 9. Editing the position and size of an object](image)

**CORRECT**

- What does PCS stand for?
  - Part control status
  - Principal coordinate system
  - Protocol compensated system

**WRONG**

- What does MD stand for?
  - Machine delivery
  - Motion data
  - Manual datum

![Fig. 10. Single Choice Set. The appearance of the correctly and wrongly answered questions](image)

When the activity is finished (all the questions have been answered) the score of the activity is displayed on the same slide, and the student can advance to the next slide (Fig. 11).

![Fig. 11. Single Choice Set. The report displayed after finishing the activity](image)

→ You can delete the Simple Choice Set by pressing Delete. All the questions will be deleted, and the action cannot be undone.

Note: The editing techniques of the assessment activities described for Fill in the Blanks and Simple Choice Set are similar for all the objects, so they will not be repeated at the next ones.
Multiple Choice

This activity is similar to Simple Choice Set but offers some specific features:

- each question displays a set of answers, of which more than one can be correct
- on a slide, only one Multiple Choice can be displayed
- the question is accompanied by the Check button. By pressing it, the solution of the quiz is displayed. The selected answers are differently colored depending on whether they are correct and wrong, and the score for each selected answer appears. The general score of the activity is displayed at the bottom of the page. The correct answer(s) and the wrong one(s) increase and, respectively, decrease the score by 1.

Assessment

![Multiple Choice example](image)

Fig. 12. Multiple Choice. The appearance of the question after solving the activity

- When editing the question, for each answer, a check box must be checked, indicating whether the respective answer is correct or not (Fig. 13).

- To add a new answer, use the ADD OPTION button, available at the bottom of the answers list.
VALIDATION OF PLANNED REQUIREMENTS

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Fig. 13. Multiple Choice. Editing the available options and setting the status of the option

⇒ True/False Question

This activity asks the student to decide whether a statement is true or false. Several statements can be placed on the same slide, but they have to be edited separately. Editing is very simple.

⇒ The statement must be typed, and the author has to mark whether it is True or False (Fig. 14).

Fig. 14. True/False Question. Editing the question
The Check button accompanies every activity (Fig. 15).

Please select for each of the statement below the correct option (True or False)

There is certain relationship between MCS and PCS

- True
- False

The Part Datum must be set up after the CNC program is run

- True
- False

Fig. 15. True/False Question. The appearance in Interactive content mode

Assessment

Please select for each of the statement below the correct option (True or False)

There is certain relationship between MCS and PCS

- True
- False

You got 1 of 1 points

Fig. 16. True/False Question. The appearance after solving and pressing the Check button

Drag and Drop

This is one of the most challenging activities, both in terms of solving it by the students and in terms of editing it.

- The activity is always supported by one or more pictures.
- A list of words bound to certain pictures or areas of a larger picture is shown on the slide. The task of the students is to drag every word and drop it on the appropriate picture, or area of picture.

- You can set different types of relationships between the pictures/areas of a picture and words in the list: one to one, one to many, many to one, and many to many.

Editing this type of activity is more complex than others, and it is performed in several steps.

- One or more images must be uploaded. If there are more images, they have to be arranged on the slide. This example refers to the Drag and Drop with a single, but complex image, that shows several specific areas, which can be clearly delimited within rectangles, and named.
  - The title of the activity is typed in the appropriate field
  - A picture is uploaded with the Add button and the dialog box it opens.
  - After a picture is uploaded, it can be resized (the field Specify how large the play area should be, as in Fig. 17). When the image is prepared, a blank area must be reserved to be used to place the keywords (Fig. 18)
Fig. 17. Drag and Drop. Adding the image to the activity
To step forward through the editing procedure, press the button *Step 2*

Define the *Drop zones*. This includes the following:

- Label the zone (through the field *Label*, Fig. 19). Type the label of the *Drop zone*, set the Background Opacity at the value of zero, and press the button *Done*.

![Fig. 18. Drag and Drop. Preparing the picture](image)

![Fig. 19. Drag and Drop. Editing the data for a Drop zone](image)
Mark the desired area by means of a rectangle (Fig. 20) which can be resized and placed at the appropriate place on the picture.

- Repeat steps 1.1 and 1.2 for every Drop zone you want to define (Fig. 20).
Create the list of Keywords.

- Type each Keyword and set its opacity at the value of zero.
- In the field Select drop zones, choose Select all. That means that the keyword is allowed to be dropped on any of the Drop zones.
- Press the button Done
- Go back to the picture and place the keyword on the area designed for the list of words. For easy management of the data, it is recommended that the Keyword be the same as the label of the Drop zone.

