AN USER GUIDE

FOR THE PLATE WORKBENCH V0.7

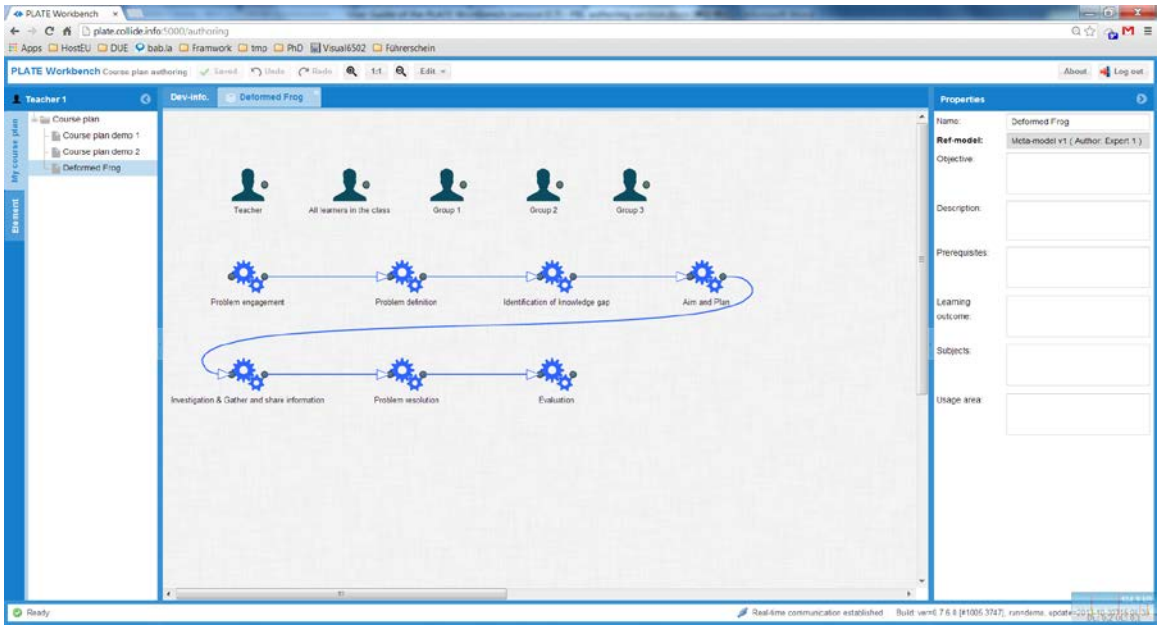
PBL COURSE AUTHORING SECTION

The PLATE (Problem-based Learning Authoring and Transformation Environment) is Web-based online learning design application. The target users are PBL researchers and teachers. PBL researchers can develop PBL meta-model (PBL ontology) through this workbench in meta-model authoring section. The meta-model is guideline for helping teachers to develop their course plans. Teachers can use this workbench, according to PBL researchers' meta-model, to create, communicate, customize, and reuse PBL course/lesson plans, which are automatically transformed into executable e-learning models and can run in IMS LD compatible learning environments, such as the Moodle CMS.

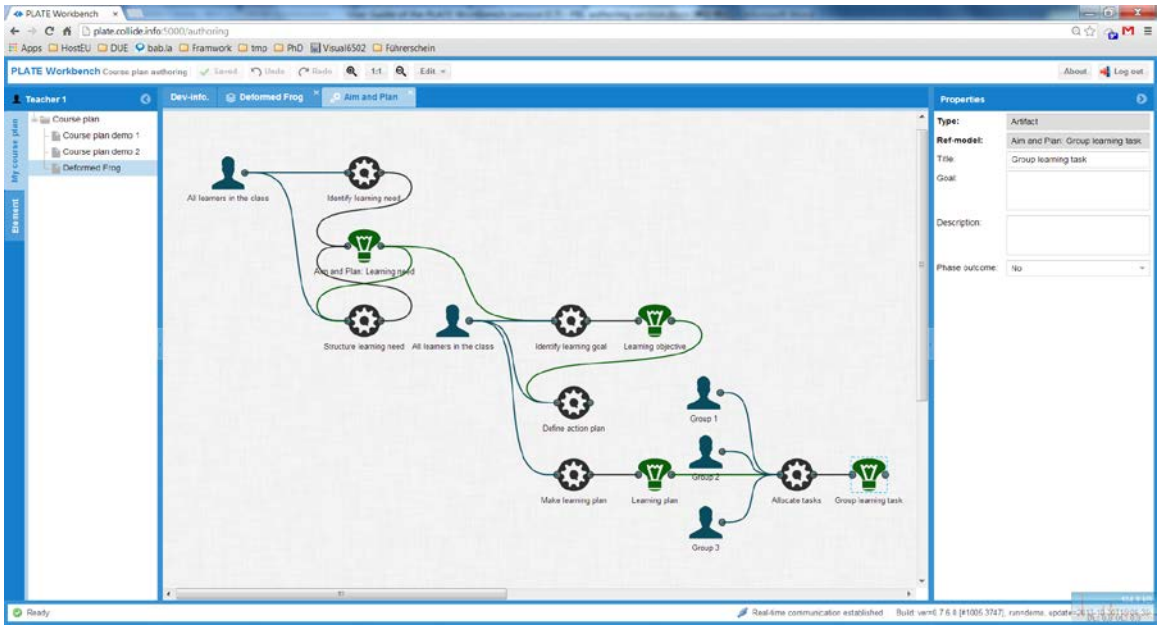
This document will demonstrate some basic features of the PBL course authoring section. This section provides functions with guidance and constraints that can enable teachers, who may even have no comprehensive PBL knowledge and technical knowledge, to develop and deliver a pedagogy-sound and technically executable online (or hybrid) PBL courses/lessons in an easy, cost-effective, flexible, interoperable, and reusable manner.

