



ENHANCING QUALITY OF EDUCATION IN COLLEGES BY EFFECTIVE COLLABORATION AND INTEGRATION OF DIGITAL LEARNING IN COURSES

Presented By

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Objective of this Lecture

- Brief overview of NIRF: Based on 5 Broad Parameters of College Organization and Performance – Each Parameter being assessed under its different component areas. Recall them here:
 - 1 TLR: Teaching - Learning Resources - 30% (SS + FSR + FGE + FRU)
 - 2 RP : Research & Professional Practice - 30% (PU + QPR + IPR + FPPP)
 - 3 GO : Graduation Outcomes - 20% (GPH+GUE+GMS+GPHD+GSS)
 - 4 OI : Outreach and Inclusivity - 10% (RD+WD+ESCS+PCS)
 - 5 P : Perception - 10%
- All 5 above make sense for well developed and **mature institutions**.
- NIRF 2020 shows that only one institution among those commenced in the last 10 years is in the list.

Objective of this Lecture (Contd.)

- Till date, ~ 2000 colleges are into the NIRF. Another 3000 may make it.
- ***NIRF considers colleges in isolation***. With post Covid-19, induction and integration of ***Digital Learning, Networking and Collaboration (DLNC)*** add whole new dimensions and open up new possibilities for the ~ 35,000 colleges and their affiliating universities that are not yet into the NIRF.
- We show how to set up effective DLNC between affiliating universities and their colleges, colleges across each state/region to achieve better TLR + GO and enhance RP.
- We need different / revised metrics than the present NIRF to reflect the modernization and new education paradigms possible with DLNC.

DLNC and Enhancing NIRF

- India's education is dominated by the Affiliating University – Colleges (AUC).
- Present AUC system centered on teachers in colleges coaching students to provide written 'answers' for typical questions in homework and examinations. → Weak in imparting Higher Order Learning and Skills.
- We show the way ahead in modernizing the TLR and GOs possible with appropriate DLNC.
- Enhancing GO is possible if we bring ***'OUTCOME BASED EDUCATION' (OBE) in the courses as the key step.***
- ***May note: Quality of courses conduct across all colleges are enhanced.***
- ***PELP over TALCOM assure Learning Outcome in each course.***

TALCoM: 3 Responsibility Areas

- 1 University to constitute CEG and develop PELP. PELP is posted in the EG Cloud and used to configure the Course LMS for teachers in Colleges.
 - 2 CEG supports Teachers Orientation and Training in using PELP supported Course Conduct.
 - 3 Colleges set up Course LMS aligned with PELP and conduct the course.
- Three above together constitute the TALCoM. This makes possible to achieve ***OBE for the course. .***
 - ***LR issues are different when we bring in appropriate DLNC supported courses conduct in colleges.***

Enhancing Graduation Outcomes

- First step is to assure OBE in each course.
- Requires Universities to spell out more than Course Curriculum. UGC recommends ***Learning Outcome Based Curriculum Framework, (LOCF)*** for the courses. (Also a part of the NEP-2020)
- ***Universities yet to develop LOCF methodology.*** Some suites of course are given but not add up to LOCF.
- ***LOCF requires to spell out how the course lessons will be conducted in ways that include effective integration of Digital Resources in engaging students.***
- ***We need an Education Cloud support for each course shared by the colleges under the AUC.***

Steps for Courses to assure Outcome Based Education (OBE)

- Each Course conducted across colleges under the AUC system to be supported over an **'Education Grid', or EG.**
- We introduce the **'Technology Augmented Learning and Course Management', or TALCoM** for courses conduct in colleges.
- Aff. University develops and posts over its Education Cloud the (I) **Pedagogically aligned Executable Lesson Plans, or PELP** for each course.
- PELP includes approved Digital Learning components for use in the lessons for the course.
- PELP prepared by Course Experts Group (CEG) together with the university approved curriculum make the LOCF for the course.

