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Developing Graduates for an Innovative and Modern Agricultural Sector

TOPAS

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Content

1. Context
2. Technical knowledge
3. Context
4. Skills
5. Traditional model
6. The need for change
7. New approaches
8. Alignment
9. Blooms taxonomy
10. Examples of Change

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What technical knowledge is needed in Agriculture?

Context

- Traditionally universities have focussed on the academic approach imparting technical information and knowledge for students to absorb.
- Agriculture is a rapidly changing industry and information and knowledge can quickly become out-dated as new technology and innovations are introduced
- To produce employable graduates universities need to develop students with a wide range of skills, competencies and understanding

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Skills/Competencies

Problem solving

Communication

Leadership

Achievement/results

Awareness

Planning/organising

Developing others

Customer focus

Teamwork

FLEXIBILITY/ADAPTABILITY

Analytical thinking

Building relationships

Traditional model

- Content delivery by expert, students mainly passive
- Expectation that students read more or consolidate their knowledge in some way in own time
- Task to prompt and test learning – essay
- Teaching to the test for exam preparation
- Exam tests memory
- Assessment allows surface learning to pass

The Need for Change

- Greater accountability to the students and to government
- More modern practices put the student at the centre of the process developing competences rather than gathering facts
- Shift from teaching to learning and measuring learning.
- Better understanding of how students learn
- Changing conception of what counts as knowledge and who can create it.
- Greater focus on skill development and employability.
- Availability of learning resources

  for content delivery, e.g. web, VLE.

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New Approaches

- Student is the focus of the learning experience not the lecturer
- Assessment for learning not assessment of learning

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Alignment

- Key idea is that all the components of a course are aligned and the drivers for this are the **Learning Outcomes:** what you want the students to be able to do after they have taken the course.
- Assessment must be designed to check the students' ability against the learning outcomes.

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Blooms taxonomy

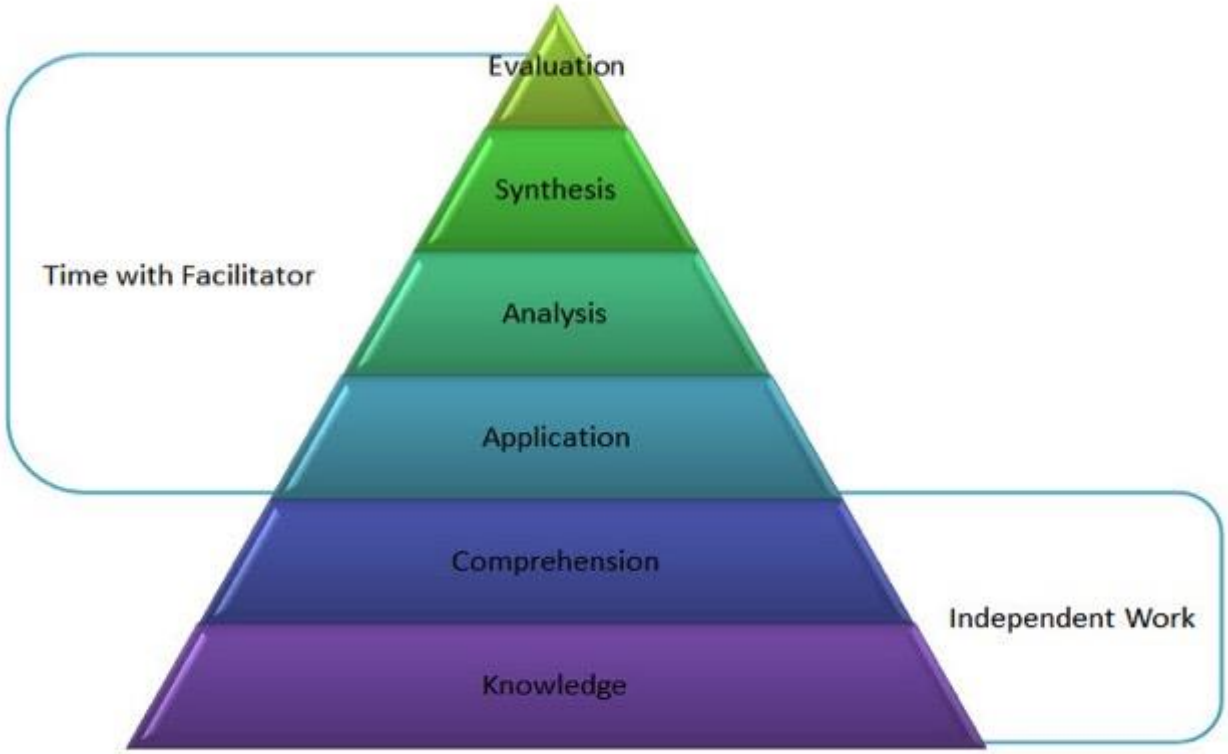

Image from http://ileighanne.files.wordpress.com/2013/01/flipped-classroom-blooms.jpg

