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Done-IT

Develop of open systems services for smartphones that facilitates new evaluation methods, and enhances use of immediate feedback on evaluation results obtained in tests as a creative learning tool.

WP 8: Developing evaluation system for 4 Operative System platforms for Smartphones

D 8.1: Done-IT user manuals

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Part 1
Teacher client user manual

Peer Learning Assessment System for mobile devices

PeLe

Pele user manual

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Overview

Pele is a web based Peer Learning Assessment System for mobile devices (Pele), designed to make the assessments and arena for learning.

Assessments are normally given periodically to determine at a particular point in time what students know and don't know. Assessments are used to provide the teacher and the students with feedback. Quite often the results from a test, is given 1-2 weeks after the performance, and the information back to the student may be everything from ok or not, approved or not, a grade or a solution. These kinds of assessment are normally referred to as **summative assessments**. In contrast, **formative assessments** are assessments done as a part of the instructional process. While summative assessments are associated with standardized tests and exams, the formative tests are designed to give students feedback and guide the students towards the learning goals. Although formative assessment strategies appear in a variety of formats, there are some distinct ways to distinguish them from summative assessments. One criterion for a formal assessment is that students are involved as assessors of their own learning and as resources to other students. Pele allows running both summative and formative tests.

Figure 1 Todays challenge, large groups of students in a huge hall, taking their final exam. Are the results from the exam the only feedback they get during the course?

In Pele you don't have to enter the questions into the system. It is assumed that you have created an assessment on paper, where there are multiple alternatives for each question. Handing out a paper with the task makes this possible without any limitations of the question by the system. You can then design the multiple choice test as you want, using your favorite editor and include equations, graphics or symbols at your own will. You distribute the assessment as a task on paper and the students work with the problems as usual. The only difference is that your students submit the results digitally. This allows you to start working with providing feedback on the assessment immediately after the assessment.

Pele has been designed to allow students to respond to tests electronically and hence allow the teacher to see what happens during the test and prepare for a Post Assessment Activity (PAA). When the students have given their response, the teacher can start to explain and use the students' results immediately. If a lot of students have struggled or there are many misunderstandings, the system has a build in Student Response System (SRS) that can be applied to give a second chance, create a group discussion or engage the students in a new response after giving some hints. The system has been designed as a tool to allow working with the problems addressed in the assessment, immediately after the when the problem is still fresh in mind. How the system is used is dependent upon the teacher and what he/she wants achieve.

Requirements

Access to WiFi Network

In order to be able to run Pele in the classroom you need a good coverage of a stable WiFi Network in the room. Students can log in using most kinds of web enabled devices like, iPod, iPad, iPhone, Android phones or computers. The only requirement is that the web browser is a webkit[1] based web browser. You find a short list of browsers in Table 1 below.

Table 1 The most common webkit enabled browser that we have tested. A more extensive list can be found online.[2]

Computer	Browser	Status
PC	Google Chrome	✔
	Safari	✔
Mac	Safari	✔
iOS	Safari	✔
Android	Dolphin	✔

Running on Windows

The system had been developed and tested mainly on windows. However, the air application can run on other operating systems that support the Adobe Air runtime.

We have intentionally kept the implemented application at a compatibility level that coincides with the last supported version for Linux. The support for Adobe Air on Linux has been dropped by Adobe in favor of mobile platforms, but they kept the support for Mac OS.

[1] **http://en.wikipedia.org/wiki/WebKit**

[2] **http://en.wikipedia.org/wiki/List_of_web_browsers#WebKit-based**

Running on Mac and Linux

The system needs further testing to optimally run on Mac OS and Linux. Even if the runtime at the base is smoothing out the differences between the platforms there are still issues with certain features.

In some instances we have encountered problems with the way transparent windows are treated. Moreover there are differences between the operating systems in the way they treat the always on top windows.

Starting up and log in

When Pele has been installed you start by double clicking the Pele icon. Then the application starts and displays the login panel. By default the login panel will show no connection information. After the first log in, the information entered last time and that it has been used successfully will be preloaded in the login form. There are two way to enter the connection information. First way is the manual entry of the server details, suitable when you have been provided with these at registration. Second approach is to use username@institution_id in the username box. The available institutions will be shown in an autocomplete list that will allow the user to avoid any typos. The application will automatically seek and fetch the connection information for the given institution id using the designated zero configuration directory. Here you have to give you username and password and press ok.

Figure 2 The login Panel, where the user has to provide username and password in order to access the server.

You can chose to "Remember password" and the system will remember till the next login on the same computer. The username and server configuration will automatically be remembered.

If there for any reason is an error, either that you username or password is wrong, the system will notify you with a sound and message in the login panel. Check your username and password again.

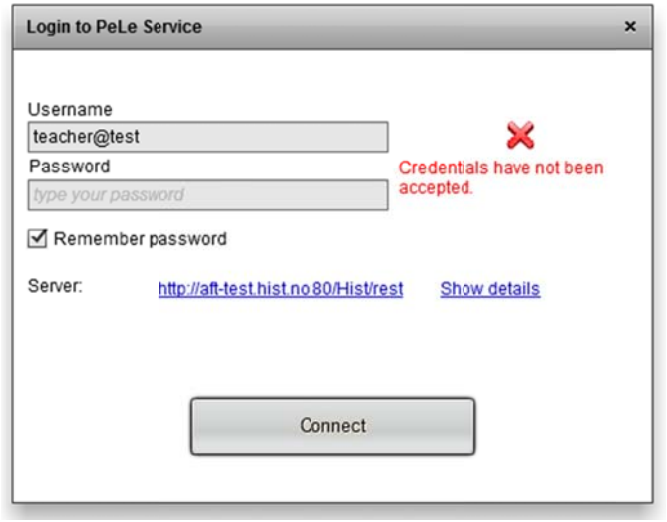
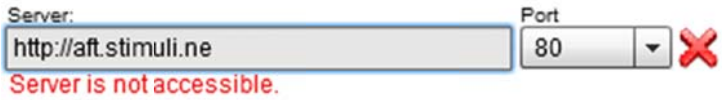


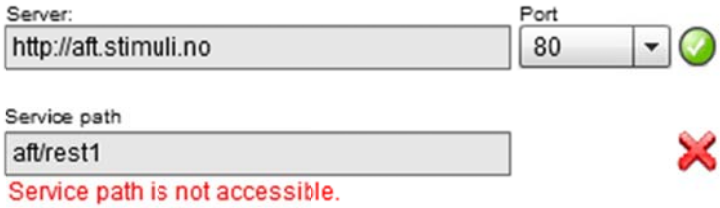
Figure 3 Username or the associated password is not accepted.

If you have to change the server, click on "Show details" and the login panel will expand with the additional server settings, and you can change the server and the path to the server.

If you insert an invalid web address to the server, the system will notify you that the server can't be reached.



If the service address is wrong, but the server responds with a message that the service path is not accessible. You then have to change the settings to correct settings.



Getting access

The users can register using either the mobile client or the portal page. These are available at the desired server (e.g. http://aft-test.hist.no/Hist/). After registration an administrator must assign the teacher role to the newly registered user in order to give him the teacher rights.

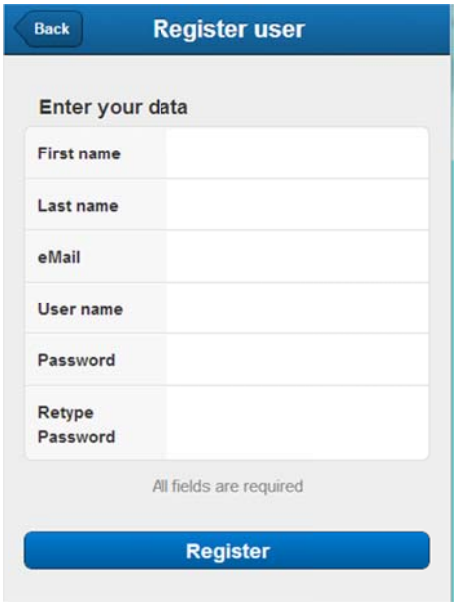


Figure 4 Registration form from the mobile app – use the link to the app

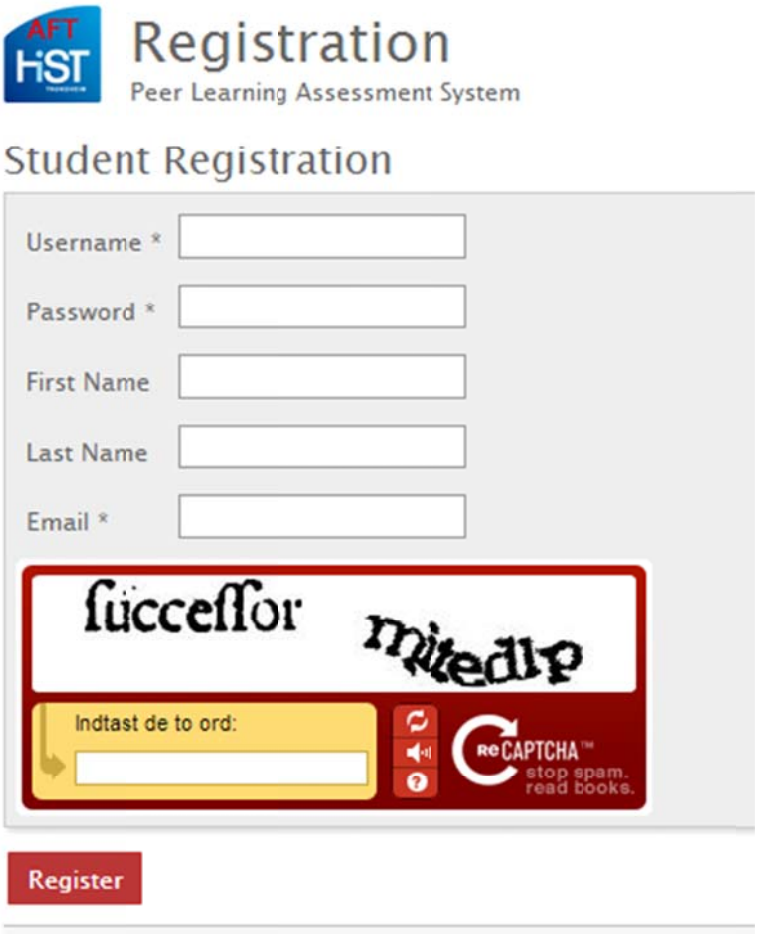


Figure 5 Registration form from the portal - use the link to the registration

General information

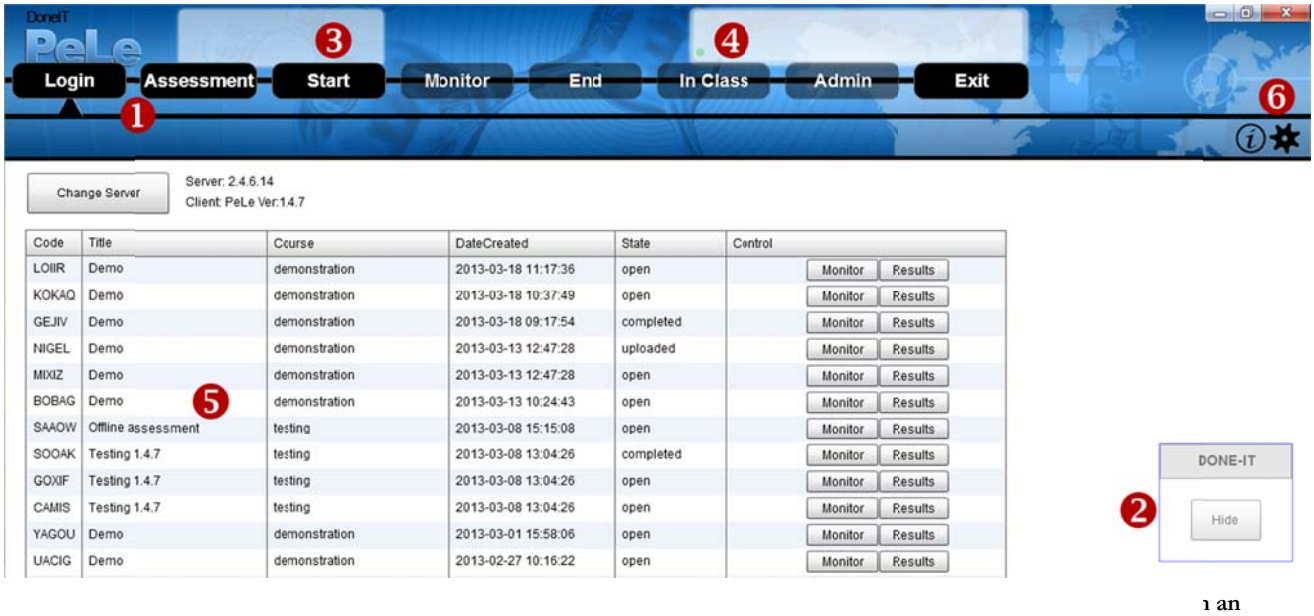
When you have been granted access to the system, you will be provided with the main Pele interface. This is a **menu bar** that displays the normal linear flow in the way you will use the system. The black buttons will change and a pointer will point at the location where you are in the workflow. The flow is as follows: When you have logged in, you are in the Login area.

