



Blended Cooperative Course Authoring

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- ✓ A. Course Administration
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 - ✓ A.3. Calendars Timeline
 - ✓ A.4. Assignments Description
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 - ✓ A.6. Current Issues
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 - ✓ F.3. Description A2
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 - ✗ D.2 Week 2



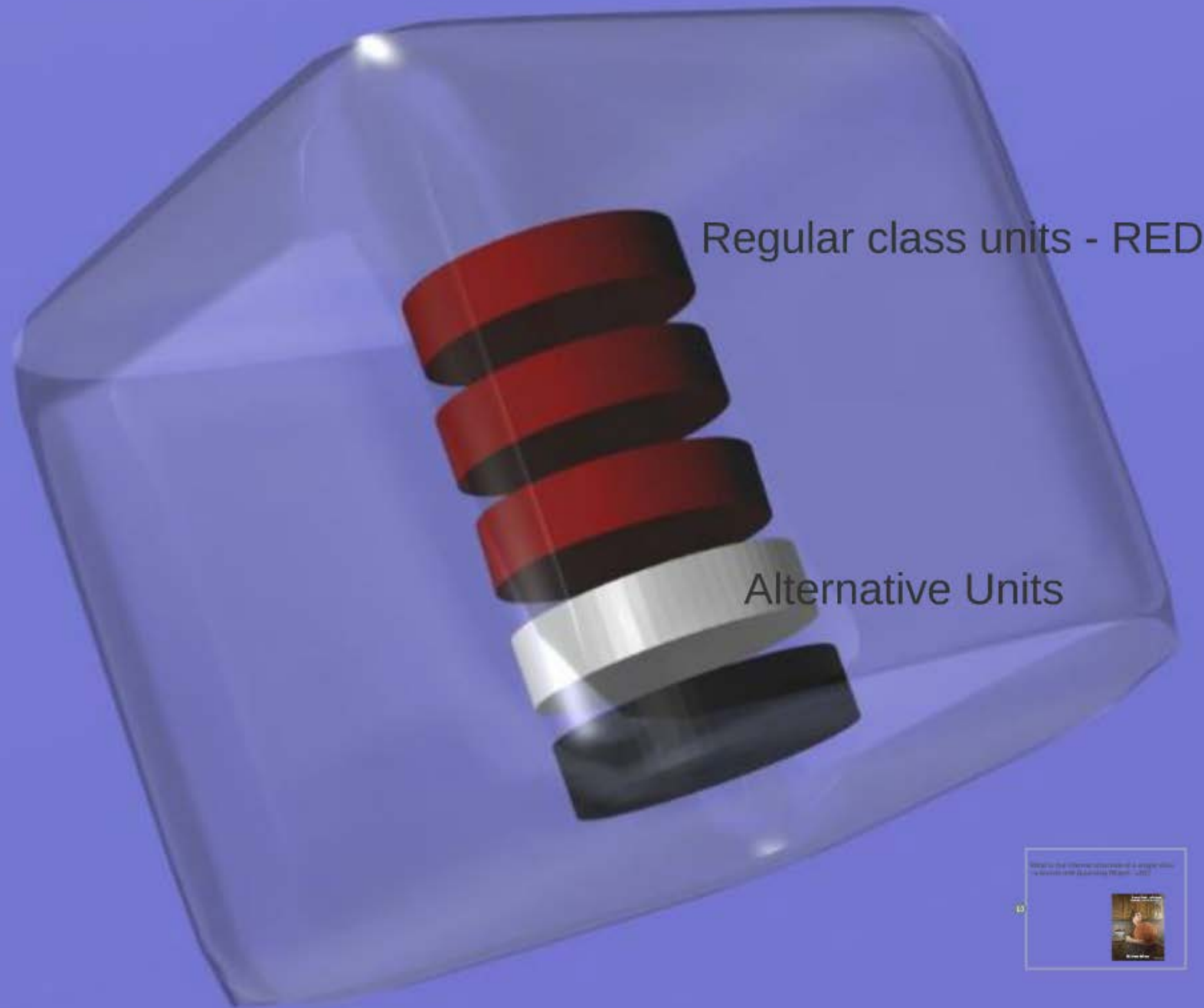
A typical problem encountered by the teachers when preparing course stream (except versioning of different documents) is organizing and structure different materials devoted to using as the course is progressing. Usually, preparation or modification of the course starts with deciding about handbook and gathering through Internet various supporting materials to show or use in different points of the course. The gathered materials may have form of teachers notes, chapters, case studies, presentations, team activities, scenarios, tweets, Facebook materials, other social media links, and YouTube videos and are more or less structured when designated into the existing folder structure. Usually the process is messy and time consuming.

