STUDY OF INNOVATIVE TEACHING LEARNING AND EVALUATION PRACTICES IN THE BEST RATED HIGHER EDUCATION INSTITUTIONS BY 'NAAC'

UGC Funded Major Research Project

Executive Summary

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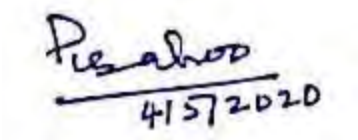

Executive Summary

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STUDY OF INNOVATIVE TEACHING LEARNING AND EVALUATION PRACTICES IN THE BEST RATED HIGHER EDUCATION INSTITUTIONS BY 'NAAC'

i) Objectives:

The project has following major objectives:

1. To study the processes adopted by best rated higher education institutions on different innovations in teaching-learning and evaluation practices (TLEP) in Science and Arts faculties of best rated higher education institutions in the context of level of courses and nature of institutions as perceived by teachers.
2. To study the processes adopted by best rated higher education institutions on different innovations in teaching-learning and evaluation practices (TLEP) in Science and Arts faculties of best rated higher education institutions in the context of level of courses and nature of institutions as perceived by students.
3. To study the processes adopted by best rated higher education institutions on different innovations in teaching-learning and evaluation practices (TLEP) in Science and Arts faculties of best rated higher education institutions in the context of level of courses and nature of institutions as per observation of researchers.

(ii) Specific Objectives of the Study: The specific objectives of the study read as follows

Objective1: To study the main and interaction effect of teaching category (behaviouristic , cognitive and constructivist innovative) on self rating of teaching, learning and evaluation practices (TLEP) of HEI teachers in the context of discipline, level of courses and nature of institutions.

Objective2 - To study the main and interaction effect of teaching category (behaviouristic, cognitive and constructivist innovative) on students ratings of teaching learning and evaluation practices (TLEP) of HEI teachers in the context of discipline, level of courses and nature of institutions.

Objective-3 To study the main and interaction effect of teaching category on classroom teaching learning and evaluation practices (TLEP) of HEI teachers in the context of discipline and nature of institutions based on researchers' observation.

Objective 4 To study the main and interaction effect of teaching category on teaching learning and evaluation activities of HEI teachers in the context of discipline, level of courses and nature of institutions based on interview of students.

(iii) Major Research Hypothesis of the study

Teaching learning and evaluation practices of best rated institutions (NAAC Rating A and above) shall differ from each other in the context of faculties, levels of course and nature of institutions.

(iv) Specific Null Hypotheses:

1. There is no significant difference in TLE practices in science and arts stream of best rated institutions as per ratings of teachers, ratings of students and researchers' observation respectively.
2. There is no significant difference in TLE practices in U.G. and P.G. levels of best rated institutions as per ratings of teachers, ratings of students and researchers' observation respectively.
3. There is no significant difference in TLE practices in universities and colleges of best rated institutions as per ratings of teachers, ratings of students and researchers observation respectively.
4. There is no significant interaction effect of faculties, levels of courses and type of institutions on the TLE practices adopted in best rated institutions as per ratings of teachers, ratings of students and researchers' observation respectively.

(v) Testing Hypothesis:

HEI teachers TLE Practices according to teachers' self rating.

(In the context of Discipline, Nature of Institution and level of HE)

1.1 (i) There is no significant effect of discipline on self rating TLE Practices of HEI teachers.

(ii) There is no significant effect of teaching category on self rating TLE Practices of HEI teachers.

(iii)There is no significant interactive effect of discipline and teaching category on self rating TLE Practices of HEI teachers.

1.2 (i) There is no significant effect of discipline on self rating TLE Practices of college teachers.

(ii) There is no significant effect of teaching category on self rating TLE Practices of college teachers.

(iii) There is no significant interactive effect of discipline and teaching category on self rating TLE Practices of college teachers.

1.3 (i) There is no significant effect of discipline on self rating TLE Practices of university teachers.

(ii) There is no significant effect of teaching category on self rating TLE Practices of university teachers.

(iii) There is no significant interactive effect of discipline and teaching category on self rating TLE Practices of university teachers.

1.4 (i) There is no significant effect of nature of institutions on self rating TLE Practices of arts subject teachers of HEI.

(ii) There is no significant effect of teaching category on self rating TLE Practices of arts subject teachers of HEI.

(iii) There is no significant interactive effect of nature of institutions and teaching category on self rating TLE Practices of arts subject teachers of HEI.

1.5 (i) There is no significant effect of nature of institution on self rating TLE Practices of science subject teachers of HEI.

(ii) There is no significant effect of teaching category on self rating TLE Practices of science subject teachers of HEI.

(iii) There is no significant interactive effect of nature of institution and teaching category on self rating TLE Practices of science subject teachers of HEI.

HEI teachers TLE Practices according to students rating.

(In the context of Discipline, Nature of Institution and level of HE)

2.1(i) There is no significant effect of discipline on student rating of TLE Practices of HEI arts teachers.

(ii) There is no significant effect of teaching category on student rating of TLE Practices of HEI arts teachers.

(iii)There is no significant interactive effect of discipline and teaching category on student rating of TLE Practices of HEI arts teachers.

2.2 (i) There is no significant effect of level of HE on college arts student rating of TLE Practices of college teachers.

