Continuous up skilling of teaching faculty for competency building: during and post pandemic

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1 Introduction

The dawn of digital revolution has brought many disruptive changes across the education sector. This sudden shift of conventional teaching to technology based teaching due to the impact of Covid’19 has raised a pertinent issue of the skill and competency factors of the teaching faculty in India. Continuous up-skilling of teachers is obliged by the vibrant changes faced by the education sector. It is a well known painful fact that there is an immense equity gap in education that has been exasperated by the scarcity and irregular allocation of professionally trained teachers.

Technology must be the lashing vigour to craft symmetry, facilitate the upskilling of teachers, performing continuous teaching faculty evaluation to make certain premium learning, and consistency in the teaching learning processes. The NEP 2020 also visualizes the magnitude of teacher training to make sure incessant up skilling to hang about academically rationalized, map students’ performance, recognize skills and offer a holistic environment for students during their learning journey. A continuous investment towards up skilling of teaching faculty is imperative and skilled teachers are vital to ensure quality education and to achieve the targets of the Sustainable Development of the student community and the nation as whole.

The lack of skilled and qualified teachers is the foremost crisis that has weighed down the education structure. A multiplicity of factors has added to this shortage, together with absence of economic and digital resources, and lack of access to appropriate training programmes. COVID-19 has added another layer of complexity. Teachers across the country are bearing the brunt of massive upheavals that the education system faced when brick-and-mortar institutions moved to total closures. Many teachers are still not sufficiently trained to conduct online classes effectively.
This study gives the answer for the following questions?

1. Are the teaching faculty really skilled enough to face the pandemic students?
2. Are the teaching faculty ready enough to upgrade their skills, continuously?
3. Are the teaching faculty commit to learn new tools and technology, in spite of challenges faced?
4. Do Management of the respective institution support teaching faculty to continuously upgrade their skills and competencies?

2 Review of literature

Zeenath Reza Khan et al. [20] explored thee-thinking teaching and assessment to uphold academic integrity during the pandemic times. The researchers have envisaged that the teaching fraternity keep themselves ready for the transformation that desires to be integrated and are rapid to fiddle with. Teaching Professionals were unexpectedly forced to reorganize their curriculum, pedagogy, instructing and evaluating virtually. The Researchers endeavour to confirm the modifications prepared by the teacher towards teaching learning process with special reference to the effective utilization of latest technology.

Ramesh Kumar Chaturvedi et al. [16] embarked the differential effect of pre and post cognitives skills training program for the teachers. This study has measured the impact of teachers' cognitive skills towards the improvement of the students. It is very clearly measured in this study that the online tools learnt by the faculty has helped the students to learn the courses effectively through online.

Riina Kleimola and Irja Leppisaari [17] on their study urged the importance of digital tools training to the teachers and its impact on the overall competency building of such teachers. The learning analytics is one of the key concepts very seriously and in-depth as a mode of case study with qualitative research work.

Lau1 [1] has tried to identify the various pedagogical and reflective skills required for the teachers in the digital age. The online teaching learning process has impacted the teachers to focus and revamp the conventional teaching skills to novel technological centered teaching skills and competencies.

3 Methodology

A total of 300 questionnaires were distributed among the teaching faculty of selective colleges in Coimbatore, out of which 182 useful questionnaires were collected. A well structured questionnaire was developed with five point scale (Strongly Agree, Agree, Neither Agree Nor Disagree, Disagree, Strongly Disagree). The result was analyzed using descriptive statistics. The findings were derived based on the analysis and the required suggestions were recorded.