Figure 6 shows the menu bar with session code placeholder and communication status area.

Then you move right to the assessment where you can create a new assessment. When the assessment is created, you start and move to monitoring of the assessment. When the assessmentis finished, it has to be ended, and when you are ready you go "in Class" with the results and start working through the results with the students. Then you have an Administrator area and an Exit button.

Above the menu buttons, you find two light areas, used to display the session code to the left and communication status to the right. When you have uploaded you assessment to the server, you get a session code in return from the server that will be displayed.

Below the menu bar you have a work area and down in the right corner you find a control button. This control button will always stay on top if you move to another program. If you have your questions on a powerPoint for later work in the classroom, you can hide Pele and move to



PowerPoint, but the control button will remain on top of you programs. Pressing it, will reveal Pele again.

On the login interface, a list of you previous assessments that is stored on the server.

Create an assessment in Pele

When we create an assessment in Pele we have to setup a document, which resemble the actual assessment that you give out on paper. We have to feed the system with the number of questions, alternatives and what alternative is correct.

Create a new assessment

When you want to create a new assessment, move to *Assessment* and click *Create*. Then the first step of the "*create assessment"* wizard will appear.

Assessment metadata

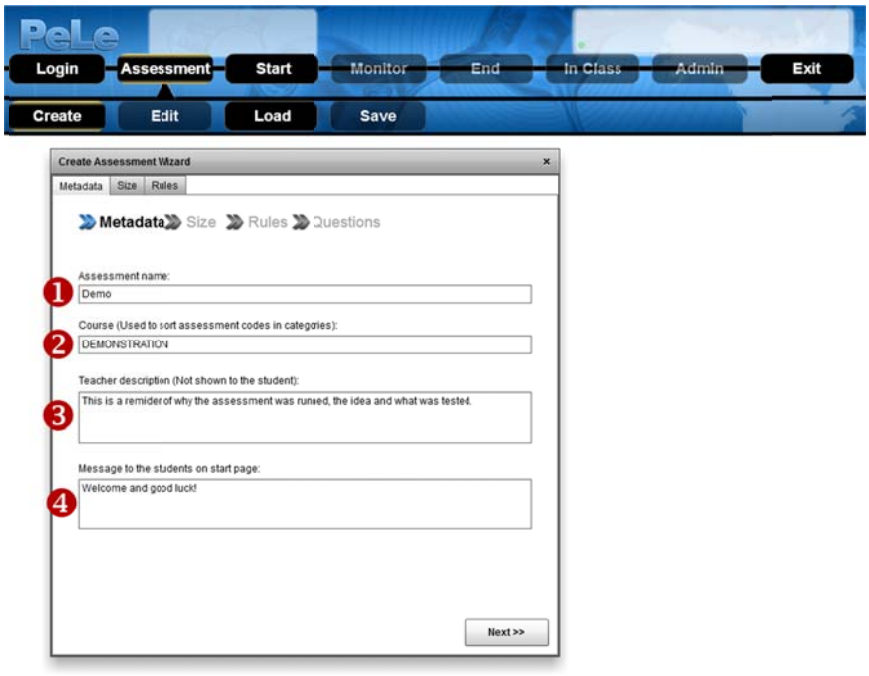


Figure 8 shows step one of the create assessment wizard where you enter metadata.

The first step is to insert metadata about the assessment. ❶ The name of the assessment, the Course name ❷, a note area ❸ where you as a teacher can write what you want, and a last message that will be displayed on the students when they start the assessment❹. Then you move to the next step.

Assessment size

In the second step you give an approximate setting of the assessment size.

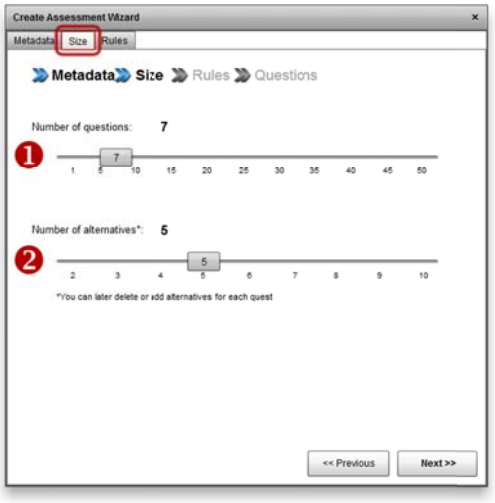


Figure 9 shows step two of the create assessment wizard, where you define the size of the assessment.

First you give the number of questions ❶, by pulling the slider to the correct position. The maximum number of questions are 50. Then you select the average number of alternatives by pulling the second slider ❷. You can later add questions and change the number of alternatives on each question individually. Then you select next step.

Rules

The system will need some rules to calculate the score from the assessment. In the third step, shown in Figure 10, you set the **general rules** for how the score are given on general for the assessment. These rules can again be changed on each individual question separately later. *Allow bleeding* ❶ is an option you can use if you allow more than one correct alternative and you use punishment (negative score) for wrong answer. If you don't use negative score, this bleeding is not relevant. In most normal cases you can leave this unselected. *Unlimited choices* ❷ allow you to allow the students to select more than one alternative on each question. You can also leave this unchecked. *Correct choice* ❸ sets the general score for a correct answer. The default value is one, but you can change this if you want to give more for a correct answer. *Wrong choice* ❹ gives you the default score by selecting a wrong alternative. *No choice* ❺ allows you to select the score given if no response is given. If you now press next, we will start editing the created assessment.

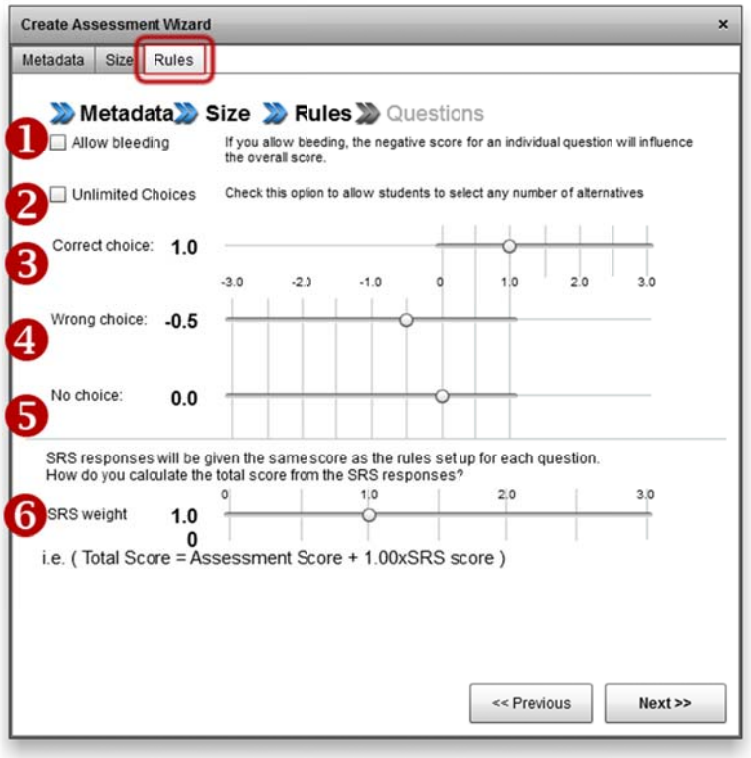


Figure 10 shows step tree of create assessment wizard, where you define the general rules.

The final part is to give the weight to the srs questions ❻. When the assessment is done and if you want to you can give additional points to the responses given by SRS. If you don't want the srs part to count, you will set SRS weight to 0.0. If you want to give them something you might give a weight of 0.5 on the srs results. The score from the srs section is added to the default assessment section and given in the final results.

Editing the assessment

When you have finished the create assessment wizard, you get a created assessment that needs work. You have to specify the correct number of alternatives, the correct alternatives and fine tune you score settings. The overall picture is shown in the figure below. The main area consists of two tabs❶ where you can see your questions or can check or change the metadata. There is a rules area❷ where the default rules that you selected are shown and where you can still alter the values. The questions❸ are aligned vertical in a table where you can change each individual question. You can append a question at the end ❹. The maximum and minimum score are calculated and displayed ❺ in the overall score area. If you want to, you can also simulate a scenario with these settings and see how the score distribution looks like if everyone is just guessing❻. More about simulating the assessment and the Monkey cage you will find later in Appendix A.

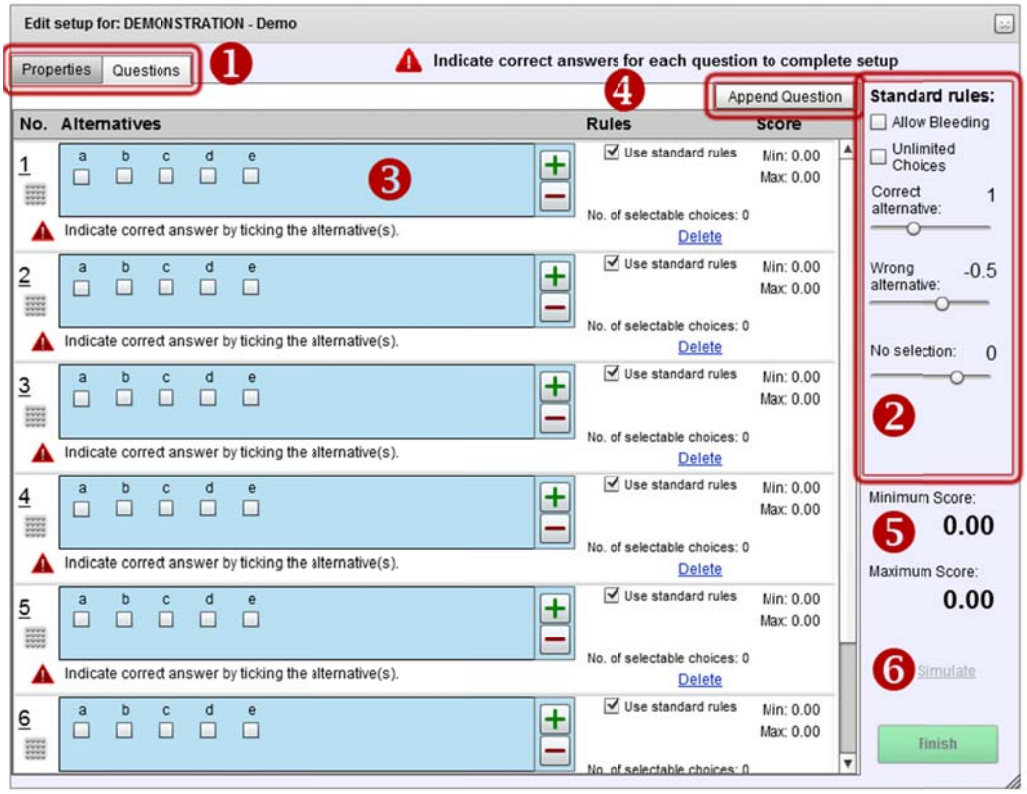


Figure 11 shows the main areas of the edit assessment interface

In each questions you have several options that you can use to change the setup of the question.

