

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

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Abstract It is always a proven statement that the education industry keeps growing and it has been witnessed a reflective transformation in the meadow of edification. Swift progress and skill augmentation for teachers are the need of the hour. Chalk and Talk Method, so called conventional teaching have distorted into smart boards, interactive teaching and virtual reality and augmented reality mode of teaching. Access to innovative tools and technology has made education expedient transversely in all platforms. This study has envisaged the real impact of Covid' 19 towards the continuous up skilling of the teaching faculty irrespective of their disciplines. A sample size of 182 teaching professionals of Engineering and Arts and Science in growing institutions of Coimbatore City has been included for the study. A well structured questionnaire was framed and distributed among the teaching community and the data is analyzed through descriptive statistics. The pandemic has made a drastic change in all the fields, especially education as the teachers perception towards teaching mode has transformed from conventional to contemporary in most of the prominent cases.

Keywords Competency building · Upskilling

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 up skilling 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.

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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 toup hold academic integrity during the pandemic times. The researchers have envisaged that the teaching fraternity keep themselves ready for the transformation that desires to beintegrated and are rapid to fiddle with. Teaching Professionals were unexpectedly forced toreorganize their curriculum, pedagogy, instructing and evaluating virtually. The Researchers endeavour to confirmthe modifications prepared by the teacherstowards teaching learning processwith special reference to the effective utilization of latest technology.

Ramesh Kumar Chaturvedi et al. [16] embarked the differential effect of pre and post cognitiveskills 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.

Marin et al. [18] focused on faculty perceptions, awareness and useof open educational resources for teaching and learning in higher education. The real use of free and open educational resources is limited with the faculty members and this study has evidentially proved on the same. All the faculty members in the field of education are suggested to make use of open e-resources and improve their skills.

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 thevarious 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)
I	Competency building											
1	I always research for more information for content preparation to teach effectively	102	56	75	41	5	3	0	0	0	0	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	0	0	0	0	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	17	0	0	0	0	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	38	21	101	55	16	9	10	6	182
5	I always have a positive attitude and a great sense of commitment to continuously improve myself professionally and skilfully	102	56	73	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	36	20	56	31	57	31	5	3	182
2	I always have the thirst to learn new technological tools and adapt the same in my teaching pedagogy	72	39	78	43	32	18	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	18	10	76	42	55	30	23	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	14	87	48	23	13	24	13	182
III Designer												
1	I design few activities/games/tools for my students with respect the courses I handle	18	10	39	21	99	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	21	101	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	75	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	76	42	10	5	0	0	0	0	182
3	I build good and professional relationship with my students	94	52	76	42	12	7	0	0	0	0	182
4	My communicative skill is always commendable by the students	96	53	84	46	2	1	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	59	32	58	32	9	5	0	0	182
6	I establish unique identity in front of my students	102	56	73	40	7	4	0	0	0	0	182
IV Advisor/Counselor												
1	I always advise my students and have a control over their behaviour	75	41	89	49	12	7	6	3	0	0	182
2	I take more time to counsel my students (one – to – one)	23	13	56	31	82	45	14	8	7	4	182
3	The students seek my advice due to my technical and professional expertise	55	30	87	48	33	18	5	3	2	1	182
V Assessor												
1	I always provide prompt feedback about the performance of the students	56	31	99	54	22	12	5	3	0	0	182
2	I always suggest corrective measures to rectify the performance deviations of the students	54	30	97	53	25	14	5	3	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	7	6	3	0	0	182
2	I always try new methods of content delivery	41	23	53	29	78	43	7	4	3	1	182
3	I explore my courses extensively, before I deliver	39	21	54	30	79	43	5	3	5	3	182
4	I always learn more about my students before and during my course content delivery	23	13	56	31	82	45	14	8	7	4	182
VII Learner												
1	I always urge to learn through workshops/seminars/conferences/FDPs	89	49	75	41	12	7	6	3	0	0	182
2	I never bother spending money to learn and upgrade my skill	22	12	26	14	93	51	20	11	21	12	182
3	I love to learn new online courses to upgrade my skill	72	40	92	51	18	10	0	0	0	0	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 skilling 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.

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

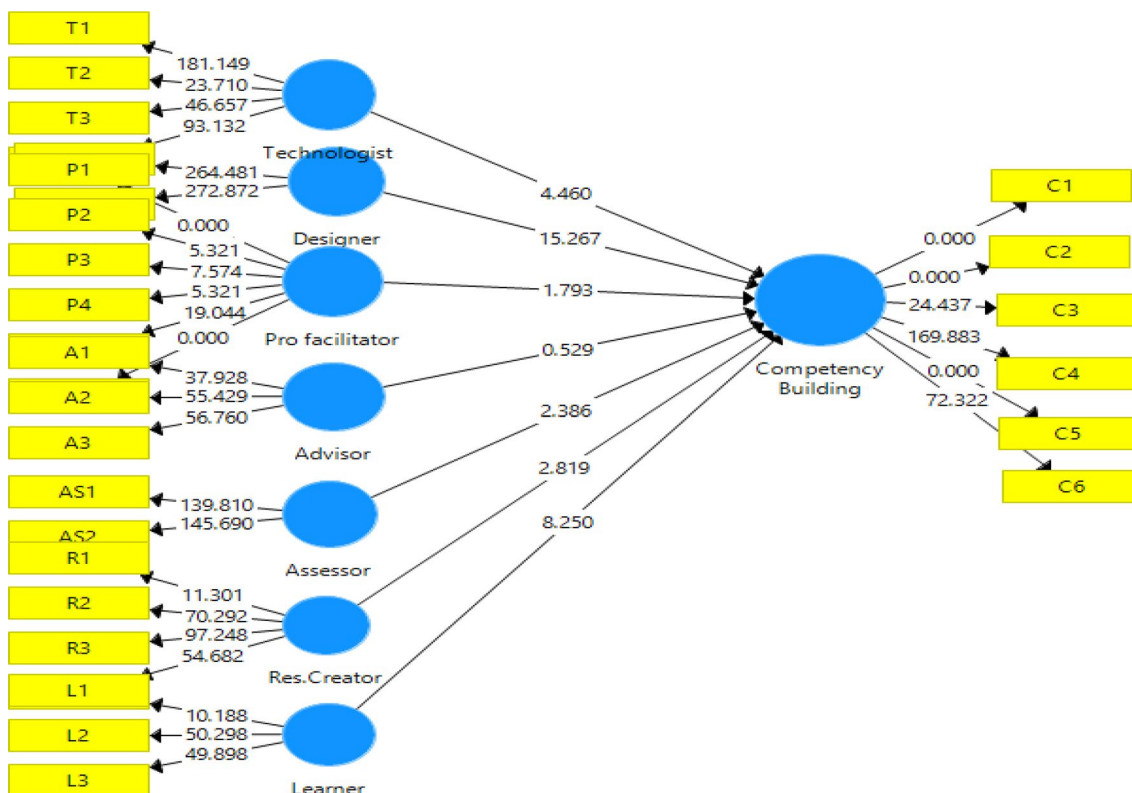


Fig. 1 Structural model

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 0.529 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.

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 skilling 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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