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P R E F A C E

Education is the process to facilitate learning and acquisition of knowledge , skills, values, beliefs and habits. Historically India is being considered as light house of knowledge. The Ayurveda system of medicine can be traced back to 5000 BCE as well as irrigation & sewerage system of Indus Valley Civilization to 2500 BCE. India was home of several ancient universities and students across the world used to study there. Few of them include Takshashila University, Sharada peeth Temple University, Telhara University, Nalanda University, Mithila University, Puspagiri University, Vikramshila University, Bikrampur University, Valabhi University etc. The quality of higher education institute is measured by quality of students and faculty it attracts and its quality of research outputs. Development of Universities depend on quality of teaching and research. Potentialities of faculty and students excel research. There is no place of mediocrity in research. Merit can lead to knowledge driven growth in society and thus bring social justice. Ignoring interest of poor farmers and citizens can not establish social justice as John F. Kennedy said “ If society can not help the many who are poor , it can not save few who are rich.” The need for quality, relevance, employability, are integral components in higher education & skill development. It needs to be driven by access, equity and affordability to develop the human potential to attain societal goals. India is a country with abundance of natural and human resources. Proper utilization of such resources can lead to commanding heights of prosperity. Opportunities are plenty on considering our resource but how to get benefit from it and make them accessible to many people is a matter of concern. There is need to increase number of quality institutes in higher education sector with emphasis on skill development to sustain ideal growth rate. In order to fulfill future requirements of optimum utilization of available natural and human resources for rapid economic growth of country, there is urgent need to make suitable provisions for financial resource, access and equity, quality standard, relevance, infrastructure, responsiveness etc.

Low employability of graduates, poor quality of teaching, weak governance, insufficient funding and complex regulatory norms continue to impede progress in higher education. Education is virtue and value imbibed in individual throughout the life. Educated mass are think tanks, growth drivers and conscience keepers of nation. Innovation brings novelty in learning and restructure education to

promote employability as per need of the hour. So, there occurred changes in conventional “chalk and talk” method to modern digital learning as well as passive learning to hands on experience in pedagogy. It facilitates learning to original thinking and creativity. ICT has made paradigm shift in students learning- from looking to seeking, from mugging to learning, from copy-pasting to exploring-inventing, from less participatory learning to experiencing and creating etc. Innovation is key to transform education which is most powerful instrument to reduce poverty, eliminate gender inequality, create a sustainable planet, fostering peace, reduce health hazards and disasters and promoting international cooperation and understanding.

The education sector in India, has been witnessing a massive transformation recently due to Covid-19 pandemic. This issue of the journal *Educatum* (Vol: XII and XIII) emphasizes on this aspect considering its impact on the Education system of India.

Dr. Shreyashi Paltasingh

Principal & Editor

Educatum

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Vol. XII and XIII

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Editorial Committee, Educatum

A COMPARATIVE STUDY OF ATTITUDE OF POST-GRADUATE STUDENTS TOWARDS MOOC: GENDER, LOCALITY AND STREAM

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Abstract:

Massive Open Online Courses (MOOCs) is one of the modern key drivers of technological innovation in education which enables thousands of higher education learners to participate in these free and open courses simultaneously without any kinds of barriers, particularly of geographical boundaries. Although the MOOC is not new in the world and Indian participants use major MOOC providers like Edx, Coursera, Udemy, Class2Go, Futurelearn since a long time, Government of India has launched "SWAYAM" (Study Webs of Active-Learning for Young Aspiring Minds) for offering MOOCs. It was developed indigenously by AICTE in 2016. The aim of the present study was to investigate the post-graduate students' attitude towards MOOCs and to compare their attitude in terms of gender, locality, and education stream. A descriptive survey method followed by quantitative approach was used to survey among 292 selected samples in the two Universities of West Bengal. A self-made questionnaire was constructed to investigate the post graduate students attitude towards MOOCs. Finally the study found out that there is a satisfactory percentage (80.14) of post-graduate students who express their favourable attitude towards MOOCs and a less percentage (6.51) of post-graduate students express their unfavourable attitude. Male and female post-graduate students are not significantly differed in their average attitude. Urban students are better than rural students and science students have greater average attitude than arts post-graduate students with respect to MOOCs.

Keywords: Post Graduate Students, Attitude, MOOCs, SWAYAM, Gender, Locality, Stream

Introduction:

Over the past decade, because of technology and innovations there has been increased access to open and online education. This has created valuable opportunities to extend the reach of higher education. Online learning, and more recently, large-scale open online courses, have changed the way people learn, particularly in post-secondary education, by expanding access to curricula, online video lectures, discussion forums, and subject matter experts (Belawati, 2014; Aslanian, Clinefelter, & Magda, 2019; Jesse, 2019). In recent decades, many researchers have studied how Massive Open Online Courses (MOOCs) can improve student attitudes, academic achievement, and experience in higher education within the context of distance learning or formal education or lifelong learning. The MOOCs is a technological revolution in the higher educational sector over the world.