(ii) There is no significant effect of teaching category on college arts student rating of TLE Practices of college teachers.

(iii) There is no significant interactive effect of level of HE and teaching category on college arts student rating of TLE Practices of college teachers.

2.3 (i) There is no significant effect of level of HE on University arts student rating of TLE Practices of university teachers.

(ii) There is no significant effect of teaching category on University arts students rating of TLE Practices of university teachers.

(iii) There is no significant interactive effect of level of HE and teaching category on University arts student rating of TLE Practices of University teachers.

2.4 (i) There is no significant effect of nature of institution on UG arts student rating of TLE Practices of HEI teachers.

(ii) There is no significant effect of teaching category on UG arts students rating of TLE Practices of HEI teachers.

(iii) There is no significant interactive effect of nature of institution and teaching category on UG arts student rating of TLE Practices of HEI teachers.

2.5 (i) There is no significant effect of nature of institution on PG arts student rating of TLE Practices of HEI teachers.

(ii) There is no significant effect of teaching category on PG arts students rating of TLE Practices of HEI teachers.

(iii) There is no significant interactive effect of nature of institution and teaching category on PG arts student rating of TLE Practices of HEI teachers.

2.6 (i) There is no significant effect of level of HE on student rating of TLE Practices of HEI science teachers.
(ii) There is no significant effect of teaching category on student rating of TLE Practices of HEI science teachers.

(iii)There is no significant interactive effect of level of HE and teaching category on student rating TLE Practices of HEI science teachers

2.7 (i) There is no significant effect of level of HE on college science student rating of TLE Practices of college teachers.

(ii) There is no significant effect of teaching category on college science student rating of TLE Practices of college teachers.

(iii) There is no significant interactive effect of level of HE and teaching category on college science student rating of TLE Practices of college teachers.

2.8 (i) There is no significant effect of level of HE on University science student rating of TLE Practices of university teachers.

(ii) There is no significant effect of teaching category on University science students rating of TLE Practices of university teachers.

(iii) There is no significant interactive effect of level of HE and teaching category on University science student rating of TLE Practices of University teachers.

2.9 (i) There is no significant effect of nature of institution on UG science student rating of TLE Practices of HEI teachers.

(ii) There is no significant effect of teaching category on UG science students rating of TLE Practices of HEI teachers.

(iii)There is no significant interactive effect of nature of institution and teaching category on UG science student rating of TLE Practices of HEI teachers.

2.10. (i) There is no significant effect of nature of institution on PG science student rating of TLE Practices of HEI teachers.

(ii) There is no significant effect of teaching category on PG science students rating of TLE Practices of HEI teachers.

(iii) There is no significant interactive effect of nature of institution and teaching category on PG science student rating of TLE Practices of HEI teachers.

2.11 (i) There is no significant effect of discipline on UG student rating of TLE Practices of HEI teachers.
(ii) There is no significant effect of teaching category on UG student rating of TLE Practices of HEI teachers.

(iii)There is no significant interactive effect of discipline and teaching category on student rating TLE Practices of HEI science teachers.

2.12 (i) There is no significant effect of discipline on PG student rating of TLE Practices of HEI teachers.

(ii) There is no significant effect of teaching category on PG student rating of TLE Practices of HEI teachers.

(iii) There is no significant interactive effect of discipline and teaching category on PG student rating of TLE Practices of HEI teachers.

2.13 (i) There is no significant effect of discipline on college UG student rating of TLE Practices of college teachers.

(ii) There is no significant effect of teaching category on college UG student rating of TLE Practices of college teachers.

(iii)There is no significant interactive effect of discipline and teaching category on college UG student rating of TLE Practices of college teachers.

2.14 (i) There is no significant effect of discipline on college PG student rating of TLE Practices of college teachers.

(ii) There is no significant effect of teaching category on college PG student rating of TLE Practices of college teachers.

(iii) There is no significant interactive effect of discipline and teaching category on college PG student rating of TLE Practices of college teachers.

2.15 (i) There is no significant effect of discipline on University UG student rating of TLE Practices of university teachers.

(ii) There is no significant effect of teaching category on University UG students rating of TLE Practices of university teachers.

(iii) There is no significant interactive effect of discipline and teaching category on University UG student rating of TLE Practices of University teachers.

2.16 (i) There is no significant effect of level of HE on University PG student rating of TLE Practices of university teachers.

(ii) There is no significant effect of teaching category on University PG students rating of TLE Practices of university teachers.

(iii) There is no significant interactive effect of level of HE and teaching category on University PG student rating of TLE Practices of University teachers.

HEI teachers TLE Practices according to observers' rating

(In the context of Discipline and level of HE)

3.1 (i) There is no significant effect of level of HE on researcher observation of TLE Practices of HEI- arts teachers.

(ii) There is no significant effect of teaching category on researcher observation of TLE Practices of HEI-arts teachers.

(iii) There is no significant interactive effect of level of HE and teaching category on researcher observation of TLE Practices of HEI-arts teachers.

3.2 (i) There is no significant effect of level of HE on researcher observation of TLE Practices of HEI- science teachers.

(ii) There is no significant effect of teaching category on researcher observation of TLE Practices of HEI science teachers.

(iii) There is no significant interactive effect of level of HE and teaching category on researcher observation of TLE Practices of HEI science teachers.

