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Thrace Amateur Astronomy Club (T.A.A.C.)
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Founded 2004

- 3 Astronomy related speeches from distinguished invited speakers to the public
- 20 presentations at local schools
- 2 semester long projects of astronomy education for children
- Weekly member presentations of astronomical subjects to the Club’s members

- 20 Organized observations of the sky open to the public with emphasis on site accessibility
- 20 Organized observations of the sky for the members with emphasis on site quality
- Innumerable observations of the Club’s members
Project “Young friends of T.A.A.C.”

results
Project “Tackling astronomy, one problem at a time”

Aim: Disseminating basic astrophysics and astronomy knowledge

Target Audience: General Public

Practical Requirements:
- Interesting subject
- Interesting approach
- Cater for diverse participants’ Time requirements
- Cater for diverse participants’ locations

Course constraints
- Problem based educational paradigm
- Asynchronous participation
- Remote participation
Problem Based Learning (PBL)

“PBL is focused, experiential learning organized around the investigation, explanation, and resolution of meaningful problems”


“PBL is an instructional (and curricular) learner-centered approach that empowers learners to conduct research, integrate theory and practice, and apply knowledge and skills to develop a viable solution to a defined problem. Critical to the success of the approach is the selection of ill-structured problems (often interdisciplinary) and a tutor who guides the learning process and conducts a thorough debriefing at the conclusion of the learning experience.”

*J.R. Savery, Overview of Problem-based Learning: Definitions and Distinctions* IJPBL, 1;1 (2006)
Components of Problem Based Learning

**Learner Group**
- Self directed towards learning resources
- Self regulated regarding depth and breadth of inquiry
- Collaborating to bring together diverse knowledge
- Largely independent of Teacher

**Problem**
- Motivating the group
- Complex in order to provide a challenge to the group
- Ill structured so as not to enforce single course of action
- Open ended in order to not have one correct answer

**Facilitator**
- Expert educator instead of expert in the field of knowledge
- Guides learners instead of providing knowledge
- Challenges learners to justify their thinking
- Assists in Collaboration
Problem based learning: Attractive for the public

- Learners have the responsibility for their own learning
- The ill-structured problem used in problem-based learning allows for free inquiry.
- Diverse and multidisciplinary learning experience
- PBL fosters collaboration.
- Immediate feedback from newly acquired knowledge in the form of solid answers to previously encountered unsolved questions
- PBL utilizes activities valued and carried out in the real world (research, experimentation, independent thinking, etc.)
Implementing PBL for a diverse audience

<table>
<thead>
<tr>
<th>PBL requirements</th>
<th>Audience requirements</th>
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<tbody>
<tr>
<td>Collaboration</td>
<td>Asynchronous participation</td>
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<tr>
<td>Facilitation</td>
<td>Site independent participation</td>
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<tr>
<td>Publication</td>
<td>Ease of access to resources</td>
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<td></td>
<td>Ease of use of publication tools</td>
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Web 2.0 Technologies
<table>
<thead>
<tr>
<th>Web 1.0</th>
<th>Web 2.0</th>
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<tbody>
<tr>
<td>User as a recipient</td>
<td>User as a contributor</td>
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<tr>
<td>Publishing</td>
<td>Participation</td>
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<tr>
<td>Scripted content</td>
<td>Emergent behavior</td>
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<tr>
<td>User contribution a chore</td>
<td>User contribution transparently aggregated</td>
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<tr>
<td>Software irrelevant of the user</td>
<td>Software improved through user participation</td>
</tr>
<tr>
<td>Rigid software solutions</td>
<td>Open-ended customizable modular technologies</td>
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**Publishing and linking data**  **Harnessing collective intelligence**
### Web 2.0 by example

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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<tbody>
<tr>
<td>Web services</td>
<td>Modular open ended modifiable software</td>
</tr>
<tr>
<td>Google</td>
<td>The service is the product (Web as a platform), gets better the more people use it</td>
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<tr>
<td>P2P sharing</td>
<td>Decentralized resources, gets better the more people use it</td>
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<tr>
<td>Blogs</td>
<td>Reinforces participation, collaboration and community making</td>
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<tr>
<td>Wikis</td>
<td>Reinforces participation, easily aggregates user contribution</td>
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Putting them all to work

Learning objectives: Basic concepts of astrophysics

Impressive stellar phenomena:
- Supernova
- Pulsars
- Black holes

Through which concepts of stellar evolution emerge:
- Phases of stellar evolution
- End states of stars
- Detection methods in modern astronomy
The Problem: Enlightening the press

«As members of an amateur astronomy club in a rural area that lacks an appropriate Physics or Engineering department it has been delegated to you to be the unofficial “Press correspondence team”. That is to provide the local press with an unofficial but well informed statement regarding various astronomy related news and stories coming into the spotlight at various times.

For that reason you will be called upon to comment on several fictional news stories regarding astronomical observations and phenomena. Some of these stories will be of sound scientific basis while others will not. Your job is to comment on both, after you have formed an informed opinion through widely available research means (internet, libraries etc.). The ideal response should be concise, relatively brief, but well documented and researched. Remember that you are not considered a scientific authority on the subject so any non-obvious scientific knowledge should be adequately referenced. No specialized education or resources will be required to be able to adequately address the issues covered by the articles. »
Technologies supporting the project

Collaboration and facilitation through a project blog

Screenshot #1

Publication of results through a Wiki

Screenshot #2
Current state of the project

First article outlining the first objective

Number of participants

Possible pre project evaluation?
Innovation of assembly in Astronomy Education

Interesting astrophysical concepts

Problem based learning paradigm
Web 2.0 Technologies

Engaging educational instances for the public
Thank you