Impact of Covid-19 on higher education, stakeholders and challenges faced by higher education and students - A study with reference to Bengaluru

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Abstract

Covid-19 has impacted very much higher education at Bengaluru and it is impoverished by the pandemic. Covid-19 has impacted all people regardless of nationality, level of education income and gender. But pandemic has not caused the similar consequence to one and all and the vulnerable suffering very much. Students from privileged background who are well supported by their parents are learning very quickly with the alternative learning modes and opportunities. The students from poor and marginal families are facing the consequences of closing down of schools and colleges. The shift from classroom to online learning has created digital divide between rich and poor (Jyothi Bavia et al., 2021).

In India about 32 crores learners stopped to move schools or colleges and all educational activities (Pavat Kumar Jena 2020) are brought to an end. The higher education in developed countries managed well to implement digital learning. But the situation in India is different. Students studying in the rural area are feeling very difficult to adjust to online due to different reasons and students are unable to attend project work properly.

Online teaching by faculty made the managements to pay a fixed salary in certain cases and no salary in certain other cases. The payment of fixed salary arise due to financial problems faced by managements. Online classes are limited inaccessability and affordability for many rural area students. Some colleges especially from rural areas find connectivity problems on account of lack of broad spectrum internet services and even do not have basic connectivity (UNESCO IESALC, 2020). Against this background an attempt is made to study the impact of Covid-19 on higher education, its impact on students, faculty and parents. Further, the challenges faced by higher education and different

universities and higher education centers was also surveyed and conclusions drawn. The survey reveals clearly the severe damage impacted by Covid-19 on higher education scenario at Bengaluru in terms of close down of higher education centers, problem of admission, postponement of research work and projects, internship and the recovery to normal may take its own time. Bengaluru localities prefer to call as 'education city' has to take long time to recover from the ill-effects of Covid-19.

Keywords : Pandemic, Higher Education, lab theory, online classes, infrastructures, impoverishment.

Introduction

The source of virus was traced to a laboratory at Wuhan which was ranked as not less than high school chemistry lab created devastating effect and the world suffered a lot in terms of income, loss of human resources, a change in the social relation and closure of educational institution (Wion, Natural or Leak, 27th June, 2021). Though the WHOs report on Wuhan lab was discounted early but the pandemic ill-effects which affected all the nations cannot be discounted.

The spread of pandemic Covid-19 has drastically disrupted every aspect of human life including education. Across the globe it is found that educational institutions swiftly changed teaching and learning from traditional to online. The higher education institutions are destabilized with an immediate effect of reduced mobility of national and international students. The pandemic also succeeded in creating digital divide between rich and poor. Due to Covid-19 pandemic many new trends of learning, new prospectives, new models have emerged and the some may continue in future (Pravat Kumar Jena, 2020).

According to UNESCO report, Covid-19 has affected nearly 68% of the worlds student population as per the data taken on June 2020 (UNESCO Covid-19, 2021). The closure of educational institutions not only presented a multiple number of challenges to the students but also to their friends, employers, social and global economy (Owush Fordijour, et al 2020). The students around the globe required to stay at home due to closure of educational institutions. It reached an highest number of 1598 billion from 194 countries (UNESCO, 2020). The pandemic impacted very much on the work life, social life, financial worries and future education career (Elmer, T. et al., 2020). The social distance has attempted to reduce interpersonal contact to reduce the virus spread that could develop quickly in dense social networks like university campus (Weeden KA et al., 2020).

Objectives:

(1) To analyse the impact of Covid-19 on higher education.
(2) To study the impact of Covid-19 in students, faculty and parents.
(3) To analyse the challenges faced by higher educational students.
(4) To analyse the challenges faced by central, state and private universities and autonomous colleges, affiliated and unaided higher education centers.

Hypotheses:

(1) Covid-19 is not impacting higher education.

(2) Covid-19 has not impacted the stake holders.

(3) There are no challenges faced by higher education and students.

