EFFECTIVE VIRTUAL LEARNING ENVIRONMENT FOR ENHANCED QUALITY EDUCATION

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HOW VLE HELPS IN NIRF RANKINGS

NIRF has 5 groups of ranking parameters:

1. ***Teaching, Learning and Resources (TLR)***
2. ***Research Productivity, Impact and IPR (RPII)***
3. ***Graduation Outcome (GO)***
4. ***Outreach and Inclusivity (OI)***
5. ***Perception (PR)***

➔ ***Three of these – TLR, GO and PR – will be directly affected by establishing and effectively using Virtual Learning Environment (VLE) that spans the Affiliating University and their Colleges.***

➔ ***We outline in this lecture how this VLE is set up over a University Education Cloud and Academic IT Services Support across the university and its colleges.***

Our Vision On Education

"We want that education by which character is formed, strength of mind is increased, the intellect is expanded and by which one can stand on one's own feet"

- Swami Vivekananda

➔ ***Our Vision of Education for Knowledge Societies: "Enable, Educate and Empower Every Citizen and Community Through Knowledge"***

➔ ***Our Objectives: (1) "Quality Education to All, Independent of Geography."; (2) Effectively Integrate Higher Education (HE) System with Socioeconomic Development***

➔ ***Our Leverage: The 4 'C's – Connectivity, Collaboration, Critical Thinking and Creativity – in the conduct of courses and education programs over the VLE.***

Objectives of Good Quality Education

Formal Graduate Education in Colleges needs following 3 Attributes

1. ***OBE: Courses are conducted in the spirit of "Outcome Based Education", or OBE.***
2. ***GAP: The suite of courses and learning activities a student undergoes in a Graduate Program makes him/her achieve the Graduate Attribute Profile, or GAP* as outlined in the Washington Accord (India is a Signatory to WA)***
3. ***OLC: Colleges practice good Organizational Learning Contract (OLC as delineated by Prof. Paul Goodman). OLC is about the colleges making explicit to students and teachers the processes to students on 'what, why, how, when and where" they will learn in the courses and other learning settings provided to them.***

• Need to Transform the Affiliating University – Colleges Paradigm

Poor quality in Higher Education largely due to the present functioning of the Affiliating University – Colleges system.

- ***Huge efforts are wasted in managing the 'messy' system of admissions and examinations.***
- ***System reduces autonomy of teachers and colleges to make their own innovations to excel.***
- ***Teachers role diluted to more of coaching for university exams. This in turn dilutes implementation of OBE.***

➔ ***How do we transform this system, wherein the university empowers the colleges and their teachers to achieve: OBE + GAP + OLC?***