Digital revolution in India is playing an important role in the progress of country and placing India in forefront on its road map to become a developed economy. The digital revolution is leading to major transformations in banking, agriculture, education, health, rural development, shopping, financial inclusion and many more areas. One of the major focus areas of digital revolution in India is higher education, where disruptive innovative technologies are changing the traditional methods of teaching and learning and paving way for India to become a 'Knowledge Economy' (Ambadkar, 2020). In India, the introduction of Massive Open Online Courses (MOOCs) is one of the modern key drivers of technological innovation in education which enables thousands of higher education learners to participate in these free and open courses simultaneously without any kinds of barriers in geographical boundaries. Anyone in the world, regardless of age, geographic location, or prior education can enroll in a MOOC and receive college education courses without the big sticker price (Lapowsky, 2014). The term MOOC was pioneered in 2008 to describe George Siemens and Stephen Downes' open online course, Connectivism and Connective Knowledge, which enrolled more than 2,000 students (Welsh & Dragusin, 2013; Jesse, 2019).

MOOCs are open and free online courses which integrate methods like online learning, formative and summative assignments, online discussions, video based learning, use of open educational resources into its delivery of course to its participants across the world. Although MOOCs is not new in the world and to the Indian participants, Government of India has launched "SWAYAM (Study Webs of Active-Learning for Young Aspiring Minds). This is because major MOOC providers like 'Edx', 'Coursera', 'Udemy', 'Class2Go', 'Futurelearn' have already been delivering Massive

Open Online Courses for a long time. MOOC Platform was developed indigenously by AICTE in 2016 to facilitate hosting of online courses which could be accessed by anyone, anywhere at any time free of cost to achieve three cardinal principles of Education Policy viz. access, equity and quality” (Bureaus AICTE, 2022).“The objective of this effort is to take the best teaching learning resources to all, including the most disadvantaged. SWAYAM seeks to bridge the digital divide for students who have hitherto remained untouched by the digital revolution and have not been able to join the mainstream of the knowledge economy,” (About SWAYAM, 2022).

Objectives:

1. To find out the level of attitude of Post Graduate students towards MOOCs.
2. To compare the attitude of Post Graduate students towards MOOCs in terms of gender (Female & Male), locality (Rural & Urban), and Education Stream (Arts & Science).

Hypotheses:

Ho₁ There is no significant difference between Post Graduate Female and Male students in terms of attitude towards MOOCs.

Ho₂ There is no significant difference between Post Graduate rural and urban students in terms of attitude towards MOOCs.

Ho₃ There is no significant difference between Post Graduate Arts and Science students in terms of attitude towards MOOCs.

Methodology:

Methods Used: The researcher has used the descriptive survey method and to interpret data, quantitative approach is followed

Population and Sample: The sample for the study was selected from two selected university of West Bengal, one from North Bengal area and another from South Bengal area of West Bengal. From North Bengal the North Bengal University and from South Bengal the University of Kalyani was selected as source of sample. Finally, 292 PG Students were selected as sample of this study (of which 207 students were from rural area and 85 were from urban area and 176 are from Arts Stream and 116 are from Science Stream.

Tools Used: A Likert Scale (of five-point type) was constructed by the researchers to measure the attitude of Post Graduate students towards learning through MOOCs. The Draft scale of questionnaire consisted of 28 items. Item analysis is done and finally the implemented scale

consisted of 24 items.

Analyses and Interpretation:

After collecting the data it is analyzed as per the objectives and hypotheses. The researchers had taken the help of Microsoft Excel 2007.

[1] Analysis of Data Pertaining to 1st Objective:

[To find out the level of attitude of Post Graduate students towards MOOCs]

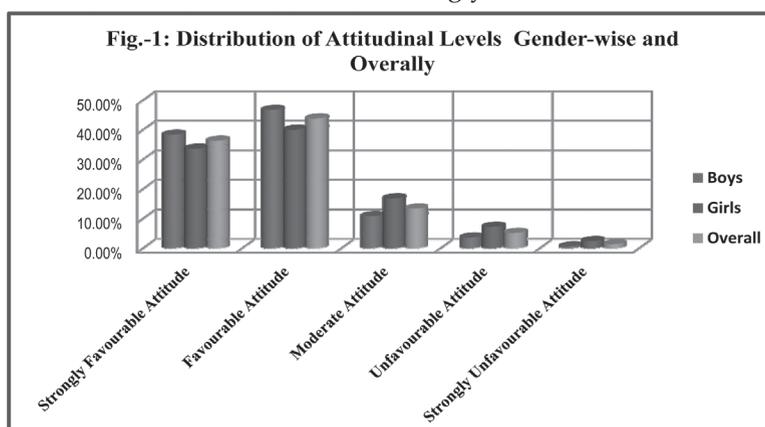
Table-1: Distribution of Scores at three Levels (Male, Female and Overall)

Level of Attitude ↓	Male		Female		Overall	
	N (167)	% of Scores	N (125)	% of Scores	N (292)	% of Scores
S.F.A	64	38.32%	42	33.60%	106	36.30%
F.A	78	46.71%	50	40.00%	128	43.84%
M.A	18	10.78%	21	16.80%	39	13.36%
U.A	6	3.59%	9	7.20%	15	5.14%
S.U.A	1	0.60%	3	2.40%	4	1.37%