3.3 (i) There is no significant effect of discipline on researcher observation of TLE Practices of HEI -UG teachers.

(ii) There is no significant effect of teaching category on researcher observation of TLE Practices of HEI-UG teachers.

(iii) There is no significant interactive effect of discipline and teaching category on researcher observation of TLE Practices of HEI-UG teachers.

3 .4 (i)There is no significant effect of discipline on researcher observation of TLE Practices of HEI- PG teachers.

(ii) There is no significant effect of teaching category on researcher observation of TLE Practices of HEI-PG teachers.

(iii) There is no significant interactive effect of discipline and teaching category on researcher observation of TLE Practices of HEI-PG teachers.

HEI teachers TLE activities based on students interview

(In the context of Discipline, Nature of Institution and level of HE)

4.1 (i) There is no significant effect of level of HE on students response on TLE activities of HEI arts teachers.

(ii) There is no significant effect of teaching category on students response of TLE activities of HEI arts teachers.

(iii) There is no significant interactive effect of discipline and teaching category on students response of TLE activities of HEI arts teachers.

4.2 (i) There is no significant effect of level of HE on students response on TLE activities of HEI science teachers.

(ii) There is no significant effect of teaching category on students response of TLE activities of HEI science teachers.

(iii) There is no significant interactive effect of discipline and teaching category on students response of TLE activities of HEI science teachers.

4.3 (i) There is no significant effect of discipline on UG students response on TLE activities of HEI teachers.

(ii) There is no significant effect of teaching category on UG students response of TLE activities of HEI teachers.

(iii) There is no significant interactive effect of discipline and teaching category on UG students response of TLE activities of HEI teachers.

4.4 (i) There is no significant effect of discipline on PG students response on TLE activities of HEI teachers.

(ii) There is no significant effect of teaching category on PG students response of TLE activities of HEI teachers.

(iii) There is no significant interactive effect of discipline and teaching category on PG students' response of TLE activities of HEI teachers.

vi) Methods and Procedures:

The study was conducted by applying mixed method survey with a view to achieve different objectives. Ex-Post Facto Factorial design was used to test the concerned null hypotheses of the study. The details of the population of the study, data collection and data analysis procedures have been presented in the following sections. The design of the study is presented in following Table

(vii) Table - Design of the study

SL.NO.	Specific objectives	Population	Sample	Tool	Analysis
1	To study the main and interaction effects of teaching category (behaviouristic , cognitive	All Arts & Science Teachers of A grade &	12 Univ.+ 16 colleges. 200 teachers: 100 University	Questionnaire Teacher Behaviour self reflection	2x3 Factorial design ANOVA

	and constructivist innovative) on self rating of TLE practices of HEI teachers in the context of discipline, level of courses and nature of institutions	above HEIs	teachers+100 college teachers	inventory	& t test
2	To study the main and interaction effect of teaching category (behaviouristic, cognitive and constructivist innovative) on students ratings of teaching learning and evaluation (TLE) practices of HEI teachers in the context of discipline, level of courses and nature of institutions.	All Arts & Science students UG & PG of A grade & above HEIs	12 Univ. + 16 colleges 800 students survey 400 university+ 400 college students	Questionnaire Higher Education Teacher Behaviour Scale	2x3 Factorial design ANOVA & t test
3	To study the main and interaction effects of teaching category on classroom teaching learning and evaluation (TLE) practices of HEI teachers in the context of discipline and nature of institutions based on researchers' observation.	All Arts & Science Teachers of A grade & above HEIs	4 universities + 4 colleges 80 teachers (40 university teachers+40 college teachers) Class observation	Observation Schedule TLE Practices Schedule	2x3Factorial design ANOVA & t test
4	To study the main and interactional effects of teaching category on teaching learning and evaluation activities of HEI teachers in the	All Arts & Science students UG & PG of A grade & above HEIs	12 universities +16 colleges 200 students interview 100 university students+100 college students	Structured Interview Schedule Teaching Activities Interview Schedule	2x3Factorial design ANOVA & t test

	context of discipline, level of courses and nature of institutions based on interview of students.				

All the HEIs of the country offering Arts and Science programmes at UG and PG level as rated by NAAC with A grade and above were the population of the study. The sample institutions consisted of 12 universities and 16 colleges from North India, South India, West India and East India regions. It included 200 teachers (survey), 800 students (survey), 80 teachers classes (observation) and200 students (interviews).

The tools included two questionnaires, one observation schedule and one interview schedule. Data were collected through individual visits to the sample institutions located in different parts of the country. The data were scored on three point scale. Analysis of data was done by using 2x3 factorial design ANOVA and t-tests.

(viii) Delimitation of the study: The project has been delimited to general education programmes and arts science disciplines of the NAAC accreditated colleges with A grade and above in different zones of the country.

The study is delimited to the teachers and students participating in regular mode face to face teaching learning programmes at Undergraduate and Postgraduate level

(ix) Major Findings of Study (Testing Hypothesis wise)

The significant effect of independent/ background variables on TLEP as noticed in the study have been presented in the following findings:

1. **Findings on HEI teachers TLE Practices according to teachers self rating (In the context of Discipline, Nature of Institution and level of HE)**

- **Effects of discipline and teaching category on self rating TLE Practices of HEI teachers**

1.1(i) There is significant effect of discipline on self rating TLE Practices of HEI teachers.