CONTENT

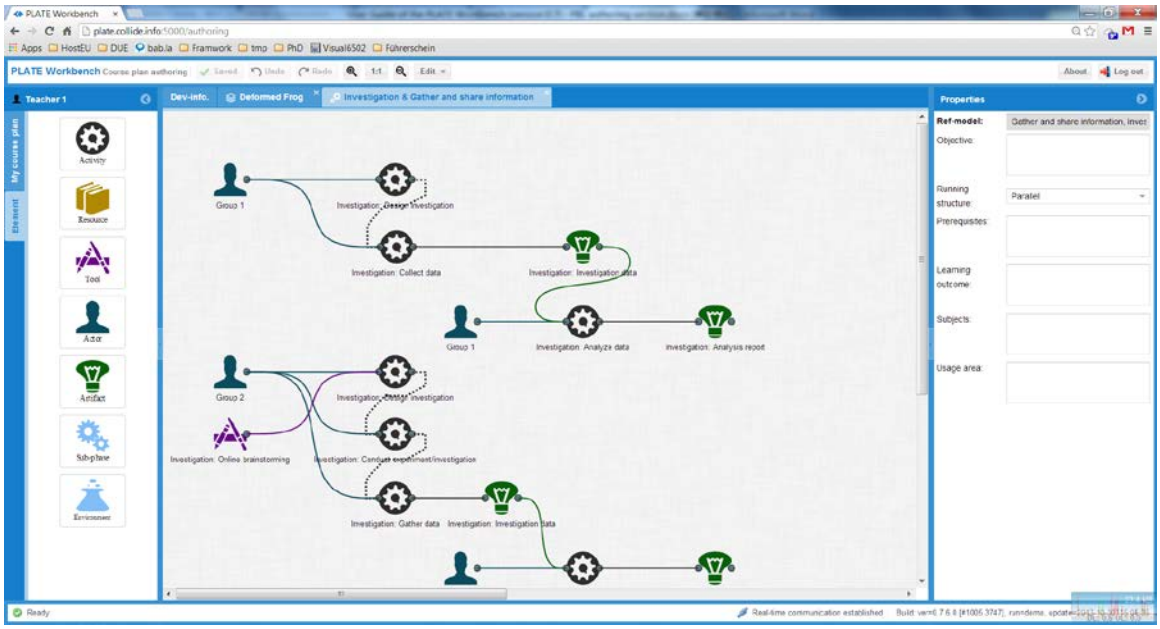
1 PLATE WORKBENCH – PBL COURSE AUTHORING SECTION SNAPSHOTS



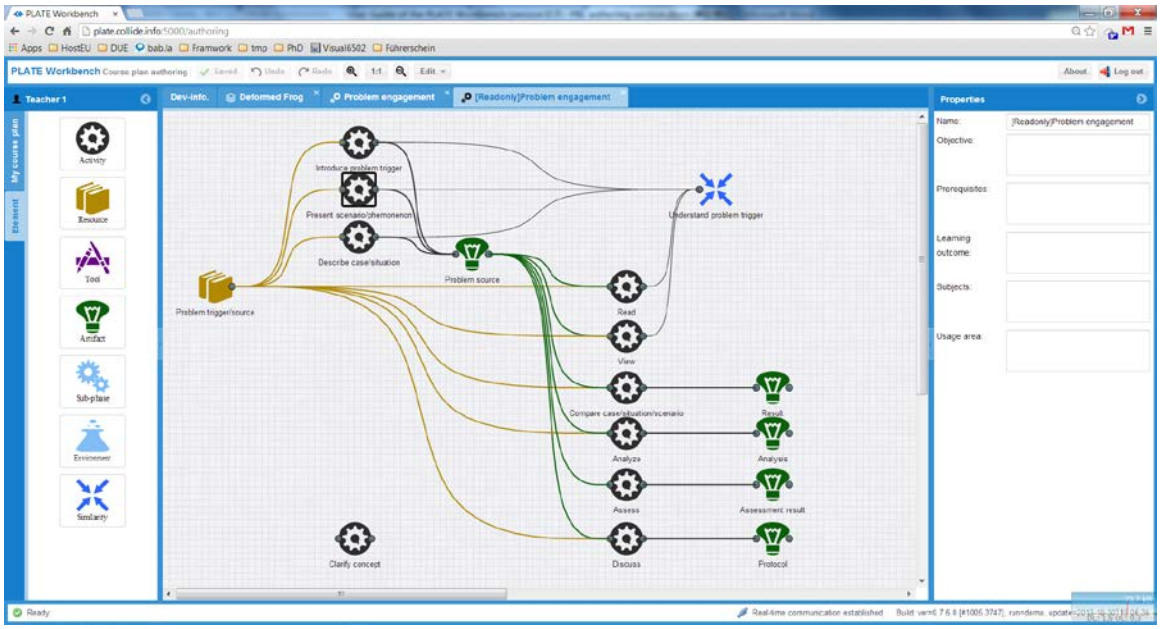
Course plan - Course phases organization



Course plan - One course phase definition (1)



Course plan - One course phase definition (2)



Course plan – Viewing corresponding meta-model

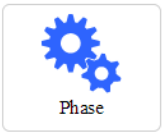
2 REPRESENTATION

2.1 ELEMENT

The course authoring section has 9 kinds of different elements which can be dragged and dropped from the left panel (element pool) to main work space. We can specify the type for each element through promoted dialog after dropped them.

Phase element

Phase element represents various phases in a PBL course process.