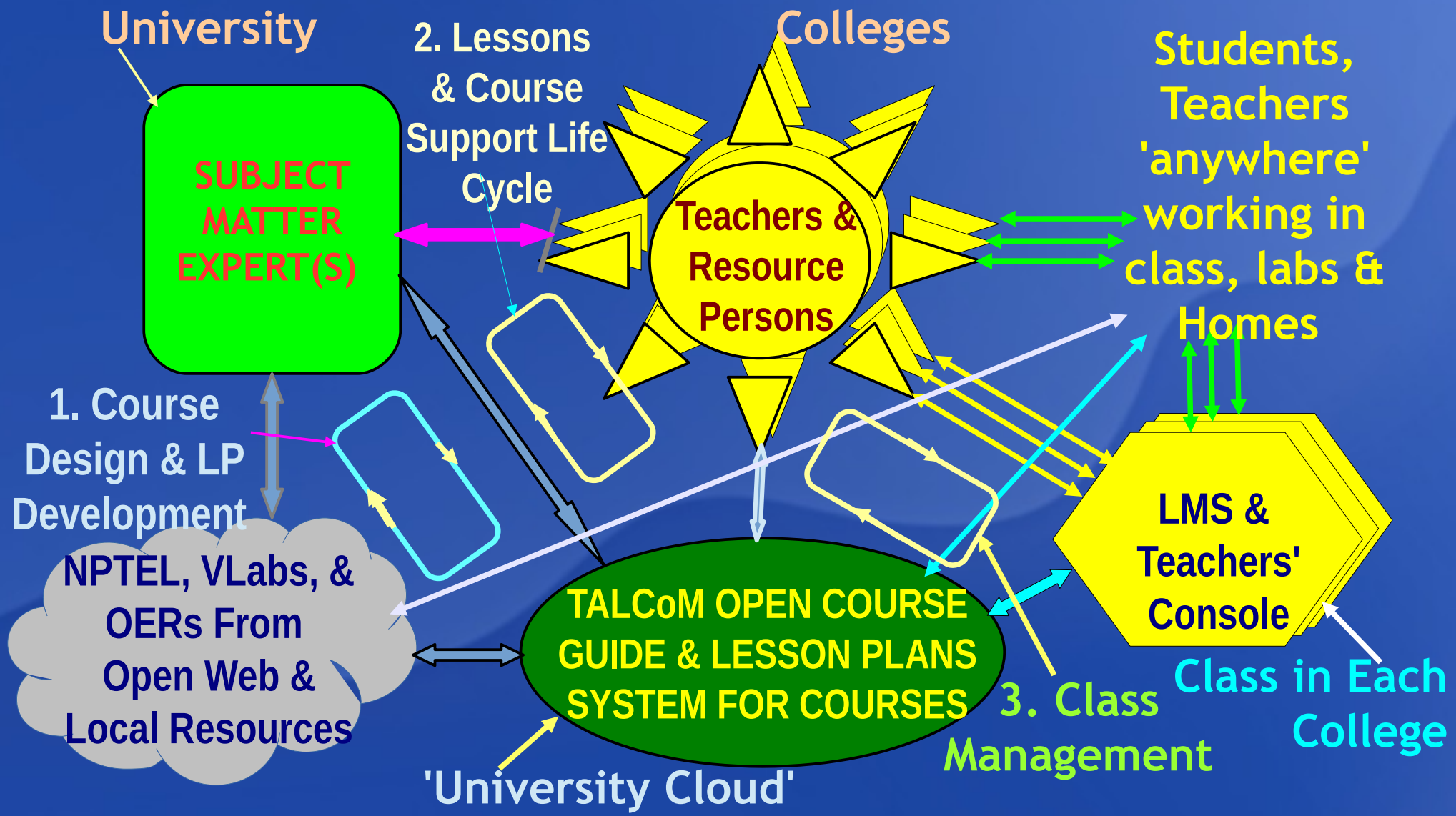
➔ ***In the process, enhance the several ranking parameters of the colleges?***

• Towards Tech Augmented Learning and Course Management (TALCoM)

- **Teaching and Learning need to be done over collaboration, rich e-Resources, learning management platforms, systems for formative assessments, etc.**
- ***The NIRF Ranking is largely centred on measuring physical parameters and practices without showing how we empower the colleges, their teachers and students.***
- ***Expecting colleges to excel without a disciplined practice of autonomy is self-defeating.***
- ***We propose TALCoM conducted over collaborative Course Management framework across colleges and their university.***

➔ ***With TALCoM facilitating disciplined uses of OERs, Virtual Labs, open scientific databases and other e-resources, we are well equipped to support high quality education to all students in all the colleges.***

Setting up the 'TALCoM' for Each Course



'TALCoM': Technology Augmented Learning and Course Management

THREE ENVIRONMENTS OF TALCoM

1. Course and Lesson Plans Development Cycle: Supervised by University and executed by Workgroup of SMEs constituted by Board of Studies.
2. Course Support Network of Teachers in Colleges and university assigned SMEs >> Teacher Training.
3. Course Class Management in each College using LMS.

- There is the fourth Course Ecosystem of Open Course Community Networking of the students and teachers of all concerned colleges, the SMEs and Web Mentors.
- We set up a University Education Cloud and Open Web Publishing of approved *Executable Lesson Plan for each course.*

Technology Support for TALCoM

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- *College Teacher(s) use(s) an LMS like Moodle to conduct the course.*

Requirements for TALCoM

1. University Board of Studies chooses a group of 3 SMEs for each course. SMEs develop 'Executable Lesson Plans', or ELP for each course. Post the same over a University Wiki
2. Group of SMEs constituted by Board of Studies.
3. Course Support Network of Teachers in Colleges and university assigned SMEs >> Teacher Training.
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TALCoM to Support Right Pedagogy

"For a choice of pedagogy inevitably communicates a conception of the learning process and the learner. Pedagogy is never innocent. It is a medium that carries its own message." Jerome Bruner

➔ ***Present Exams oriented education dilutes pedagogy.***

➔ A good education system must nurture the right kind of intuition and values to be inculcated in the learner and practised by the teacher.