N= No. of Students

S.F.A= Strongly Favourable Attitude, F.A= Favourable Attitude, M.A= Moderate Attitude

U.A= Unfavourable Attitude, S.U.A= Strongly Unfavourable Attitude



Interpretation:

The table-1 and Fig.-1 representing attitude level distribution in terms of Male and Female dimension tells that –

- a) About 85.03 percentages of Male Post Graduate students who have Favorable Attitude towards MOOCs, 10.78 percent have Moderate Attitude and only 4.19 percent have Unfavorable Attitude.
- b) About 73.60 percentages of Female Post Graduate students have Favorable Attitude towards MOOCs, 16.80 percent have Moderate Attitude and 9.6 percent have Unfavorable Attitude.
- c) About 80.14 percent of Post Graduate students have Favorable Attitude towards MOOCs, 13.36 percent of Post Graduate students have Moderate Attitude and 6.51 percent of Post Graduate students have Unfavorable Attitude.

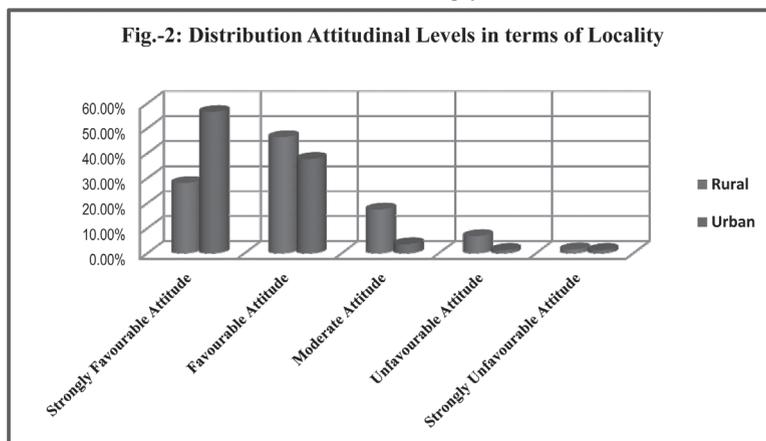
Table-2: Distribution of Scores in terms of Locality

Level of Attitude ↓	Rural Students		Urban Students	
	N(207)	% of Scores	N(85)	%of Scores
S.F.A	58	28.02%	48	56.47%
F.A	96	46.38%	32	37.65%
M.A	36	17.39%	3	3.53%
U.A	14	6.76%	1	1.18%
S.U.A	3	1.45%	1	1.18%

N= No. of Students

S.F.A= Strongly Favourable Attitude, F.A= Favourable Attitude, M.A= Moderate Attitude

U.A= Unfavourable Attitude, S.U.A= Strongly Unfavourable Attitude



Interpretation:

The table-2 and Fig.-2 representing attitude level distribution in terms of Rural and Urban dimension tells that –

- About 74.40 percent of Rural Post Graduate students have Favorable Attitude towards MOOCs, 17.39 percent have Moderate Attitude and 8.21 percent have Unfavorable Attitude.
- About 94.12 percent of Urban Post Graduate students have Favorable Attitude towards MOOCs, 3.53 percent have Moderate Attitude and 2.36 percent have Unfavorable Attitude.

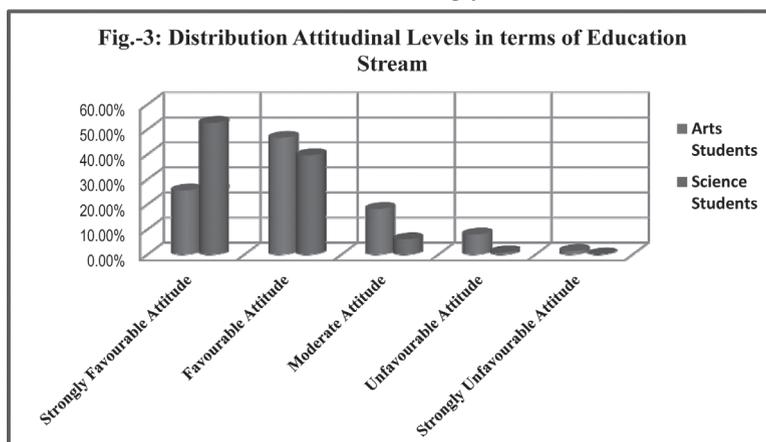
Table-3: Distribution of Scores at five Attitudinal Levels in terms of Educational Stream

Level of Attitude ↓	Arts Students		Science Students	
	N(176)	% of Scores	N(116)	%of Scores
S.F.A	45	25.57%	61	52.59%
F.A	82	46.59%	46	39.66%
M.A	32	18.18%	7	6.03%
U.A	14	7.95%	1	0.86%
S.U.A	4	1.37%	0	00%

N= No. of Students

S.F.A= Strongly Favourable Attitude, F.A= Favourable Attitude, M.A= Moderate Attitude

U.A= Unfavourable Attitude, S.U.A= Strongly Unfavourable Attitude



Interpretation:

The table-3 and Fig.-3 represents attitude level distribution in terms of Arts students and Science students; they say that –

- a) About 72.16 percent of Post Graduate Arts students have Favorable Attitude towards MOOCs, 18.18 percent have Moderate Attitude and 9.32 percent have Unfavorable Attitude.
- b) About 92.25 percent of Post Graduate Science students have Favorable Attitude towards MOOCs, 6.03 percent have Moderate Attitude and 0.86 percent who have Unfavorable Attitude.