(ii) Teaching category has significant effect on TLE practices of HEI teachers.

(iii) There is significant interactive effect of discipline and teaching category on TLE Practices of HEI teachers.

- **Effects of discipline and teaching category on self rating TLE Practices of college teachers**

1.2(i) There is significant effect of discipline on self rating TLE Practices of college teachers.

(ii) Teaching category has significant effect on self rating TLE practices of college teachers

(iii)There is significant interactive effect of discipline and teaching category on TLE Practices of college teachers.

- **Effects of discipline and teaching category on self rating TLE Practices of university teachers**

1.3 (i) There is significant effect of discipline on TLE Practices of university teachers.

(ii) Teaching category has significant effect on TLE Practices of university teachers.
(iii)There is significant interactive effect of discipline and teaching category on TLE Practices of university teachers.

- **Effects of institution and teaching category on self rating TLE Practices of Total HEI arts teachers**

1.4 (i) There is significant effect of Nature of institution on TLE Practices of arts teachers of HEIs.

(ii) Teaching category has significant effect on self rating TLE Practices of arts teachers of HEIs.

(iii) There is significant interactive effect of nature of institutions and teaching category on self rating TLE Practices of arts teachers of HEIs.

- **Effects of institution and teaching category on self rating TLE Practices of HEI science teachers**

1.5 (i) There is significant effect of Nature of institution on self rating TLE Practices of science teachers of HEIs

(ii) Teaching category has significant effect on self rating TLE Practices of teachers of HEIs teaching science subjects.

(iii) There is significant interactive effect of nature of institutions and teaching category on TLE Practices of HEI teachers teaching science subjects.

2. Findings on HEI teachers TLE Practices according to students rating

(In the context of Discipline, Nature of Institution and level of HE)

- **Effect of level of HE and teaching category on students ratings of TLE Practices of Total HEI arts teachers**

2.1 (i) There is significant effect of level of HEI on TLE Practices of HEI teachers teaching arts subjects.

(ii) Teaching category has significant effect on students rating of TLE Practices of HEI teachers teaching arts subjects.

(iii) There is significant interactive effect of level of HEI and teaching category on student rating of TLE Practices of HEI teachers teaching arts subjects.

- **Effect of level of HE and teaching category on students ratings of TLE Practices of college arts teachers -**

2.2 (i) There is significant effect of Level of HEI on TLE Practices of college teachers teaching arts subjects.

(ii) Teaching category has significant effect on students rating of TLE Practices of college teachers teaching arts subjects.

(iii) There is significant interactive effect of level of HEI and teaching category on student rating of TLE Practices of college teachers teaching arts subjects.

- **Effect of level of HE and teaching category on students ratings of TLE Practices of university arts teachers**

2.3 (i) There is significant effect of level of HE on TLE Practices of university teachers teaching arts subjects.

(ii) Teaching category has significant effect on students rating of TLE Practices of university teachers teaching arts subjects.

(iii) There is significant interactive effect of level of HE and teaching category on student rating of TLE Practices of university teachers teaching arts subjects.

- **Effect of nature of institutions and teaching category on students ratings of TLE Practices of undergraduate arts teachers -**

2.4 (i) There is significant effect of nature of institutions on TLE Practices of HEI teachers teaching UG arts students.

(ii) Teaching category has significant effect on TLE Practices of teachers teaching UG arts students.

(iii) There is significant interactive effect of and nature of institutions and teaching category on TLE Practices of teachers teaching UG arts students.

- **Effect of nature of institutions and teaching category on students ratings of TLE Practices of Postgraduate arts teachers**

2.5 (i) There is significant effect of Nature of institution on TLE Practices of HEI teachers teaching PG arts students.

(ii) Teaching category has significant effect on TLE Practices of HEI teachers teaching PG arts students.

(iii) There is significant interactive effect of and nature of institutions and teaching category on TLE Practices of teachers teaching PG arts students.

- **Effect of level of HE and teaching category on students ratings of TLE Practices of science teachers -**

2.6 (i) There is significant effect of level of HE on TLE Practices of HEI teachers teaching science subjects.

(ii) Teaching category has significant effect on students rating of TLE Practices of HEI teachers teaching science subjects.

(iii) There is significant interactive effect of level of HE and teaching category on student rating of TLE Practices of HEI teachers teaching science subjects.

- **Effect of level of HE and teaching category on students ratings of TLE Practices of college science teachers**

2.7 (i) There is significant effect of level of HE on TLE Practices of college teachers teaching science subjects.

(ii) Teaching category has significant effect on students rating of TLE Practices of college teachers teaching science subjects.

(iii) There is significant interactive effect of level of HE and teaching category on student rating of TLE Practices of college teachers teaching science subjects.

- **Effect of level of HE and teaching category on students ratings of TLE Practices of university science teachers**

2.8 (ii) Teaching category has significant effect on students rating of TLE Practices of university teachers teaching science subjects.

(iii) There is significant interactive effect of level of HE and teaching category on student rating of TLE Practices of university teachers teaching science subjects.

- **Effect of nature of institutions and teaching category on students ratings of TLE Practices of undergraduate science teachers**

2.9 (i) There is significant effect of nature of institution on TLE Practices of HEI teachers teaching UG science students.

(ii) Teaching category has significant effect on TLE Practices of teachers teaching UG science students.