Fig. 21. Drag and Drop. Setting up the keywords

- Repeat this operation for every keyword you want to list.
Fig. 22. Drag and Drop. The list of keywords

Bind each Keyword in the list to the appropriate Drop zone. To do that, click inside a Drop zone, press the Edit button, and select the keyword bound to this Drop zone (Fig. 23).

Fig. 23. Drag and Drop. Binding the keywords to the Drop zones

Repeat this step for each Drop zone. This way of binding keywords to Drop zones corresponds to the One to one relationship between the two categories. For the relationships...
One to more and More to one, the binding must be done accordingly, that is the same Keyword can be bound to more Drop zones, and more keywords can be bound to a Drop zone.

- After all the assignments have been edited, press the Done button to return to the slide. Here, if needed, reshape and resize the object until it fits the size of the slide (Fig. 24).

![Fig. 24. Drag and Drop. The appearance in the Interactive content mode](image)

- Now, the Drag and drop activity is ready, and the button Save and Display can be pressed to switch to the Interactive mode.
- Run the activity, solve it, and press the button Check to see a report displayed at the bottom of the slide (Fig. 25).
Fig. 25. Drag and Drop. The appearance after solving the activity and pressing the Check button

⇒ Drag the Words

This activity is similar to Fill in the Blanks, with the difference that it offers a list of words from which the student can pick up the words to place into the blanks of the statement. Editing is very simple.

⇒ In the Text* field, input the statement (Fig. 26).

⇒ The words you want to be cut from the text and placed in the list of words will be created automatically if it is place between asterisks (*). In the place of the marked words in the statement, blank boxes will be created (Fig. 27).

Fig. 26. Drag the Words. Editing the statement and editing the missing words
VALIDATION OF PLANNED REQUIREMENTS

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Fig. 27. Drag the Words. The appearance in the Interactive content mode

➔ The button Check is added automatically. Press it to display a report on the result at the bottom of the slide (Fig. 28).

Fig. 28. Drag the Words. The appearance after solving and pressing the Check button

➔ Mark the Words

This is a quiz that asks the students to review a list of words and mark those that meet a specified criterion.

➔ To edit the activity, in the field Task description* type the criterion for the selection of the words in the list.

➔ Edit the list of words in the field Textfield*, and place the correct words, namely those that have to be selected, between asterisks (Fig. 29).
Fig. 29. Mark the Words. Editing the activity and emphasizing the correct words

→ Solve the quiz and press the Check button (the button is added automatically) to see the screen looking like in the picture below (Fig. 30).
Assessment

In the following list, click all the Codes that point to technological functions.

G04, M06, F12, G40, G54, F100, G73, G91, S4150, G17.

Fig. 30. Mark the Words. The appearance after solving and pressing the Check button

→ Depending on the size of each Mark the Words activity, several such objects can be placed on the same slide.
General settings that apply to all types of assessment activities

By the end of the editing of any quiz type some general settings can be applied.

→ **Score Range**

You can define several ranges that quantify the level of success. For each range you can link feedback to be displayed after solving the quiz and pressing the Check button (Fig. 31 and Fig. 32).

**Sample 1**

![Score Range](image)

**Assessment**

Please fill in the missing words:

The qualitative relationship between MCS and PCS is given by the direction and orientation of the axes in the two Cs.

The quantitative relationship between the two Cs is established by the user, in terms of the effects of PD reported to MCS.

Several PDs can be set and stored behind G64 - G68 codes. While running the CNC program one can select between the PDs stored, according to the needs.

Passed

![Figure 31](image)

**Fig. 31. Setting up the Score ranges and the appearance after pressing the Check button**

![Assessment](image)

**Assessment**

Please select the correct answer in the following Single Choice Sets

Correct joint
![Figure 32](image)

**Fig. 32. Setting up the Score ranges and the appearance after pressing the Check button**
The Summary slide

If desired, a Summary slide can be added at the end of the Interactive Assessment. This slide is automatically generated and displays a general report on the results of the assessment.

In the Settings mode, open the Behaviour settings at the bottom of the page of the interactive assessment and uncheck Hide Summary Slide.

It is also important to hide the Retry and Show Solutions buttons on the Summary slide: uncheck the relevant checkboxes in the summary slide (Fig. 33). If you do not do this, the students would have the possibility to view first the solutions, and then solve the assessment, or to perform multiple attempts to solve the assessment, until the result is acceptable.