(4) To analyse the challenges faced by central, state and private universities and autonomous colleges, affiliated and unaided higher education centers.

Research questions:

(1) What is the extent of impact of Covid-19 on higher education?

(2) To what extent students, faculty and parents are impacted by Covid-19?

(3) What kind of challenges are faced by the higher education and students?

(4) What are the challenges faced by different universities, autonomous education centers and higher education affiliated and unaided colleges.

Review of Literature

Shazia Rashid et al. (2020) stated that there exist no familiar best practice to follow at the university level about higher education. Post pandemic educational institutions may need to identify the issues that they may face and prepare to take decision in the coming years. The universities are required to approach all stakeholders regarding balancing costs and public health that is associated with education, knowledge creation and service to the society.

Siddesh Tari et al. (2021) stated that technology became a necessity at present. It is very difficult to imagine colleges and universities education without the use of digital resources which has provided different educational and academic information. The researchers further stated that online mode of learning can be the best mode of teaching if it can be accessed by all sections of the society.

Aleksander Aristovink et al. (2020) examined the impact of Covid-19 in the life of higher education students with a sample of 30383, students from 62 countries. The study reveals that due to worldwide lockdown and a change to online learning, the students have satisfied with the teaching faculty support and university public relations. The researchers further revealed that deficiency of computer skills and high workload prevented them own improved performance.

Pavat Kumar Jena (2020) examined the impact of Covid-19 on higher education in India. The researchers suggested for a combination of traditional technologies radio, TV, landline phones with mobile / web technologies to a single platform with all depositories would enhance better accessibility and flexibility to education. Further the researcher stated that all service providers should upgrade so as to access disadvantaged groups of population.

Devesh Nigam et al. (2020) indicated that the history of modern India shows that there is no clear coherent long term policy perspective on higher education in India by the previous governments. It is also noticed about growing public apathy and low budget allocation for public higher education. In addition to the above absence of robust higher education development policy is backing the exponential growth of private higher education.

Pushpa (2016) stated that attrition is found in many self financed educational institutions. Attrition can be reduced by gaining commitment and dedication from faculty. Further, the researcher stated about reasons behind turnover of

faculty which includes no guarantee of the job security, inflexible working timings, severe work stress. The researcher further suggested that the self financing institutions at Bengaluru must pay attention to reduce stress, ensure job security, provide flexible working conditions so as the make the faculty to be more committed, loyal and dedication.

Ibrahim et al. (2013) reveals that the employee turnover basically arises on account of unhappiness of an individual employee from job environment. Further, the researcher indicated that it is very important to know the difference between those employees who leave the job as they are unhappy and more who leave on account of some other reasons.

Rajesh Ramachandran et al. (2016) studied that there exist notable lacuna which has been adversely affecting employee retention. The factors identified are salary, experience, work location preference, appreciation of the employees suggestion and their involvement in policy making which in the long run create ever lasting relationship with the organisation.

Balaji Mathimaran (2017) highlighted that there is a growing need for organisations to retain its employees in the face of competition, and their findings of the study suggest that certain variables are crucial in influencing the employee decision to either leave or remain in an organisation. The authors suggested that training and development, recognition, for good performance with a strong salary package and job security etc. influences very much to remain in the organisation.

Research Methodology:

The present research paper is carried out with the objective of testing the stated hypotheses and probes the hypothetical association among dependent and independent variables. They may be impact of Covid-19 on higher education, impact of Covid-19 on students, lecturers, professors and parents. Further, the challenges faced by higher education, challenged faced by central, state, private universities and autonomous and aided and unaided higher education centers. In hypothetical testing study the hypothetical associations are verified in order to know the solutions to the structured hypotheses. The present study collects the data in a natural setting. The bipolar opinions are presented by means of different anchoring points and tested their variablity in the opinions expressed by respondents.

