

Problem-based Learning

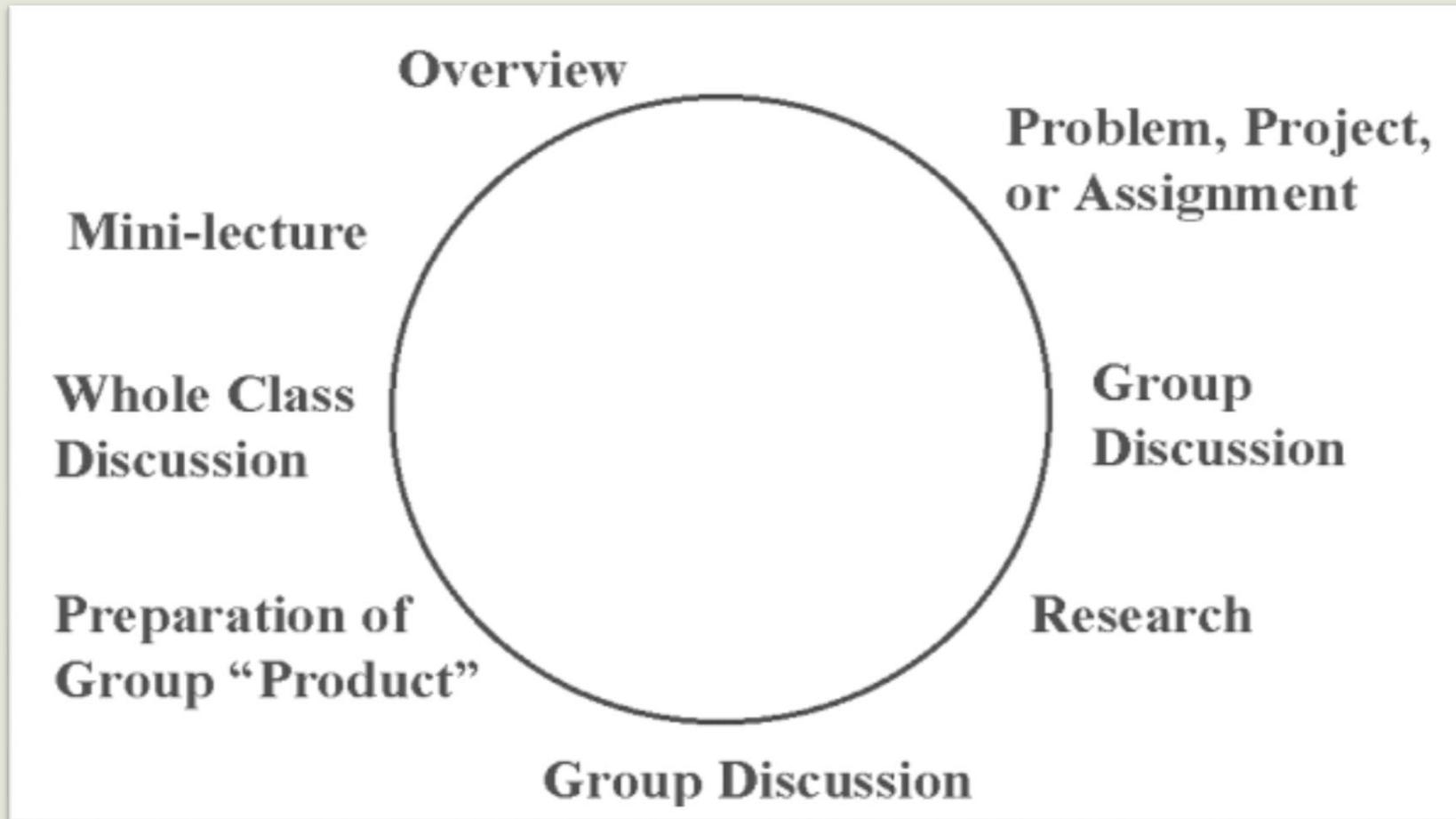
Yan Wang
EIPT 6613

Original Characteristics of PBL

Barrows (1996) lists the six original characteristics for PBL model employed in the medical school as follows:

- Learning is student centered.
- Learning occurs in small student groups.
- Teachers are facilitators or guiders.
- Problems form the original focus and stimulus for learning.
- Problems are a vehicle for the development of clinical problem solving skills.
- New information is acquired through self-directed learning.