4 Analysis

| S. no. | Questions                                                                 | Strongly Agree | % Agree | % Neither Agree Nor Dis-Agree | % Dis-Agree | % Strongly Dis-Agree | Total (Responses) |
|-------|---------------------------------------------------------------------------|----------------|---------|------------------------------|-------------|---------------------|------------------|
| 1     | I always research for more information for content preparation to teach effectively | 102            | 56      | 75                           | 41          | 5                   | 182              |
| 2     | I extend my explanation with suitable current examples to enhance students understanding and my own upskilling as well | 107            | 59      | 75                           | 41          | 0                   | 182              |
| 3     | I always research, learn and choose appropriate online class room activities with respect to the content of the course | 72             | 40      | 78                           | 43          | 32                  | 182              |
| S. no. | Questions                                                                 | Strongly Agree | % Agree | % Neither Agree Nor Dis-Agree | % Dis-Agree | % Strongly Dis-Agree | % Total (Responses) |
|-------|---------------------------------------------------------------------------|----------------|---------|------------------------------|-------------|----------------------|---------------------|
| 4     | I always spend a lot of valuable time to prepare and design most suitable and perfect online instructional plans for the course I handle | 17             | 9       | 21                           | 55          | 16                   | 6 182               |
| 5     | I always have a positive attitude and a great sense of commitment to continuously improve myself professionally and skilfully | 102            | 56      | 40                           | 7           | 4        | 0 0 0 0 182          |
|       | **II Technologist**                                                       |                |         |                              |             |                      |                     |
| 1     | I know enough and the required online tools to engage my classes effectively | 28             | 15      | 20                           | 31 57       | 30                   | 3 182               |
| 2     | I always have the thirst to learn new technological tools and adapt the same in my teaching pedagogy | 72             | 39      | 43                           | 18 0 0 0    | 0        | 0 0 0 0 182          |
| 3     | To improve the online learning environment, I have customized few tools to help my students learn enthusiastically | 10             | 5       | 10                           | 42 55       | 30                   | 13 182              |
| 4     | Though most of the tools are at free, I would never bother paying and getting few worth online tools for my students | 22             | 12      | 26                           | 48 23       | 13                   | 13 182              |
|       | **III Designer**                                                          |                |         |                              |             |                      |                     |
| 1     | I design few activities/games/tools for my students with respect the courses I handle | 18             | 10      | 21                           | 54 14       | 8        | 12 7 182            |
| 2     | I invest more time to learn and design new tools to aid my teaching process | 17             | 9       | 38                           | 55 16       | 9        | 10 5 182            |
|       | **IV Process Facilitator**                                                |                |         |                              |             |                      |                     |
| 1     | I am always a teacher of professional excellence and welcome my students happily to my classes | 107            | 59      | 41                           | 0           | 0        | 0 0 0 0 182         |
| 2     | I am very careful about my time management during the class and specially after pandemic | 96             | 53      | 42                           | 5 0 0 0     | 0        | 0 0 0 0 182         |
| 3     | I build good and professional relationship with my students | 94             | 52      | 42                           | 7 0 0 0     | 0        | 0 0 0 0 182         |
| 4     | My communicative skill is always commendable by the students | 96             | 53      | 46                           | 1 0 0 0     | 0        | 0 0 0 0 182         |
| 5     | I ensure that there is always a behavioural modelling happens with the student(s) during my classes | 56             | 31      | 32                           | 32 9 5 0    | 0        | 0 0 0 0 182         |
| 6     | I establish unique identity in front of my students                      | 102            | 56      | 40                           | 4 0 0 0     | 0        | 0 0 0 0 182         |
|       | **IV Advisor/Counselor**                                                  |                |         |                              |             |                      |                     |
| 1     | I always advise my students and have a control over their behaviour      | 75             | 41      | 49                           | 12 7 6 3     | 0        | 0 182              |
| 2     | I take more time to counsel my students (one – to – one)                | 23             | 13      | 56                           | 8 14        | 4        | 7 4 182            |
| 3     | The students seek my advice due to my technical and professional expertise | 55             | 30      | 87                           | 18 5 3 2     | 1        | 1 182              |
|       | **V Assessor**                                                            |                |         |                              |             |                      |                     |
| 1     | I always provide prompt feedback about the performance of the students  | 56             | 31      | 99                           | 12 5 3 0     | 0        | 0 182              |
| 2     | I always suggest corrective measures to rectify the performance deviations of the students | 54             | 30      | 97                           | 14 5 3 1     | 1        | 1 182              |
| S. no. | Questions                                                                 | Strongly Agree | % Agree | % Neither Agree Nor Dis-Agree | % Dis-Agree | % Strongly Dis-Agree | Total (Responses) |
|-------|---------------------------------------------------------------------------|----------------|---------|------------------------------|-------------|----------------------|------------------|
| VI    | Research creator                                                          |                |         |                              |             |                      |                  |
| 1     | I do extensive research to improve my teaching skills, now and then       | 89             | 49      | 75                           | 41          | 12                   | 182              |
| 2     | I always try new methods of content delivery                              | 41             | 23      | 53                           | 29          | 78                   | 182              |
| 3     | I explore my courses extensively, before I deliver                        | 39             | 21      | 54                           | 30          | 79                   | 182              |
| 4     | I always learn more about my students before and during my course content delivery | 23             | 13      | 56                           | 31          | 82                   | 182              |
| VII   | Learner                                                                   |                |         |                              |             |                      |                  |
| 1     | I always urge to learn through workshops/seminars/conferences/FDPs         | 89             | 49      | 75                           | 41          | 12                   | 182              |
| 2     | I never bother spending money to learn and upgrade my skill               | 22             | 12      | 26                           | 14          | 93                   | 182              |
| 3     | I love to learn new online courses to upgrade my skill                     | 72             | 40      | 92                           | 51          | 18                   | 182              |

5 Results and discussion

Conceptual framework model was developed with the help of literature. The inevitability for gaining professional, technical and non-technical competences is apparent, but there is an escalating requirement to get trained on more standard competences for the teaching professionals [3]. The faculty should develop the twenty-first century skills [14] and competences [2], soft skills [10] and generic capabilities [8] to face the techno driven student community. Matching up to the effects of competency building and the dynamic skill-ing of faculty towards the attainment of continuous skill up gradation, the following hypothesis were framed and tested using Structural Equation Modeling (SEM) and thus, enhanced the convergence of learned skill to the student community.

H1 There is a significant relationship between competency building and technologists.

H2 There is a significant relationship between competency building and designer.