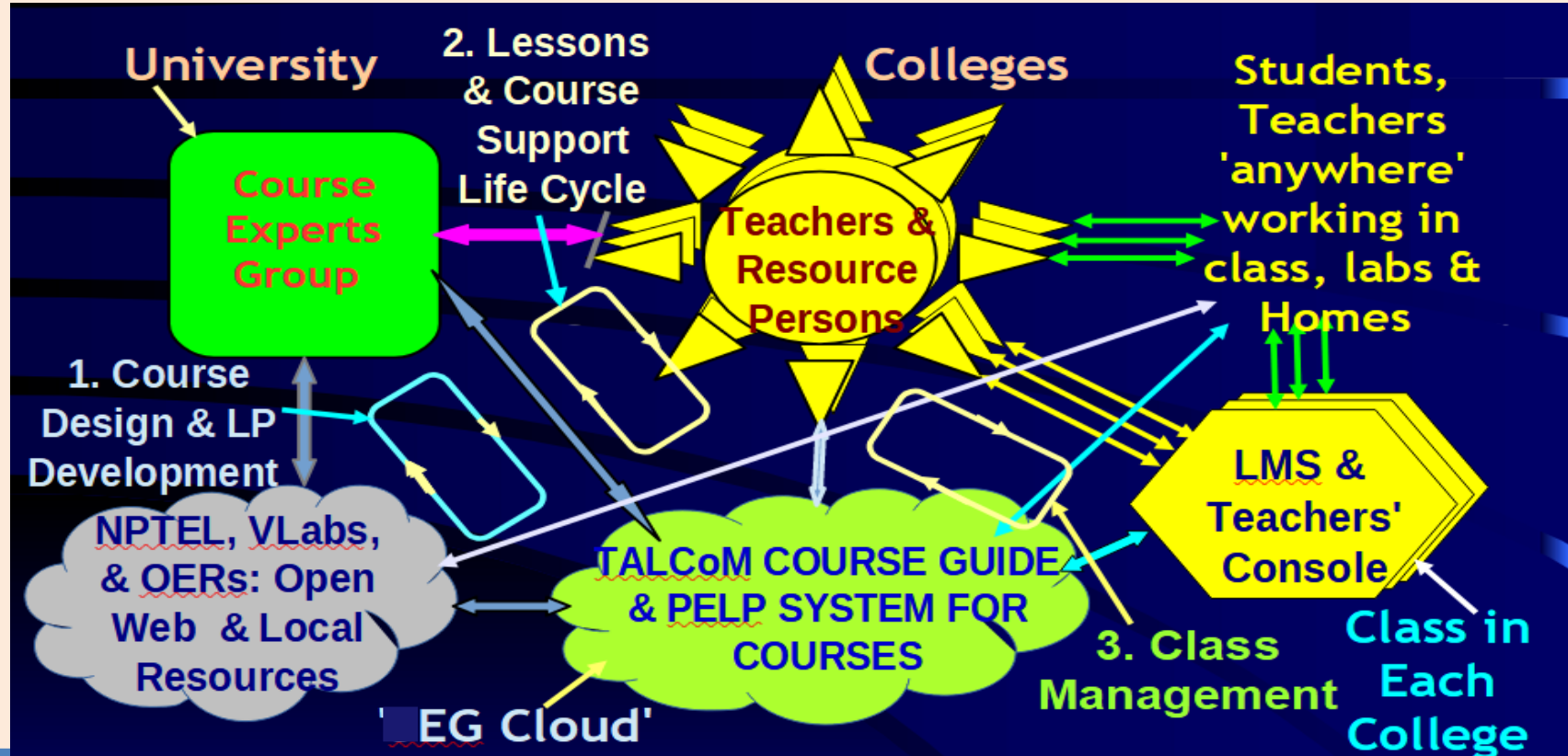
What are the Digital Learning Components?