➔ Pedagogy practised to be integrated with values and character to be inculcated in the learner.

➔ Here we briefly overview the ***Bloom's Taxonomy*** that is almost accepted as the default in designing professional education.

On Bloom's Taxonomy

- Bloom's Taxonomy consists of 6-levels - grouped into Skills and Higher Order Thinking processes.

- Higher order Thinking Levels
  - T_6: *Creating*
  - T_5: *Evaluating*
  - T_4: *Analyzing*
  - T_3: *Applying*

  } Real-world skills. Need whole new thrusts with quality teachers to drive these levels

- Basic Levels
  - T_2: Understanding
  - T_1: Remembering

  } India's Education stuck here.

- Instruction Design for a course needs to be built around the right choice of Bloom's Taxonomy level(s).
- Present system of mass university term end exams are weak in assessing the higher levels of Bloom's Taxonomy.

An Pedagogic Approach to Instruction Design

Problem Based Learning (PBL) Model

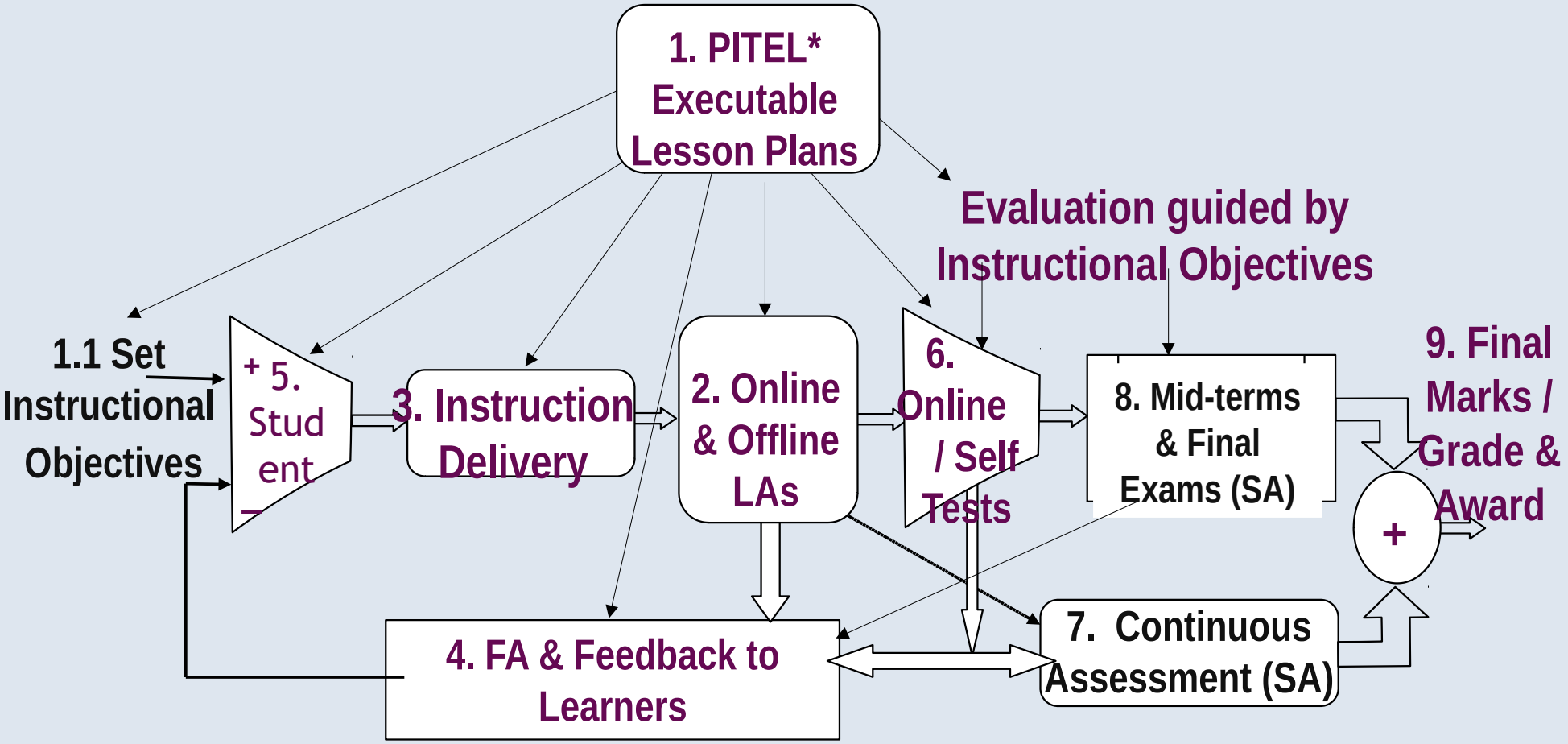
Each Lesson Plan in a course has the above 5 Pedagogic Activities components.