The Problem-based Learning Circle



Cognitive Constructivist Process of PBL

Yew and Schmidt (2011), Schmidt, and Hung (2011) elaborate on the cognitive constructivist process of PBL:

- Learners are presented with a problem and through discussion to activate their prior knowledge.
- Learners develop possible theories to explain the problem in their group.
- Facilitators provide scaffold to help students construct knowledge to the problem.
- After the initial team work, students work independently in self-directed study to research the identified issues.
- Students re-group to discuss their findings and refine their initial explanations.

PBL Assessment Philosophy

Garfield (1994) lists PBL assessment philosophy as follows:

- Assessment is not separate from instruction. Rather, assessment is integral to learning, it is a continuous process that drives instruction.
- Students will learn to evaluate the work of their peers, as well as their own.
- Students will play an active role in developing criteria and setting standards.



How to Apply PBL Effectively

Gallagher (1997) elaborate on how to apply PBL effectively:

- Use problems at the beginning, not the end.
- Use ill-structured problems.
- Relate all learning to the problem.
- Make students apprentices.
- Give students responsibility for problem definition and plan of action.
- Have student defend their solution.

Example of Virtual World Design

- PREVIEW-Psych & PREVIEW-Sustain Info Area, Derby University
http://previewpsych.org/?page_id=178 (There are various Psychological scenarios evolve into this project.)



Example of Virtual World Design

- Sign



Example of Virtual World Design

- Characters Intro



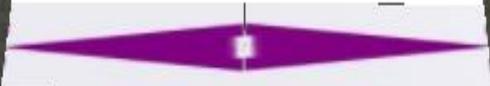
Example of Virtual World Design

- Task Introduction: Resources, Action, Scenario, Decision

Resources

There are a variety of resources for you to use in the office, house, grounds and information area. Make notes and communicate with each other throughout the task to work out the details of your report.

If you have any questions the facilitator (Bethany Orellana or Milton Broome) will be on hand to ask throughout the task.



Action

Your task is to find the characters in the house and work out from what they are saying and the additional information the following things:

- How the family fits together.
- What is wrong with each family member.
- Information about these disorders (From objects in the house).
- What treatment might be recommended.
- What the long-term prognoses are for each family member.
- Which model of psychology best fits when explaining each set of issues
 - how the model works.
 - what's starting point is for treatment is.



Scenario

You are a social worker coming to evaluate a family in the local area. You need to observe and assess this family, taking into account what might be wrong with each family member, what treatment they are currently receiving, and whether this treatment appears to be working. There have been some concerns raised by neighbours about the young child, Johnny.