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Examples of changes

- Flipped classroom and collaborative learning
- Problem based learning
- Research based learning
- Reflective learning and self-evaluation

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Flipped classroom

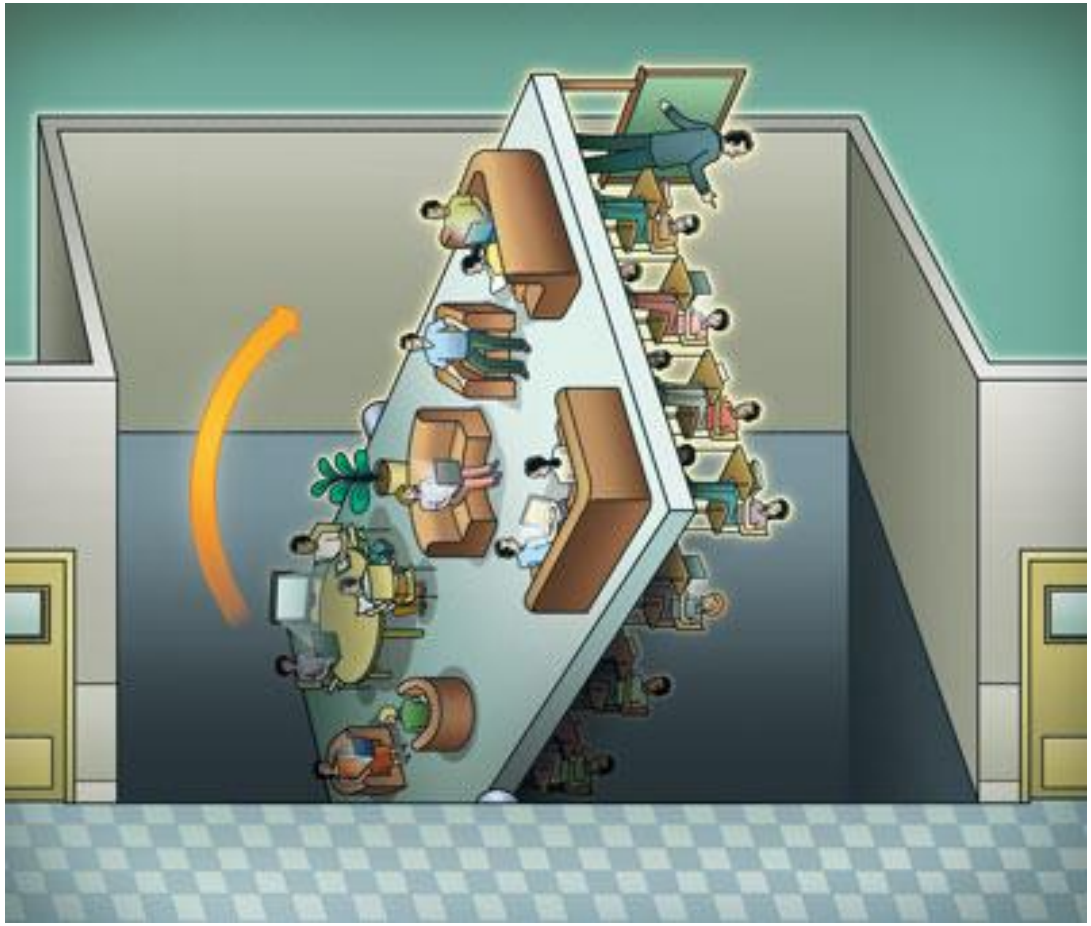

Illustration from: http://campustechnology.com/articles/2013/01/23/6-expert-tips-for-flipping-the-classroom.aspx