On Outcome Based Education

1. On '*Outcome Based Education*'. Or, *OBE*.
2. *Each Course conducted with clearly expressed Course Objectives and elaborated instructional objectives in each lesson with associated activities in the course.*
3. *Objectives should guide the learning engagements with 'Measurable Outcomes' through assessments. Well trained Teachers are central in class management.*
4. *On completion of a course the student should achieve and demonstrably exhibit the competencies and skills as stated in the course objectives.*

➔ *Pedagogy Project* coordinated by IIT Kharagpur deals with the core issue of *Instruction Design for Outcome Based Education.*

Common System Model (CSM) for Diverse Pedagogies



➔ Model helps in aligning chosen pedagogy model for a course with Lesson Plans embedded in Learning Management System

TALCoM and Pedagogy Integrated Tech Enhanced Learning (PITEL)
- How do we go about? For each course:

- *'Versity BOS Constitutes Working Group of ~3 SMEs*
- *Use the PBL Model and the P&CM diagram as key guides and develop the Lesson Plans.*
- SMEs prepare *PITEL EXECUTABLE LESSON PLANs (PELP)*
- *PELP begins with Course Objectives and outline.*
- *Break up the course into Lessons and prepare the detailed PELP.*
- *Each Lesson in PELP states the Instructional Objectives to be demonstrably achieved by the students doing the learning activities in the lesson.*
- *Each Lesson has the 5 Components of the PBL model.*