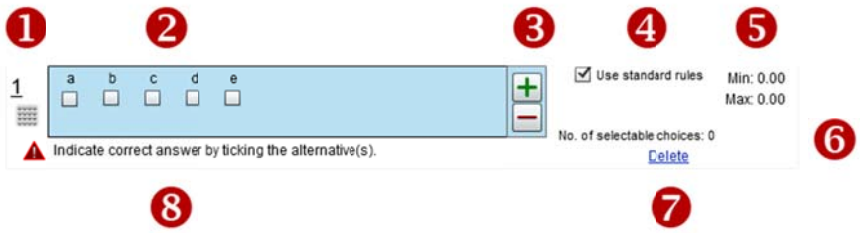


Figure 12 shows details of how you can edit each individual question.

❶ shows the question number. The correct alternative can be selected ❷, and you can allow more than one question to be correct. If you need to add or remove an alternative ❸, just click + or – as you want to. You can override the standard rules ❹ and adjust the score for each alternative as you want to. Min and max gives you the possible minimum and maximum score for this question ❺. ❻

displays the number of choices the students are allowed to select. You can delete this question ❼, by pressing delete. If no options are selected you are given a warning ❽.

Now we can start specifying each question and finalize the assessment setup. The questions are arranged sequentially downwards and we can select the right alternative by just checking the correct alternative. If questions one has one correct alternative c, you check alternative c. You can notice how the score adds up and change as you select correct alternatives. Then we move on to question 2 and select alternative d, on 3 we have alternative b and d.

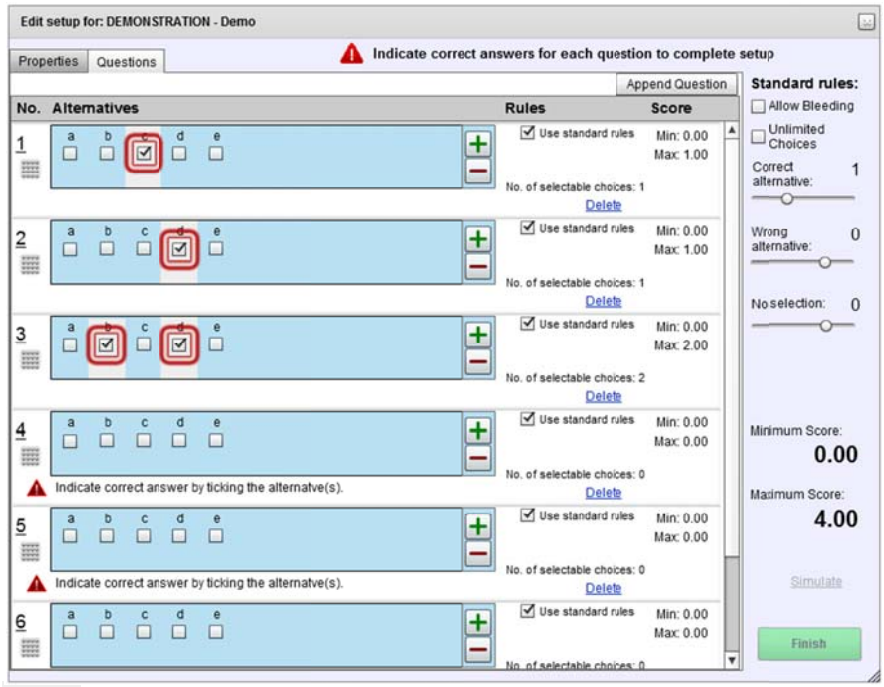


Figure 13 show the edit assessment interface after selecting correct alternatives on tree questions. Note how question 3 has two correct alternatives.

If we uncheck use standard rules you can see the score settings. On question 3, if for a reason alternative d is more correct that b, you can give the weight here to 1.5 and the total score on this question can now add up to 2.5.

Figure 14 show details on question tree when we overrule the standard rules with new score.

If you use negative score for wrong answer this might end up to a negative score in total, if both selected alternatives are wrong. If you want the score to be negative from this question, you have to check *bleed*.

Figure 15 show details where we have selected negative scores on wrong alternatives, and where bleeding is allowed. Notice how the minimum score on this question can now be negative.

By default, you students will not be able to select more than the correct number of alternatives. If you want your students to be able to select as many as possible, up to all, you can do that by checking the *Unlimited choices*. This will give the students the possibility to select them all. Think carefully before you allow this one and consider using the negative score.

Save assessment setup to file

You can save the assessment by pressing save button in the main navigation bar, below Assessment, so you can reload the assessment document later. Notice that the save button is disabled if you have no assessment document setup in memory.

Figure 16 shows the menu with the save button under Assessment.

When your assessment has at least one correct alternative for each question, the finish button lights up and you can run the assessment by pressing finish. When you are finished, press the finish button and the application will move start uploading the assessment to the server.

Uploading an assessment to the server

When your assessment document is set up and the system has no indication about an obvious fault in the setup, you are allowed to upload the assessment to the server.

Figure 17 shows the start upload assessment document to server button.

If you don't have any setup ready this will not be enabled. If you forget to set the correct alternative to a question this will appear on start

Figure 18 shows the start interface if the assessment is not completely set up.

If you try to start without any prepared assessment, you will get the message as shown in Figure 19 below.

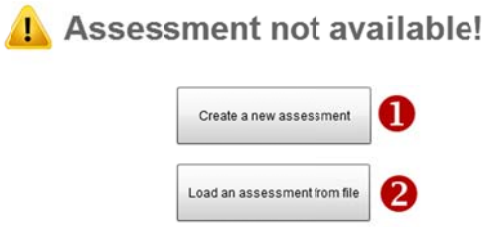


Figure 19 shows the start page when no document is prepared.

You then have to option to ❶ create a new assessment or ❷ load an assessment from file.

Monitoring of assessments in Pele

When you have uploaded the assessment to the server, you will be given an assessment code that is displayed on top of your screen❶. Then the application move to the monitoring stage. Monitoring is done on individual candidates and on individual questions in two different views. The monitoring matrix shows the student oriented list of the results sendt.

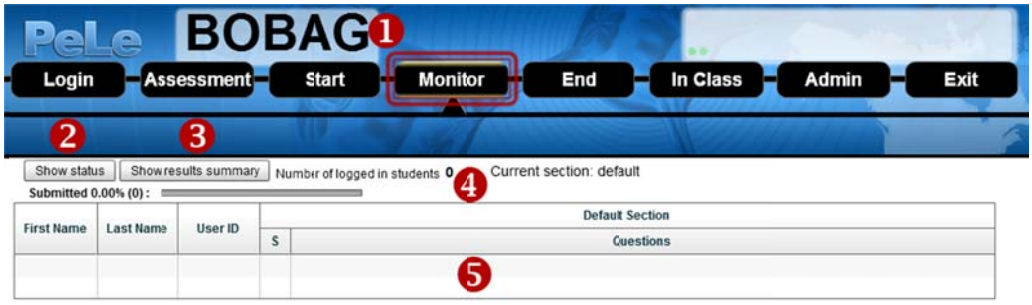


Figure 20 shows the monitor interface with the retrieved session code.

Now you can monitor your students as they login and respond to the assessment. The first page of the monitor interface contains a student oriented view with their delivery❺. If you press *Show results summary* ❸, you will get an overview of the submitted responses oriented towards each question.

As students log in they will appear in this list with small dots for each question that is not responded to. As they respond, the dots will grow to a small black square. You can turn on colors on these squares by pressing *Show status* ❷, and answers that are correct will be colored green and wrong answers will have a red color. By default the responses are indicated as neutral, since you should not show this to the students. If you keep the interface neural, you can show the login to the students and give them a feeling that technology is working and they are in the correct place, but this is recommended only in a first demonstration. Later the students trust the technology, they will not need it. You also get a count of how many students are logged inn and a percentage bar indicating how many of your students have submitted their answers❹.

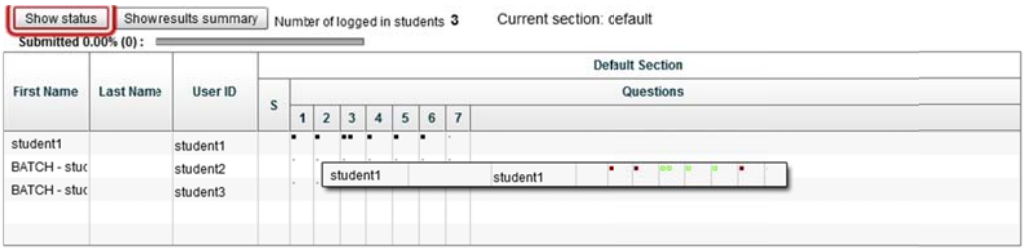


Figure 21 shows the student list with three students in. Only student 1 has responded to the first six questions.

You will be able to see if their responses are correct or wrong by clicking "Show status". Now each response will be colored red or green. When the results are shown you can switch back to Neutral view of the monitoring matrix.

If you chose "Show results summary" the view will change from student oriented to a question oriented list as shown in Figure 22 below. Here you find the questions oriented vertically ❶ with the number of correct, unanswered and wrong results ❷. The percentage bar ❸ shows the percentage correct in green, the percentage wrong in red and the percentage still unanswered in gray. The number o f marked questions is shown in a separate column ❹ and as a percentage bar ❺. You find more information about marks and how to use them in Appendix B.

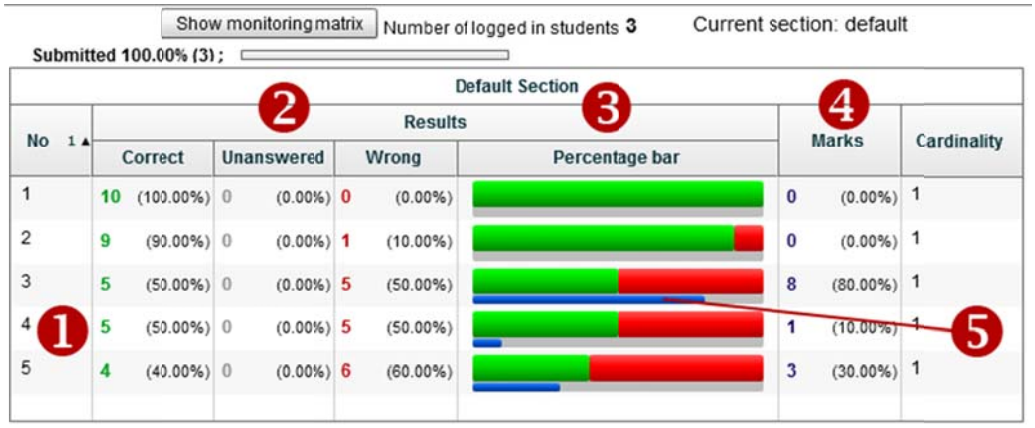


Figure 22 shows the question oriented monitoring interface.

