Description of the 'Planet Game' Case Study and guidelines to the authors

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Abstract: This paper describes the 'Planet Game' case study, also called the 'Astronomy Game', initially proposed to the participants of the workshop "Comparing Educational Modelling Languages on a Case Study" which was held in Heerlen, The Netherlands, during ICALT 2006. This case study is supposed to facilitate the comparison of approaches (model/tool/…). This is only a « framework » that has been sometimes adapted by the authors of the papers of the special issue. This paper gives also guidelines to structure the paper, again to improve the comparison of the approaches for the reader of the special issue.

1 The 'Planet Game' case study

1.1 The context

The chosen activity is part of a real lifelong learning scenario in astronomy. The students have the same problem to solve. They are grouped into two teams. Each team has only a part of the knowledge and data required to solve the problem. So, they must collaborate.

1.2 The proposed activity

The activity objective is for learners to acquire knowledge in the field of astronomy. More precisely, they have to classify the planets with respect to their distance from the Sun (from the nearest one to the most distant). The teacher also wants the learners to work together, to adopt a work method and to negotiate with their peers.

The strategy used by the teacher to reach these objectives is to propose a game for the learners. The latter are grouped into two teams (Team A and Team B). Resources and services will be available to help the learners in acquiring new knowledge, in exchanging with their team members, and in negotiating.

1.3 Game rules

Here are the main game rules:

1. Clue distribution:

- Team A knows the planets' properties (taken from expert interviews): they can deduce the planets' order, but they don't know the planets' names;
- Team B knows the planets' names and some properties (taken from other expert interviews), however, many properties are missing.

2. The teams have to cooperate using a forum to exchange information. They must, at the very least, associate the names of the planets to their position relative to the Sun. Each team can use a chat room to enable their members to have a discussion.

3. The teacher has access to the forum, and can participate in the discussions. S/he can also add new clues to either of the expert interviews.
4. The teacher decides when the exchanges are finished. Then, each learner fills in a questionnaire about the planet classification.
5. The winner is the one who gives the right associations : <Planet – Order>. The activity finishes when a winner is nominated.

Note that this situation is quite paradoxical:

- To win, learners have to help their peers,
- To win, learners have to make their peers lose.

2 Services, resources

The following services and resources are expected to be used:

- Two expert interviews, one for each team, from which clues (surface temperature, speed of revolution around the sun, size) could be taken.
- A questionnaire which will be given to each learner at the end of the game. S/He will give her/his results (i.e. the association <planet – position relative to the Sun>
- One forum for both teams,
- Two chat rooms, one for each team.·To win, learners have to make their peers lose.

3 Some guidelines

First of all, we propose to model and implement the described situation. Then, we propose to enrich the case study with three features: observation, traces and re-use/adaptation. The authors are free to address each step or only one, or part of them.

- Step 1:
    i. Modeling of this activity,
    ii. Operationalisation and execution of the model on a platform you choose,
- Step 2:
    i. Observation
        a. How could the activity be observed by the teacher during its performance?
        b. How could these observations be used by the teacher to modify the activity's progress during its performance?
    ii. Traces
        a. Does the activity's performance produce traces?
        b. How could these traces be used?
    iii. Re-use/adaptation
        a. How could the case study be adapted for a different topic, keeping the same general structure?
        b. What has to be done to adapt the structure of the case study?