In a phase there are 7 new elements further: activity, resource, tool, actor, artifact, sub-phase, environment and sub-structure element.

Activity element

Activity element represents different learning activities which will be executed by learning participants in a certain phase.

Resource element

Resource element represents different learning resources which will be used in one or several phase activity (s). Resource can be seen as input of certain activity(s).

Tool element

Tool element represents different learning tool, mostly online learning tool, such as brainstorming, which can be used in one or several phase activity(s).

Actor element

Actor element represents various roles which are involved in a course/lesson activity. It is used to indicate the participants of phase activity(s).

Artifact element

Artifact element represents the output of a certain learning activity. Especially, an artifact can also be a resource of another activity(s).

Sub-phase element

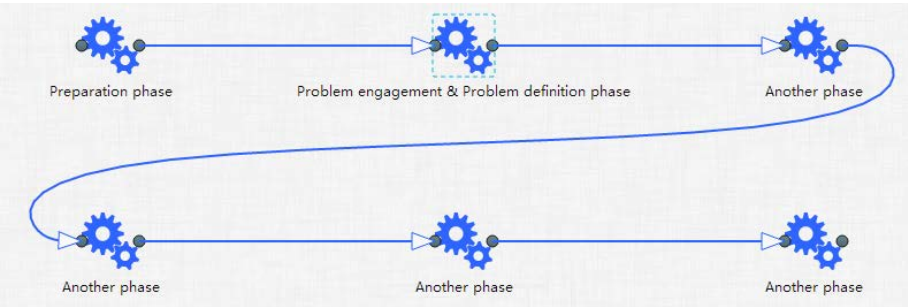
Sub-phase represents sub-phase(s) of current phase. A sub-phase actually points to another normal phase. Because another phase can also have sub-phase, the nesting can be infinity. (This functionality is not available in version 0.7)

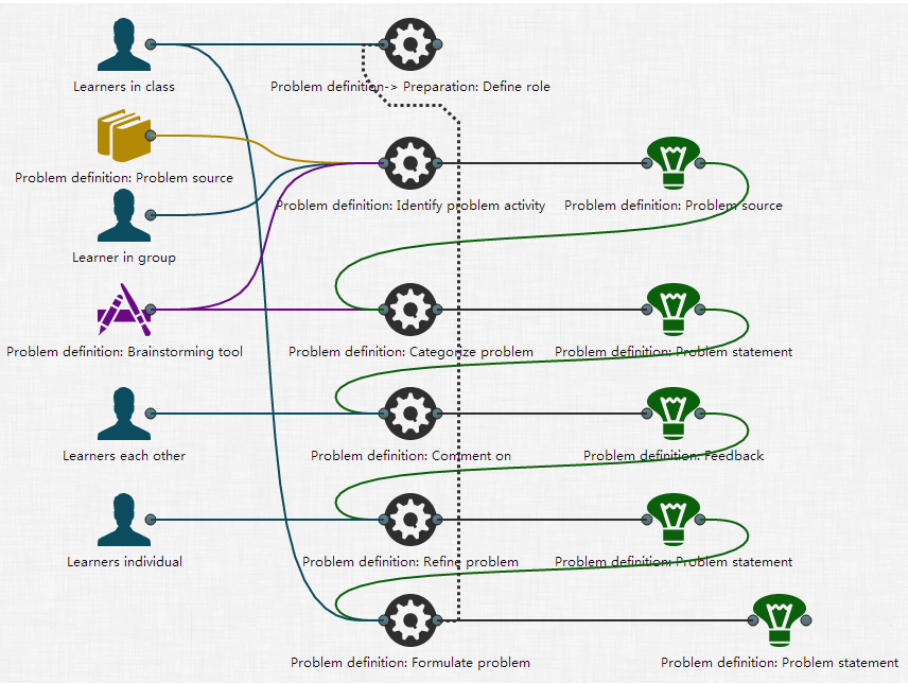
Environment element

Environment represents a set of resources and/or tools, which can be defined through another work space. (This functionality is not available in version 0.7)

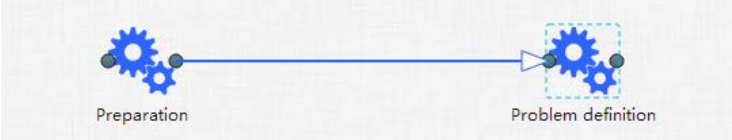
2.2 CONNECTION

In the workbench there are four kinds of connections and with different color. The type and color of a connection is determined automatically by the tool according to different context (the relationship between different elements).