- **Effect of nature of institutions and teaching category on students ratings of TLE Practices of postgraduate science teachers**

2.10 (i) There is significant effect of nature of institution on TLE Practices of HEI teachers teaching PG science students.

(ii) Teaching category has significant effect on TLE Practices of teachers teaching PG science students.

- **Effect of discipline and teaching category on students ratings of TLE Practices of undergraduate teachers**

2.11 (i) Discipline shows significant effect on TLE Practices of HEI teachers teaching UG students.

(ii) Teaching category has significant effect on TLE Practices of teachers teaching UG students.

(iii) There is significant interactive effect of discipline and teaching category on TLE Practices of teachers teaching UG students.

- **Effect of discipline and teaching category on students ratings of TLE Practices of postgraduate teachers**

2.12 (i) There is significant effect of discipline on TLE Practices of HEI teachers teaching PG students.

(ii) Teaching category has significant effect on TLE Practices of teachers teaching PG students.

(iii) There is significant interactive effect of discipline and teaching category on TLE Practices of teachers teaching PG students.

- **Effect of discipline and teaching category on students ratings of TLE Practices of college UG teachers**

2.13 (i) There is significant effect of discipline on TLE Practices of college teachers teaching UG students.

(ii) Teaching category has significant effect on TLE Practices of college teachers teaching UG students.

(iii) There is significant interactive effect of discipline and teaching category on TLE Practices of college teachers teaching UG students.

- **Effect of discipline and teaching category on students ratings of TLE Practices of college PG teachers**

2.14 (i) There is significant effect of discipline on TLE Practices of college teachers teaching PG students.

(ii) Teaching category has significant effect on TLE Practices of college teachers teaching PG students.

(iii)There is significant interactive effect of discipline and teaching category on TLE Practices of college teachers teaching PG students.

- **Effect of discipline and teaching category on students ratings of TLE Practices of university UG teachers**

2.15 (i) There is significant effect of discipline on TLE Practices of university teachers teaching UG students.

(ii) Teaching category has significant effect on TLE Practices of university teachers teaching UG students.

(iii) There is significant interactive effect of discipline and teaching category on TLE Practices of university teachers teaching UG students.

- **Effect of discipline and teaching category on students ratings of TLE Practices of university PG teachers**

2.16(i) There is significant effect of discipline on TLE Practices of university teachers teaching PG students.

(ii) Teaching category has significant effect on TLE Practices of university teachers teaching PG students.

(iii) There is significant interactive effect of discipline and teaching category on TLE Practices of university teachers teaching PG students.

3. **Findings for HEI teachers TLE Practices according to observers' rating,**

(Discipline wise and level of Education wise)

- **Effect of level of HE and teaching category on classroom TLE Practices of HEI arts teachers**

3.1 (ii) There is significant effect of teaching category on classroom TLE Practices of HEI teachers teaching arts subjects as per researcher observation.

- **Effect of level of HE and teaching category on classroom TLE Practices of HEI science teachers**

3.2 (ii) There is significant effect of teaching category on classroom TLE Practices of HEI teachers teaching science subjects as per researcher observation.

(iii) There is significant interactive effect of level of HE and teaching category on TLE Practices of HEI teachers teaching science subjects as per researcher observation.

- **Effect of discipline and teaching category on classroom TLE Practices of HEI - UG teachers**

3.2 (ii) There is significant effect of teaching category on classroom TLE Practices of HEI teachers teaching UG classes as per researcher observation.

- **Effect of discipline and teaching category on classroom TLE Practices of HEI - PG teachers**

3.4 (ii) There is significant effect of teaching category on classroom TLE Practices of HEI teachers teaching UG classes as per researcher observation.

(iii) There is significant interactive effect of discipline and teaching category on classroom TLE Practices of HEI teachers teaching PG classes as per researcher observation.

Findings for HEI teachers TLE activities according to students' interview

(in the context of discipline and Level of HE)

- **Effect of level of HE and Teaching category on TLE activities of arts subjects teachers**

4.1 (ii) There is significant effect of teaching category on TLE activities of HEI teachers teaching arts subjects as per students interview.

- **Effect of level of HE and Teaching category on TLE activities of science subjects teachers**

4.2 (ii) There is significant effect of teaching category on TLE activities of HEI teachers teaching science subjects as per students interview.

- **Effect of discipline and Teaching category on TLE activities of UG teachers**

4.3 (i) There is significant effect of discipline on TLE activities of HEI teachers teaching UG classes as per students interview.

(ii) There is significant effect of teaching category on TLE activities of HEI teachers teaching UG classes as per students interview.

- **Effect of discipline and Teaching category on TLE activities of PG teachers**

4.4 (i) There is significant effect of discipline on TLE activities of HEI teachers teaching PG classes as per students' interview.

(ii) There is significant effect of teaching category on TLE activities of HEI teachers teaching PG classes as per students interview.