Scope of the study

The study is confined only to Bengaluru. Further, the study is confined to dimensions of higher education impact of Covid-19 on higher education. Challenges faced by higher education, different universities and higher education centers. Methodically it is limited to an empirical analysis of sample selected through a survey questionnaire

Area and period of the study

The universe of the study was around 893 colleges of Bengaluru urban. Out of which 405 colleges of general bachelor degree and post graduation degree in different streams. 893 colleges consist of degree, post graduation, IT, nursing colleges and professional colleges (Survey by Union Ministry of HRD). There are 6 deemed to be universities at Bengaluru Urban, private universities 15 & 5 got nod in Karnataka and out of 5, 4 are to be establishable in Bengaluru, (Sandeep Mudgal, 2021). There are 9 state universities (UGC check list 2020) and 17 autonomous colleges. All the above are situated in the Bengaluru Urban limit. The study period is june 15th to July 15th, 2021.

Covering all colleges is a problem and maximum justification is done by covering only specified colleges in Bengaluru. Transportation and traffic was normal due to Covid-19 norms that made easy to approach the faculty, and limited students who are available and who come to the colleges either to pay college fee and return of library books.

Research Instrument

The present research is carried out with the help of well prepared questionnaire which was administered as schedule after considering the possibility of delay and non-response.

Sample and Sampling technique

A total of 200 sample was considered for the present study which was decided after considering the government norms of Covid-19. It was decided to approach faculty, students and parents. The composition of respondents was planned in the following manner.

Sl.No.	Respondents type	No. of respondents	%
1.	Faculty (Lecturers & Professors)	80	40
2.	Students (From all type of education centers)	80	40
3.	Parents	40	20
	Total	200	100

Source of Data

In this research work both the sources, viz., primary and secondary data was considered. Primary data gathered by administering structured questionnaire and secondary sources includes e-journals and internet.

Statistical tools

The collected data from different sources were computed, classified, tabulated, analysed and interpreted. The statistical tools employed includes Kendall's co-efficient performance to measure the degree of association and ANOVA to measure the good fit of data and variation in the data. The collected data presented in the form of a table by means of Likert scale points like strongly agree and agree and somewhat agree.

Analysis of research questions and hypotheses

The research questions stated above varied from extent of impact of Covid-19 on higher education to the challenges faced by different universities, autonomous centers and higher education affiliated and unaided centers. Four hypotheses were formulated and these were tested using collected data.

Research question No. 1 : What is the extent of impact of Covid-19 on higher education?

Hypotheses H0 : Covid-19 is not impacting higher education.

H1 : Covid-19 is impacting higher education and there exist significant association between factors impacting higher education and higher education.

Table-1 reveals data regarding 110 respondents out of 200 stated strongly agree over the impact factors of Covid-19 on higher education followed by 60 agree and 30 somewhat agree. 'W' fails to accept H_0 and accepts H_1 and hence it is concluded that there exist significant relation between the variables.

Research question No. 2 : To what extent students faculty and parents are impacted by Covid-19?

Hypotheses H0 : Covid-19 has not impacted different stakeholders.

H1 : Covid-19 impacted stakeholders and there exist significant association between impactness and Covid-19.

Table-2 highlights data about impact of Covid-19 on students, lecturers, professors and parents. 120 respondents out of 200 stated strongly agree followed by 50 expressed agree and the rest 30 indicated some what agree. 'w' fails to accept H0 and accepts H1 and hence it is concluded that there exist significant relation between the variables.

Research question No. 3: What kind of challenges are faced by higher education and students?

Hypotheses H0 : Higher education and students are not facing any challenges.

H1: There exist significant relationship between the impact factors and challenges and hence there exist significant association between the variables.

Table-3 highlights data about challenges faced by higher education in Bengaluru Urban. 100 respondents out of 200 stated strongly agree over the statements challenges higher education in Bengaluru followed by 60 agree and 40 somewhat agree. 'W' fails to accept H0 and accepts H1, and hence, it is concluded that there exist significant relationship between the different challenges and higher education.