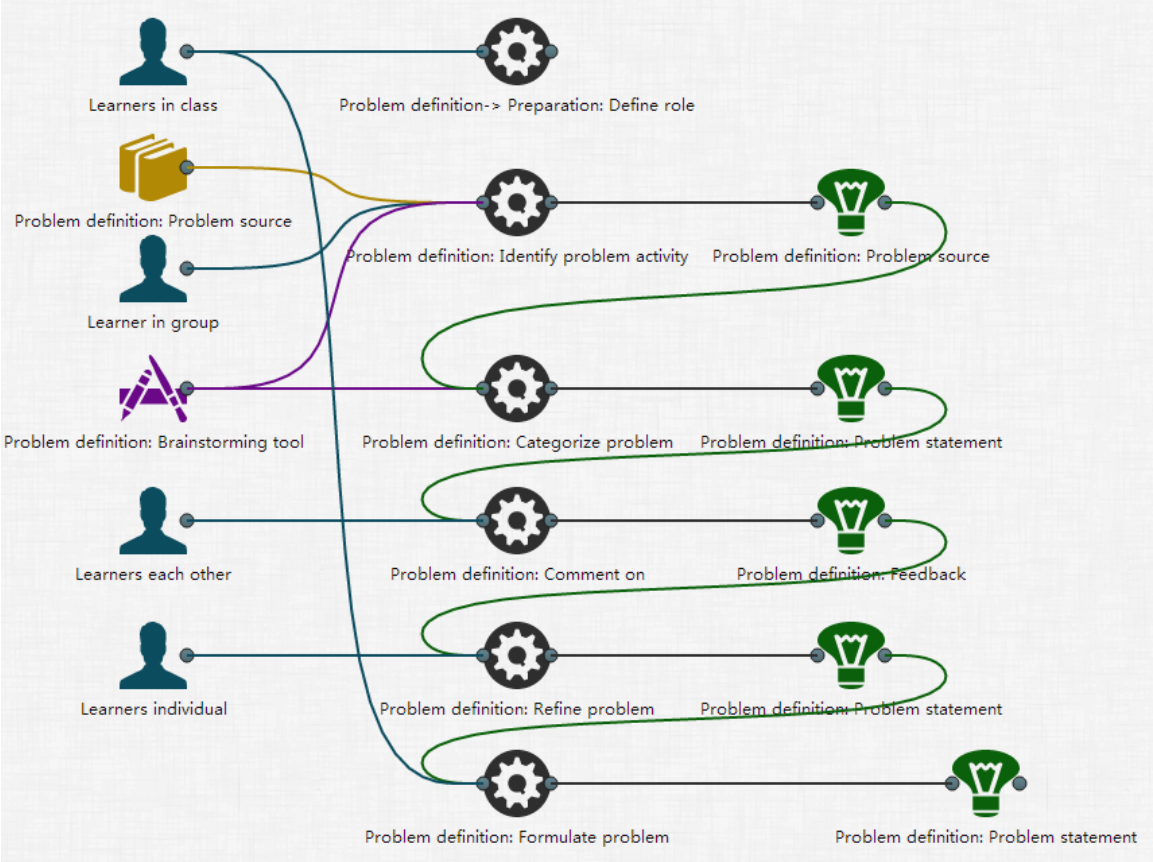


Phase order connection



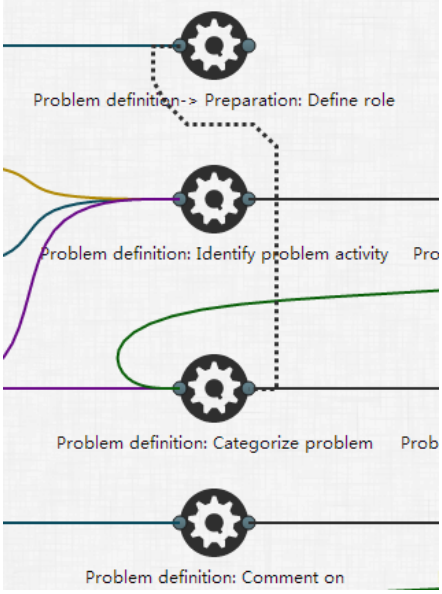
The phase order connection is only used in the first level (course plan organization) of course plan authoring. This kind of connection is with a white triangle arrow to indicate the execution order between phases.

Elements dependency connection



The elements dependency connection is only used in the second level (course phase definition) of course plan authoring. In the diagram above, any connection connects two elements with a specified color. The color indicates which one can be seen as constituent element or pre-element of the other one. For example, the yellow line indicates the “Problem source” is a constituent element of the “Identify problem activity”.

Forced activity order connection

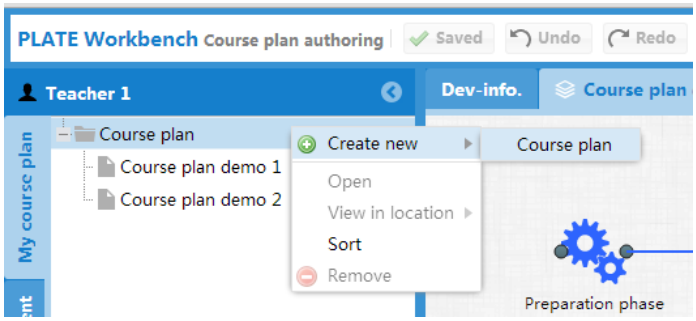


In the second level (course phase definition), the default sequence between activities is basing on their space position. For example, in the diagram above, the "Define role" activity is higher than the "Identify problem" activity, so it means that, in run-time, the activity "Define role" will be executed before the activity "Identify problem". In the same way, then the activity "Categorize problem" and the activity "Comment on" will be executed one by on later. However, if teacher adds a dashed connection between certain two activities just like it is shown in the diagram above, the execution sequence will be forced changed, which means after the activity "Categorize problem", the run-time will go back to activity "Define role" if certain condition (defined by teacher) is or isn't met.