When you click on a question you immediately get a histogram of the results for the selected question. This histogram and the monitoring data will update as the results appear.

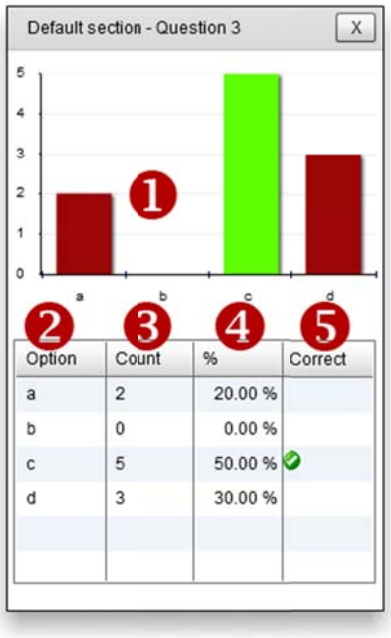


Figure 23 shows the histogram ❶ for the selected question with the table showing the option ❷, the number of students who have selected the option ❸, the percent of students who have selected the option ❹, and a flag telling if the option was set to be the correct answer ❺.

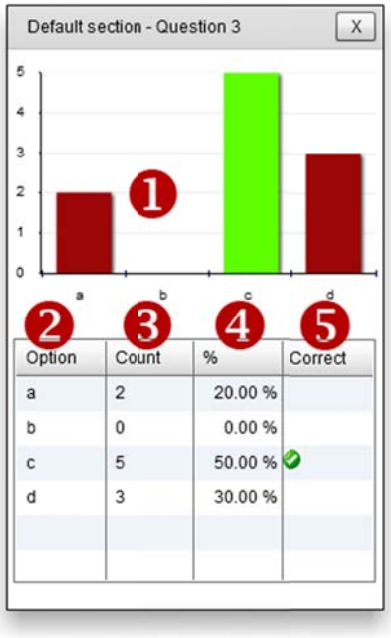
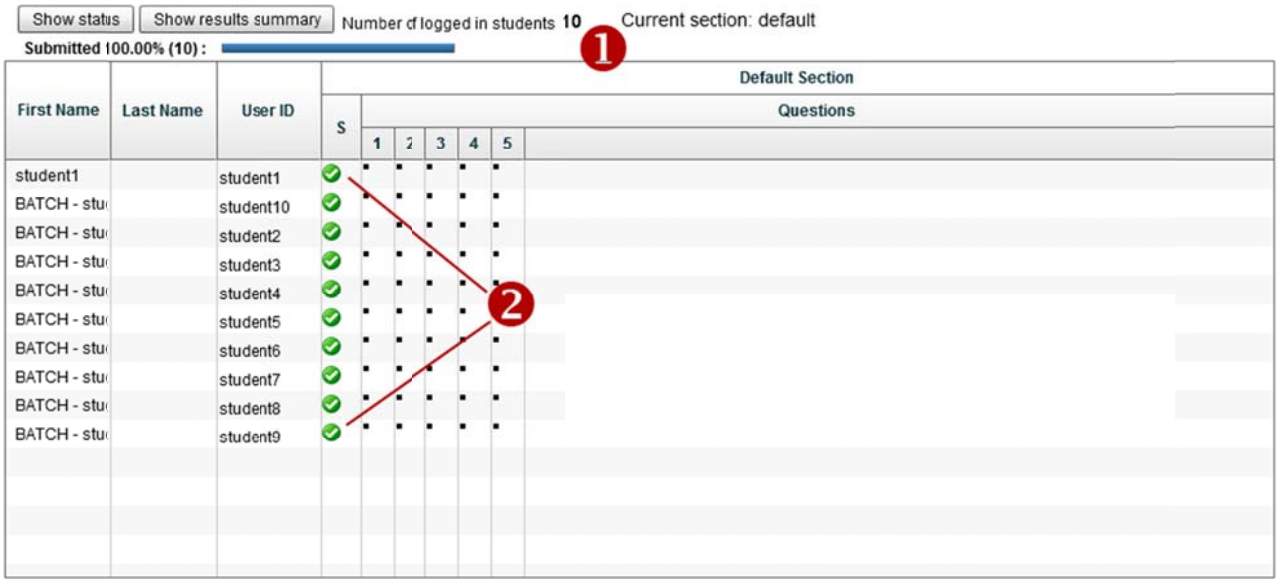


Figure 23 shows the monitored question with the histogram for one question

When the students have filled inn all their results they have to submit their responses. To do that, they have to go and deliberately submit. Figure 24 shows the interface where the number of



students that have submitted is displayed. On top ❶ you see the number of students that have logged in and the number of students that have submitted. The blue bar shows the percentage of students that have submitted. You can also see on each student, whether they have submitted or not ❷. By clicking on the S column you can have those submitted sorted on top or at the bottom. When all you students have submitted their responses, it's time to close the default section assessment, and start preparing for the post assessment activity.

Ending the assessment

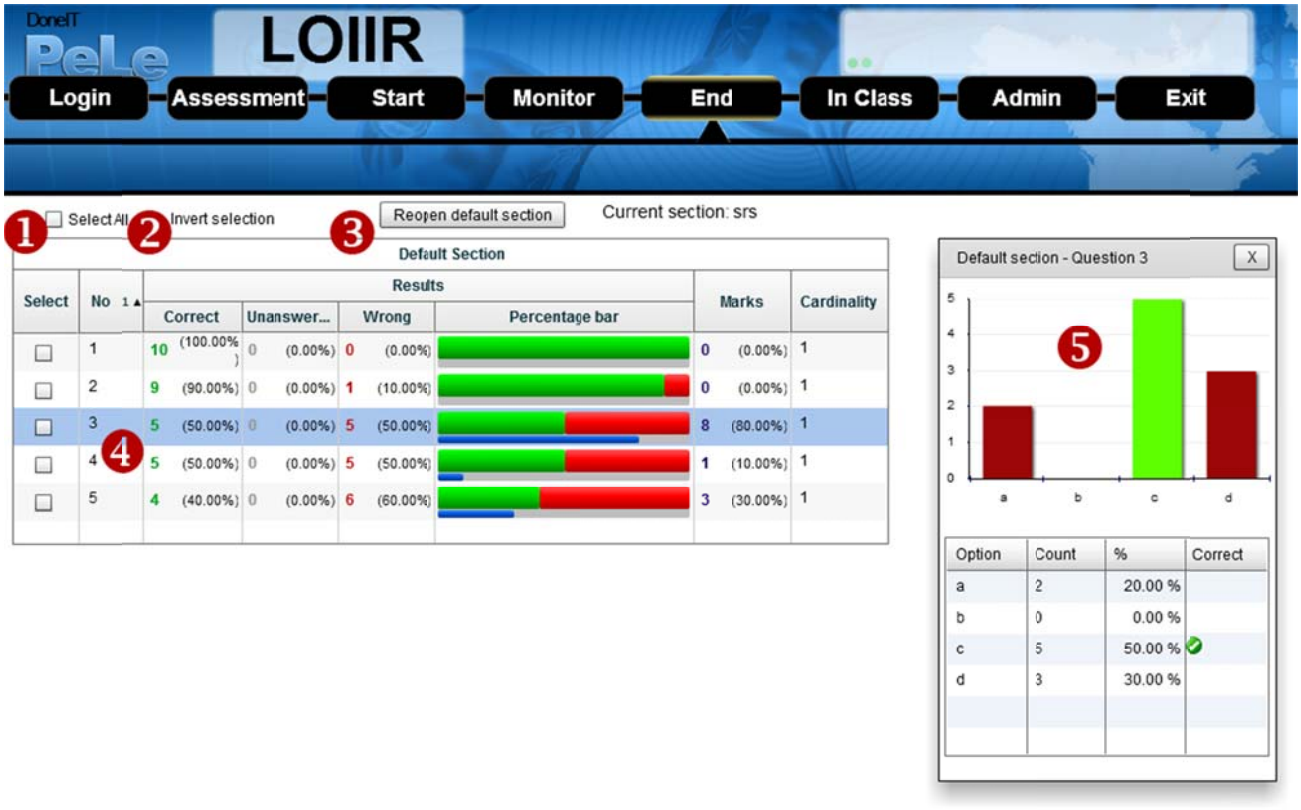
When all students have submitted you can now close the assessment. To do that, move to the end monitoring stage by pressing the End button as shown in Figure 25 below.

Figure 25 shows the menu bar and the location of the end button.

Then the end button will appear with a warning.

Figure 26 shows the end button with the warning.

Pressing STOP will close the assessment and no student will be able to respond to the assessment. A new interface with the results focusing on the questions will appear as shown in Figure 27 below. Here it fits nice to give the students a short break so you can consider the results.



Now it's time to consider the responses that you students have provided and start planning the Post Assessment Activity. You have to select those questions you want to bring into the PAA. When

you have only a few questions you can bring them all by selecting Select all ❶. You can also select manually ❹ each individual or you can invert the selection ❷. If you want to, you can reopen the assessment again and go back to monitoring here. When you select one row in the responses ❹ a histogram showing the actual responses will appear ❺. In the example shown Figure 27 you have to balance the time you have got with how many questions you want to go through. Question one appears to be understood and a quick positive can be enough. Question 2 is answered wrong by one student, but question 3 has 50% errors and is marked by 80% of the students. You should spend time on the last three questions. But since the number of questions were few, you could bring them all into the classroom. What you should do is dependent upon what you want to achieve with the PAA. As a teacher you know the assessment and the possible problems the students might have.

In class

When your results are ready you can start displaying results and work with their deliveries, it's time to gather the students again. If you want your students to learn something from this assessment, now is the time to put in the effort.

Running a Post Assessment Activity (PoAA)

When your students have delivered the results on the assessment and you as a teacher have the overview over their performance, it's time to start working with their results. You know what problems they have solved and what problems they haven't solved. Now you have a window of time to provide feedback and you can go over the results in a variety of ways, dependent on the information you have. Below you find a short guide giving you suggestions for how you can perform a PoAA based on the results you find. The method you chose, depend on your test, what you are testing and how you have designed your alternatives.

Choice of method guide

If we assume that we have only one correct alternative on all questions, we can start with the simplest case where all students have given the correct answer. Here you should give a short positive feedback.

If the results are scattered all over the place, this means that the class does not have a clue and probably are guessing. You have to consider if the question is bad formulated or anything else might be wrong of if they do not have any clue.

When you have your results, and you want the do a PoAA with the class you can use the response system build into Pele.

If the class is divided in two, this might be a good start to a group discussion where they argue against each other why one is correct over the other.

But it is important that you always give a final verification of what results are correct and why, and what results are wrong and why. Your explanation is highly valued.

Selecting questions to bring in Class

In the End page, you can select questions that you want to display in class. You can click and select one at a time ❶ or select them all ❷. If you have only a few questions, I would recommend that you select all. You can also invert the selection ❸. Notice as you make the selections, how new buttons appear up on the menu line ❹, where you select each question from later.