Table-4 shows data what students facing challenges on account of Covid-19 . 120 respondents out of 200 expressed strongly agree over the statement of challenges faced by the students followed by 50 agree and 30 somewhat agree. ANOVA fails to accept H_0 and accepts H_1 and hence it is concluded that there exists significant association between the variables.

Research question No. 4 : what are the challenges faced by different universities, autonomous colleges and higher education affiliated and unaided colleges?

Hypothese H0 : There are no challenges faced by different universities, autonomous education centers and higher education affiliated and unaided colleges.

H1 : There exist significant association between the challenges and higher education faced by different higher education centers.

Table-5 indicates data about challenges faced by different higher education centers. 120 respondents out of 200 (60%) expressed strongly agree over the statements presented in the table followed by 45 respondents (22.5%) stated agree and finally 35 respondents (17.5%) somewhat agree. 'W' fails to accept H0 and accepts H1 and hence it is concluded that there exist significant association between challenges faced by different higher education centers and drivers of challenges.

Summary and discussion of findings:

The main objective of the present research is to focus on impact of Covid-19 on higher education at Bengaluru. The specific objectives of the study consists of impact of Covid-19 on students, faculty and parents, analysing the challenges faced by higher education and students and finally to analyse the challenges faced by different higher education centers. Survey technique was followed to gather the required information and questionnaire was administered for the purpose of collecting valid information on the concerned topic. The target population consist of different higher education centers, students, faculty and parents. The closed ended questionnaire was administered and valuable data gathered with the co-operation and assistance of respondents who were interviewed conveniently.

Based on the data gathered from questionnaire and responses obtained from respondents it was found that Covid-19 has impacted very much the higher education and 21 respondents out of 110 who said strongly agree stated about the destabilization of education activity followed by 15 spoke about assessment system may be changed, 13 identified about raising the gap between rich and poor on account of digital divide and 12 each spoke about social distance are demand for distance education. The study further identifies that all stakeholders viz., students, faculty and parents also impacted very much by Covid-19. 18 respondents out of 120 who expressed strongly agree stated about the impact of difficult to digest the online learning for the first time. 20 respondents identified the impact of problem of internet in rural areas, 18 respondents out of 100 voiced about conduct of examination is a challenge, 13 spoke about neglecting of research and innovation. As far as challenges faced by higher education is concerned 13 spoke about neglecting of research and innovation, 12 spoke about major difference between different platforms and 11 pointed at the challenge of poor infrastructure and unpreparedness to face the situation.

The research also shows further that students are facing different challenges and major challenges faced by them are faculty might have left the profession and some students have left colleges and faced the challenge of searching job. Further, the different higher education centers also facing some challenges. The major challenges faced by them includes that 19 each expressed about poor government funding and admissions of students, and all higher education centers faces unprecedented challenges. Keeping students and faculty healthy need to continue with the uncertainty, moving from traditional education to e-learning and lack of financial resources.

Conclusion : Covid-19 has disturbed all academic activities at Bengaluru. Different statements explained already are impacting severely on higher education. The major impact on the poor and rural areas are seen on the form of digital divide and students in some states are climbing tall trees to have a better audio. Teaching and learning may continue with technology in future and mobiles and laptops supply is a challenge. The impact on students, faculty and parents are also felt and parents are helpless and faculty preferring to change job and join elsewhere. The students who were very ambitious of going abroad are feeling bad and they are disturbed. Innumerable challenges are faced by higher education centers and students. The world requires to fight against Covid-19 pandemic which was emerged in Wuhan city of China in a laboratory which was not less than a high school chemistry lab. United Nation has to take severe steps to combat the future bio-war, so that people live in peace.