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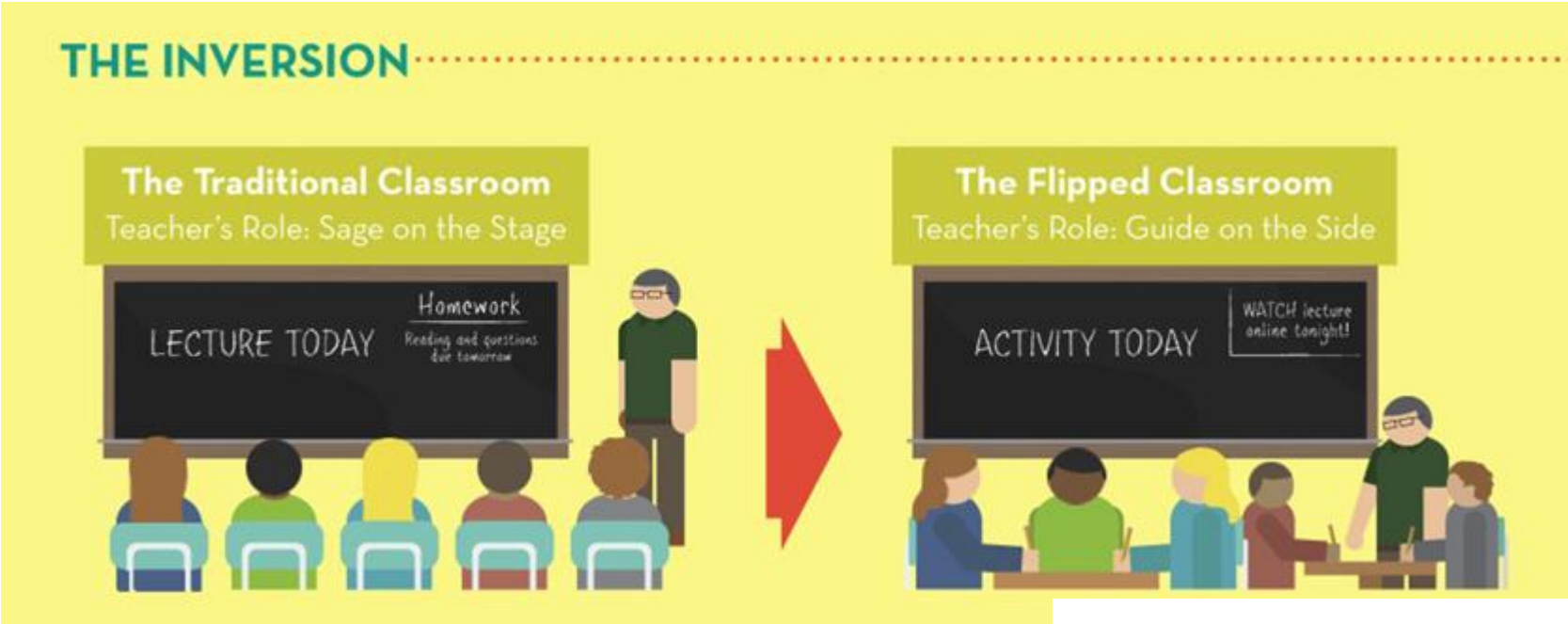

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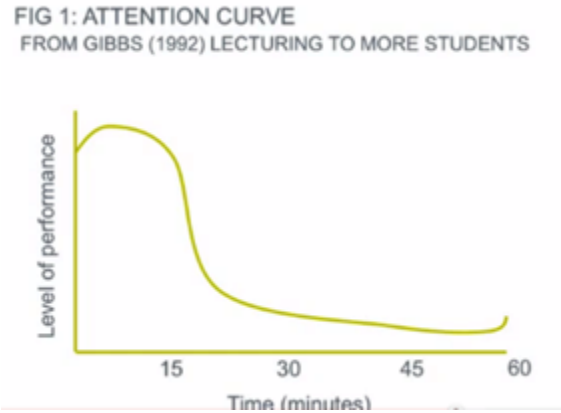
The interactive lecture

- Allow spaces for thinking, responding, framing questions, analysing, predicting, using what has been presented.
- More effective if collaborative as stuck students can catch up by learning from others and all stretch their understanding .
- A gap with nothing is more effective overall than a non-stop lecture



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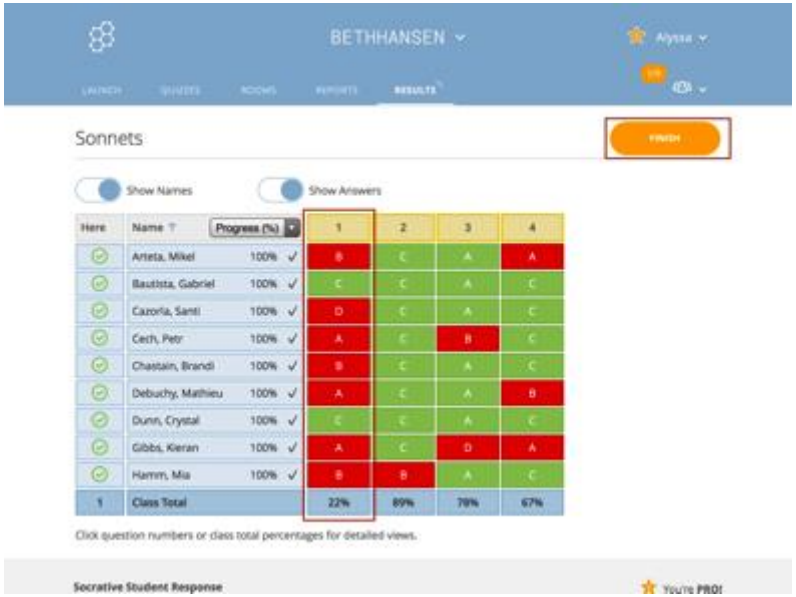
Online Quizes