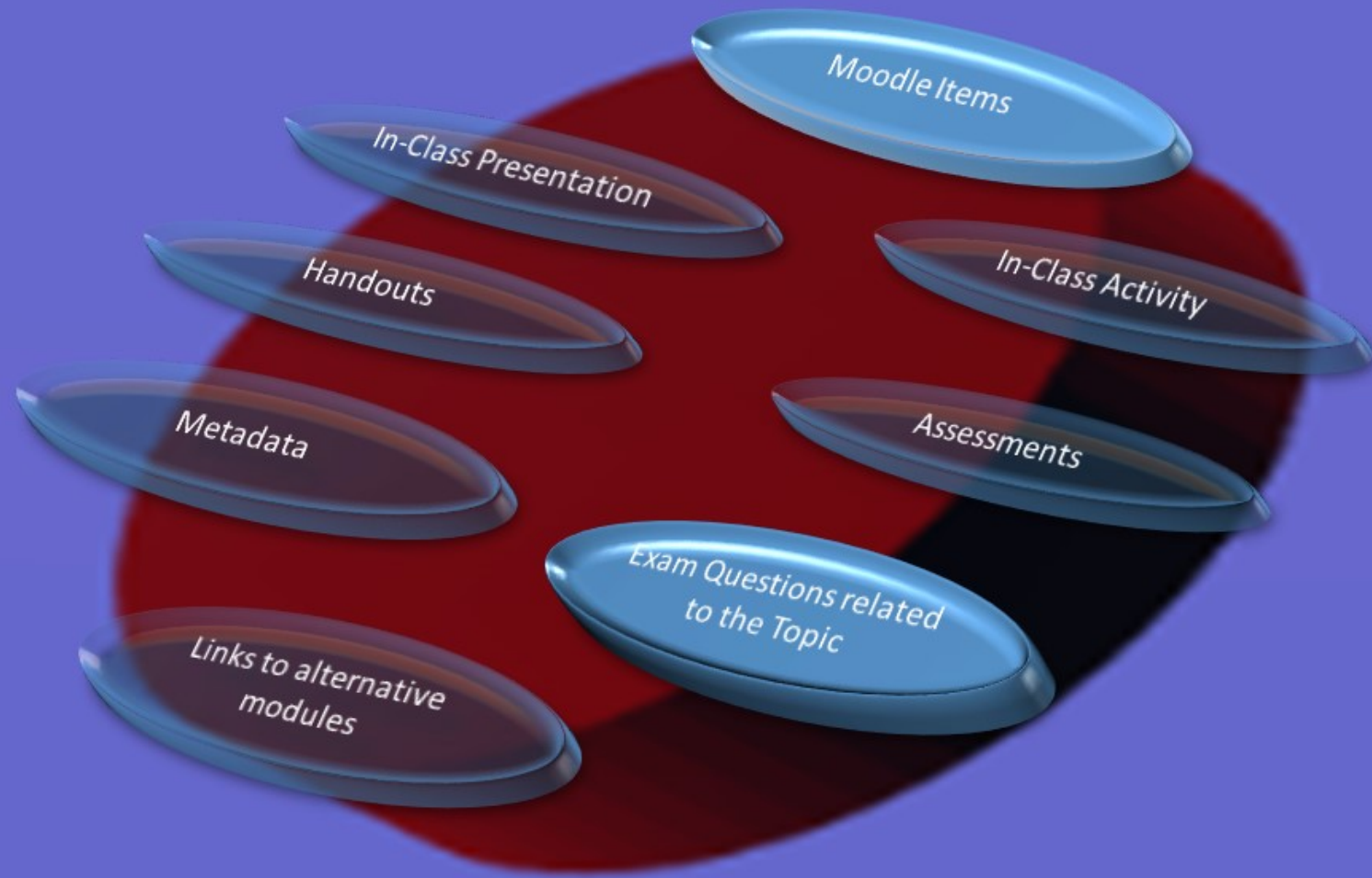
ABSTRACT

There is presented a tool which may be described as a *collaborative authoring tool for blended learning*. The tool orchestrates the timing of classroom activities blended with multimedia presentations, and assists with the way learning management system (e.g. Moodle) interact with students. The tool also addresses the need for collaboration when several teachers want to work on development of the same course offered at more than one branch of their college.

At the first stage, the authoring tool performs the role of a content management system, by indexing, tracking, and versioning self-contained “chunks” of teaching materials known as learning objects (LO). After that, a network of related concepts represented by appropriate LO is created according to the course topic.

At the second stage the tool provides users with the ability to place and move symbols which represent different learning modules (LO) on a 3D-surface. Each symbol may have assigned visual properties related to this LO. Symbols settled on higher levels of the surface indicate higher level of LO difficulty. The lecturer may navigate in *information space*, selecting material and assigning a relative importance for each item. This structure is accessible for collaboration. Finally all LO on the network depict main path and a set of alternative paths through the learning space, as several different ways of presenting the same material may exists. Main path, which finally is selected, contains all necessary materials in proper order to deliver the course. This path is copied to several parallel synchronized paths – one per each delivery channel (e.g. multimedia will be only present on the path which is displayed on the screen using projector, case studies delivered by Moodle synchronized with team activities).