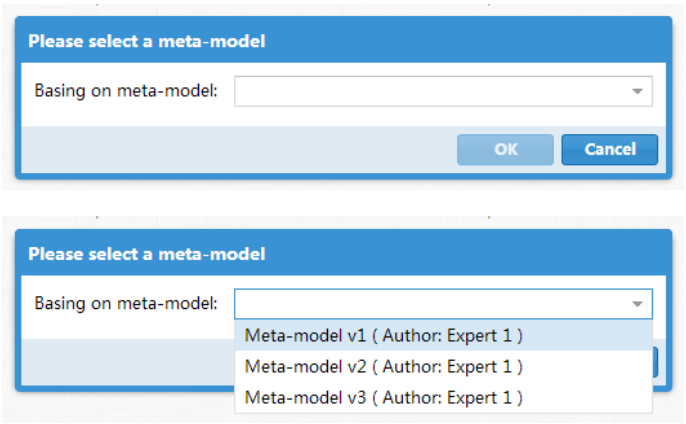
3 OPERATION

3.1 COURSE PLAN OPERATION

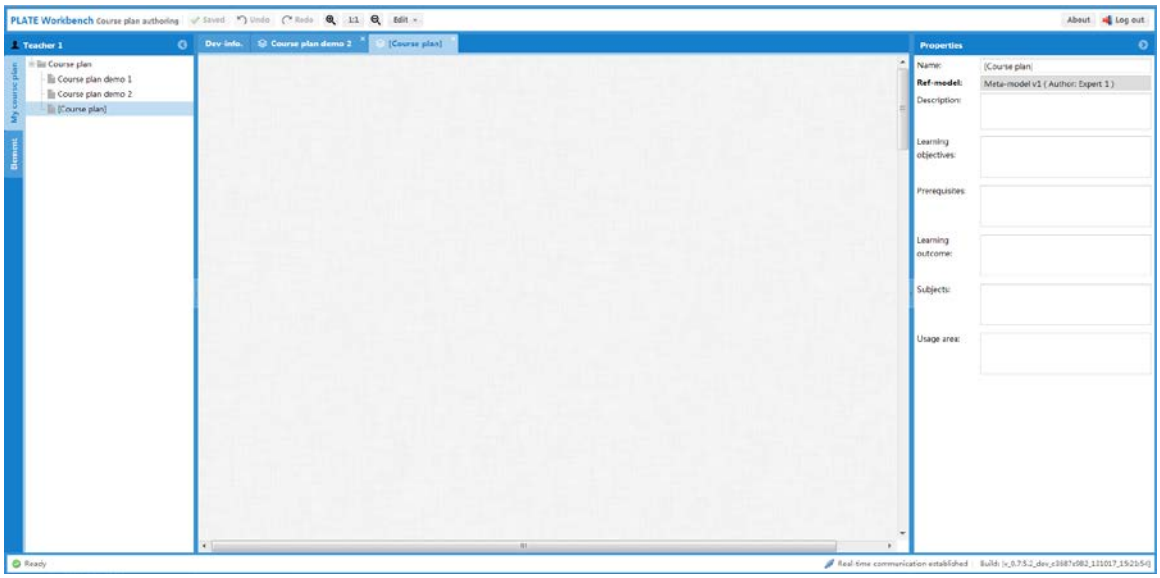
To create a new course plan, 1) open "My course plan" panel; 2) right-click "Course plan" node to open context menu; 3) select and click the "Course plan" under "Create new".



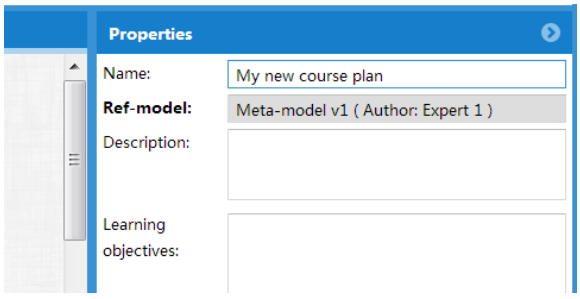
Then a popup window will ask you to choose one meta-model for your new course plan. Click blank input field to get model list.



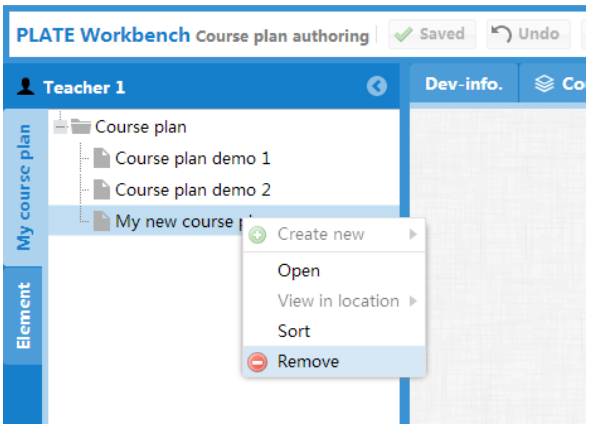
After you choose a meta-model and click “OK” button, an empty course plan will be created and opened.



Rename your course plan or give other information, such as “Description” etc. from the “Properties” penal.



To remove a course plan is similar to create a course plan – they are both through that context menu. The different is to choose “Remove”.