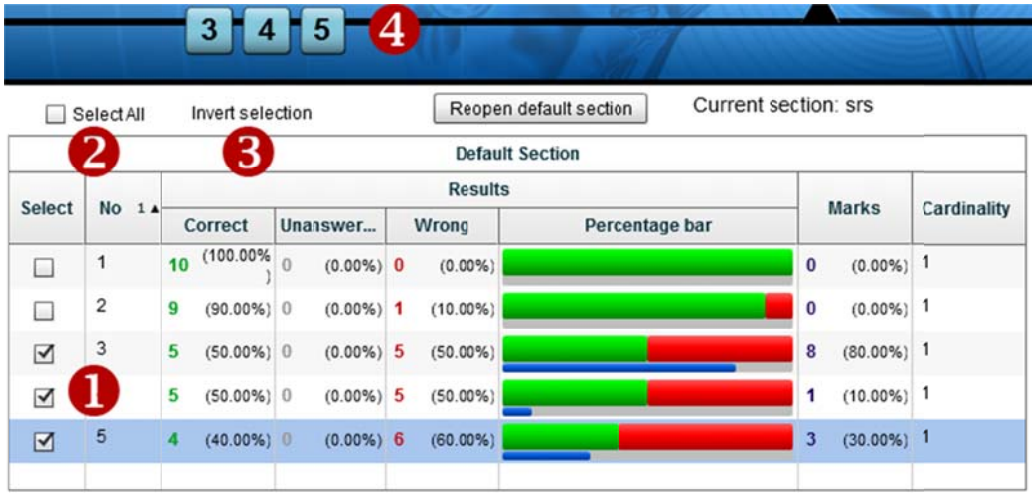


Figure 28 Selecting questions for an In Class sequence, manually ❶ or selecting all ❷. The figure also shows the selected questions appearing in the top ❹.

In class and display of results

When you move over to the in class page, you application turns transparent ❶. Now you can display the assessment ❷ as you display results. Now when you select the first question ❸ a question control panel appears ❹. From here you can select the form of chart or activity that you find suitable for each question.

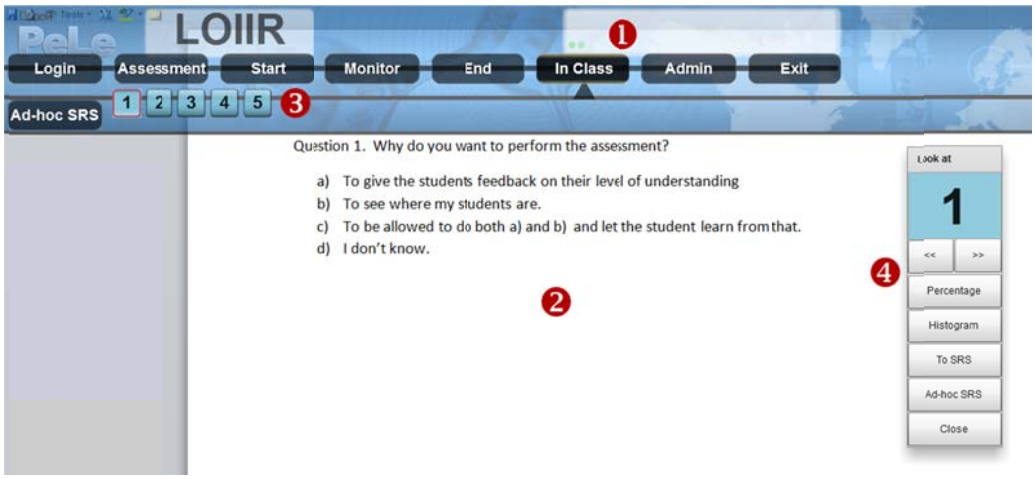


Figure 29 shows the In Class page with a word document containing the questions below ❷. When you select question 1 in the menu ❸ the question control panel appears ❹ where you can choose what to do with this questions.

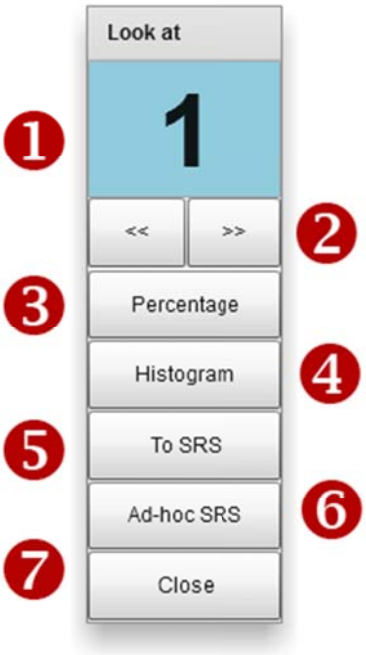


Figure 30 shows the question control panel.

The question control panel displays the main question number ❶. From this question you can navigate to the previous or next question ❷. For the selected question you can display a percentage chart ❸, a histogram ❹ as a way to display the results or chose not to display any results yet. You can also send out the question again after focusing on something that has been misunderstood in the question or for any other reason.

The percentage chart

Displaying the results as a percentage chart can be given to give some feedback but without revealing any pattern of what the students have chosen. This chart only shows what percentage chart has given a correct response ❶or a wrong response❷. The chart also displays how many students have chosen to mark this question in a percentage bar ❸. This bar can be used also from the students to remind the teacher that they have marked this question.

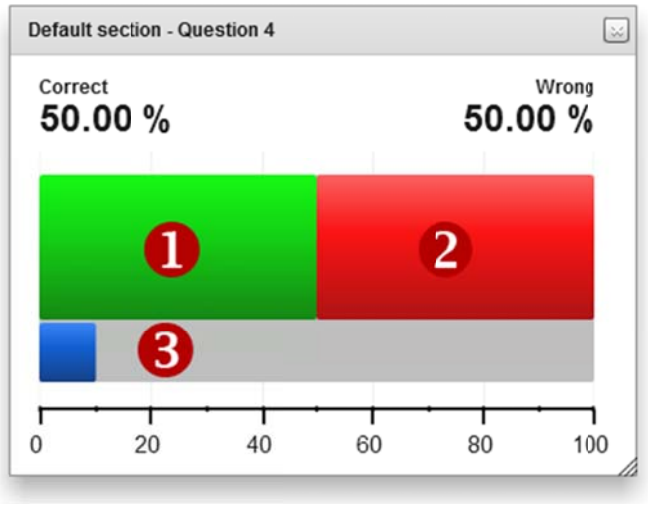


Figure 31 shows the percentage chart with percent correct❶, percent wrong ❷ and marks ❸on this question.

The histogram

When you select to display the histogram of what the students have chosen, no correct or wrong markings are displayed.

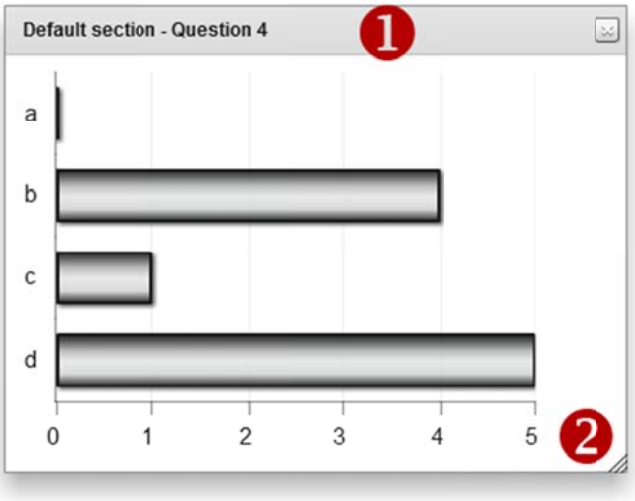


Figure 32 shows results from a question without any indication of what is wrong or correct.

The histogram can be scaled or moved as you wish on the screen. You move the dialog by dragging the panel title ❶ and scale using the scale handle in the lower right corner ❷.

Using the histogram you can mark questions as correct by clicking on the bar or in the area where the bar should be. If no one has selected alternative a as in the above result, you can still select to mark this as correct by clicking in the area where the bar should be. You can always remove the correct mark by clicking on the bar again.

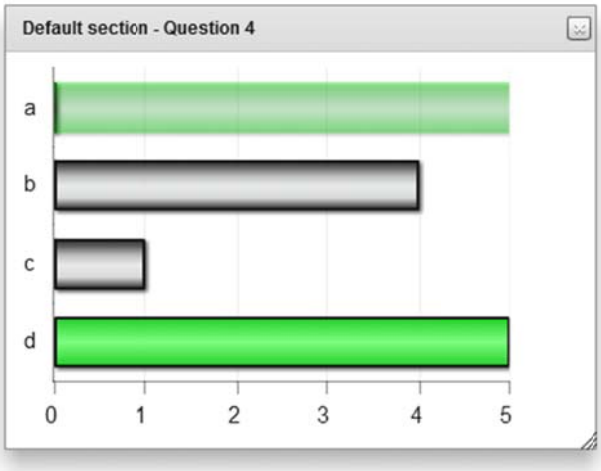


Figure 33 shows the histogram where alternative a) and d) has been marked as correct by clicking in the figure.

Sending back the question as SRS

What happens if you give students a hint, or if they are allowed to discuss the problem as small groups or in a class discussion? You can send the question out as an student response single question again. The system has the question configured and you only have to press Send SRS and the students will have the alternatives ready to vote again.

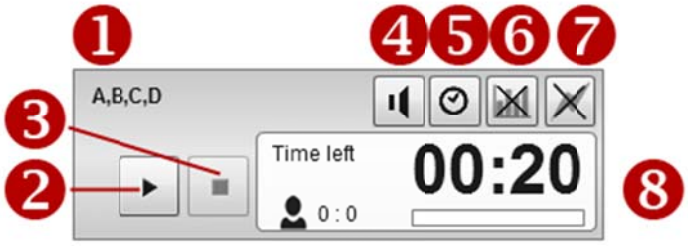
If you press Send SRS the play controller appears on your screen

Figure 34 shows the SRS play controller.

The SRS system has been preconfigured to request as many alternatives as the question you are working with. The only thing you have to consider is the amount of time given.

Working with the play controller

The play controller has many options and we will use some time to explain them. First of all you can notice how the label ❶ displays how many options are requested. Then you have the play button ❷ that will send out the question and change to a pause button when the vote is open. Pressing pause will pause the timer but your students will be able to submit results. If you press Stop ❸ the vote is closed and the students will no longer see the vote page.



The sound ❹ button allows you to turn sound from timer on or off. The timer button ❺ turns timer on or off, allows you to let the voting last until you close it with the stop button and not the timer. The next button ❻ lets you display results automatically when the voting is closed. Automatic results are by default disabled. Then finally at the end you have the chance to display results live❼, showing the histogram as the results are submitted by the students. In the information panel ❽ you see the timer time, how many of the registered student have submitted and a bar indicating the percentage of students that have voted. The two numbers a:b correspond

to a, the number of students that has logged in to you session and b, the number of students that given their response.

Adjusting timer time.

If you right click the timer icon❶ (on a digital blackboard click and hold) you get an extended part of the play controller where you are allowed to change the timer time. You then simply drag the slider ❷ and close the window ❸.

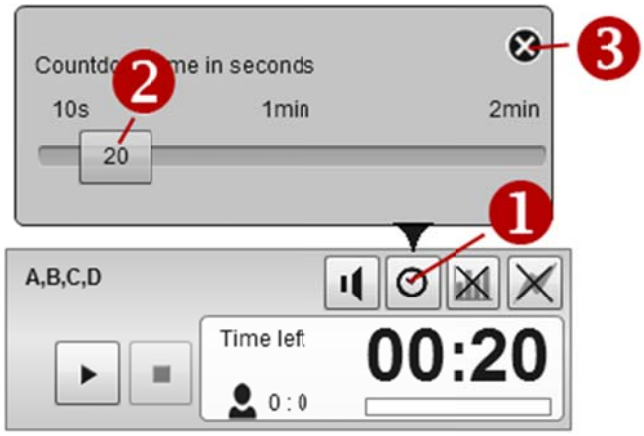


Figure 35 shows the timer adjustment panel that appears on right-click on timer option ❶

When you press play, the vote page will appear on the student's device and the students can respond to your question.