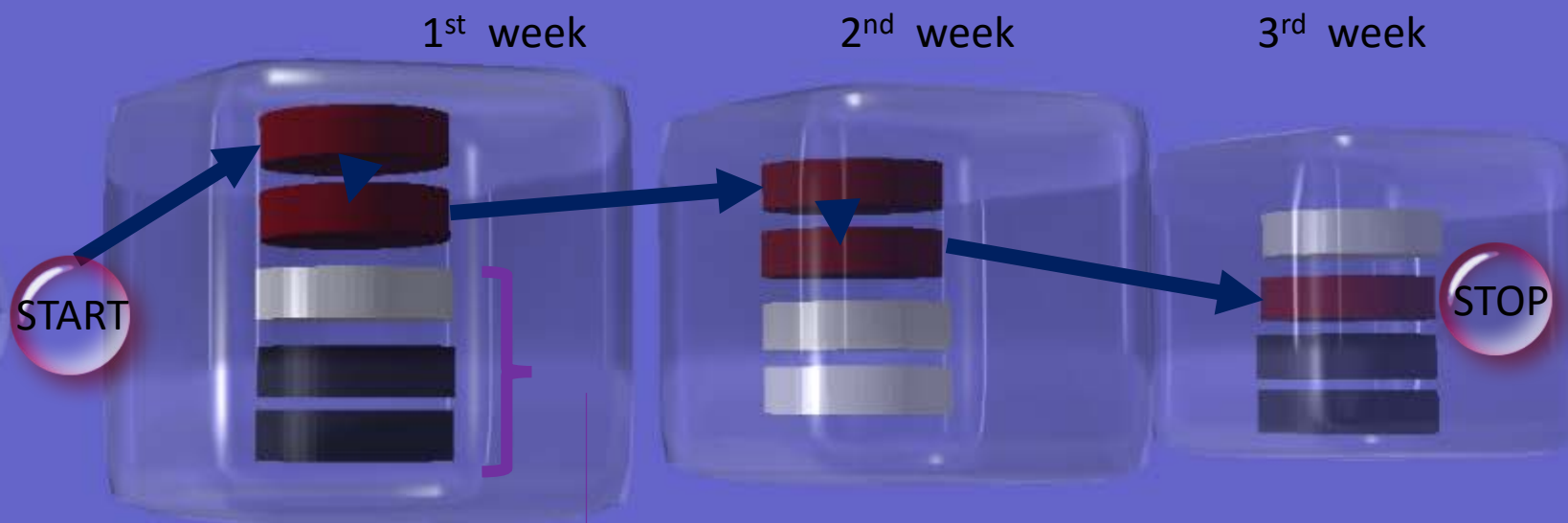
Preliminary
selection



Lesson container
e.g. one week of
classes



The shape denotes minimal
logical unit of the Lesson e.g.
mini Topic (in fact the Learning
Object)



A whole course flow is presented by the blue arrow line from start to stop.

Principles of connectivism:

- Learning and knowledge rests in diversity of opinions.
- Learning is a process of connecting specialized nodes or information sources.
- Learning may reside in non-human appliances.
- Capacity to know more is more critical than what is currently known.
- Nurturing and maintaining connections is needed to facilitate continual learning.
- Ability to see connections between fields, ideas, and concepts is a core skill.
- Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities.
- Decision-making is itself a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality. While there is a right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision.

Figure 1. Principles of connectivism (Siemens, 2004).

Standard way: A-B-C-D-E

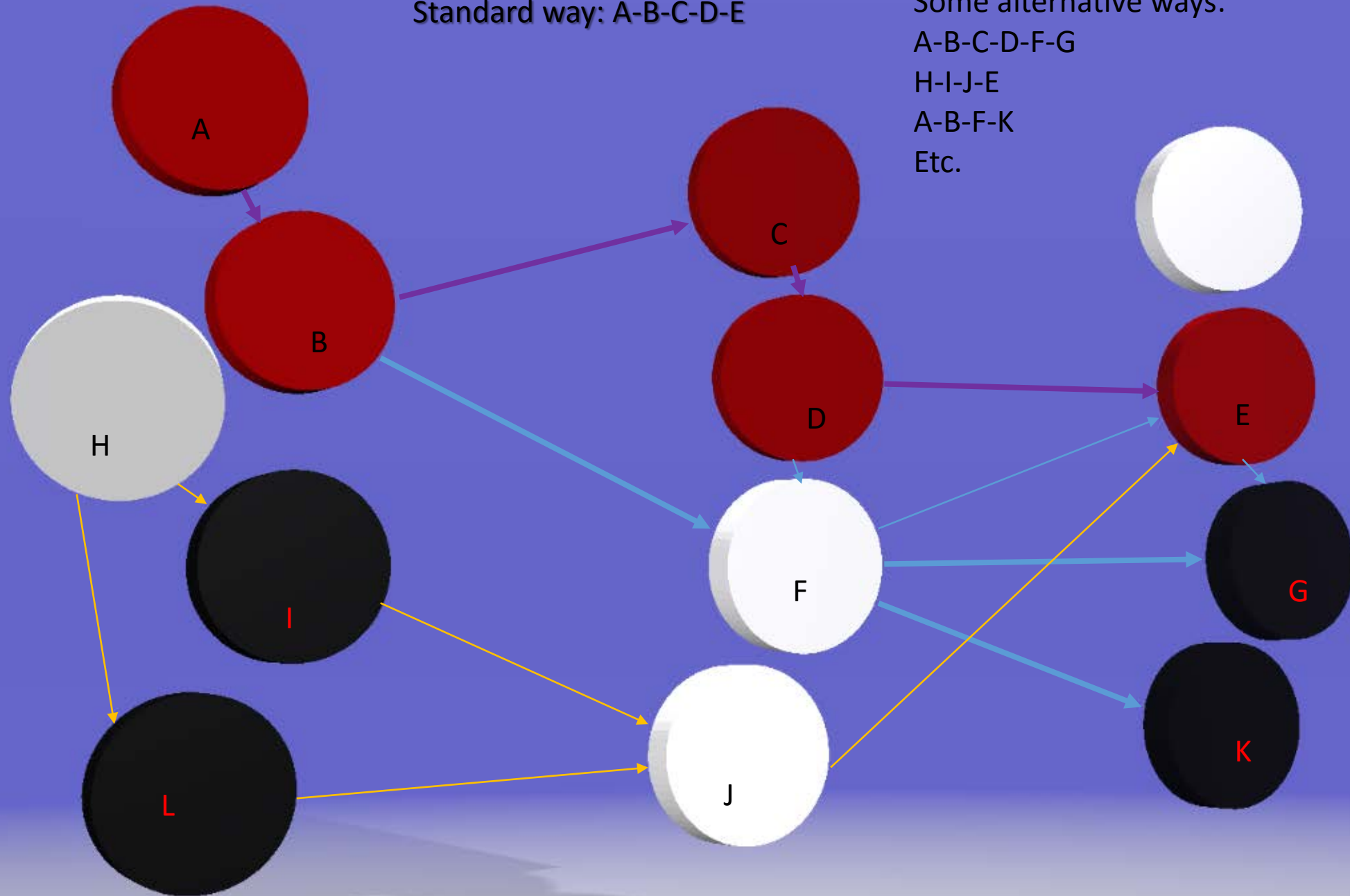
Some alternative ways:

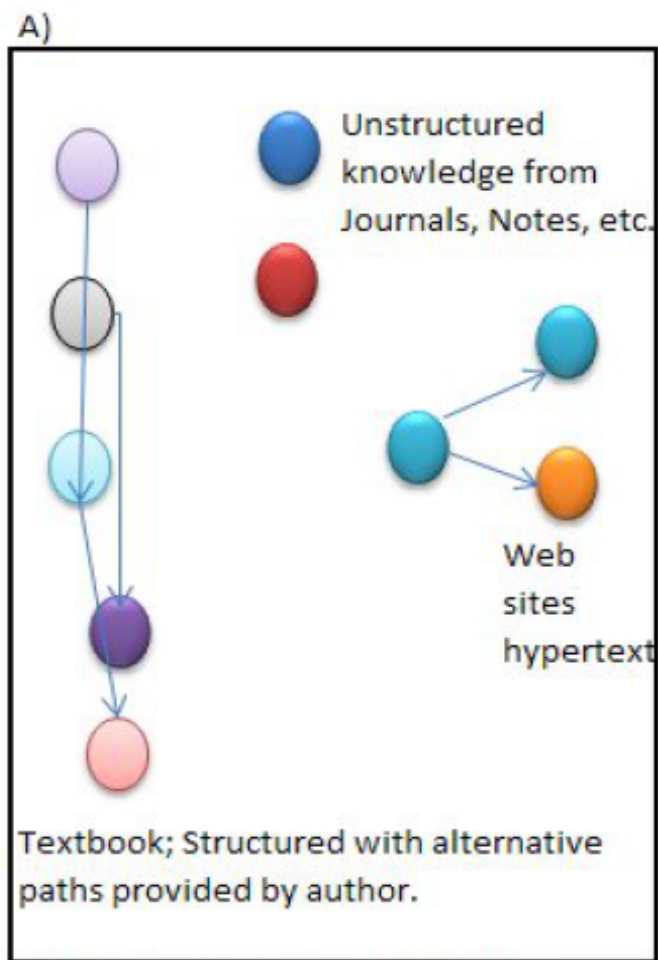
A-B-C-D-F-G

H-I-J-E

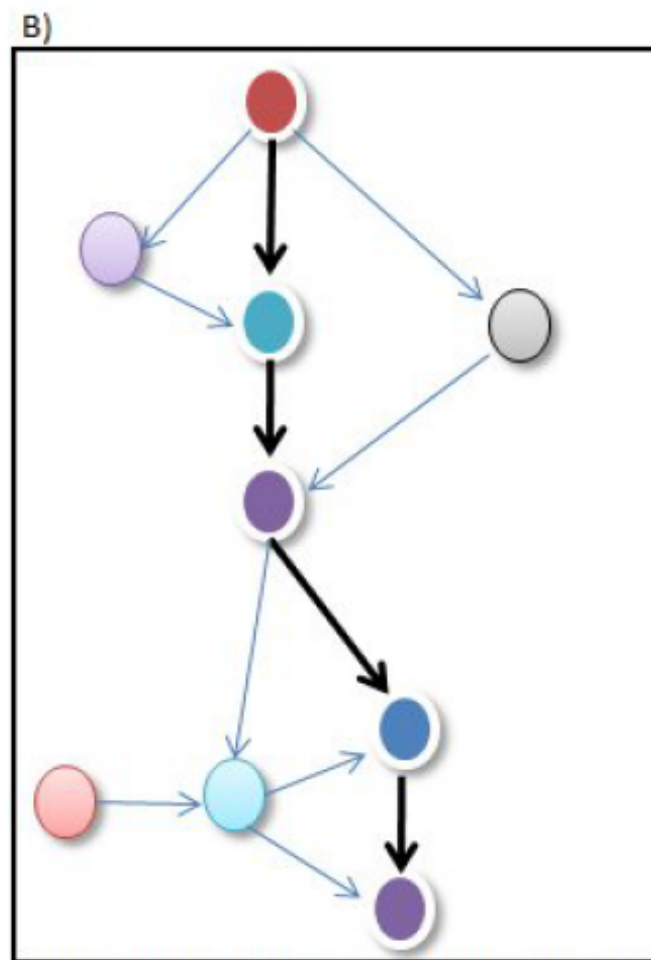
A-B-F-K

Etc.