Decision

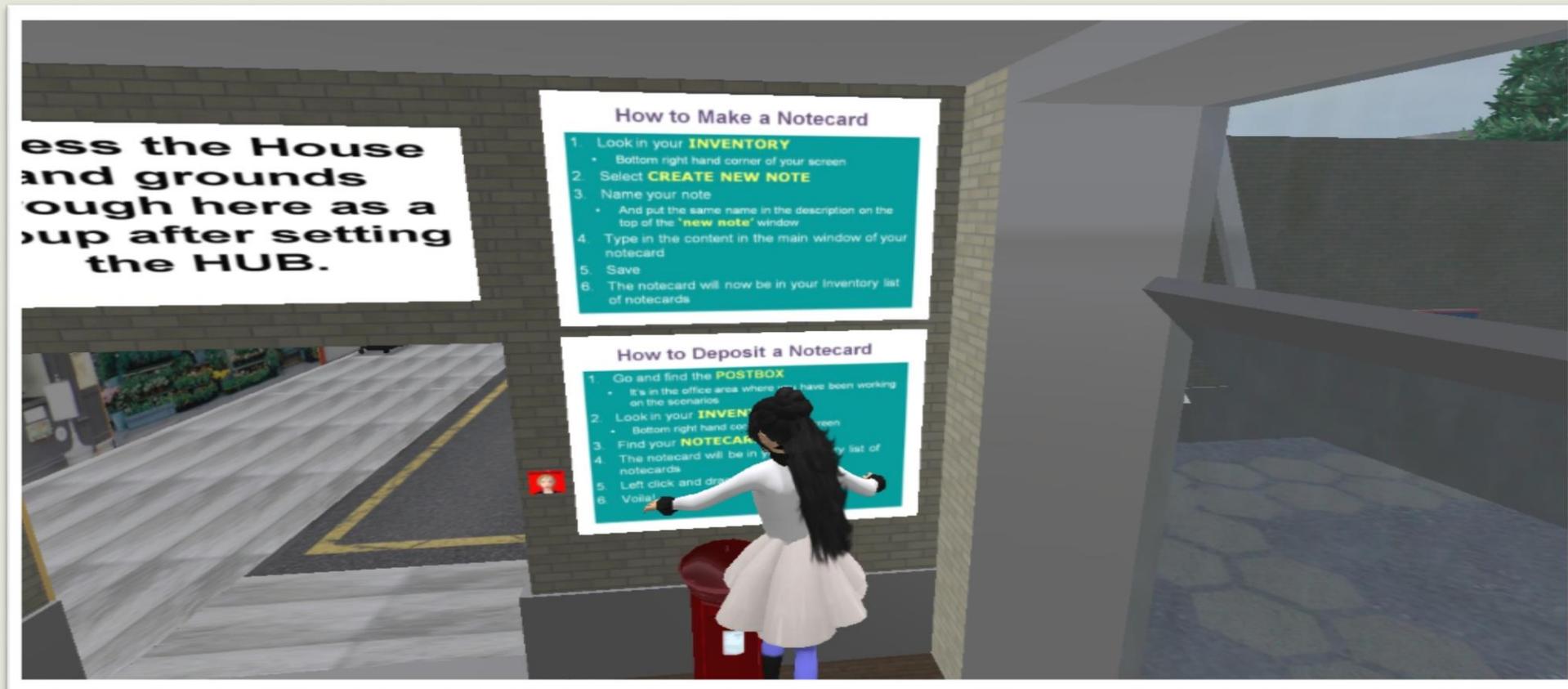
You should first sit down at the table and discuss your roles and approach. You need to decide:

- **Who will produce the group report?**
- **Who will look for which type of information (people/object/boards) and where (house/grounds/information area)?**
 - *This is a group problem-based learning task and effort should be divided between those taking part.*



Example of Virtual World Design

■ Notecard Tutorial



Example of Virtual World Design

- Scenario



References

- Hmelo-Silver, C. E. (2004). Problem-based learning: What and how do students learn?. *Educational Psychology Review, 16*(3), 235-266.
- Schmidt, H. G., Rotgans, J. I., & Yew, E. H. (2011). The process of problem-based learning: what works and why. *Medical education, 45*(8), 792-806.
- Hung, W. (2011). Theory to reality: a few issues in implementing problem-based learning. *Educational Technology Research and Development, 59*(4), 529-552.
- Garfield, J. B. (1994). Beyond testing and grading: Using assessment to improve student learning. *Journal of Statistics Education, 2*(1), 1-11.
- Gallagher, S. A. (1997). Problem-based learning. *Journal for the Education of the Gifted, 20*(4), 332-62.
- Problem-based learning. Retrieved from http://en.wikipedia.org/wiki/Problem-based_learning
- Problem-based learning. Retrieved from <http://online.sfsu.edu/rpurser/revised/pages/problem.htm>
- Problem-based learning. Retrieved from <http://www.personal.psu.edu/wxh139/PBL.htm>