Figure 36 shows the play controller after having pressed run. 10 students are connected to the session and none of them have responded to the question yet.

The play controller gets less and your options are removed. If you use the timer, the vote will close after the countdown and the student page will close. If you want to pause the countdown, press pause and the timer will stop. The students can still give their responses. By pressing run, the countdown will continue.

Figure 37 shows the results from assessment question 1-5 and one SRS result.

Results from the SRS round will appear up together with the other results. SRS results are tagged with a SRS number and the assessment question number in light gray. You can get the results through clicking on the results button.

Ad-hoc SRS

If you want to ask a question, with a different setup from the assessment, you can run an ad-hoc SRS. This means that you have to set up the number of alternatives. Press ❶ to get the alternatives panel ❷. If you want more alternatives press "more" ❸ to get more alternatives or press "less"❹ if you want less alternatives again.

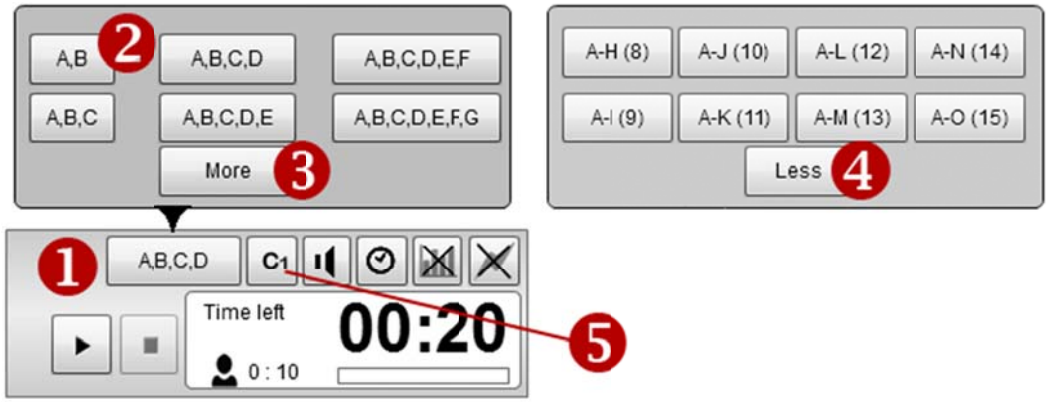


Figure 38 shows the play controller when running an ad-hoc SRS. ❶ display the number of alternatives that you can select, and ❺ allows you to have one selection or many selections on the student side.

In an ad-hoc SRS you also have to set the number of alternatives that the student can select. By default the student can select only one, but by pressing the cardinality button ❺ you can select to have unlimited number of selected items. This allows you to have "select only one alternative" or "select up to all alternatives". When you run the ad-hoc SRS , results appear as the other results , but without the reference to the assessment question.

Figure 39shows the assessment results from question 1-5, one SRS result based on question 1 (SRS 1) and one ad-hoc SRS item (SRS2).

Results

When the assessment with the Post-Assessment activity is finished, it's time to look at the results. You can look at the results from each individual user under Admin❶. By default no results will show up here. This is done deliberately so that you as a teacher can avoid by pressing this by a mistake and show the results to all students. You have select Show Results Table ❷.

You will however get a warning, to avoid any mistake, where you have to confirm that you do this action deliberately.

Figure 40shows the warning dialog when selecting to look at the individual results.

If you want the students to look at their individual score, you have to press "Show results to students" button❸. This will allow the students to see on their own device the score they got on the assessment and from the SRS section. You can from this interface export data as an excel file❹.

Appendix A Simulating an Assessment

When you design a multiple choice assessment, you want to have a feeling with how easy is it to do a pure guess and pass your assessment. Let's look at the possibility to simulate the outcome from an assessment and what you can learn from doing it. If I have an assessment with seven questions set up as below. I have one correct alternative on each question, except question 3 where I have rules that deviate from the standard setting. I have one question that bleeds to the total score.

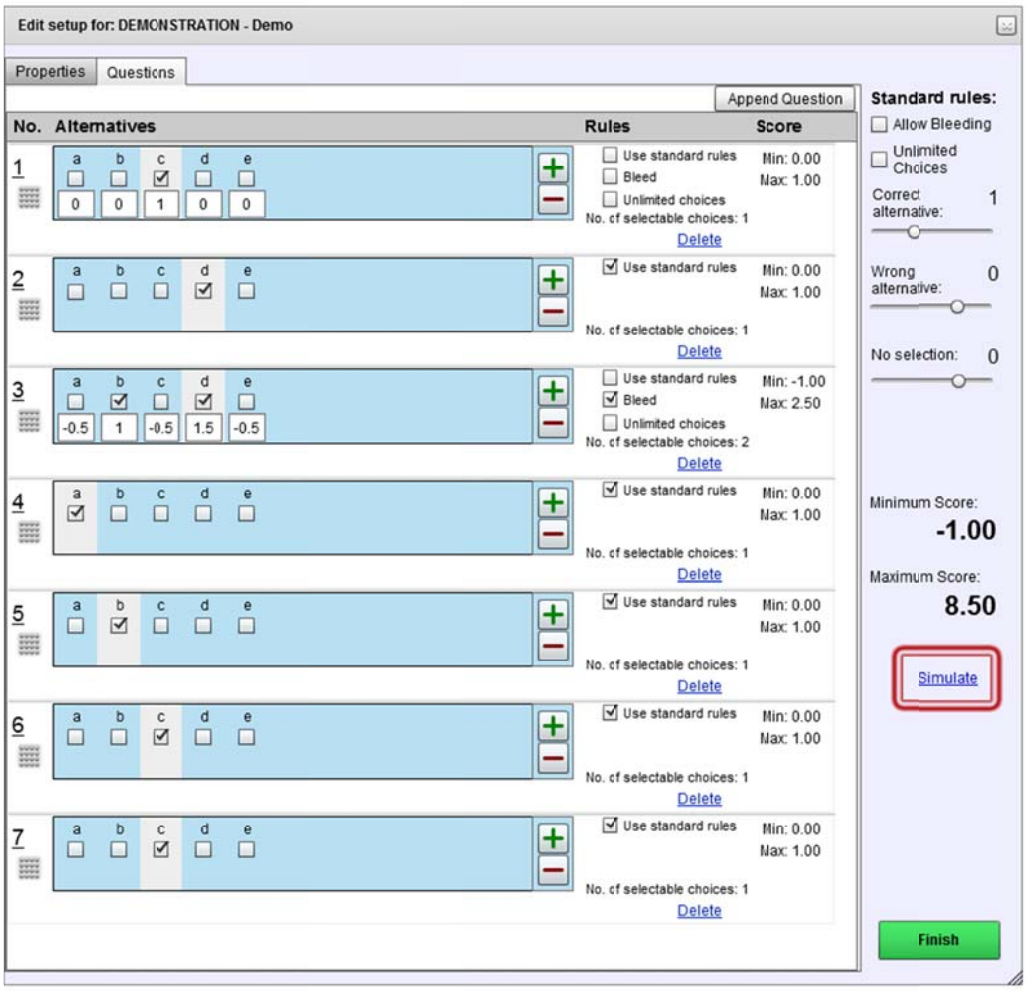


Figure 41 shows the edit assessment interface with a defined assessment and where you find the simulate button.

You can simulate a situation where a given number of students respond randomly to this assessment. Press the *simulate* link and the monkey cage control appears.

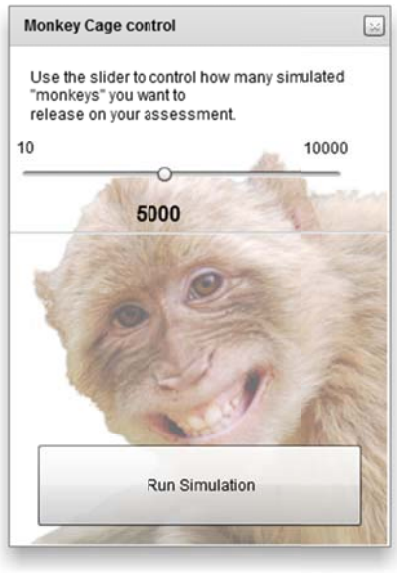


Figure 42 shows the monkey Cage control where you select the number of randomly filling inn your assessment.

Each question the response is randomly selected, as many as I am allowed to select. Assume that we release 5000 monkeys to this assessment. Then we press *Run Simulation*. You will now get a simulated outcome space of you assessment. ©

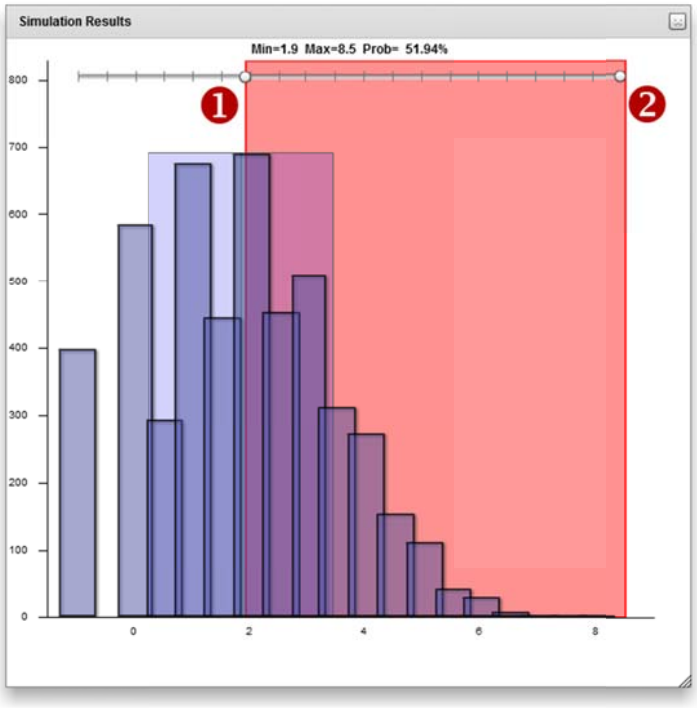


Figure 43 shows the simulation results with the slider where you can "measure" the probability of getting a score in the selected range.

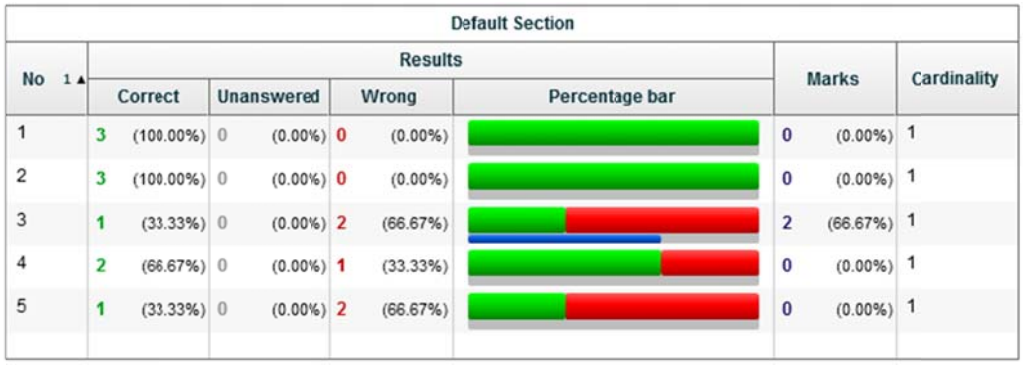
When you use the slider on top and move the lower limit up to 1.9 and the upper limit to max, you get the probability to get a score of 2 or more, by pure guessing. Remember that our students are smarter that monkeys and they will not do a pure guessing and hence this estimate is low. If you have one obvious wrong alternative, they can do a qualified guess and reach a quite good score.