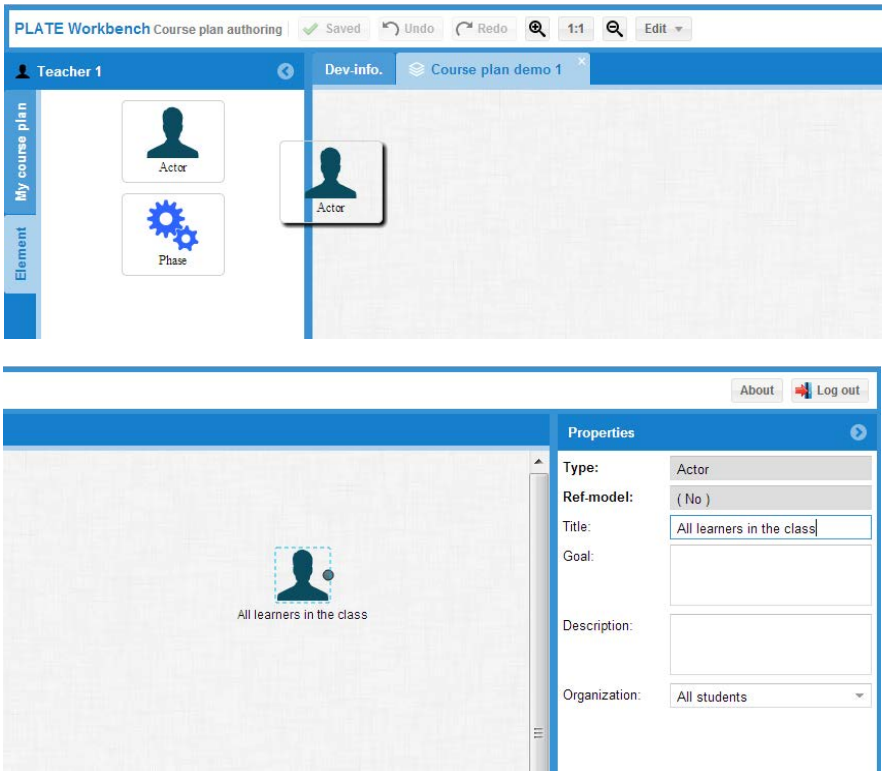


3.2 ELEMENT OPERATION (ORGANISING COURSE PHASES)

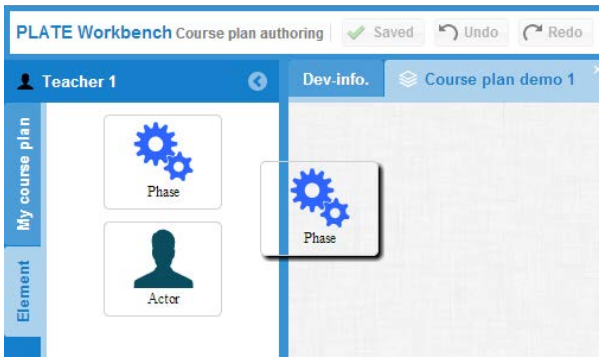
A course plan in this workbench is divided into two levels. User need to define these two levels separately. The first level is organization of course phases; the second level is definition of each course phase.

For the first level, organization of course phases, user needs to define actors and phases and organize them.

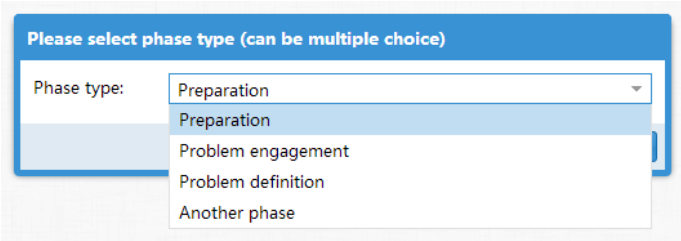
To create an actor element, 1) open element tab; 2) click and hold the “Actor” icon, drag it into the middle workspace; 3) set properties for the actor element:



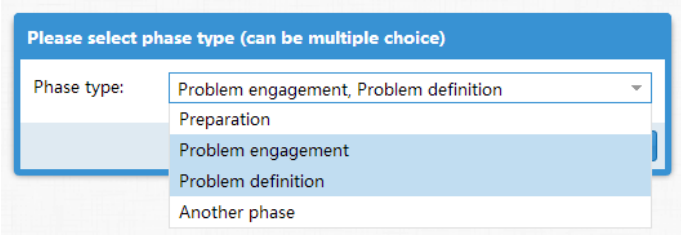
It is similar to create a phase element:



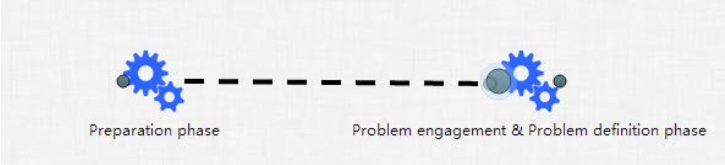
But user will be asked to choose a type for the phase:



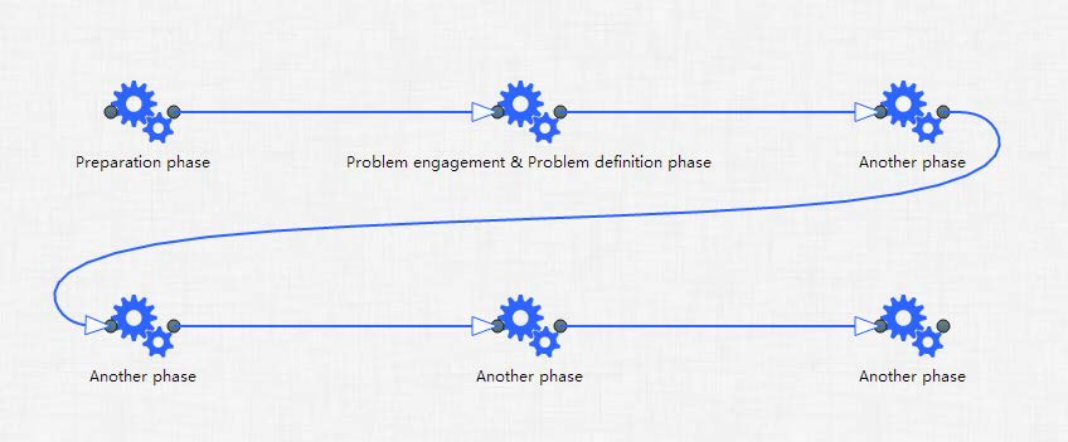
The type also can be a combination type:



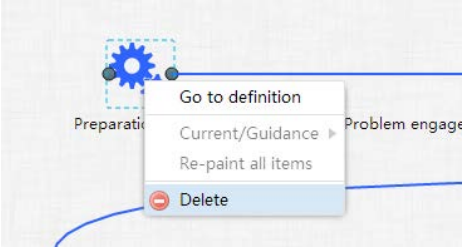
After create several phases, user need add connections between them to organize them. To create a connection, just drag a port from one phase to another phase's port.



