

**PROFESSIONAL COMPETENCIES OF EDUCATORS IN THE
PANDEMIC ERA**

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ABSTRACT

Numerous studies have been conducted worldwide to assess the problems associated with the COVID-19 lockdown in general and especially with online learning. Teachers are the most important actors in improving students' learning outcomes and thus in addressing a learning crisis during the pandemic era. Throughout the closure of educational institutions, teachers continued to teach under extremely fluid and trying conditions: increased workloads, having to use new and unfamiliar technologies without adequate training, experiencing a lack of materials for online instruction, high levels of physical and mental stress, and insufficient support. This study focus on the professional competency of the teachers in the midst of new normal teaching experiences. An online survey was conducted to collect data. The configuration questionnaire link was sent to educators using the "Google Form" via WhatsApp and email and received complete responses from 50 respondents. The researcher used statistical tools such as percentage analysis, reliability testing and factor analysis using SPSS and SEM using AMOS. Educators' academic activities are divided into three components and named as professional, academic and research and the components were evaluated and fitted as a model through SEM. It is inferred from the study that through struggles and hurdles, the educators proved themselves as professional educators.

Keywords: CFA, College Educators, COVID-19, Online Classes, Online Courses, Pandemic Lockdown, SEM and Online Teaching.

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I. Introduction

In China (Wuhan), from December 2019 pneumonia caused by the novel coronavirus (SARS-CoV-2) was spread. It is the largest infectious disease. The WHO says COVID-19 (coronavirus) is an infectious problem. Cases of coronavirus have been increasing day by day since the first case in India was detected on January 30, 2020. Colleges and educators were only doing academic interaction in online and were eagerly awaiting the end of the situation. Colleges, professors and students face various challenges and obstacles. In this gaze, many colleges and universities across India have canceled or modified educational activities such as conferences, seminars, FDPs, workshops and other educational and sports activities because universities and colleges need to protect and maintain their students and faculties health. College professors use their time effectively to attend virtual courses and classes, teach classes online and does their research work. In this brief study, the researcher would like to project a model for the professional competencies of educators during pandemic era.

II. Purpose of the Study

The motive of the present study is to fit a suitable model using SEM among College Educators' Academic Activities during COVID-19 Lockdown. From this perspective, the research was aimed to analyze the college educators' academic activities and divided into component and SEM approach.

III. Methodology

Descriptive research was undertaken to assess the college educators' academic activities during pandemic lockdown. An online survey was conducted to collect data. The configuration questionnaire link was sent to educators using the "Google Form" via WhatsApp and email. The total number of respondents was 50 educators and the educators provided complete information related to the study survey. The researcher has used statistical tools such as percentage analysis, reliability testing and factor analysis using SPSS and SEM using AMOS.

Review of Literature

- Priyadarshani H D C and Jesuiya D (2021), their studies show that students are satisfied with online classes and receive adequate teacher assistance, but they do not assume that regular classroom teaching will be replaced by online classes. Teachers face difficulties in conducting

online classes due to lack of proper preparation and development to do online classes. Online classes for practical subjects are difficult to conduct. Teachers are not supportive of implement online classes without proper training and proper infrastructure facilities such as networks and computers. They suggested that take steps to address barriers to embracing online learning is important.

- Lokanath Mishra, Tushar Gupta and AbhaShree (2020), The purpose of their study is to address the essential needs of online teaching-learning in education in the midst of the COVID-19 epidemic and how the resources of educational institutions can effectively transform formal education into effective online education with the help of virtual classes and other important online tools. Their paper shows a complete picture of the online teaching-learning activities taking place during the lockout period in education management and the online teaching-learning process in the midst of the COVID-19 eruption. As a result of their paper is to overcome persistent educational barriers and ensure that educational activities and discourses resume as a normal practice in the education system.
- Veena Shenoy, Sheetal Mahendra and Navita Vijay (2020), They are conducting research to know the technical adoption, teaching and learning process, student involvement and teaching experience towards virtual classrooms during lockout due to COVID-19 in India. The teachers' feelings and perceptions of using technology and experience are different for different users. Although COVID-19 has created a cognitive paradox in the minds of students and teachers of the various situations they face in daily life in conjunction with community, family and teaching and learning. They found that, due to the pandemic situation, most of the higher education technology in Bangalore is widely accepted and the involvement of students is higher than the regular class involvement.