[2] Analysis of Data Pertaining to 2nd Objective and 1st Hypothesis:

[To compare the attitude of Post Graduate students towards MOOCs in terms of gender (Male & Female).]

[**Ho₁** There is no significant difference between Post Graduate Male and Female students in terms of attitude towards MOOCs.]

Table-4: Result of 't' test on Gender groups

Gender Groups →	Male	Female	Observed 't'-value	Levels of Significance	d.f	Critical 't'-value	Null Hypothesis
N	167	125	1.47	0.05	290	1.97	Not Rejected
M	94.03	91.27					
S.D	15.61	16.18					

N= No. of Sample, M= Mean

S.D= Standard Deviation

d.f= Degree of Freedom

The Table-4 shows No. of sample, Mean and Standard Deviation distribution of PG students' attitude score gender-wise (Male and Female).

The table-4 represents that the obtained 't'- value between the Mean attitude of Male and Female Post Graduate students is not significant at 0.05 level of significance. Therefore, it is interpreted that there is no significant difference between the Male and Female Post Graduate students in their attitude towards MOOCs.

[3] Analysis of Data Pertaining to 2nd Objective and 2nd Hypothesis:

[To compare the attitude of Post Graduate students towards MOOCs in terms of locality (Rural & Urban)

[**Ho₂** There is no significant difference between Post Graduate rural and urban students in terms of attitude towards MOOCs.]

Table-5: Result of 't' test on Locality

Gender Groups →	Male	Female	Observed 't'-value	Levels of Significance	d.f	Critical 't'-value	Null Hypothesis
N	207	85	2.51	0.05	290	1.97	Rejected
M	91.44	96.29					
S.D	16.84	14.16					

N= No. of Sample, M= Mean

S.D= Standard Deviation

d.f= Degree of Freedom

The Table-5 shows No. of sample, Mean and Standard Deviation distribution of Post Graduate students' attitude score locality-wise (Rural and Urban).

The table-5 represents that the obtained 't'- value between the Mean attitude of Rural and Urban Post graduate students is significant at 0.05 level of significance. Therefore, it is interpreted that there is significant difference between the Rural and Urban Post Graduate students for their attitude towards MOOCs and urban students having greater mean attitude than rural students.

[4] Analysis of Data Pertaining to 2nd Objective and 3rdHypothesis:

[To compare the attitude of Post Graduate students towards MOOCs in terms of Education Stream (Arts & Science)]

[**Ho₃** There is no significant difference between Post Graduate Arts and Science students in terms of attitude towards MOOCs.]

Table-6: Result of 't' test on Education Stream

Gender Groups →	Male	Female	Observed 't'-value	Levels of Significance	d.f	Critical 't'-value	Null Hypothesis
N	176	116	2.75	0.05	290	1.97	Rejected
M	90.86	95.87					
S.D	17.06	13.82					

N= No. of Sample, M= Mean

S.D= Standard Deviation

d.f= Degree of Freedom

The Table-6 shows No. of sample, Mean and Standard Deviation distribution of Post Graduate students' attitude score stream-wise (Arts stream and Science stream).

The table-6 represents that the obtained 't'- value between the

Mean attitude of Arts and Science Post Graduate students is significant at 0.05 level of significance. Therefore, it is interpreted that there is significant difference between the Arts and Science Post Graduate students for their attitude towards MOOCs and Science Post Graduate students having greater mean attitude than Arts Post Graduate students.

Findings:

- [1] The researchers found out that a satisfactory percentage (80.14) of Post Graduate students express their favourable attitude towards MOOCs and a lesser percentage (6.51) of Post Graduate students express their unfavourable attitude towards MOOCs.
- [2] The researchers found out that, there is no significant difference between the Mean attitude score of Male and Female Post Graduate students towards MOOCs.
- [3] A significant Mean attitude difference is found between the rural and urban Post Graduate students towards MOOCs in which urban students are advance favoring of MOOCs.
- [4] The researchers found out that, there is significant difference between the Mean attitude score of Post Graduate students of Arts stream and Science stream towards MOOCs in which Science students have better attitude towards MOOCs than Arts Post Graduate students.