- There are several DL components:
- OERs: Open Education Resources like NPTEL and SWAYAM Video Lectures; Virtual Labs; Free Computing Software like R, Visualization; Virtual and Augmented Reality, etc.
- Scientific Databases: All Courses will benefit by using relevant open scientific databases: → Data Science is part of most subjects including sciences like Zoology, Earth Sciences, Botany, Health, etc.
- Online Library Components – add projects and term papers library.
- Our Proposed PELP allows for smooth integration of DLNC.
- PELP supports OBE and effective DL components based teaching, assessment and feedback engagements in the learning processes.

How we Colleges achieve OBE Through PELP and TALCoM?

- Teachers in colleges charge of the same course under an Aff. University form a group. Ask university to approve a CEG.
- CEG and the teachers modernize the course curriculum and together develop the PELP.
- University oversees the TALCoM course environment over any cloud server.
- Each teacher is trained and assisted to set up the Course LMS as per the approved PELP.
- ➔ In Jharkhand we are trying to get approval for the Jharkhand Education Grid (JEG) to help all the 7 Aff. Universities and their colleges for launching the TALCoM for each chosen course.

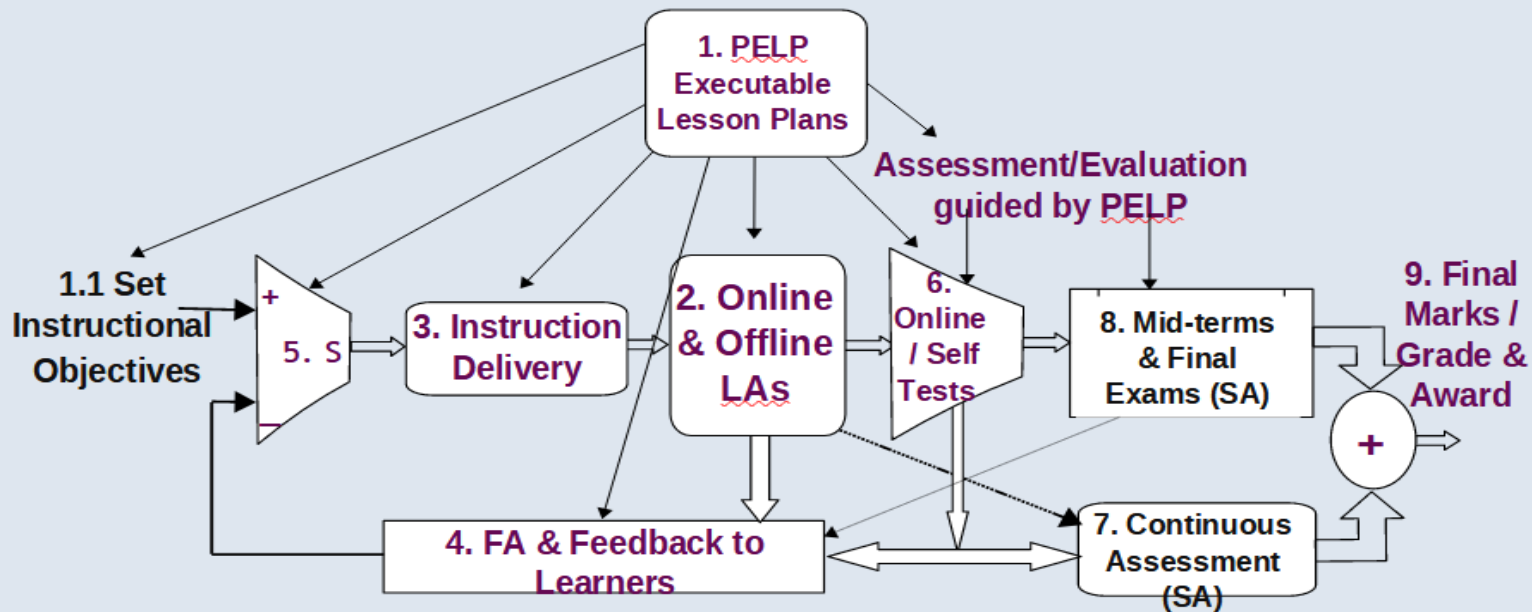
Education Grid and TALCoM



PELP, Bloom's Taxonomy and Instruction Design

- ➔ Bloom's Taxonomy consists of 6-levels - grouped into Skills and Higher Order Thinking processes.
- ➔ Higher order T₆: *Creating*
Thinking T₅: *Evaluating*
Levels T₄: *Analyzing*
T₃: *Applying* } Real-world skills.
Need whole new
thrusts with
quality teachers to
drive these levels
- ➔ Basic T₂: Understanding } India's Education
Levels T₁: Remembering } stuck here.
- Instruction Design for each Lesson needs to be built around the right choice of Bloom's Taxonomy level(s).