(x) Cross analysis of Major findings of the study

Table I

Findings on HEI Arts subject TLE Practices according to teachers' self rating, students rating and observers' rating

S. No.	Rating of HEI arts teacher behaviour by respondents	Most Prominent	Prominent	Less Prominent
1	Teachers' self Rating	Behaviouristic Teacher Centric	Cognitive Concept Centric	Constructivist Innovative
2	Student's Rating	Cognitive Concept Centric	Constructivist Innovative	Behaviouristic Teacher Centric
3	UG Arts Students Rating	Behaviouristic Teacher Centric	Cognitive Concept Centric	Constructivist Innovative
4	PG Arts Students Rating	Cognitive Concept Centric	Constructivist Innovative	Behaviouristic Teacher Centric
5	Observers' Rating	Behaviouristic Teacher Centric	Constructivist Innovative	Cognitive Concept Centric

Table : II

Findings on HEI Science Subject TLE Practices according to teachers' self rating, students rating and observers rating

S. No.	Rating of HEI Science teacher behaviour by respondents	Most Prominent	Prominent	Less Prominent
1	Teachers' self Rating	Behaviouristic Teacher Centric	Cognitive Concept Centric	Constructivist Innovative
2	Students' Rating	Behaviouristic Teacher Centric	Cognitive Concept Centric	Constructivist Innovative
3	UG Science Students Rating	Behaviouristic Teacher Centric	Constructivist Innovative	Cognitive Concept Centric
4	PG Science Students Rating	Behaviouristic Teacher Centric	Cognitive Concept Centric	Constructivist Innovative
5	Observers' Rating	Behaviouristic Teacher Centric	Cognitive Concept Centric	Constructivist Innovative

Table III

Findings on HEI College level TLE Practices

according to teachers self rating, students rating and observers rating

S. No.	Rating of College teacher behaviour by respondents	Most Prominent	Prominent	Less Prominent
1	Teachers' self Rating	Behaviouristic Teacher Centric	Cognitive Concept Centric	Constructivist Innovative
2	College UG Students	Behaviouristic Teacher Centric	Cognitive Concept Centric	Constructivist Innovative
3	College PG Students	Cognitive Concept Centric	Constructivist/ Innovative	Behaviouristic Teacher Centric
4	College Science Students	Behaviouristic Teacher Centric	Cognitive Concept Centric	Constructivist Innovative
5	College Arts Students	Cognitive Concept Centric	Constructivist/ Innovative	Behaviouristic Teacher Centric

Table IV

Findings on HEI University level TLE Practices according to

Teachers self rating, students rating and observers rating

S. No.	Rating of University teachers' TLE Practices by respondents	Most Prominent	Prominent	Less Prominent
1	Teachers' self Rating	Behaviouristic Teacher Centric	Cognitive Concept centric	Constructivist Innovative
2	University UG Students	Behaviouristic Teacher Centric	Cognitive Concept centric	Constructivist Innovative
3	University PG Students	Cognitive Concept Centric	Constructivist Innovative	Behaviouristic Teacher Centric
4	University Science Students	Behaviouristic Teacher Centric	Cognitive Concept centric	Constructivist Innovative
5	University Arts Students	Cognitive Concept Centric	Constructivist Innovative	Behaviouristic Teacher Centric

Table V

Findings for HEI UG and PG level TLE Practices according to

teachers self rating, students rating and observers' rating

S. No.	Rating of Teacher Behaviour by respondents in the context of level of HE (UG & PG)	Most Prominent	Prominent	Less Prominent
1	HEI Teachers (Total UG & PG) self Rating	Behaviouristic Teacher Centric	Cognitive Concept Centric	Constructivist/ Innovative
2	HEI PG Students	Cognitive Concept Centric	Constructivist Innovative	Behaviouristic Teacher Centric
3	HEI UG Students	Behaviouristic Teacher Centric	Cognitive Concept Centric	Constructivist/ Innovative
4	Observers' Ratings for UG Classes	Behaviouristic Teacher Centric	Cognitive Concept Centric	Constructivist/ Innovative
5	Observers' Rating for PG Classes	Behaviouristic Teacher Centric	Cognitive Concept Centric	Constructivist/ Innovative

(xi) Highlights on the major Findings of the study and Implications for quality enhancement of Teaching Learning and Evaluation process of HEIs

Role of HEIs in Internal Quality Enhancement Mechanism on Teaching learning process:

This is a matter of great concern that the NAAC did not take into cognigence the process dimensions of teaching learning and evaluation of HEIs. The Internal Quality Assurance Cell (IQAC) are established in each NAAC accredited HEI. The findings of the present study hint at lack of serious involvement of IQAC in promoting Innovative leaner participatory approaches in teaching learning system of HEIs. This is implied that IQAC must involve stakeholders on decision making of quality oriented teaching learning system. It must identity the curricular objectives which demand constructivist learner oriented curricular transaction approaches in each programme at UG and PG level. Such activities must form integral component of Quality initiatives of HEIs.

Orienting teachers on such areas, developing handbooks for teachers, monitoring innovative practices, assessing their impact and recognising worthy innovative practices by the teachers must be continuous function of IQAC. Moreover, reporting the

innovative practices and disseminating the results of such practices to other teachers and institutions can establish quality culture in the HEIs. The IQAC must focus on planning implementing and monitoring innovative teaching learning and evaluation practices. The experiences must be disseminated to that teachers of the own institutions through suitable networking and collaboration strategies.