Discussion and Conclusion:

While the concept of distance learning began with correspondence study many centuries ago (Holmberg, 1995; Kentnor, 2015), the emergence of the massive open online course, or MOOC, has provided students many benefits, including access to postgraduate education at no cost unless a credential or academic credit is desired (Jesse, 2019). MOOCs also offer the advantage of flexibility and convenience, especially in terms of how and when students secure knowledge and skills necessary for career advancement or to obtain a job (Hamel, 2017; McFarland, 2017). In India the MOOCs is provided first in 2016 through SWAYAM by the AICTE. Previous studies have examined the reasons for graduation and post-graduation enrollment and the completion rates for all categories of learners in MOOCs (Liu, Kang, & McKelroy, 2015; Loizzo, Ertmer, Watson, & Watson, 2017). However, few studies have been conducted that investigate student attitudes to understand the factors that contribute to students' intention to take a MOOC for online learning. By examining these factors, educators, institutional

administrators, and higher education policymakers, considering the needs of students and the economy, can better understand predictors and draw conclusions to aid in making decisions about integrating MOOCs in post-graduation education.

The results of quantitative data collection methods suggest that Post graduate students have a positive attitude toward MOOCs in their education. The implications of the findings are significant. The study concurs with previous research (Kulik & Ksenia, 2017; Joseph & Nath, 2013; Aharony & Judit, 2016; Li et al., 2015; Alanazi & Gleaves, 2019.) done on student attitudes towards MOOCs. JFALODE et al. (2019) also found out that the attitude of education lecturers towards Massive Open Online courses (MOOCs) was positive. The positive attitude of Post Graduate students on MOOCs was because they believe that through MOOCs, their knowledge would be updated and current teaching methodology would be acquired, thereby enhancing their quality of teaching which ultimately improves their students' academic performance.

These statistics are consistent with previous studies for online learning that report more males than females in their sample populations (Alraimi et al., 2015; Zhou, 2016; Crues, Bosch, Anderson, Perry, Bhat, & Shaik, 2018). The findings of this study also revealed that significant difference exists in the perception of rural and urban post graduate students on Massive Open Online Courses in favour of urban post graduate students. Study also found out that science students having greater favourable attitude than arts post graduate students on MOOCs in education. But no significance difference is found for male and female post graduate students.

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A STUDY ON THE ATTITUDE OF B.ED. TRAINEES OF NORTH 24 PARGANA DISTRICT TOWARDS ENVIRONMENT

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Abstract:

Environment is the sum total of all the living and nonliving elements and their effects which influence human life. At the present time, the environment is polluted and degraded by various anthropogenic and natural activities. Teachers play a major role in developing a positive attitude towards the environment. That's why the researcher selected B.Ed. trainees to know their attitude towards the environment. The study is empirical and quantitative in nature. Researcher has selected a descriptive survey research design. The researcher has used a self-made attitude scale to measure the attitude of B.Ed. trainees toward the environment. The researcher has framed null hypotheses to analyze the objectives. Descriptive and inferential statistics used to analyze the data. Results show that, there exists no significant statistical difference in mean score of B.Ed. trainees towards the environment between the levels of different parameters.

Keywords: Attitude, Environment, B.Ed. trainees etc.

1. Introduction: Education is the main component for any type of development. Development is a continuous and gradual process. Education can transform humans into human resources. Making children sensitive to the environment is another important circular concern. The emergence of new technological choices and living styles witnessed during the last century has led to environmental degradation and vast imbalance between advantaged and disadvantaged. It has become imperative now more than ever before to nurture and preserve the environment. Education can provide the necessary perspective on how human life can be reconciled with the crisis of the environment so that survival, growth and development remain possible. The national policy on Education, 1986 emphasised the need to create awareness of environmental concerns by integrating it in the educational process at all stages of education and for all sections of society (NCF-2005).

Living in harmony within oneself and with one's natural and social environment is a basic human need. Sound development of an individual's personality can take place only in an ethos marked by peace. A disturbed natural and psycho-social environment often leads to stress in human relations, triggering intolerance and conflict. (NCF-2005). Development and environment are very closely related terms. Any type of development impacts the environment. Now we are living in the era of science and technological development. Maintaining equilibrium in the natural environment is so difficult. With the change of society, the curriculum of education changes accordingly. Students' knowledge and awareness towards the environment is the main matter of school and higher education. School is the miniature of society. School changes the attitudes, character, thinking, emotions of the students through teachers with the help of scholastic and co-scholastic activities. So, the role of teachers in shaping the student's life is very important. Teachers' should have plenty of knowledge in different issues, especially regarding the environment. So, in the present context the study is very important and necessary.

1.1 Background of the study:

Education is the main component for any type of development. Development is a continuous and gradual process. Education can transform humans into human resources. Making children sensitive to the environment is another important circular concern. The emergence of new technological choices and living styles witnessed during the last century has led to environmental degradation and vast imbalance between advantaged and disadvantaged. It has become imperative now more than ever before to nurture and preserve the environment. Education can provide the necessary perspective on how human life can be reconciled with the crisis of the environment so that survival, growth and development remain possible. The national policy on Education, 1986 emphasised the need to create awareness of environmental concerns by integrating it in the educational process at all stages of education and for all sections of society. (NCF-2005)

Living in harmony within oneself and with one's natural and social environment is a basic human need. Sound development of an individual's personality can take place only in an ethos marked by peace. A disturbed natural and psycho-social environment often leads to stress in human relations, triggering intolerance and conflict. (NCF-2005). Development and environment are very closely related terms. Any type of development impacts the environment. Now we are living in the era of science and technological development. Maintaining

equilibrium in the natural environment is so difficult. With the change of society, the curriculum of education changes accordingly. Students' knowledge and awareness towards the environment is the main matter of school and higher education. School is the miniature of society. School changes the attitudes, character, thinking, emotions of the students through teachers with the help of scholastic and co-scholastic activities. So, the role of teachers in shaping the student's life is very important. Teachers' should have plenty of knowledge in different issues, especially regarding the environment. So, in the present context the study is very important and necessary.