- EG with PELP helps in designing lessons for chosen level of taxonomy.

A Model for PELP & Course Management



A System Model of PELP Guided Course Management,
Practice and Assessment Activities

Structuring the PELP

Calendered Lesson Plans	Lesson Activities and Related content	Supplementary Activities (SA) (Beyond Lesson)
<p>Week-1, 2. . Lesson No. & Title. <u>Instructional Objectives*</u> Recall of Prerequisite knowledge with link (selected from OER, NPTEL other online content)</p>	<p>i. A <u>short online optional self-test (desirable)</u> on the prerequisite knowledge in the LMS. ii. <i>Sequence of pedagogically aligned activities to be performed by students the teacher.</i></p> <p><i>(Notes: 1. PELP helps drive online learning and assessments. 2. PELP helps justify associated course credits and facilitates credits transfer)</i></p>	<p>SAs not mandatory. Posed as challenges to serious and curious students; help them prepare for competitive exams like GATE, or appreciation of how the learning used in a real world problems, etc.</p>

How Do We Use PELP?

1. PELP will be used to configure the Course in the JEG/University Moodle (LMS).
2. *University Course Moodle used in Three Ways:*
(a) *Conduct Teachers Orientation in the Course;*
(b) *Serve as Reference to colleges for setting up their course Moodle; and (iii) Support Course Teachers in Colleges by University designated Course Experts.*
3. *Add Teachers Training and Proficiency Certification.*
4. PELP brings Disciplined Conduct of Digital Learning activity components by teachers for respective colleges' students through the college LMS.
 - We may introduce Flip Class and other innovative course conduct methods in colleges.
 - PELP brings discipline in course conduct using different modes – Online, MOOC, Classroom, Use of LMS, etc.