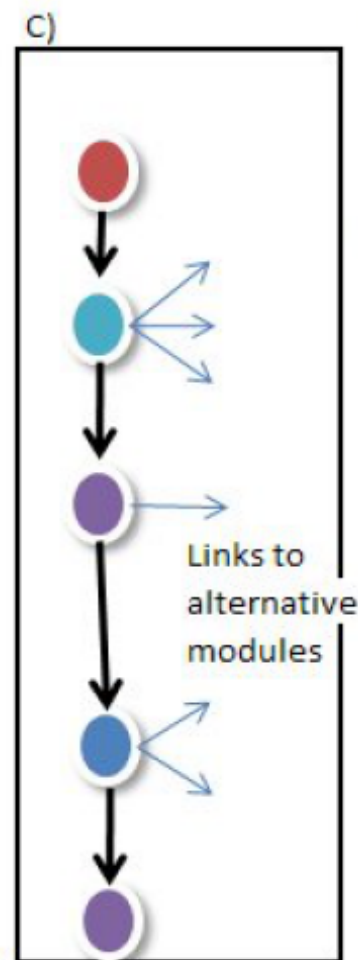




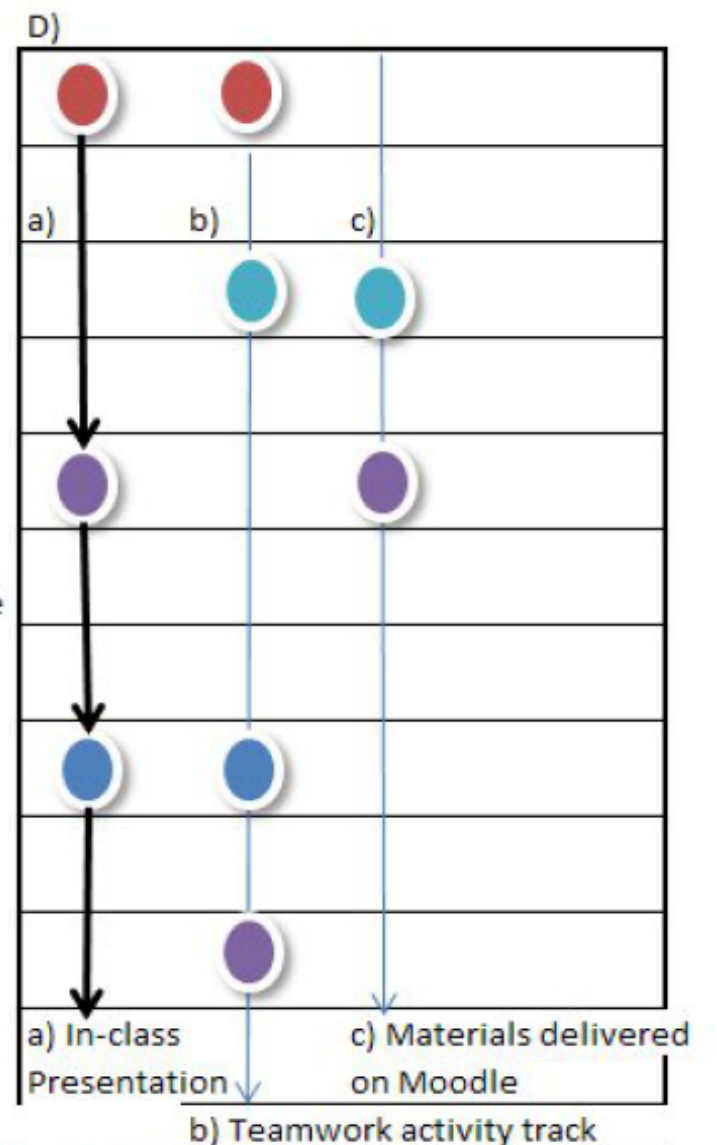
A) Initial unstructured knowledge representation.



B) Networked structure of the lecture with main path alternative paths of teaching