Appendix B Marks in questions

The student page has an option where the student can mark the question. This can be used in many different ways. The most obvious way might be a digital reminder that "this question I have to take a second look at if I have time". The figure below shows the student interface, after the student has marked question three.

Figure 44 shows the student interface when question three has been marked. The question button on top is tagged with a flag and the number of marks that has been placed in the assessment is shown in the bottom menu.

Those questions that are marked will appear in you monitoring. The question monitoring interface has a column dedicated to the total amount of marks and a bar showing the percentage of students that has marked the question.



Default Section												
No 1 ▲	Results								Marks		Cardinality
	Correct		Unanswered		Wrong		Percentage bar				
1	3	(100.00%)	0	(0.00%)	0	(0.00%)			0	(0.00%)	1
2	3	(100.00%)	0	(0.00%)	0	(0.00%)			0	(0.00%)	1
3	1	(33.33%)	0	(0.00%)	2	(66.67%)			2	(66.67%)	1
4	2	(66.67%)	0	(0.00%)	1	(33.33%)			0	(0.00%)	1
5	1	(33.33%)	0	(0.00%)	2	(66.67%)			0	(0.00%)	1

Figure 45 shows the question monitoring interface with question 3 marked by two students.

If you as a teacher want to, you can use these flags as indicators. You might give your students the instruction:

- "Mark those questions that you find difficult, and I will place additional focus to questions that are marked."

- "Mark those questions that you find simple"

This allows you students to influence the post assessment activity. You as a teacher can also chose to ignore the marks.

Notice that marks does not show in the monitoring matrix. If a student want you to pay attention to a question, he or she should be able to do that without exposing themselves to the teacher. Marking is made anonymously.

Part 2
Mobile PeLe Service Unit User Manual

This project has been funded with support from the European Commission. This publication reflects the views only of the authors, and the Commission cannot be held responsible for any use, which may be made of the information contained therein.

Peer Learning Assessment System for mobile devices

PeLe

Mobile PeLe Service Unit User Manual

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Introduction

The MPSU was designed and configured to be easy as a "push of a button" for the end user. First connect the power cable, and push the start button. Wait 30 seconds for the MPSU to start and from your PC, laptop, tablet, smartphone etc. search and connect to the wireless network that MPSU is broadcasting.

The processing power of the MPSU can support, depending on the model, from 50 up to 250 users, but the main limitation is the capacity of the built-in wireless system. Being a modular system, it gives you the freedom to add your own existing networking hardware, so, depending on the size of the class, you may need additional wireless network routers/access points and if needed a network switch to scale up the wireless network capacity.

If you are using an external wireless router or access point, plug in the network cable into the WAN/Internet port of the wireless router and into the network port of the MPSU, wait a few seconds, then from your device connect to the wireless network.

Using the MPSU 1X/2X/4X

To start using PeLe with the MPSU 1X/2X/4X:

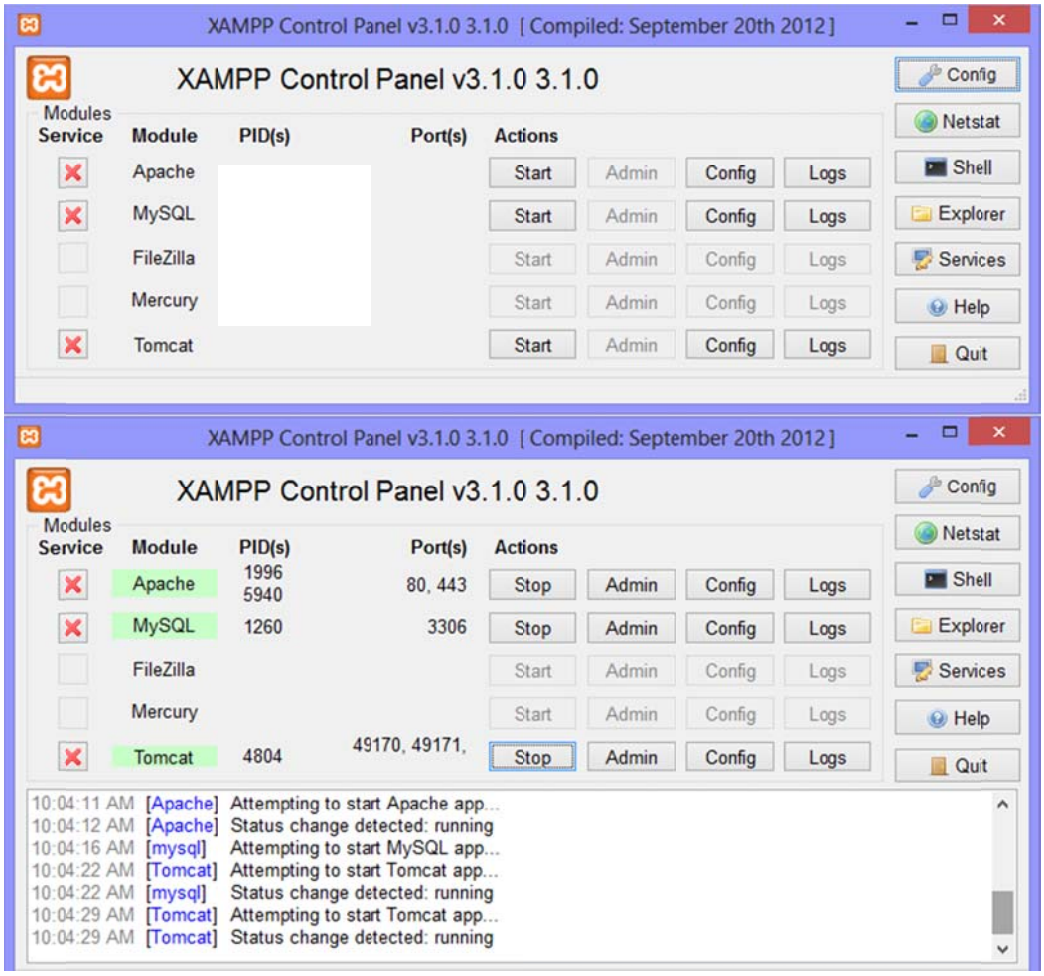
- Power on the MPSU and wait 30-60 seconds
- if you are using an additional wireless Ap or wireless router, connect the network cable between the MPSU and the AP or WRouter, turn the power on, and wait for the wireless network to broadcast
- connect the teacher laptop to the wireless network of the MPSU, open a web browser and type in any address, eg. **"m.com"**, then you should be redirected to a default page configured on the MPSU, or you can type in the IP address **"10.1.0.1"** in the address field of your web browser; for the PeLe teacher interface, use the address for the server **http://10.1.0.1** port **8080** and service path **pele/rest**
- the students must connect the smartphone/tablet/laptop to the same wireless network and open the web browser and type in any address

(if for any reason, no page or the desired page is not loading, try to disconnect and reconnect to the wireless network, or if you have an AP/WRouter, try to restart them. Additionally you can check the IP configuration received from the MPSU DHCP Server - should be something like IP: 10.1.0.xxx, and the gateway 10.1.0.1)

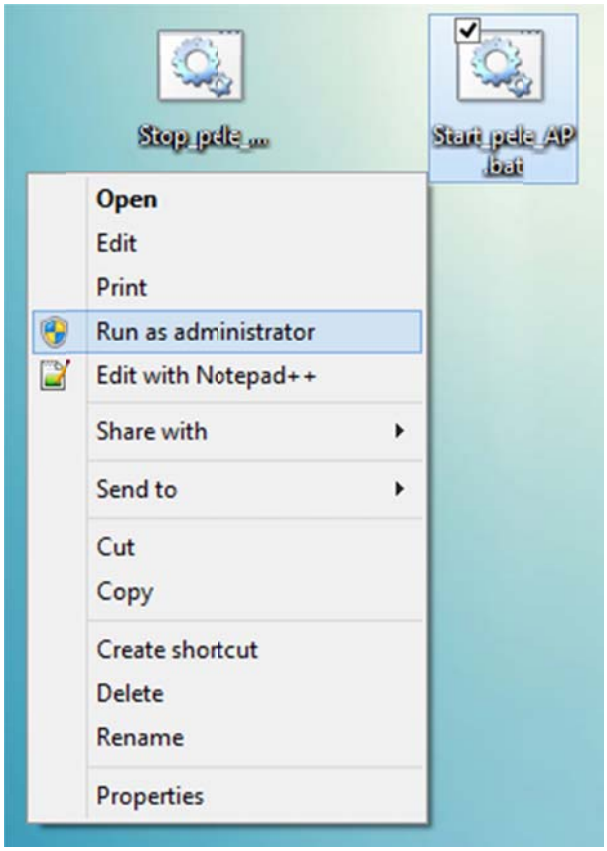
Using the MPSU 2XS/2XT

This approach is different and is not using a dedicated operating system just for PeLe as opposed to the other MPSU's (MS Windows 7/8). To start using PeLe with MPSU 2XS/2XT you have to:

- start manualy the Apache Web Server, MySQL Database Server, the Apache Tomcat Server



- run the script that enables AP mode on the wireless network



- connect the clients to the wireless network and check network configuration received from the MPSU
- type in the web browser the **Gateway/Router IP**

Part 3
PeLe Students User Manual

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Peer Learning Assessment System for mobile devices

PeLe

PeLe Students User Manual

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PeLe Student app

Login screen

If you start the app you will see a login screen.

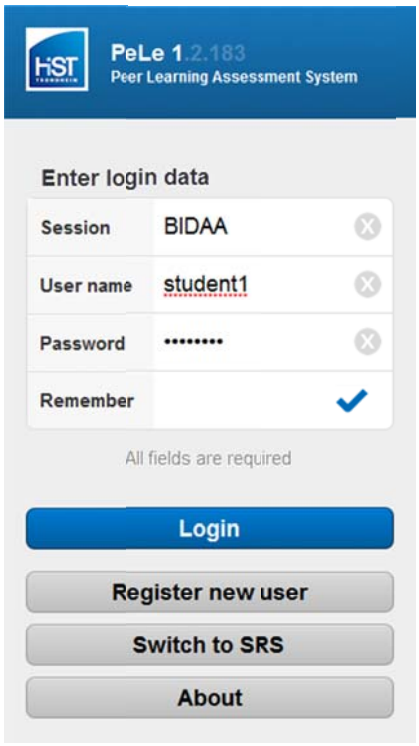

Figure 1 shows the student side Login Page.

Session: Here you can enter the session code that you got from the teacher.

There are two session types: Anonymous sessions and sessions that needs authentication. If authentication is needed additional fields for your credentials are visible. Enter your your credentials in the corresponding fields and tap the Login button.

After login you will see on of the following screens:

- **Welcome screen** if the assessment is open and you have not submitted your results
- **Submitted screen** if the assessment is open and you have submitted your

results
- **SRS wait screen** or **SRS screen** if SRS is active

A new account can be created with the **Register new user** button. This button is only visible if the teacher has enabled it.

A SRS session can joined with the **Switch to SRS** button.

Register screen

If you don't have an account you can create it with this screen. Fill all fields and tap the **Register** button. Later you can go to the **login screen** and log in with your user name and password.