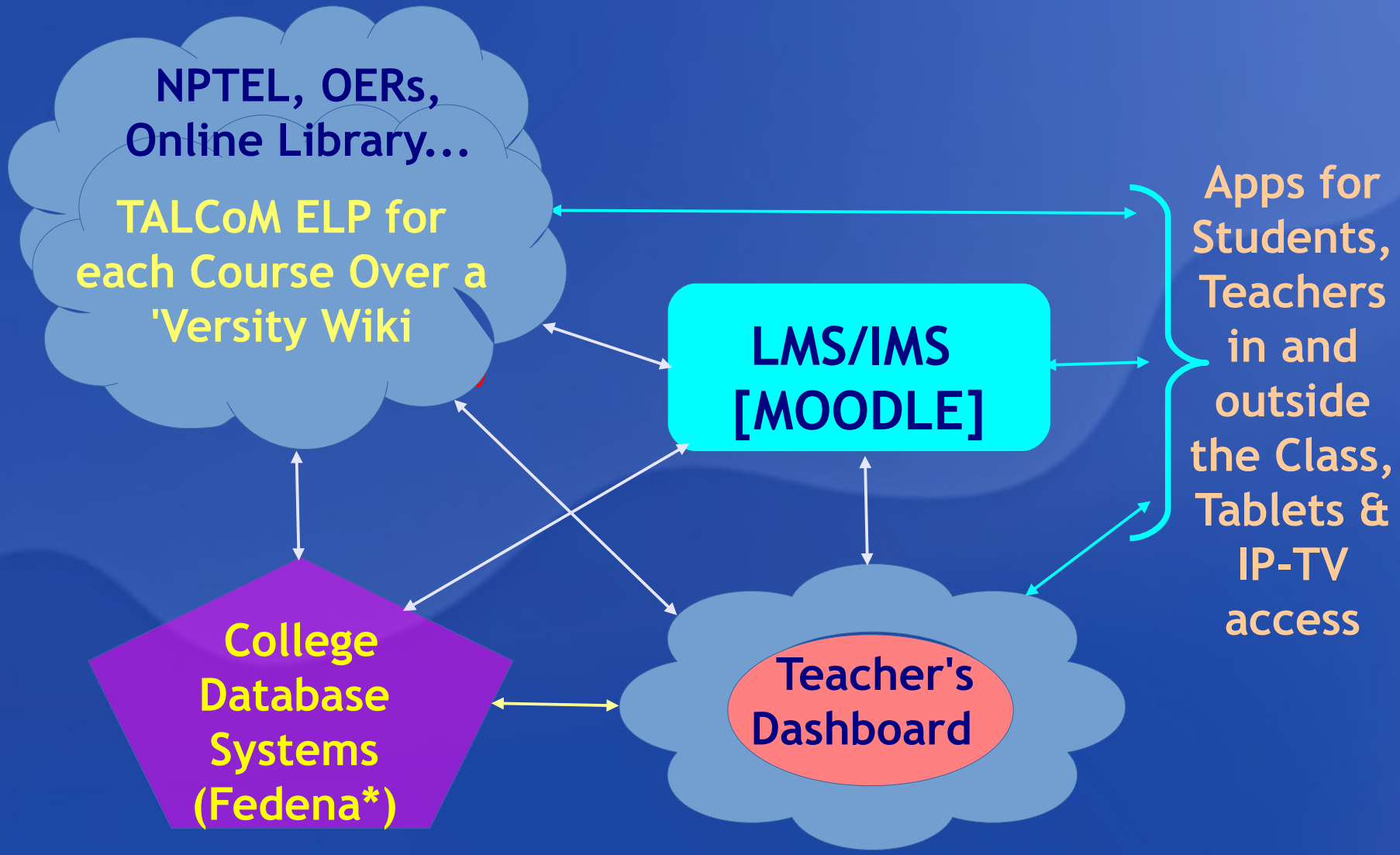
PITEL Exercutable Lesson Plans (PELP) For Each Course - An Outline

Calendered Lesson Plans	Lesson Activities and Related content	Supplementary Activities (SA) (Beyond Lesson)
Week-1: Lesson No. & Title. **Instructional Objectives*** Recall of Prerequisite knowledge with link (selected from OER, NPTEL other online content)	i. Short description of the Instructional Objective. ii. Brief recall of **prerequisite knowledge** (through a link to lesson in an earlier course, relevant NPTEL or other OER content). Note: (i) and (ii) will help weak students to recall prior knowledge. iii. Link(s) to **Motivational content (optional for study). A *short online optional self-test* *(desirable)* on the prerequisite knowledge in the LMS.**	

PELP Contd.

Week-1 Contd.	<u>Part-1:</u> (i) Link(s) to study materials (from text book, OERs, NPTEL or others. (ii) Sample worked out problem(s). (iii) Sample problem set; (iv) A *short compulsory Online Self-Test posted in the LMS*. <u>Part-2:</u> (v) Post solved problems at stipulated Instructional Objective level. (ii) Homework that may be submitted. (iii) Solve essential part of a larger problem that will be developed further in other lessons of the course. (iv) Use of modelling, tools - related problems for practice. (v) Outline of a problem or concept that will be developed in the class. (vi) A weekly assessment provided to each student over the LMS (as per the Instructional Objectives and activities).	SAs are posed as challenges to serious and curious students; help them prepare for competitive exams like GATE, or an appreciation of the learning used in a real world problem. Include a summary of learning from the lesson and worked out examples. Links to online content of interest like case studies, and how the lesson learnt is applied in real world.