1.2 Statement of the problem: Statement of the problems may be state as-

"A Study on Attitude of B.Ed. Trainees of North 24 Pargana District towards Environment."

1.3 Aims of the study: Main aim of the study is to find out the attitude of B.Ed. trainees towards the environment. Researchers also classify the relevant variables into different types to analyze the major issues in precise ways.

1.4 Objective of the study: Main objectives of the study are-

- (i) To find out the attitude towards the environment of B.Ed. trainees in respect to the nature of trainees (Deputed or Fresher) of North 24 parganas district.
- (ii) To find out the attitude towards the environment of B.Ed. trainees in respect to Gender (Male and Female) of trainees of North 24 parganas district.
- (iii) To find out the attitude towards the environment of B.Ed. trainees in respect to the academic stream (Arts and Science) of trainees of North 24 parganas district.
- (iv) To find out the attitude towards the environment of B.Ed. trainees in respect to residence (Rural and Urban) of trainees of North 24 parganas district.

1.5 Hypotheses of the study: Based on objectives of the study, Null (H₀) hypothesis can be framed in such ways-

H₀₁: There is no statistical significant difference in mean Attitude score of Deputed and Fresher B.Ed. trainees of North 24 Parganas District.

H₀₂: There is no statistical significant difference in mean Attitude score of Male and Female B.Ed. trainees of North 24 Parganas District.

H₀₃: There is no statistical significant difference in mean Attitude score

of Arts stream and Science stream B.Ed. trainees of North 24 Parganas District.

H₀₄: There is no statistical significant difference in mean Attitude score of Rural and Urban B.Ed. trainees of North 24 Parganas District.

1.6 Significance of the study: Environmental concern is an important issue in the present education system especially in higher education. At the present time due to global warming the environment degrades rapidly. So conservation and sustainable development of environmental components is utmost important. Study would be helpful for teachers, administrators, curriculum framers, textbook writers.

1.7 Delimitation of the Study: The study has delimited in following ways-

- (i) The researcher will delimit the study within North 24 parganas District only.
- (ii) The researcher will delimit the B.Ed. students registered under the university of The West Bengal University of Teacher's Training, Educational Planning and Administration (WBUTTEPA).
- (iii) The researcher will delimit the study to those B.Ed. students who are doing B.Ed. in Regular Mode.
- (iv) The researcher will delimit the study to those B.Ed. students who are pursuing B.Ed. degree from Govt. aided college.

2. Methodology of study:

2.1. Method of the study: Based on the nature of the study, researchers select quantitative methods for the study.

2.2. Design of the study: In the present study, researchers have taken the opinion from the B.Ed. trainees toward the environment at the present context to measure the attitudes towards the environment. So, the researcher has adopted a descriptive *Survey research design* for the study.

2.3. Sampling: Researcher purposively select district north 24 pgs for the study. Then randomly select samples from the population for collection of data.

2.4. Population of the study: Population is a group of individuals with similar characteristics. All the regular B.Ed. students of Government Aid-B.Ed. Colleges of North 24 Parganas under The West Bengal University of Teachers Training Educational planning and Administration (WBUTTEPA) are the population of the study.

2.5. Sample of the study: Researcher has selected B.Ed. 80 students from Govt-Aided B.Ed. College of North 24 Parganas of West Bengal Registered under NCTE and affiliated to the University of- The West Bengal University of Teacher's Training, Educational Planning and Administration (WBUTTEPA).

2.6. Variables: Researcher has identified the following variables for the study-

A. Independent Variable:

1. Gender trainees
2. Residence of trainees
3. Academic Stream
4. Nature of Trainees

B. Dependent Variable:

1. Attitude

C. Major Variables:

1. Attitude

D. Categorical variables:

1. Gender (Male or Female)
2. Residence (Rural or Urban)
3. Stream (Arts or Science)
4. Nature of Trainees (Deputed or Fresher)

2.7. Tools of the study: Researcher has used self-made attitude scale to collect data from samples. Attitude scale prepared in **google form considering** the prevailing pandemic situation. Present attitude scale consisting 25 Selective types with no fixed right / wrong answer items. Researchers select a Five-point rating scale (5points) to measure the attitude of the students towards the environment.

3. Data Collection: Based on the problem, the researcher prepared an attitude scale. At present we are in a critical situation, physical appearance is not possible and it is difficult to contact college and students. So, the researcher shares/circulates the attitude scale through WhatsApp, Gmail etc. The researcher mentions the last date for submission and also contacts the participants to give answers within a time period.