Enhancing GO by Assuring GAP

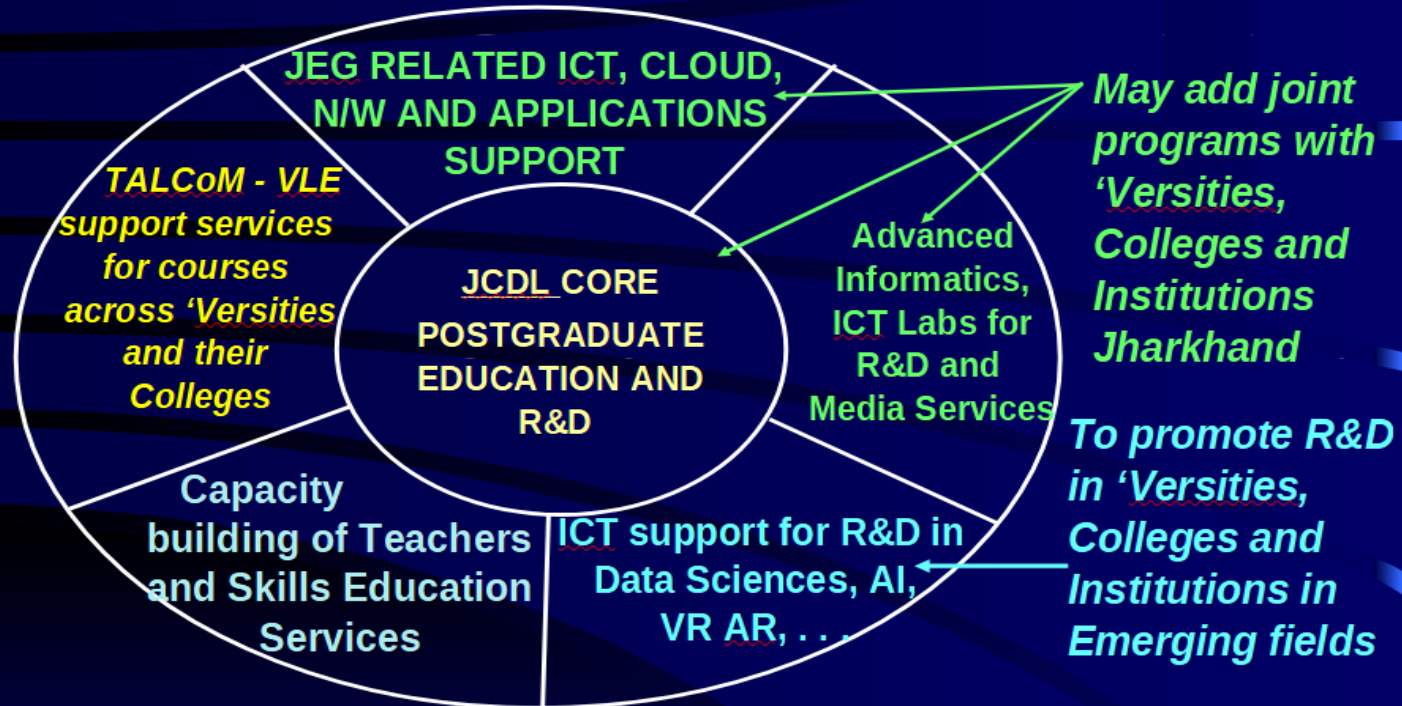
A Degree Program needs to assure Graduate Attribute Profile (GAP). Following 6 categories sample indicators of GAP:

- P₁: Knowledge of the subjects with capacity for comprehension of conceptual models in the chosen specialization.**
- P₂: Capacity for design & development of solutions to real world problems in the subject.**
- P₃: Capacity to model real world problems in the specialization apply and analyze using modern tools, document, report, communicate effectively.**
- P₄: Professional Character, Ethics, capacity for Individual and Team work.**
- P₅: Behave ethically, in legally correct ways and with sensitivity to societal and cultural issues.**
- P₆: Project Management and Finance related skills.**

The 5 Advantages and PELP/TALCoM

- **First:** Ensures Students stay focused in the study while using Internet and OERs.
- **Second:** All information relevant for study by a student and class management by teacher brought to one area and accessed by tablet/laptop. → *BYOD support!*
- **Third:** Class Management by teachers enhanced through adoption of flip-class, class events alerts, RSS feeds, etc.
- **Fourth:** Time of students and teachers saved as all they need to is to access the PELP and navigate to their respective activity resources and the LMS.
- **Fifth:** PELP supports holistic organization of course and program management for the entire university.

PROPOSED JHARKHAND CENTRE FOR DIGITAL LEARNING



Similar **EG** set up driven by Centre for Digital Learning for state affiliating universities will achieve quality education for all.

In Conclusion

- Education Grid supporting DLNC assure 'Quality Education to all students, supporting all teachers across all colleges' under each Aff. University.
- EG changes the ways we look at and achieve better TLR and GOs.
- EG Opens up great opportunities for RP by opening up Data sciences in all subjects, design of visualization uses of AR, VR, Simulation, etc.
- ***Personal View: Present NIRF cater only to top 2000 to 5000 institutions. EG, PELP and TALCoM approach make the AUC System a powerful 'Virtual Organization for Academics, Research and Outreach'.***
- Quality Education will reach everywhere. Outreach and Inclusivity will also add local students in rural areas getting quality education.
- Proposed Centres of Digital Learning will modernize all India's Colleges.