H3 There is a significant relationship between competency building and process facilitator.

H4 There is a significant relationship between competency building and advisor/counselor.

H5 There is a significant relationship between competency building and assessor.

H6 There is a significant relationship between competency building and research creator.

H7 There is a significant relationship between competency building and learner.

Following Hair et al. [6], process, to assess the measurement models, we examine outer loadings, composite reliability and average variance extracted (AVE = convergent validity). Our empirical results indicate the adequate reliability for all the measurements. The AVE values (convergent validity) are well above the minimum required level of 0.50, thus demonstrating convergent validity for all the constructs. The constructs were examined for collinearity which through the empirical results indicated that the indicators do not have problems with collinearity.

Once the construct measures have been confirmed as reliable and valid, the next step is to assess the structural model results which involve examining the model’s predictive capabilities and the relationships between the constructs [6] (Table 1).

A bootstrap analysis was performed to assess the statistical significance of the path coefficients after computing the path estimates in the structural model. By applying the PLS-SEM algorithm, estimates were obtained for the structural model coefficients (the path coefficients), which represents the hypothesized relationships between the constructs (Fig. 1).

The statistical results support the significant relationship between Competency Building and Technologist (standard error = 0.04; t-statistics = 4.46 P Value = 0.00). There exists a strong relationship between Competency Building and Technologist. The relationship between Competency Building and Designer has standard error of 0.03, t-statistics of 2.82 and P value of 0.005. It is also seen that there exists a strong relationship between Competency Building and Designer.
The relationship between Competency Building and Assessor has standard error of 0.03, t-statistics of 15.26 and \( P \)-value of 0.00. It is also seen that there exists a strong relationship between Competency Building and Assessor. The relationship between Competency Building and Research Creator has standard error of 0.03, t-statistics of 2.38 and \( P \)-value of 0.017. It is spotted that there exists a strong relationship between Competency Building and Research Creator. The relationship between Competency Building and Advisor has standard error of 0.06, t-statistics of 8.25 and \( P \)-value of 0.00. It is spotted that there exists a strong relationship between Competency Building and Advisor. It is observed from the results that two of the relationships are not supported by the statistical values viz. Process Facilitator and Learner. Thus the following results are obtained for the hypothesis framed:

**H1** There is a significant relationship between competency building and technologists.

**H2** There is a significant relationship between competency building and designer.

**H3** There is no significant relationship between competency building and process facilitator.

**H4** There is a significant relationship between competency building and advisor/counselor.

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**Table 1** Path coefficients

| Path                | Standard error | t-statistics | \( p \)-value | decision     |
|---------------------|----------------|--------------|---------------|--------------|
| Technologist CB     | 0.04           | 4.46         | 0.000         | Supported    |
| Designer CB         | 0.03           | 2.82         | 0.005         | Supported    |
| Process Facilitator CB | 0.03       | 1.79         | 0.073         | Not supported|
| Advisor CB          | 0.06           | 8.25         | 0.000         | Supported    |
| Assessor CB         | 0.03           | 15.26        | 0.000         | Supported    |
| Research Creator CB | 0.03           | 2.38         | 0.017         | Supported    |
| Learner CB          | 0.04           | 0.529        | 0.597         | Not Supported|

**Fig. 1** Structural model
H5 There is a significant relationship between competency building and assessor.

H6 There is a significant relationship between competency building and research creator.

H7 There is no significant relationship between competency building and learner.

6 Recommendations

Based on the analysis, the following recommendations are identified to enhance the teaching faculty to up skill and deliver the best adapting to the changing technology to the student community.

1. Conventional methods of teaching and curriculum are no longer at the hub of education as it is becoming more learner centric. The nature of roles of employment in the job market keeps shifting, and so are the skill demands and expectations from graduates. This has intense implications for the competencies which teachers need to get hold of, to effectively impart the skills to the students.

2. Traditional teacher training programmes are unstructured and not continual. This results in failure to help upgrade teacher competencies and, consequently, to enable them to cater to new-age learners. A long-term solution is needed to help enhance the initial education of teachers and make certain continuous skill enhancement.

3. Teaching is an evolving skill because a good teacher needs to keep on upskilling himself/herself to be able to engage the students productively in the class and ensure the intended outcome in our learners. The Covid-19 pandemic has disrupted education, creating a huge learning gap between students and many teachers. Teachers have to adopt the latest technology and methods to teach online. It was difficult for them to connect with each student emotionally online and understand their problems.

4. The institutions have to support/motivate the teaching faculty by financially aiding them to undergo extensive training to upgrade their skills and competencies.

7 Limitations and directions for future research

The study was limited to selective colleges in Coimbatore City due to time constraint. Most of the responses were not accurate and hence, such responses were taken away. The accuracy and the correctness of the information were purely based on the responses of the teaching faculty, which may be biased at some times.

Though the study has brought prolific results towards the continuous up skills of the teaching faculty, it is much required to analyse the cognitive ability and emotional intelligence of the teaching faculty towards such skill and competency enhancement. The future research can focus on such competency variables.

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