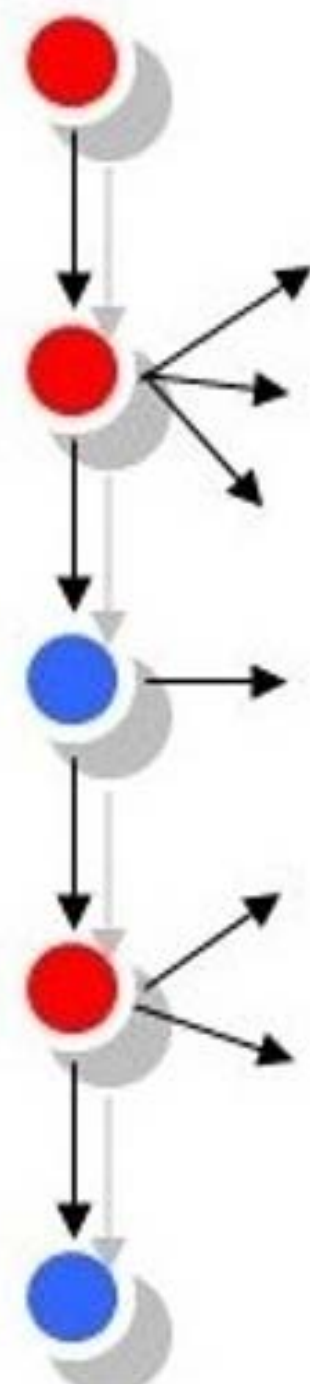
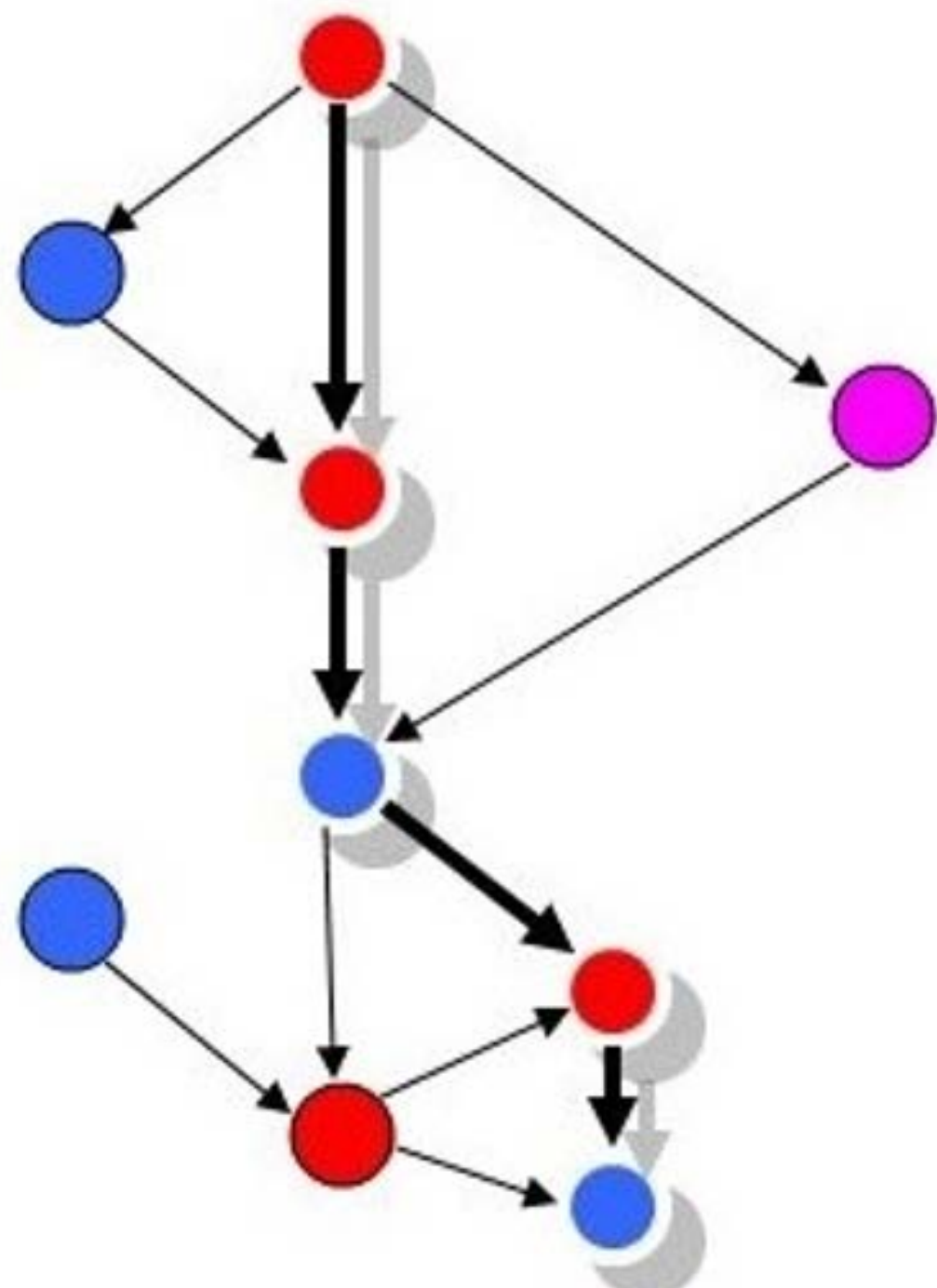


C) Sequence of material presented during a course.