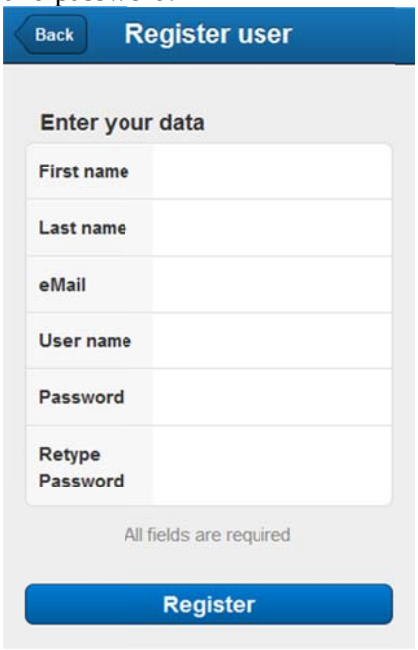

Figure 2 shows the register new user screen.

Welcome screen

This screen shows informations about the session: The session code, the name of the course and a short custom text set by the teacher. Tap the **Start** button to start the assessment.

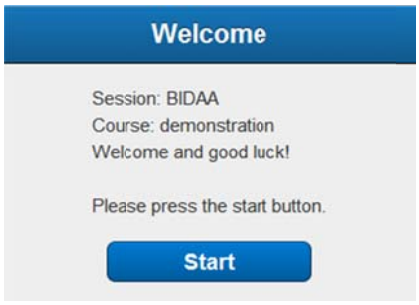

Figure 3 shows the welcome screen.

After that the **question screen** is shown.

Question screen

This is the screen where the user fill inn their responses to each question.

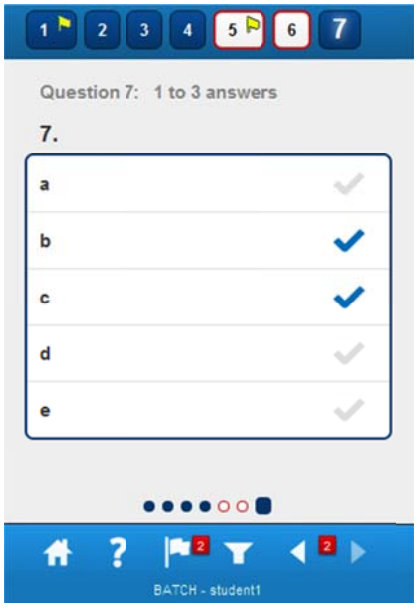

Figure 4 shows the question screen.

Navigation bar (at the top)

Displays a button with the question number for every question in the assessment. You can tap a button to show the corresponding question. With the **filter** icon at the **toolbar** you can display only the questions without an answer.

Open questions have a blue button with a white number. Answered questions have a while button with a red border and a black number. If a marker is set a flag indicates that. You can set the marker with the **set marker** icon at the **toolbar**.

If there are more questions that fit in the navigation bar swipe from right to left see additional questions. Swipe from left to right to see the. Two indicators at the left or right of the navigation bar shows if there are more questions and where the are.

Carousel

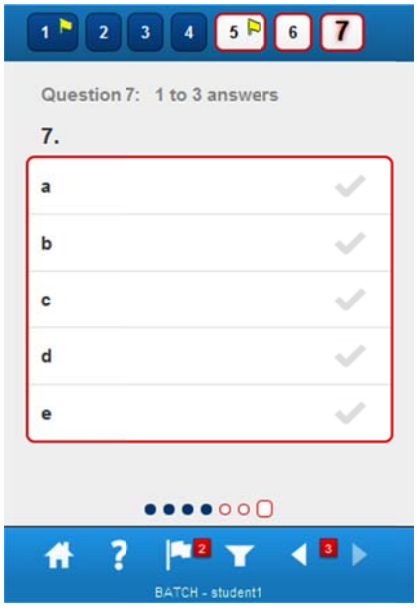

Figure 5 shows the question screen with the carusel.

The carousel at the center of the screen contains the question with their answers. At the top the number of the question is shown. Next to this number you can see the number of choices. Possible values are exactly one out of all or many out of all. Below of that the question itself is visible if it's provided. Otherwise there's just the question number.

All possible answers are displayed at the bottom of the question. You can choose an answer by taping on it. Taping a chosen answer again will deselect it.

If your answer was successful submitted the frame around all answers will turn blue

(screenshot 1). A red frame means that no answer was given or you answer couldn't submitted (screenshot 2). In this case just answer again.

Toolbar (at the bottom)

Figure 6 shows the question page with the toolbar at the bootom.

Home: Goes to the home screen. Gives an overview about the assessment.
Help: Goes to the help screen. A short help how to use the app.
Set/remove marker: Sets/removes the marker for the actual question. You decide for what reason you set the marker. Maybe it can indicate that you are not sure about your answer and want to rethink later about it. The badge shows the number of markers. If a question is marked, it's navigation buttons contains a flag icon and a yellow frame around all answers is shown.
Filter: If the filter is active then the **navigation bar** contains only open questions. Example:

If the filter is not set than the **navigation bar** contains all question.

Previous open question: Shows the previous question that is unanswered. The badge shows the number of all unanswered questions.
Next open question: Shows the next question that is unanswered.

At the bottom of the toolbar the name of the logged in user is shown. This is to prevent the user from exchanging his mobile device with other users during an assessment.

Home screen

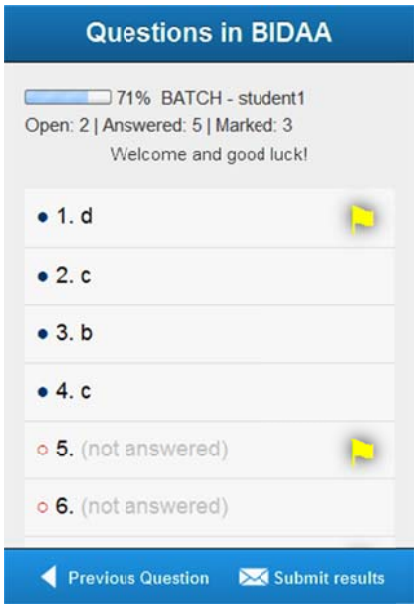

Figure 7 shows the home screen.

At the top of this screen a few statistics are shown: The percentage of answered questions in a progress bar. 100% means that you have answered all questions. Other data is:
Open: How much questions are not answered by you?
Answered: How much questions are answered by you?
Marked: How much questions are marked by you?

The name of the logged in user is also shown. This is to prevent the user from exchanging his mobile device with other users during an assessment.

In the middle of the screen all questions with your answers are listed. Every question has an indicator which shows if the questions has an answer (blue filled circle) or if the question is not answered (red circle filled with white). Furthermore a flag icon is displayed if a question is marked by you.

With the button **submit results** you can submit your results (answers) to the server an end the assessment. After that you can't answer questions or change answers anymore. If you tap the button a safety prompt is shown to make sure that you really want to submit your results.

With the button **Previous Question** you can leave the **home screen** and go to the previous active question on the **question screen**.

Submitted Screen

This screen is visible if the assessment is closed by the teacher and the teacher plans to start a SRS session. All sections that are completed by you are shown. Furthermore all open sections. Tap the **Continue with SRS** button to go to the **SRS**.

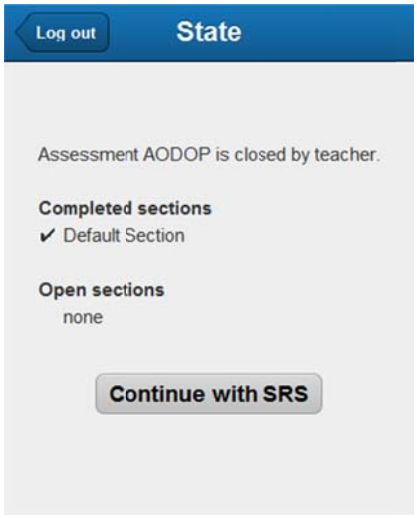

Figure 8 shows the submitted screen

SRS wait screen

If you see this screen just wait until the teacher activates a question. If a question becomes active the **question screen** is displayed automatically.

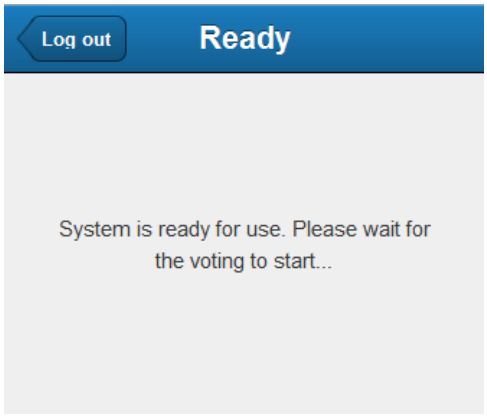

Figure 9 shows SRS (postassessment) waiting screen

SRS Question screen

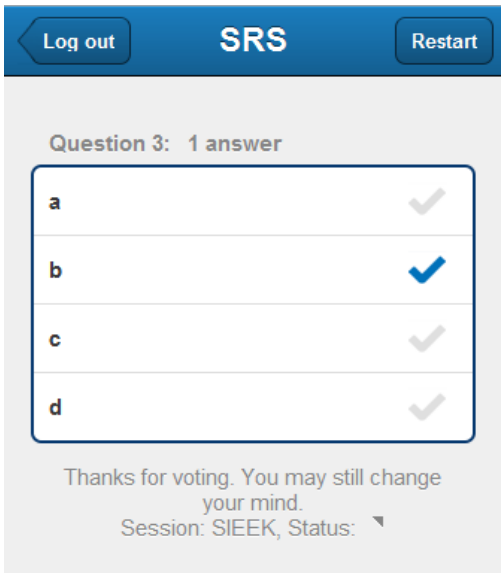

Figure 10 the SRS (postassessment) question screen

This screen displays the number of the active question at the top. Next to the question you can see the number of possible answers. Possible values are exactly one out of all or many out of all.

All possible answers are displayed at the bottom of the question. You can choose an answer by taping on it. Taping a chosen answer again will deselect it.

If your answer was successful submitted the frame around all answers will turn blue. A red frame means that no answer was given or you answer couldn't be submitted. In this case just answer again.

At the bottom of the screen the name of the active session and a status indicator is displayed. If the connection to the server is not ok the indicator is red. If the app isn't running properly anymore the indicators stops moving. In this case you can restart it by taping at the **restart** button at the top toolbar.

The teacher can control how log a question is displayed. If no question is visible you will see the **wait screen**. Just wait for a new question or log out.

Results screen

This screen shows your results. For every assessment section following details are provided:

The question number or the question text with your answer. Every part of the answers can be formatted in three different ways:

- Correct: If a part of the answer is given by you and it's correct than it's displayed normal.
- Wrong: If a part of the answer is given by you and it's wrong than it's displayed strike out.
- Missing: If a part of the answer is not given by you but it's correct than it's underlined.

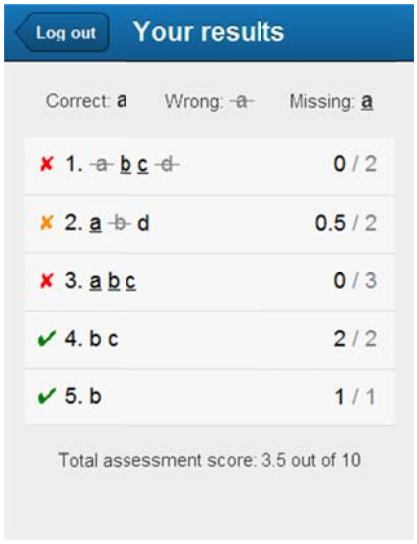

Figure 11 shows the results screen.

An indicator at the beginning at every line shows how correct is you answer:

- Red cross: Totally wrong
- Orange corross: Partly correct
- Green tick mart: Fully correct

At every line you can see the score you have got for this question. The first number is your score. The second number the maximum score, you could get if all is correct.

If there are assessment sections each section header shows the total score for the section. The total assessment score is displayed at the bottom of the screen.