Fig. 33. Setting up the Behaviour settings for the Summary slide
Examples of assessment activities embedded in the Interactive Assessment

In the figures below some examples of slides are presented. The Cover, Overview, Summary, and slides that display different assessment activities illustrate their appearance on the screen in Interactive content mode, namely as they are seen by the students.

**The cover**

![Fig. 34. The Cover slide](image)
The Overview

This resource is a Summative assessment one

The goal of this assessment is to give a general appreciation of the level of knowledge acquired by the student at the end of the course.

The report at the end of the assessment can be used for grading the student.

The students are asked to solve several types of assessment issues: Single-choice set, Multiple choice set, Fill in the blanks, True/False.

Some problems are accompanied by images or videos. Watch them carefully!

Fig. 35. The Overview slide
Fill in the Blanks

Please fill in the missing words:

The __________ relationship between MCS and PCS is given by the __________ and orientation of the axes in the two CSs.

The quantitative __________ between the two CSs is established by the user, in terms of the __________ of PD reported to MCS.

Several **PDs** can be set and stored behind __________ __________ codes. While running the CNC program, one can __________ between the **PDs** stored, according to the needs.

**Check**

---

*Fig. 36. The Fill in the Blanks slide*
Simple Choice Set

Please select the correct answer in the following **Single Choice Sets**

What does **MCS** stand for?

- Machine coordinate system
- Motion control system
- Manual coordinate system
- Manual control system

**Fig. 37. The Simple Choice set slide**
Multiple Choice

Please select the correct answers in the following **Multiple Choice**

Which of the following are CS used in CNC?

- [ ] Machine Coordinate System
- [ ] World Coordinate System
- [ ] Part Coordinate system
- [ ] User Coordinate system

**Fig. 38. The Multiple Choice slide**
True/False Question

Please select for each of the statements below the correct option (True or False)

There is certain relationship between MCS and PCS

[True ✔️] [False ☐]

You got 1 of 1 points

[1/1 ★★★★]

The Part Datum must be set up after the CNC program is run

[False ✔️] [True ☐]

You got 1 of 1 points

[1/1 ★★★★]

Fig. 39. The True/False Question slide
Drag and Drop

Drag the labels to the appropriate place on the picture

Fig. 40. The Drag and Drop slide, sample 1
Fig. 40. The Drag and Drop slide, sample 2
Drag the Words

In CNC there are used at least two systems. There is a close relationship between them. The relationship between them is defined by the direction and of the axes in the two systems. The quantitative relationship is defined by the .

Check

Fig. 41. The Drag the Words slide
Mark the Words

In the following list, click all the **Codes** that are logical functions.

G04, M06, T12, G40, G54, F100, G73, G91, S4150, G17.

3/3

In the following list, click all the **G Codes** that belong to the group that controls the **tool radius compensation**

G04, G40, G28, G03, G42, G92, G41, G54, G17.

3/3

---

Fig. 42. The Mark the Words slide
The Summary

Summary

You have stepped through an assessment.

In the next slide, you will find a report on your assessment.

The red encircled ratio (see the picture) in the next slide represents your **overall success percentage**.

By pressing the two buttons at the bottom of the next page you can either view the correct answers, or run again the assessment.

**Note:** the picture next to it is just a sample, with no connection to your results.

---

*Fig. 43. The Summary slide*
The Summary (the general result of the Assessment)

<table>
<thead>
<tr>
<th>Slide</th>
<th>Score / Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slide 3: Single choice quiz</td>
<td>5/5</td>
</tr>
<tr>
<td>Slide 4: Untitled Multiple Choice</td>
<td>2/2</td>
</tr>
<tr>
<td>Slide 5: Untitled Single Choice Set</td>
<td>9/10</td>
</tr>
<tr>
<td>Slide 6: Untitled Drag the Words</td>
<td>5/5</td>
</tr>
<tr>
<td>Slide 7: Untitled Drag the Words</td>
<td>8/8</td>
</tr>
<tr>
<td>Slide 9: Untitled Multiple Choice</td>
<td>2/2</td>
</tr>
<tr>
<td>Slide 10: Untitled Multiple Choice</td>
<td>4/4</td>
</tr>
<tr>
<td>Slide 11: Untitled Multiple Choice</td>
<td>2/2</td>
</tr>
</tbody>
</table>

Total Score: 90/100

Fig. 43. The Summary (total score) slide