Finally, user may get a phase plan like this.

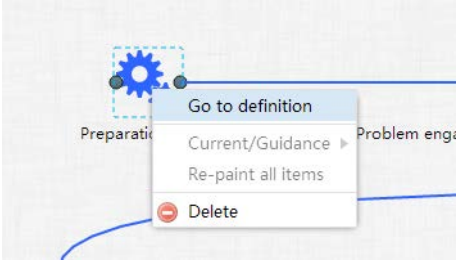


User can remove a phase element also through context menu (after right-click an element).

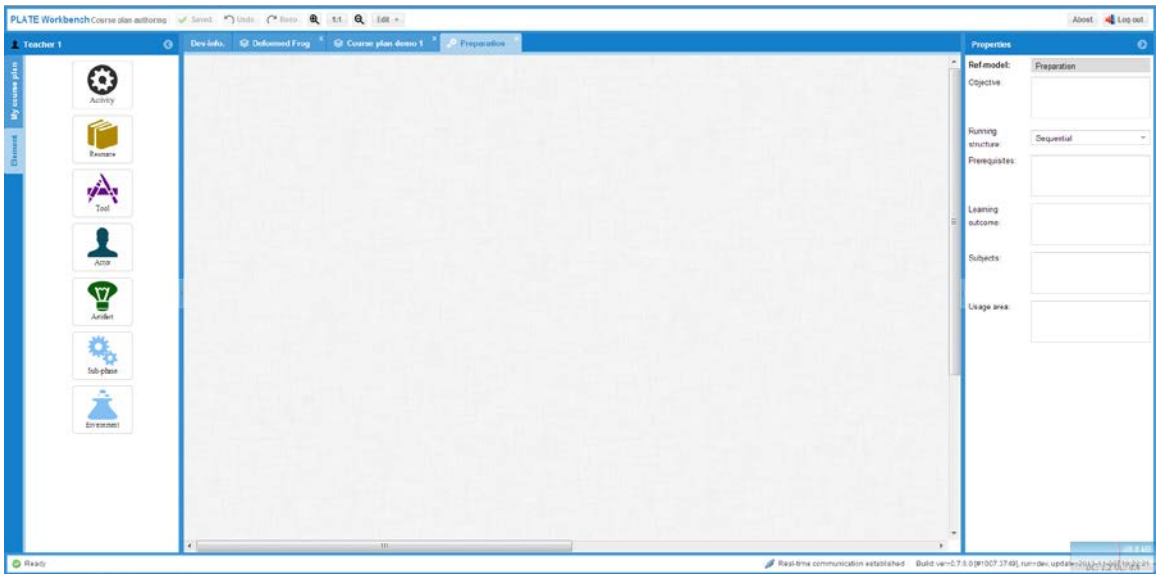


3.3 ELEMENT OPERATION (DEFINING EACH COURSE PHASE)

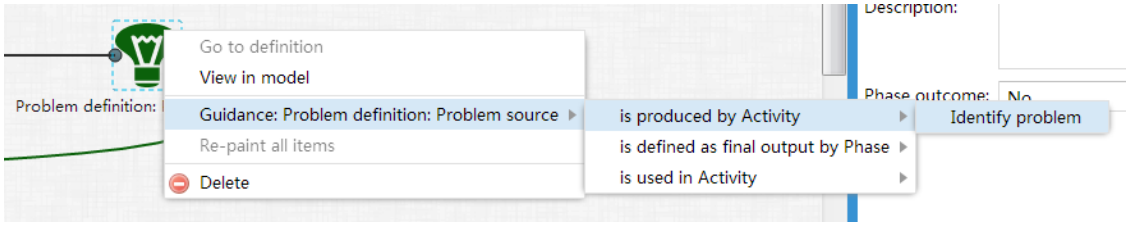
To define or update the definition of a phase, user just needs to double-click a certain phase element or through that context menu.