Leadership orientation to Innovative teaching learning practices

Autonomy of institutions and teachers in curriculum design and innovative teaching learning programmes must be encouraged through institutional leaders. Open and creative academic climate of HEIs must be promoted and nurtured by leaders of the institution. Their commitment to quality need to be reflected in collaborative functioning of academia at institution level. Moreover, giving autonomy to generate learning resources, provision of available, resources support to teachers, encouraging collaborative institutional projects and sharing of resources, exchange programmes of teachers, learner participation projects, group based innovative learning practices, encouraging students participation in academic decision making etc. can be possible only when leadership is prone to such features of quality orientation.

There should be provisions for encouraging teachers and students to initiate and implement innovative programmes at different course level. This must be considered for professional development measures of teachers as well as assessment of learners in different courses. Suitable leadership can make it a part of institution culture by promoting autonomy among teachers and students of HEIs.

Curriculum for Teacher Development Programme on Teaching Learning System

The study revealed that teaching learning and evaluation at HEIs cutting across the institution level, discipline and stages of higher education is mostly dominated by traditional teacher centric and content centric behaviour of HEI teachers. Quality Higher education institutions have not paved the way for learner centric constructivist models of teaching learning and evaluation. Teaching at HEI stage cannot be left to experiential exposition of teachers having least concern for pedagogical principles. Teaching learning at formal institutions must be integrated with theoretical background of teaching learning and development.

The teachers behaviour not related to pedagogical principles may create hindrance in achievement of objectives of higher education programmes. In this context, It is imminent to introduce formal teacher development courses on pedagogical principles and applications at HEIs. Teacher inputs quality is directly linked with teaching process and learning outcome of students. Hence, this is high time to educate the teachers of HEIson pedagogical principles and practices. As a whole, the behaviouristic teacher centric practices dominate arts subject teaching in universities as well as colleges. The innovative learner centric practices are negligible everywhere.

Arts Teachers orientation: The findings of the study in the context of disciplines indicate that the science stream teachers are higher than that of their Arts streams teacher counterparts on teacher centric as well as learner centric teaching learning evaluation dimensions.

- This implies that the arts teachers need to be oriented more on learner centric innovative teaching learning practices.

This has been noticed that the Arts teachers are less prone to learner centric innovative approaches at university as well as college level. Hence, irrespective of institutional background their acquaintance with innovative practices is called for on priority basis. Of course, with regard to differences obtained on institutional effect on concept oriented teaching the university arts teachers are lagging behind their college level counterparts.

- The university arts teachers' orientation is also essential on concept oriented teaching learning practices.

Science Teachers orientation The college level science teachers are lagging behind their university level counterparts on learner centric innovative practices.

Special emphasis be laid on orientation of evaluation practices in science teaching.

University teachers orientation The University teachers teaching were of highly behaviouristic and cognitive nature than that of their college teacher counterparts .However, their were no differences on constructivist, innovative and learner centric teaching practices. It indicates low level innovations in HEIs, irrespective of their institutional status. Teachers of all the categories of HEIs need orientation on this domain.

College teachers orientation:

At college level, the arts teachers were more dominated by learner centric teaching learning practices than that of their science teacher counterparts, even though the behaviouristic factors dominated both the group teachers behaviour. The science teachers of colleges were predominant in concept oriented teaching than that of their arts counterparts.

It is imperative that the college level science teachers need specific orientation on learner centric innovative practices, whereas their arts counterparts need high orientation on concept based cognitive approaches of teaching learning and evaluation.

PG teachers orientation:

The students perception revealed that the UG level teachers teaching learning practices in all the three domains of teaching were higher than that of their PG level teachers performance.

- As per students findings it is imperative that the university teachers' orientation on teaching learning and evaluation is more imminent.

- As per student perception in general the science teachers at PG level are lagging behind their Arts counterparts on innovative practices, hence they need special orientation on learner centric innovative teaching learning and evaluation practices.

PG college teachers orientation:

As per students perception, the college level PG science teaching were lagging behind their Arts counterparts on cognitive concept orientation practices. Therefore, college level PG science teachers need more acquaintance with cognitive orientation of teaching learning and evaluation.

UG Arts teachers orientation:

The students perceived college level UG arts teachers were lagging behind their UG science counterparts on innovative teaching learning and evaluation practices. The UG arts teachers need special orientation on innovative teaching learning and evaluation practices.

University PG teachers orientation:

The university level PG teacher teaching learning practices were lagging behind their UG teacher counterparts on different domains of teaching as per students' perception. It implies that the university level PG teachers be more sensitive to teaching, with special reference to constructivist innovative and cognitive of teaching learning evaluation system.

University PG Science teachers orientation:

As per students perception, special attention should be paid to orientation of PG level science teachers orientation on innovative teaching learning practices as per their poor performance in this domain than that of their UG level counterparts.

Implications on classroom teaching learning practices observation and interviews with students - The observation indicates that the learner centric he practices in Arts and science subjects prevailed cutting across UG and PG level. Of course, the findings were more proved towards concept oriented teaching learning evaluation practices. Such findings did not corroborate large scale questionnaire surveys.

The common findings emerge that in none of the categories of teachers (discipline wise, stage wise and institution wise) in the NAAC best rated institutions gave high priority to learner oriented constructivist teaching learning evaluation practices. Special attention be given to this domain of teaching cutting across disciplines, level of programmes and level of institutions.