Problem-Based Learning (PBL)

- Began in 1960s
- Classic definition – "learning that results from the process of working towards the understanding of a resolution of a problem". (Barrows and Tamblyn 1980:1).
- Usually in student groups
- Problem design is crucial to success

What does PBL look like

- Tutor provides prompt – something complex that, when investigated fully, will need the threshold concept(s) with no right answer, or only one way to approach it
- Students work in groups
- Could last one session or whole module
- Tutor meets groups to check on progress, provide guidance.

Good quality problems are:

- Engaging and motivating
- Authentic, real-world, from professional/ social life
- Open to multiple ideas/hypotheses, sustain discussion
- Multi-dimensional with physical, cognitive, social, emotional, ethical dimensions
- Challenge students to achieve learning outcomes, understand threshold concepts, work on problems
- Graduate attributes-focused:

  Enhance teamwork, critical thinking,

  creative problem solving.

Prompts

- An article
- An experience related
- A video
- A photograph
- A field walk
- Farm visit

Some examples

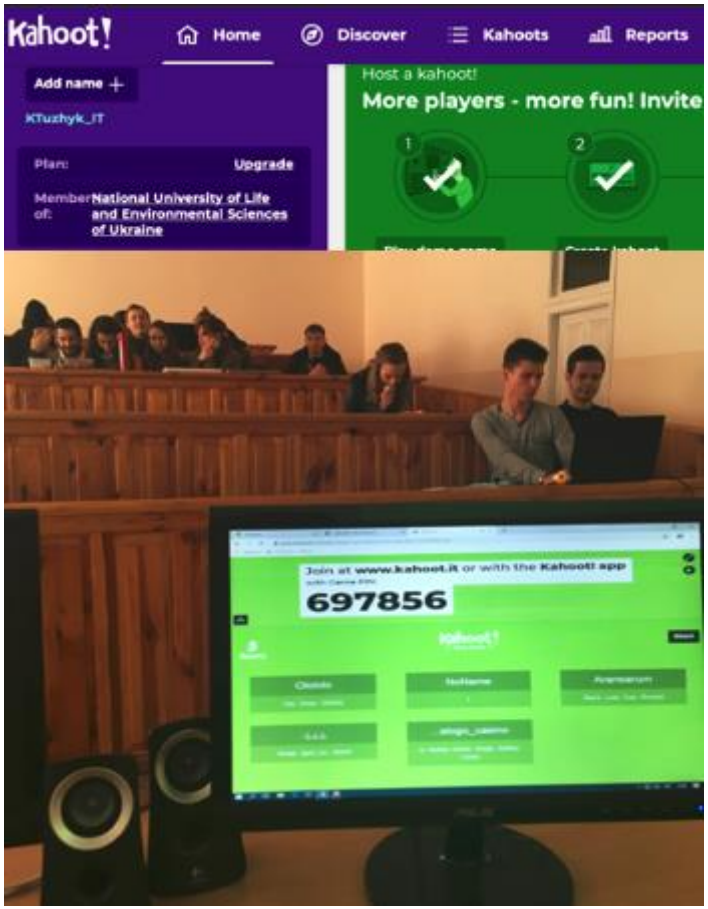
- Posters as assessment
  - Year 1 → research paper
  - Year 3 → own research
- Flexible, CV-19 proof
  - Online/offline
  - Live/recorded
- Transferable skills

Some examples

- Industry case studies
  - PBL
  - Lecturer-steered
  - Data relevant and up to date
  - Industry reps can be involved

Some examples

- Online/mobile quizzes
  - Check understanding
  - Gamification
  - Maintain interest
  - Various alternatives
    - offline/snowballing/etc.



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Some examples

- Portfolios
  - Allow for collections of different types of assessment in a coherent manner
  - Flexible
  - Online or offline
    - Example: https://zsdeportfolio.weebly.com/

Questions?

Presentation available at:

https://www.slideshare.net/NiekyvanVeggel/developing-graduates-for-an-innovative-and-modern-agricultural-sector