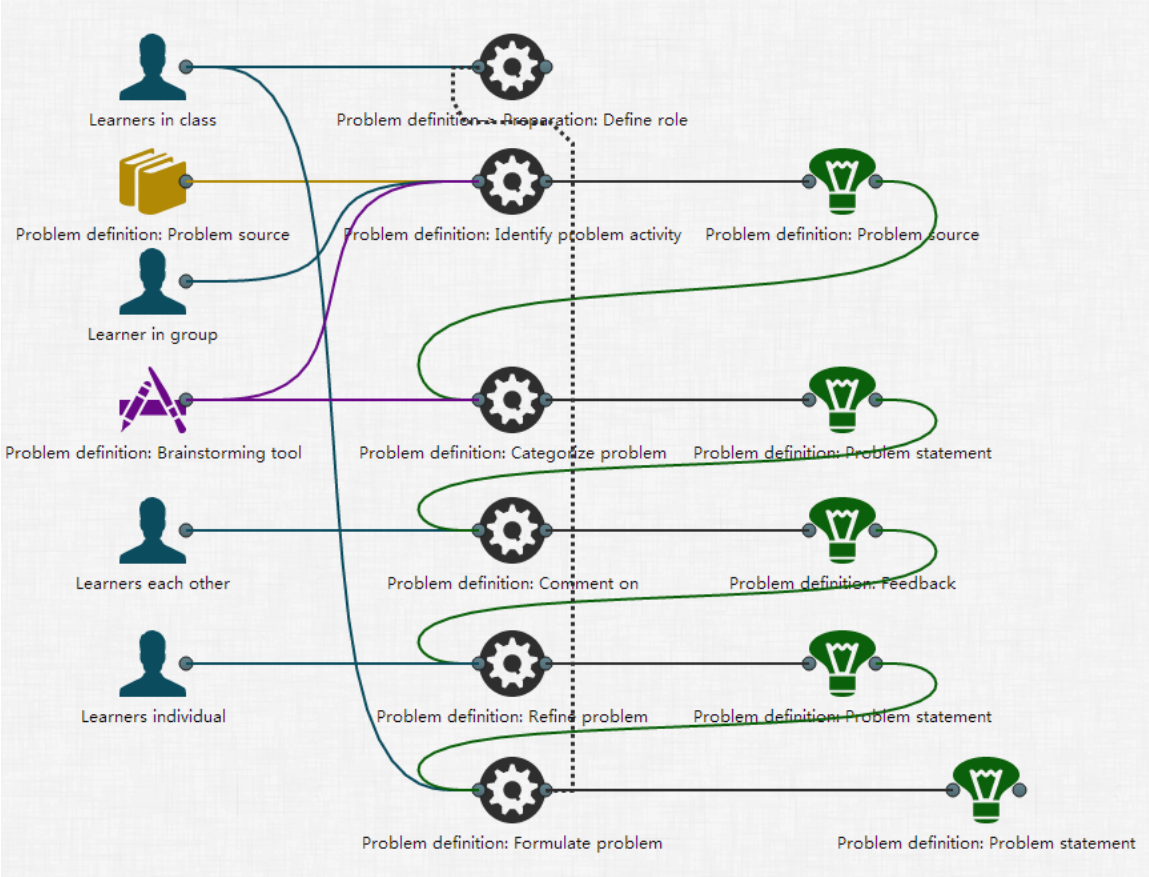
Then another workspace will be opened for phase definition.



The element operations are just the same as they are in the level of organizing course-phases. But there are two major differences; one is the phase definition level introduces more elements; the other is user can create elements through the “Guidance” in the context menu.



So as a result, user may define a phase like this:

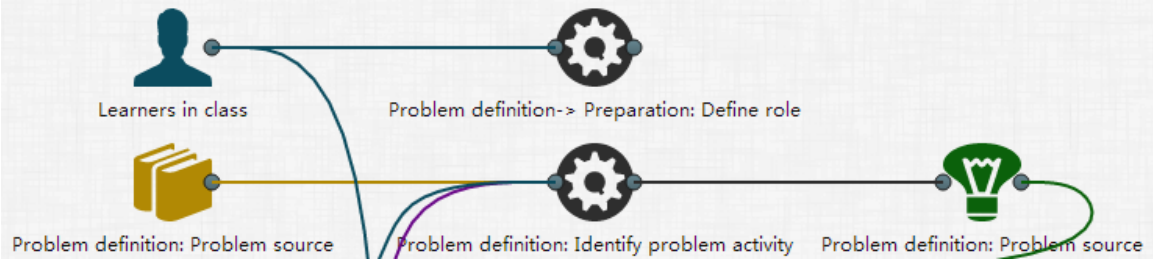


4 TASK-DRIVEN AND DATA-DRIVEN

Work sequence between activities can be specified by using either task-driven mode or data-driven mode.

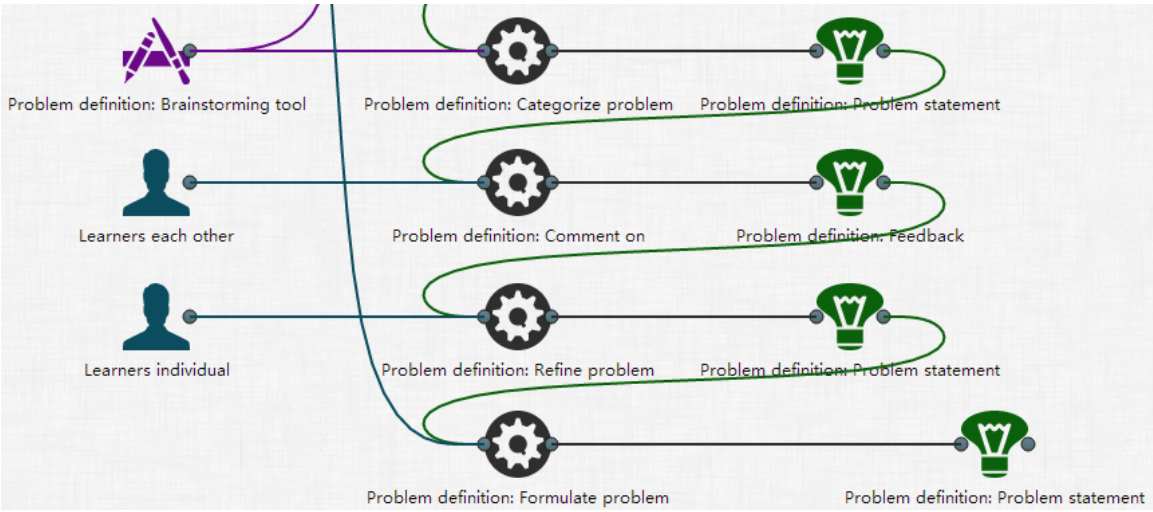
Task-driven

The following screenshot shows a task-driven mode where activity elements don't have any indirect or direct connection between them. If the previous activity is accomplished, the following activity in lower position can be started.



Data-driven

In comparison, the following diagram shows a data-driven mode. The start of the succeeding activity is triggered to start only when the artifact has been produced by the preceding activity.



5 USAGE TUTORIAL

For this part, please watch the video tutorial “PBL course plan authoring tutorial”.