Research Gap: Previous researchers have dealt with Teacher's Perception on Online Teaching Methods, Technology Adaption in teaching and learning process and online teaching-learning in higher education during COVID-19 pandemic lockdown. But the present study manifests the Structural Equation Modelling for college educators' academic activities during COVID-19 lockdown.

V. Educators' Academic Activities During Lockdown

A. Demographic profile

Through the survey, out of 50 respondents, 56% are Female, 44% are Male, 36% within the age group of 21-30, 42% within the age group of 31-40, 16% are within the age group of 41-50 and

remaining 6% are within the age group of Above 50, 14% are Associate Professor, 38% are Assistant Professor, 32% are Guest Lecturer and 16% are PTA Staff, 30% are teaching Arts major, 24% are teaching Science major and the balance 46% are teaching Commerce major, 42% are working in Government institutions, 12% are working in Private institutions, 28% are works in Management institutions and the remaining 18% are working in Self-financing blocks. Individually, 26% of the sample respondents having the capacity of earning up to Rs.15,000, 28% are earning between Rs.15,001-Rs.30,000, 14% are earn between Rs.30,000-Rs.45,000, 20% are earns between Rs.45,001-Rs.60,000 and the rest 12% are earns above Rs.60,000. Hence it is implicit that the sample group consist of a majority of females, middle-aged, assistant professors, teaching commerce major, and are working in government institutions.

Table I Pandemic Lockdown Experiences

Variables	Category	Frequency	%	Cumulative %
Participation of Virtual Programs during the lockdown	Yes	46	92	92
	No	4	8	100
Self-evaluation after the completion of online courses	Yes	27	54	54
	No	23	46	100

Source: Primary Survey

From among the 50 sample of respondents, 92% are participating virtual programs during the lockdown and rest 8% are not participating, 54% are self-evaluation after the completion of online courses and remaining 46 are neglected it. Hence it is inferred from the above, most of the respondents were participate in virtual programs during the lockdown and self-evaluates after the completion of online courses.

B. Educators' Academic Activities during Lockdown

Table II Test of Reliability

Variables	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Reliability Cronbach's Alpha
Attending Online courses	23.70	44.337	.505	.797	.822
Offering online classes	23.10	44.418	.440	.818	
Making a new articles	22.44	47.476	.580	.834	
Finishing a project	22.92	44.442	.482	.800	
Preparing competitive examinations	23.16	43.076	.539	.793	
Attending e-quizzes	23.28	43.798	.488	.799	

Preparing next semester	22.96	40.325	.698	.775
Improving knowledge through webinar, workshops, etc.	23.16	39.729	.657	.778
Doing Academic Work	23.50	42.622	.672	.782
Doing Research Work	23.08	43.789	.501	.797

Source: Derived

As the reliability Cronbach's Alpha value is .822, the individual values of cronbach's alpha are more than 0.70 which is acceptable and good measure of the reliability, Corrected Item-Total Correlation values are more than 0.40 and all the ten statements can be considered for further analysis.

Table III Reliability Statistics (ANOVA)

Items		Sum of Squares	df	Mean Square	F	Sig
Between People		257.250	49	5.250	5.926	.000
Within People	Between Items	51.930	9	5.770		
	Residual	429.370	441	.974		
	Total	481.300	450	1.070		
Total		738.550	499	1.480		
Grand Mean = 2.57						

Source: Derived

As per the ANOVA test, the grand mean is 2.57, sum of squares between people is 257.250 and between items is 51.930 and mean square between people is 5.250 and between items is 5.770. The value of F (49, 9) is 5.926 with the significant value of 0.000 which is less than 0.05 and all the statements are statistically significant and can be used for further analysis the data.

Table IV KMO and Bartlett's test of Sample Adequacy

Items	Values	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.702	
Bartlett's Test of Sphericity	Approx. Chi-Square	220.815
	df	45
	Sig.	.000

Source: Derived

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy is 0.702 which is more than the good level of 0.70 with the chi-square value of 220.815 for degrees of freedom of 45 and test of significance of 0.000 which is less than 0.05. Hence the KMO and Bartlett's Test of sphericity is permit to further analysis.