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Table - 1 : Impact of Covid-19 on higher education

Impact of Covid-19 on higher education	SA	A	SWA	RT	RT^2
Destablisation of education activity	21	11	6	38	1444
Decreased national and international mobility of students	10	7	3	20	400
Learning with social distance will continue	12	8	2	22	484
Educational institutions may run with shifts	9	4	3	16	256
May rise the gap between rich and poor due to digital divide	13	8	4	25	625
Teaching & learning will continue with technology	8	4	3	15	225
Assessment system may be changed	15	9	4	28	784
Demand for distance education will increase	12	4	3	19	361
Mixed impact on academic research and professional development	10	5	2	17	289
Total	110	60	29	200	4868

Source : Field Survey

Note : SA - Strongly Agree, A - Agree, SWA - Somewhat Agree, RT - Row Total

$SSR = \Sigma RT^2 - (\Sigma RT)^2 / N$

$\quad = 4868 - (200)^2 / 9$

$\quad = 4868 - 4444.44 = 423.56$

$W = 12 \times SSR / K^2 N (N^2 - 1)$

$\quad = 12 \times 423.56 / 9 \times 9 (81-1)$

$\quad = 5082.72 / 6480$

$\quad = 0.78$

Test the significance of W by using the chi-square statistic.

$x^2 = k (n-1) w$

$\quad = 3 (9-1) 0.78 = 3 \times 8 \times 0.78 = 18.72$

Decision : At 8 d.f. with 0.05 level of significance the TV = 17.504. The calculated value being 18.72 which is higher than the TV and hence 'W' reject H0 and accepts H1. Therefore it is concluded here that there exist significant relation between drivers of higher education and its impact on higher education.

Table - 2 : Impact of Covid-19 on students, lecturers, parents

Impacts of Covid-19 on different stakeholders	SA	A	SWA	RT	RT^2
Online teaching and learning for the first time and difficult to digest	18	8	6	32	1024
Practical papers are not be taught as effectively as physical class	13	4	2	19	361
Study abroad has become difficult	9	3	3	15	225
Problem of internet in rural areas	20	11	5	36	1296
Redesigning of the course	8	3	3	14	196
Lower salary during Covid-19 pandemic	13	4	2	19	361
Research and PhD work is delayed	10	5	3	18	324
Parents feel that students may feel the difficult of adjustment with changed system	14	4	2	20	400
The expectation of parents providing better education is disturbed	15	8	4	27	729
Total	120	50	30	200	4916

Source : Field Survey

Note : SA - Strongly Agree, A - Agree, SWA - Somewhat Agree, RT - Row Total

$SSR = \Sigma RT^2 - (\Sigma RT)^2 / N$

$\quad = 4916 - (200)^2 / 9$

$\quad = 4916 - 4444.44 = 471.56$

$W = 12 \times SSR / K^2 N (N^2 - 1)$

$\quad = 12 \times 417.56 / 9 \times 9 (81-1)$

$\quad = 5658.72 / 6480$

$\quad = 0.87$

Test the significance of W by using the chi-square statistic.

$x^2 = k (n-1) w$

$\quad = 3 (9-1) 0.87$

$\quad = 3 \times 8 \times 0.87 = 20.88$

Decision : At 8 d.f. with 0.05 level of significance the TV = 17.504. The calculated value being 20.88 higher than the TV and hence 'W' rejects H0 and accepts H1. Therefore it is concluded that there exist significant relationship in the data.

Table - 3 : Challenges faced by Higher Education

Challenges faced by Higher Education	SA	A	SWA	RT	RT^2
Resistance in redesigning the course by existing staff	8	5	6	19	361
Conduct of examination is a challenge	18	11	7	36	1296
Many universities and higher learning centers have frozen exchange programmes, internship , training etc	7	2	2	11	121
Changing role of education	8	5	2	15	225
Midnight transition - from class rooms to a learning platforms	10	6	3	19	361
Major difference between different platforms	12	7	5	24	576
Neglecting of research and innovation	13	8	5	26	676
Poor infrastructure and unpreparedness to face the situation	11	7	4	22	484
Digital divide of students belonging rich & poor	6	4	2	12	144
Strengthening of infrastructure is a challenge	7	5	4	16	256
Total	100	60	40	200	4500

Source : Field Survey

Note : SA - Strongly Agree, A - Agree, SWA - Somewhat Agree, RT - Row Total

$SSR = \Sigma RT^2 - (\Sigma RT)^2 / N$

$\quad = 4500 - (200)^2 / 10 = 4500 - 40000 / 9$

$\quad = 4500 - 4000 = 500$

$W = 12 \times SSR / K^2 N (N^2 - 1)$

$\quad = 12 \times 500 / 9 \times 10 (100-1)$

$\quad = 6000 / 8910 = 0.67$

Test the significance of W by using the chi-square statistic.