College VLE For Course Management

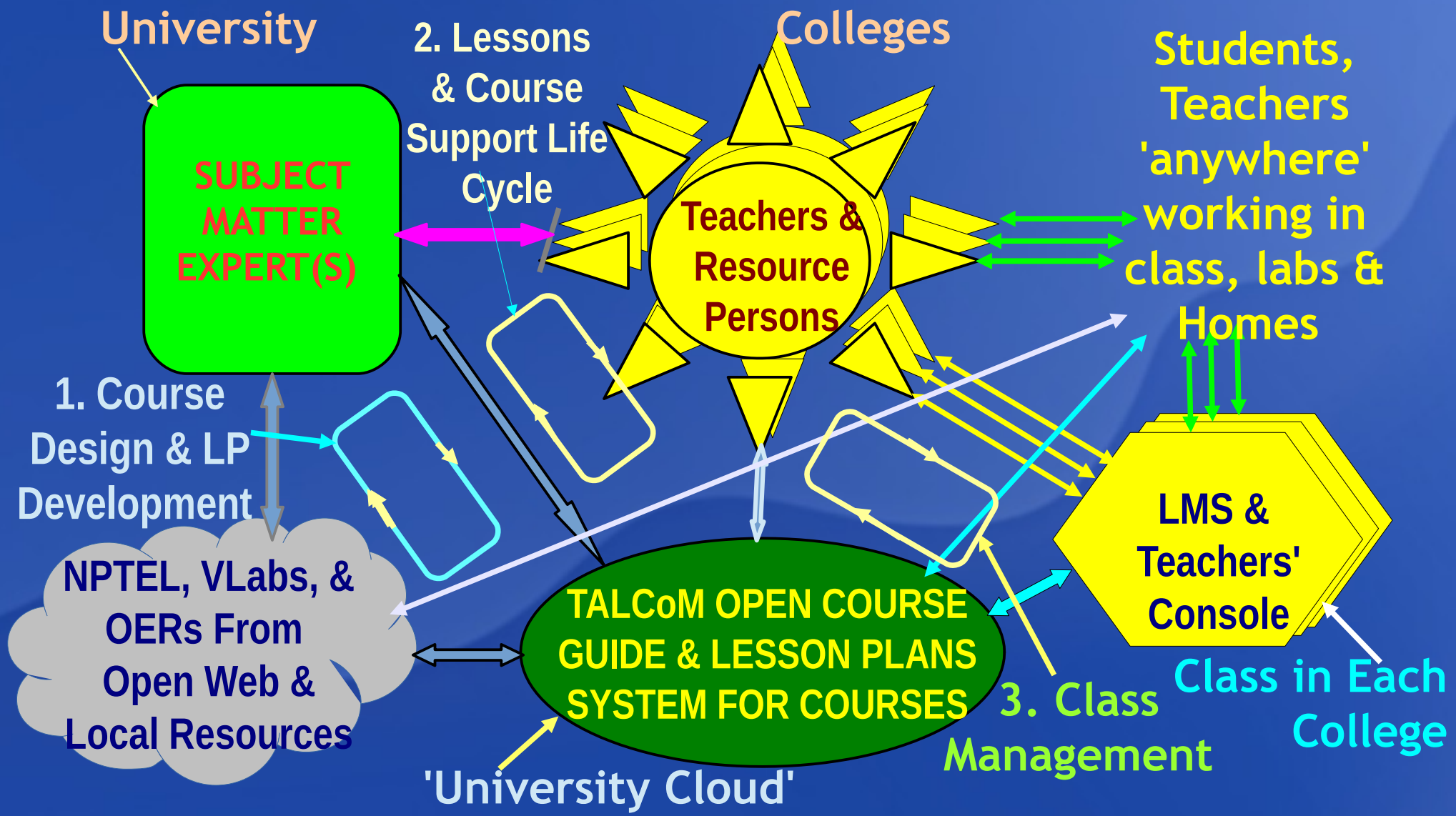


* Recommend Fedena, or, use suitable College Admin Database System.