Table V Confirmative Factor Analysis

Components	Variables	Components Values	Communalitis	% of Variance	Cumulative % of Variance	% of Total	AVE	CR
Professional								
P1	Attending e-quizzes	.875	.881	28.097	28.097	40.18	.474	1.985
P2	Attending Online courses	.751	.576					
P3	Improving knowledge through webinar, workshops, etc	.733	.678					
P4	Preparing competitive examinations	.729	.670					
Academic								
A1	Offering online classes	.845	.717	22.608	50.705	32.33	.483	1.668
A2	Preparing next semester	.815	.832					
A3	Doing Academic Work	.696	.716					
Research								
R1	Making new articles	.806	.666	19.226	69.931	27.49	.278	1.177
R2	Finishing a project	.730	.725					
R3	Doing Research Work	.616	.532					

Source: Derived

From the table above shows that the all the statements are having communalities values are more than 0.40 which is good and divided into the three factors, that is named as Professional, Academic and Research.

Professional: This fact consisting of four statements such as Attending e-quizzes (0.875), Attending Online courses (0.751), Improving knowledge through webinar, workshops, etc (0.733), and Preparing competitive examinations (0.729). The value of CR is 1.985, AVE is 0.474 and % of total is 40.18.

Academic: This factor consisting of three statements such as Offering online classes (0.845), Preparing next semester (0.815) and Doing Academic Work (0.696). The value of CR is 1.668, AVE is 0.483 and % of total is 32.33.

Research: This factor consisting of three statements such as Making new articles (0.806), finishing a project (0.730) and Doing Research Work (0.616). The value of Critical Ratio is 1.177, AVE is 0.278 and % of total is 27.49.

The Confirmative Factor Analysis for Educators’ Academic Activities during lockdown showed that the educators thought that among all the activities, academia plays an important role during the pandemic lockdown period.

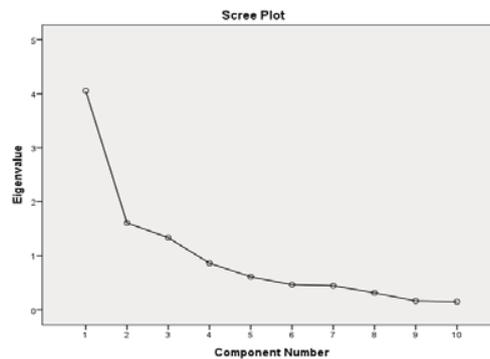


Fig.1 Scree Plot

A scree plot always displays Eigen values in a downward curve, sequencing eigen values from largest to smallest. The scree plot shows that there are two statements which are above the eigen value of one that are sloping upwards and the remaining statements are ranked below the eigen value of one and are sloping downwards.

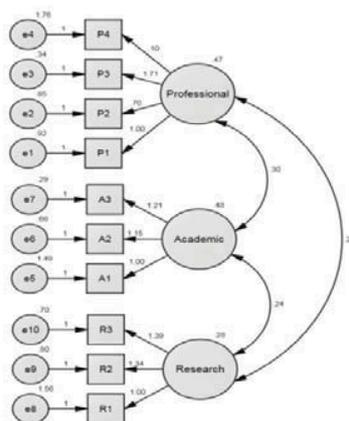


Fig.2 Structural Equation Modelling

Based on the Structural Equation modeling, the hypothesized first-order factorial model consists of three components, P, A and R, which are graphically shown in Figure 3. Three factors

are considered to be related to each other because they measure different but related aspects of a structure. The model of theoretical projected academic performance is in table 6 and it represents models constructs (figure 3), indicator variables and inter-relationships. SEM is the covariance-based statistical methodology. There are no more points to proceeding the structural equation modeling in anticipation of the legitimacy of the measurement model is satisfactory. SEM does not have a single statistical test that best describes the predictive strength of the model. In contrast, different types of activities developed by researchers, evaluate the results in combination.