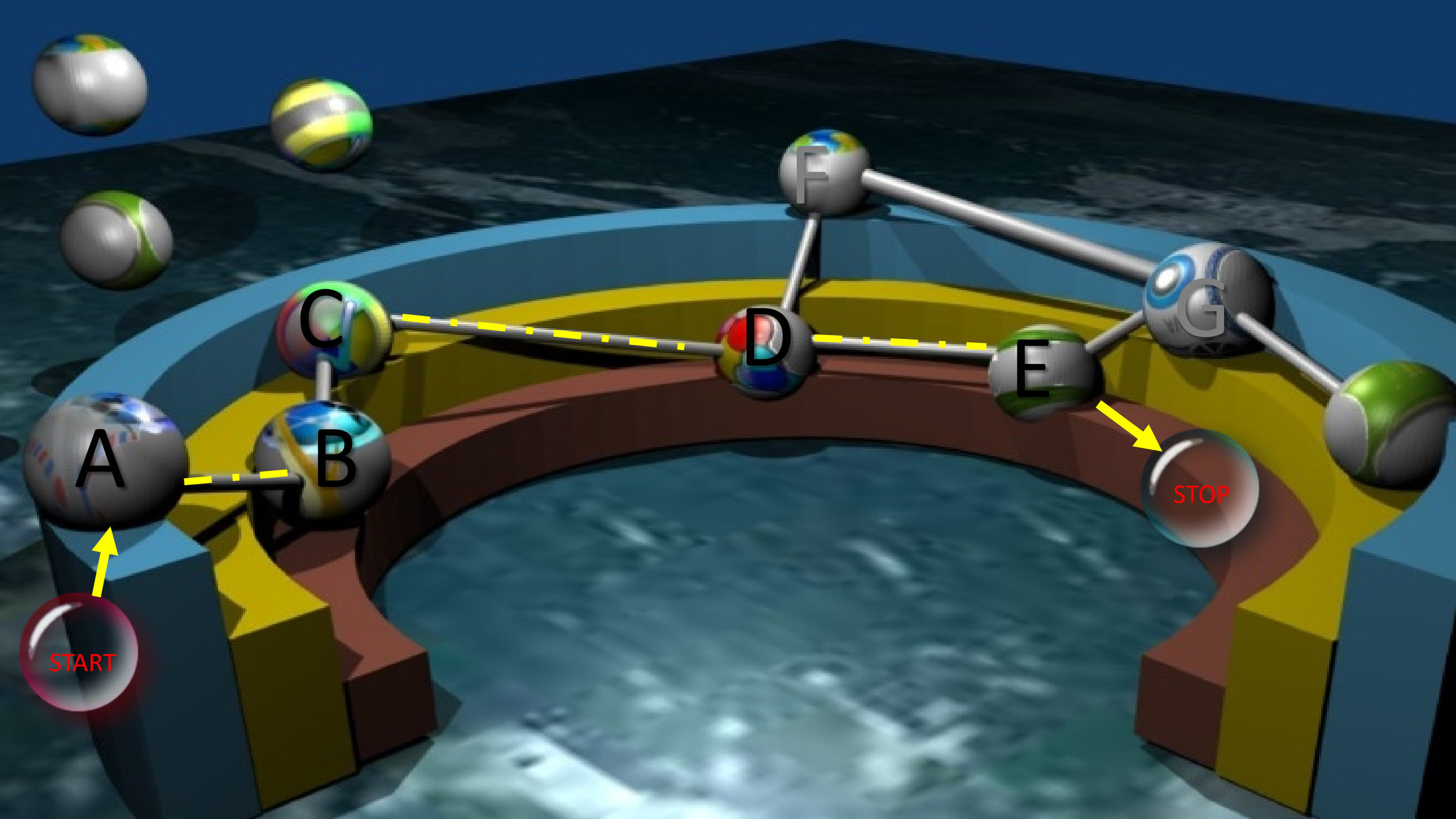
D) Scoreboard with three (a),b),c),...) or more parallel tracks. Just like a "Symphony" written for several different "instruments".

Each track (teaching "instrument") is one tool used during a class/course e.g. screen with projector, or Moodle with materials delivery for current student's activities. Each track is basically a copy of the main track from C) but contains only these items which are applicable to deliver or present on a specific track. E.g. only MS PowerPoint presentation or multimedia materials are presented on screen and case studies are only presented on Moodle.

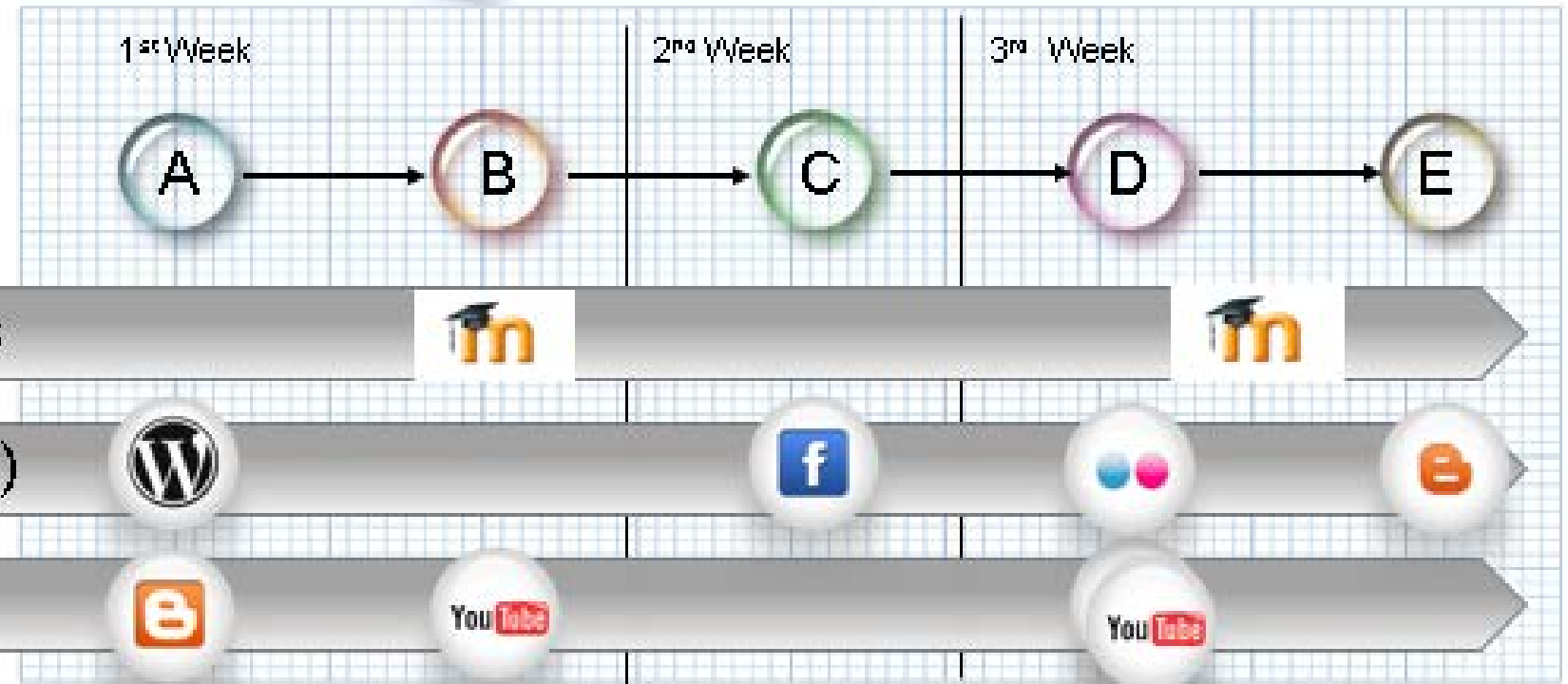
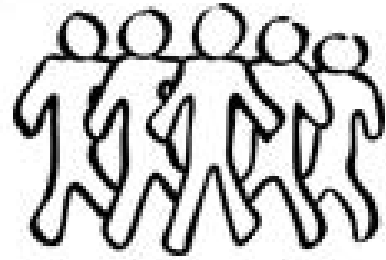