The 5 Advantages and PITEL

- First: Ensures Students stay focused in the study while using Internet and OERs.
- Second: All Resources relevant for study by students and class management by teacher brought to one area and accessed by tablet/laptop. → BYOD support and M-Learning included!
- Third: Class Management by teachers enhanced through adoption of flip-class, class events alerts by email, RSS feeds, etc. *Progress of every student monitored*.
- Fourth: Time of students and teachers saved as PELP help navigate to their respective activity with linked resources and the LMS.
- Fifth: PITEL supports holistic organization of course and program management for the entire university.
- Sixth: Quality of education in each course is collective responsibility of teachers in colleges and SMEs under 'Versity.

Recommend: 'TALCoM' as VLE for Each Course



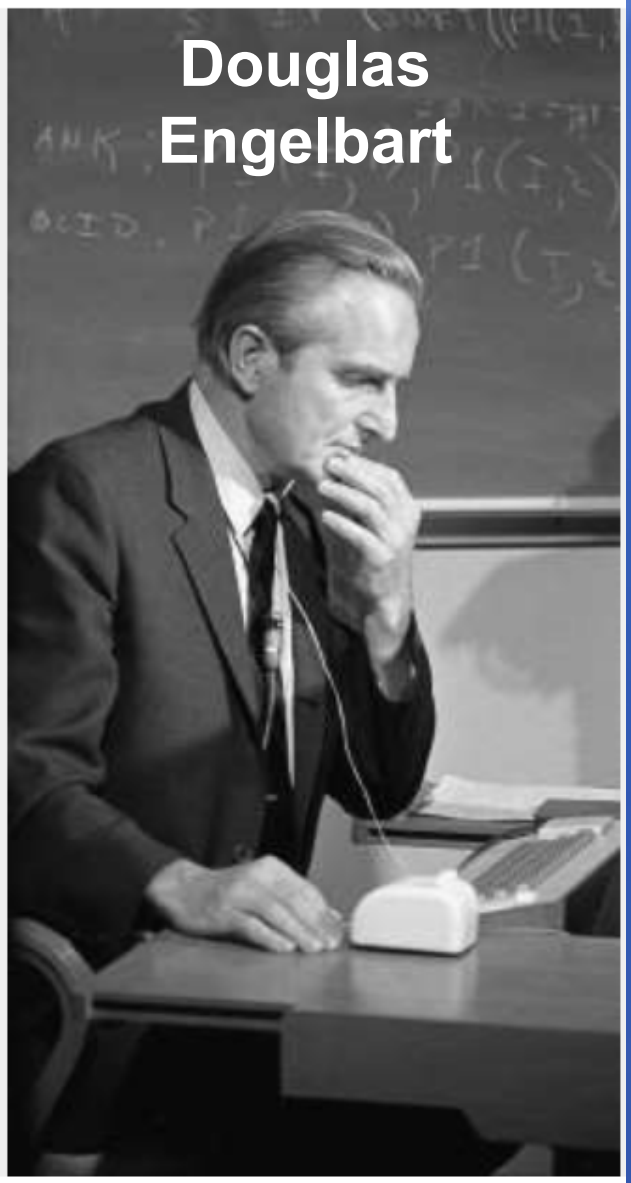
'TALCoM': Technology Augmented Learning and Course Management

In Conclusion

- NIRF parameters needs to add PITEL over TALCoM for effective support for enhanced quality of education.
- Transform the system education to one of high quality through collaboration of teachers in every subject and assuring '*Quality Education to all independent of geography'.*
- Use PITEL as a methodology. Establish the Right IT Framework spanning the university and its affiliated colleges, supporting collaborative course/subject communities of teachers using the *TALCoM* Model.

"To improve our collective ability to solve the world's problems, we must harness the immense promise and power of technology."

— Doug Engelbart



- ***Mahatma Gandhi*: *"It is man's social nature which distinguishes him from the brute creation. If it is his privilege to be independent, it is equally his duty to be interdependent."***

➔ ***TALCoM enables teachers to collaborate, leveraging the interdependence of teachers and learners for quality education..***

➔ ***"So it should come as no surprise that the unhealthiness of our world today is in direct proportion to our inability to see it as a whole."***

- Peter Senge in his book 'Fifth Discipline'

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Ack.: Dr. R. Ganapathy

Thank You

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