Table VI Model Fit

Goodness of Fit Measures	Estimates	Cutoff Values	Limit
Chi Square	36.171		
df	32		
CMIN/DF	1.130	< 3	Accepted Limit
p-value	.280	> 0.05	Accepted Limit
CFI	.954	> 0.95	Accepted Limit
GFI	.888	> 0.95	Non-Accepted Limit
AGFI	.808	> 0.80	Accepted Limit
SRMR	.000	< 0.09	Accepted Limit
RMSEA	.052	< 0.08	Accepted Limit
PCLOSE	.456	> 0.05	Accepted Limit

Source: Derived

The model fit shows that the chi-square (df: 32, n: 50) is 36.171, p-value is 0.280 which is more than the limit of greater than 0.05, so it fit the data and F ratio (CMIN/DF) value is 1.130. Comparative Fit Index (CFI) is 0.954 which is more than the limit of greater than 0.95, Goodness of Fit Index (GFI) is 0.888 which is less than the limit of greater than 0.95, Adjusted Goodness of Fit Index (AGFI) is 0.808 which is more than the limit of greater than 0.80, Standard Root Mean Square Residual (SRMR) is 0.000 which is less than the limit of lesser than 0.09, Root Mean Square Error of Approximation (RMSEA) is 0.052 which is less than the limit of lesser than 0.08 and P CLOSE is 0.456 which is more than the limit of greater than 0.95. From the table above and figure 4 and figure 5, CMIN/DF, p-value, CFI, GFI, SRMR, RMSEA and P CLOSE are within the commonly accepted range of values, AGFI only is out of the accepted range of value and hence it can be concluded that the model is fittest model.

Table VII Regression Weights of the Model

Components	Variables	Standardized Regression Weights	Standard Error	Critical Ratio	P Sig. Value	Sig. Level
Professional	P1	1.000				< 0.05
	P2	.698	.260	2.682	.007	
	P3	1.710	.501	3.410	***	
	P4	.683	.231	2.325	.007	
Academic	A1	1.000				
	A2	1.152	.381	3.024	.002	
	A3	1.214	.389	3.118	.002	
Research	R1	1.000				
	R2	1.342	.648	2.070	.038	
	R3	1.389	.664	2.094	.036	

Source: Derived

As per Standardized Regression Weights, all the ten statements are statistically significant as the p values are less than 0.05 and the critical ratios are exceeds 1.96. Hence it is representing that the Structural Equation Modelling for Educators’ Academic Activities during lockdown is pertinently fit as per the goodness of fit test.

VI. Summary of Findings

Depending on which indices are to be reported, it is not necessary or unreliable to include every index included in the program's output, as this would be a burden on the reader, the reviewer and the new researcher. Considering the abundance of model fit indices, it becomes a test to select the appropriate indices that represent the best fit of the model (see Table 8 for a summary of some of the key indices are shows here). CFI, GFI, AGFI and RMSEA were found to be the most generally reported matching fit indices. The Chi-Square statistic, degrees of freedom and p value, F ratio (CMIN/DF), Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Standard Root Mean Square Residual (SRMR), Root Mean Square Error of Approximation (RMSEA) and PCLOSE were found to this research paper to report the model fit. These indices were chosen because they were found to be more insensitive to sample size, sample misalignment and parameter ratings. Although there are no golden rules for assessing model fit, it is necessary to report different indices because different indices reflect different aspects of model fit.

VII. Conclusion

The current article demonstrates the basic concepts and practices for conducting CFA via AMOS, a popular structural equation modelling statistical package. In particular, steps to introduce the factor model of the questionnaire using IBM AMOS Graphics 20.0 have been introduced and explained. With these analyzes, the factor validity of the three-factor model established in the sample of college educators in Tirunelveli city. Educators' academic activities are grouped into three components and that is exploratory factor analysis and move on to confirmatory factor analysis to validate the factor structure and the decision is made using the cut-offs for different indices. The Chi Square, df, CMIN/DF, p-value, CFI, GFI, SRMR, RMSEA and PCLOSE are within the commonly accepted range of values, AGFI only is out of the accepted range of value and hence it can be concluded that the model is fittest model. Current findings are a tool for validating the academic activities of educators, a subjective effect assessment criterion used in previous studies. Establishing the sound structure validity of a measuring instrument has always been a significant issue in the development and application of the questionnaire. However, such analyzes are rarely done in positive among young development research. It is our humble wish that this paper will facilitate future applications of CFA. With the guide provided in this paper, prospective researchers can now easily find out how to conduct statistical analyzes and explore and establish the measurement properties of their proposed tools.

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