Curriculum reform in HEI programmes:

Innovations in teaching learning and evaluation practices reflect on curriculum quality. Curricular objectives of HEIs irrespective of institutional and discipline background demand

learner centric innovative teaching learning practices in different programmes. There must be explicite statements on high order objectives of Cognitive, Affective and Skill domains and linking them with different kinds of constructive, learner centric innovative teaching learning and evaluation practices in different programmes cutting across different disciplines. Curriculum developers must be oriented about such aims and objectives promoting innovative teaching learning and evaluation practices.

Academic Autonomy must be encouraged at institutional level through involvement of stakeholders in decision making on curricular objectives curriculum transaction strategies at college and university level. The poor status of best rated HEIs by NAAC regarding innovative teaching learning process indicates lack of orientation of curriculum developers and teachers on the core issues of innovative curriculum transaction and evaluation. The must be provision for academic deliberations among stakeholders on curriculum objectives and curriculum transaction strategies involving innovative teaching learning practices in the HEIs.

Workplace based Professional development programmes of teachers of HEIs

The workplace based professional development programmes should be supported by HEIs with a view to introduce need based innovative teaching learning practices in different courses. Teachers must be encouraged to undertake problem specific curriculum transaction projects in the context of curricular objectives, course context and learners involvement learner participation based activities need to be planned through co-operative efforts of teachers, students and the institution.

Resource centre based teaching learning practices can be implemented on the basis of scientific principles and humanistic experiences. Teachers participatory efforts at department level be incorporated as a strategy of professional development of teachers of HEIs. The general orientation courses and subject specific refresher courses must have pedagogic components and scope for sharing experiences on innovative teaching learning practices by the practitioner teachers of HEIs. The subject specific and institution specific professional development programmes must be supported by the Institutional authorities, UGC and other agencies with a view to enable teachers to make context specific efforts for innovations in teaching learning system at institutional level on continuous basis. There is a prime need to empower HEI teachers to link day to day teaching with constructive, learner oriented creative teaching learning and evaluation strategies. Teacher research must be considered as an integral component of quality teaching at HEIs. Collaborative and participatory action research projects must be encouraged as a component of professional programmes.

Implications for ICT based orientation on Innovative teaching practices at HEIs.

There have been formal programmes for orienting teachers through ICT mode. There is a need to develop innovative models of teaching practices to be disseminated amongst teachers of HEIs. The data base on teaching should be created for collecting case studies on Innovative practices. Sharing the experiences of such practices by innovative teachers, study on impact of such practices on learning outcome of students, institution based innovations and learning environment etc. can be presented on a portal for open access of teachers. The platform must be created for promotion of innovative programmes for teachers' of HEIs. Continuous interaction of teachers must be sustained through ICT platform on teaching.

Networking of institutions on sharing institutional practices must be promoted at national as well as global level. It needs planned efforts of national bodies like UGC, NAAC,CEC, IGNOU and University system. The role of teacher education institutional on development suitable academic programmes for MOOC must be well appreciated. The formal attendance of teacher orientation programmes has marginal linkage with teachers teaching competencies and innovative teaching practices in real situations. Moreover no follow up is made to motivate innovative teachers of HEIs by organisations like Universities and UGC. This is high time to promote ICT based teacher development programmes on competency development of teachers of HEIs on constructive curriculum and innovations in teaching learning and evaluation process.

(xii) Suggestions:

On the basis of above presentation on implications of the findings, the following suggestions are highlighted:

1. It is imminent to introduce formal teacher development courses on pedagogical principles and applications at HEIs.
2. The arts teachers need to be oriented more on learner centric innovative teaching learning practices.
3. The university arts teachers' orientation is also essential on concept oriented teaching learning practices
4. Special emphasis be laid on orientation of evaluation practices in science teaching
5. The college level science teachers need specific orientation on learner centric innovative practices, whereas their arts counterparts need high orientation on concept based cognitive approaches of teaching learning and evaluation.
6. As per students findings it is imperative that the university teachers' orientation on teaching learning and evaluation is more imminent.
7. As per student perception in general the science teachers at PG level are lagging behind their Arts counterparts on innovative practices, hence they need special orientation on learner centric innovative teaching learning and evaluation practices.

8. Therefore, college level PG science teachers need more acquaintance with cognitive orientation of teaching learning and evaluation.
9. The UG arts teachers need special orientation on innovative teaching learning and evaluation practices.
10. The university level PG teachers be more sensitive to teaching, with special reference to constructivist innovative and cognitive of teaching learning evaluation system.
11. Special attention should be paid to orientation of PG level science teachers orientation on innovative teaching learning practices as per their poor performance in this domain than that of their UG level counterparts
12. Constructivist teaching learning evaluation practices. Special attention be given to this domain of teaching cutting across disciplines, level of programmes and level of institutions
13. IQAC must involve stakeholders on decision making of quality oriented teaching learning system. It must identity the curricular objectives which demand constructivist learner oriented curricular transaction approaches in each programme at UG and PG level.
14. There is a prime need to empower HEI teachers to link day to day teaching with constructive, learner oriented creative teaching learning and evaluation strategies. Teacher research must be considered as an integral component of quality teaching at HEIs.
15. The data base on teaching should be created for collecting case studies on Innovative practices. Sharing the experiences of such practices by innovative teachers, study on impact of such practices on learning outcome of students, institution based innovations and learning environment etc.
16. ICT based teacher education needs planned efforts of national bodies like UGC, NAAC, CEC, IGNOU and University system.