4. Procedure of Data Analysis-The present project work is quantitative in nature. So, the researcher has used statistical techniques to analyze

the collected data. Descriptive (mean, median, mode) and inferential statistics (t-test) methods would be used to analyze the data.

5. Analysis and Interpretation: After collecting the data, the researcher tabulates the data. All categorical variables marked in numeric form for the sake of statistical analysis. The researcher mainly used the t-test test to test the hypothesis. T-tests help to measure the significance difference between the mean of two groups. Here researcher test hypothesis-

H0₁: There is no Statistical significant difference in Attitude score of Deputed and Fresher B.Ed. trainees of North 24 Parganas District.

t-test: Two-Sample Assuming Equal Variances		
Observations	10(Deputed)	70(Fresher)
df	78	
t Critical one-tail	1.664624645	
P(T<=t) two-tail	0.91536794	

Interpretation of t-test: Mean of deputed is 117.3 and standard deviation is 3.30. Mean of fresher is 117.44 and standard deviation is 4.04. whether the difference is significant or not generally t-test employed. After analysis it is found that calculated 't' -

$$t_{78} = .15 \text{ (t-Stat)}$$

Here we apply two tailed test value = .91

$$P = .91 \text{ (.91 is } > .05)$$

So, t - value is not significant, so hypothesis is not rejected. So, it can be said that there is no Statistical significant difference in Attitude score of Deputed and Fresher B.Ed. trainees of North 24 Parganas District.

H0₂: There is no statistical significant difference in Attitude score of Male and Female B.Ed. trainees of North 24 Parganas District.

t-Test: Two-Sample Assuming Equal Variances		
	<i>Female</i>	<i>Male</i>
Observations	60	20
df	78	
P(T<=t) one-tail	0.113743847	
t Critical one-tail	1.664624645	
P(T<=t) two-tail	0.227487693	

Interpretation of t-test: Mean score of male students is 118.35 and standard deviation is 2.85. the mean score of female students is 117.12 and standard deviation is 4.21. whether the difference is significant or not generally t-test employed. After analysis it is found that calculated 't' -

$$t_{78 \text{ stat}} = 1.22$$

$$P = .23 \text{ (Two tailed); which is } > .05$$

So, t - value is not significant, so hypothesis is not rejected. So, it can be said There is no statistically significant difference in the Attitude score of Male and Female B.Ed. trainees of North 24 Parganas District.

H03: There is no Statistical significant difference in Attitude score of Arts steam and Science stream B.Ed. trainees of North 24 Parganas District.

t-test: Two-Sample Assuming Equal Variances		
	ARTS	SCIENCE
Observations	46	34
Pooled Variance	15.53472359	
df	78	
t Stat	0.943932102	
P(T<=t) two-tail	0.348119073	

Interpretation of t-test: Mean of arts is 117.78 and standard deviation is 3.73. Mean of fresher is 116.94 and standard deviation is 4.21. whether the difference is significant or not generally t-test employed. After analysis it is found that calculated 't' -

$$t_{78 \text{ stat}} = .94$$

$$P = .34 \text{ (two tailed test), which is } > .05$$

So, t - value is not significant, so hypothesis is not rejected. So, it can be said There is no Statistical significant difference in Attitude score of Arts stream and Science stream B.Ed. trainees of North 24 Parganas District.

H04: There is no statistical significant difference in Attitude score of Rural and Urban B.Ed. trainees of North 24 Parganas District.

t-Test: Two-Sample Assuming Equal Variances		
	RURAL	URBAN
Observations	25	55
df	78	
t Stat	-0.403565698	
P(T<=t) two-tail	0.687636339	

Interpretation of t-test: Mean score of rural students is 117.16 and standard deviation is 3.92. the mean score of urban students is 117.54 and standard deviation is 3.98. whether the difference is significant or not generally t-test employed. After analysis it is found that calculated 't' -

$$t_{78 \text{ stat}} = .40$$

P = .69 (two tail test), which is > .05.

So, **t - value is not significant, so hypothesis is not rejected.** So, it can be said There is no Statistical significant difference in Attitude score of rural and urban B.Ed. trainees of North 24 Parganas District.

6. Discussion of results:

The researcher analyzes the collected data with statistical analysis. The researcher uses an Excel spreadsheet to tabulate data. And analysis data with the help of data analysis of Excel. Researcher discuss the results based on null hypothesis (Ho).

H0₁: There is no statistical significant difference in Attitude score of Deputed and Fresher B.Ed. trainees of North 24 Parganas District.

The researcher used descriptive and inferential statistics for analysis of the null hypothesis. Ho1 is not rejected because the calculated P value is > .05. That's why it is not significant. and null hypothesis not rejected.

$$P = .91 (.91 \text{ is } > .05)$$

So, it can be concluded that, there is no statistical significance difference between the mean score of attitudes towards the environment of deputed and fresher B.Ed. trainees.

H0₂: There is no statistical significant difference in Attitude score of Male and Female B.Ed. trainees of North 24 Parganas District.