$x^2 = k (n-1) w$

$\quad = 3 (10-1) 0.67$

$\quad = 3 \times 9 \times 0.67 = 18.09$

Decision : At 9 d.f. with 0.05 level of significance the TV = 16.919. The calculated value being 18.09 higher than the TV, 'w' fails to accept H0 and accepts H1 and hence it is concluded here that there exists significant relation in the data.

Table - 4 : Students facing challenges on account of Covid - 19

Different challenges	SA	A	SWA	T
Some students might have left colleges and faced the challenges of searching a job	20	9	6	35
Faculty might have left the profession and face the challenge of searching a suitable job	22	9	4	35
Some managements are facing the challenge of outright sale for a fair price.	15	5	4	24
Students are digitally divided into rich and poor	14	6	3	23
Conduct of examination is a challenge	15	5	3	23
Online teaching is not effective in rural areas	16	8	6	30
So far unclear policy to conduct classes and examinations	18	8	4	30
Total	120	50	30	200

Source : Field Survey

Note : SA - Strongly Agree, A - Agree, SWA - Somewhat Agree, T - Total

Hypotheses

H0	There exist no significant variation in the data	Reject
H1	There exist significant variation in the data	Accept

ANOVA Table

Source of variation	SS	df	MS	F-ratio	5% F limit (From F table)
Between the sample	638.32	(3-1)-2	63832/2 =319.16	319.16/4.50 = 70.9	
Within the sample	81.14	(21-3)-18	81.14/18 =4.50		(2, 18) = (3,55)
Total	719.46	(21-1)=20			

Source: Survey Data

ANOVA Analysis: The calculated value being 70.9 higher than the TV 3.55 @ 5% level of significance with df = v1 = 18 and v2 - 2 fails to accept H0 and accepts H1 and hence it is concluded that there exist significant variation in the data.

Table - 5 : Challenges faced by Central, State, Private Universities and autonomous and higher education centers

Challenges faced by different HEIs	SA	A	SWA	RT	RT^2
State universities, central universities, private universities, autonomous colleges & higher education centers faces unprecedented challenges	18	9	8	35	1225
Poor government funding in case state and Central universities	19	5	4	28	784
Keeping faculty & students safe & healthy	16	7	6	29	841
Biggest challenges to know what is right and what is not	10	4	4	18	324
Moving from traditional education to e-learning and the problem of overcoming practical courses and training	12	6	3	21	441
Need to continue with uncertainty	14	3	2	19	361
The challenge of recruiting students in a big way	19	7	5	31	961
Lack of financial resources	12	4	3	19	361
Total	120	45	35	200	5298

Source : Field Survey

Note : SA - Strongly Agree, A - Agree, SWA - Somewhat Agree, RT - Row Total

$SSR = \Sigma RT^2 - (\Sigma RT)^2 / N$

$\qquad = 5298 - (200)^2 / 8 = 5298 - 5000$

$\qquad = 298$

$W = 12 \times SSR / K^2 N (N^2 - 1)$

$\qquad = 12 \times 298 / 9 \times 8 (64-1)$

$\qquad = 3576 / 4536 = 0.79$

Test the significance of W by using the chi-square statistic.

$x^2 = k (n-1) w$

$\qquad = 3 (8-1) 0.79$

$\qquad = 3 \times 7 \times 0.79 = 16.59$

Decision : At 7 d.f. with 0.05 level of significance the TV = 14.067. The calculated value being 16.59 higher than the critical table value w fails to accept H0 and accepts H1. Therefore we can say that there exist significant association in the variables.