Links to
alternative
or associated
concepts

to not used
micromodules
(internal) or
external links
to other concepts
or reference
materials







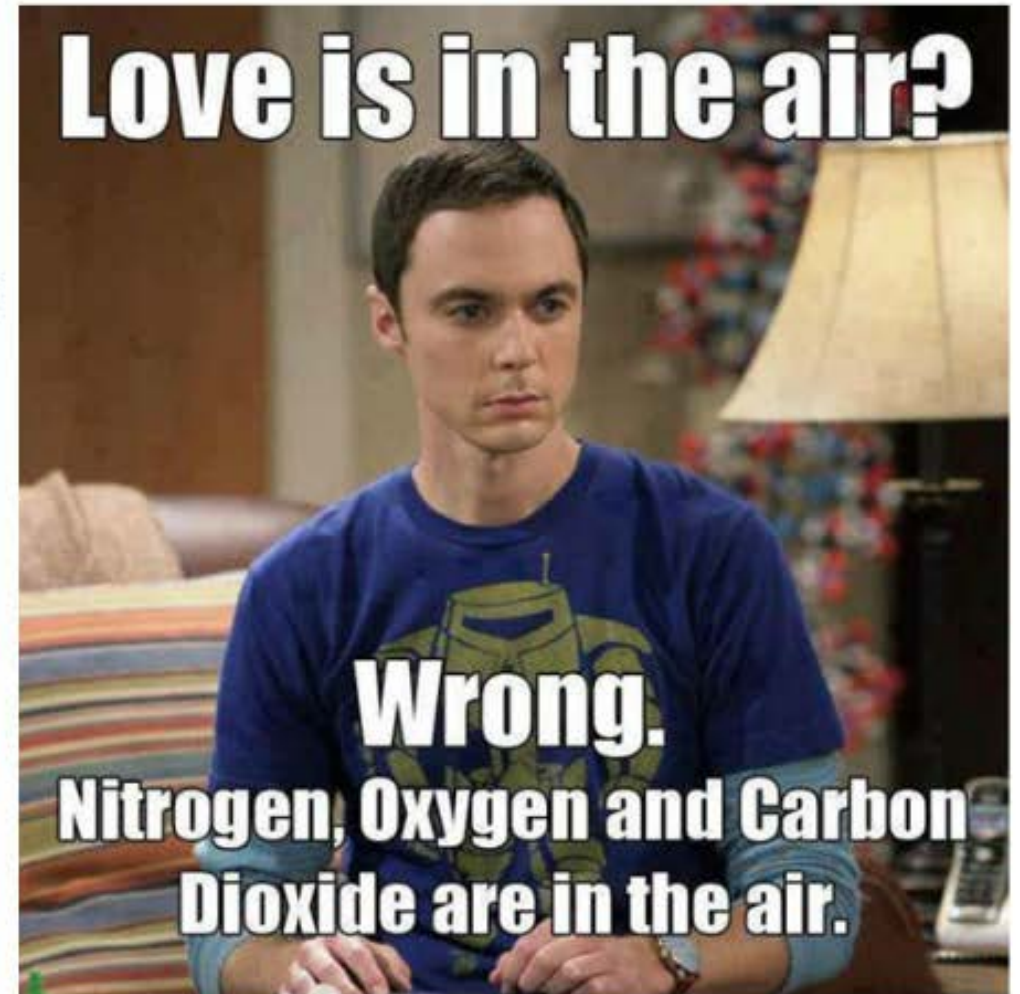
Technical Aspects

- Still Research in Progress
- Software will be developed using procedurally generated objects on Unreal Engine using C++.
- Objects on the screen will be related with objects stored on Amazon RDS (a cloud based service)(The Project is supported by Amazon Research Grant).
- Most probably the software prototype will be presented on the eResearch Australasia Conference (Australia) – Oct. 2017.
- The LO definition will be extended for pedagogical context. (This is against unification standards for LO storage).



Conclusion

- The proposed product is different than tools like Moodle, Blackboard etc. It is not about authoring single multimedia course items.
- This is about preparing stream of materials to feed up several tools used in parallel (e.g. PowerPoint presentation orchestrated with Moodle materials related to the presentation and paper handouts).
- Versioning tool, document management and organization tool.



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