The researcher used descriptive and inferential statistics for analysis of the null hypothesis. Ho1 is not rejected because the calculated P value is > .05. That's why it is not significant. and null hypothesis not rejected.

$P = .23$ (Two tailed); which is $> .05$

So, it can be concluded that, there is no statistical significance difference between the mean score of attitudes towards environment of male and female B.Ed. trainees.

H₀₃: There is no statistical significant difference in Attitude score of Arts steam and Science stream B.Ed. trainees of North 24 Parganas District.

The researcher used descriptive and inferential statistics for analysis of the null hypothesis. Ho1 is not rejected because the calculated P value is $> .05$. That's why it is not significant. and null hypothesis not rejected.

$P = .34$ (two tailed test), which is $> .05$

So, it can be concluded that, there is no statistical significance difference between the mean score of attitudes towards the environment of arts and science stream B.Ed. trainees.

H₀₄: There is no statistical significant difference in Attitude score of Rural and Urban B.Ed. trainees of North 24 Parganas District.

The researcher used descriptive and inferential statistics for analysis of the null hypothesis. Ho1 is not rejected because the calculated P value is $> .05$. That's why it is not significant and null hypothesis not rejected.

$P = .69$ (two tail test), which is $> .05$.

So, it can be concluded that there is no statistical significance difference between the mean score of attitudes towards the environment of rural and urban trainees.

7. Implications and conclusions of the study:

The results of the study have wide implications and practice in the field of education and psychology. The implications of study may discuss in following ways-

- Study would help teacher educators to frame their ideas or concepts towards the attitudes of B.Ed. trainees towards the environment.
- Study would help text book writers to include the environmental issues in written/hidden form in B.Ed. text book.
- Study would help curriculum framers to make decisions in environmental issues.
- Study would also help the administrator to conduct various environmental programmes during the course.

In the present context, we are going through a very critical situation. Global warming, increased greenhouse gases, increase in the rate of greenhouse effect, melting of polar ice inform us of a very critical condition of our environment. Various natural disasters and hazards responsible for these. But we can't avoid the unscientific activities of human beings. Industrialization, urbanization led to global warming. India has created the third largest education system in the world. So a huge number of people are educated and also taking education. Also, the number of teachers is also huge in India. So, the role of teachers is also important to make positive attitudes towards the environment of students. The study shows the attitudes towards the environment are equal between all levels of gender, location, stream, nature of students.

8. Suggestions for further research:

After completion of the study, researcher also suggested few suggestions for the further researcher-

- Attitude towards the environment of B.Ed. trainees can measure Other universities also.
- Research can also extend beyond North 24 parganas. May south Bengal or north Bengal or entire West Bengal.
- Research can also extend to the government. B.Ed. college trainees.
- More variables may also be included in the study.

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HYGIENIC PRACTICES AS REMEDIAL MEASURES TO COPE UP WITH PANDEMIC SITUATION

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Abstract

Since the last two decades, the evolution of viral contagion poses enormous hazards to the health of human beings and society. Human antiquity is observing a very astonishing time by fighting with an invisible enemy known as a novel COVID-19 corona virus. Initially, it was observed in the City of Wuhan, China and soon spread across the World. COVID-19 virus having more than 80 % similarity to previously identified virus in 2002 named SARS (Severe Acute Respiratory Syndrome). Contagious micro-organisms like parasites, bacteria, fungi, virus, causes many infectious diseases. These diseases spread from one person to another either directly or indirectly. Generally, these viruses spread through various different modes such as skin contact, ingesting contaminated food or water. Many a time's viruses also spread by the way of the transfer of body fluids and also by touching an object that a person carrying a virus has also touched. At present, we all are facing a very tough time by fighting with an invisible enemy which is known as the novel COVID-19-coronavirus. On 30th January 2020 the COVID-19 epidemic was officially declared as a public health emergency of International Concern. When this virus came into existence this was dangerous, especially for the elderly people as they are more prone to getting easily infected because of not having a very strong immunity system. Human to human transmission occurs mostly between the members of a family also including the relatives friends who has intimately contacted by the patients or incubation carriers. The recent global outbreak of the novel corona virus disease has once again brought to the forefront the importance of hygiene and sanitization in preventing highly contagious viral infections. The purpose of the study is to draw out best hygienic practices as remedial measures to cope up with pandemic situations.

Keywords: Hygiene, Practice, Pandemic, Cope-Up, Situation, Remedial Measures

Introduction

Hygiene is a series of practices performed to preserve health. According to the World Health Organization (WHO), "Hygiene refers to conditions and practices that help to maintain health and prevent the spread of diseases." Personal hygiene refers to maintaining the body's cleanliness. Many people equate hygiene with 'cleanliness,' but hygiene is a broad term. It includes such personal habit choices as how frequently to take a shower or bath, wash hands, trim fingernails and wash clothes. It also includes attention to keeping surfaces in the home and work place, including bathroom facilities, clean and pathogen-free. Some regular hygiene practices may be considered good habits by the society, while the neglect of hygiene can be considered disgusting, disrespectful, or threatening. Hygiene is any practice or activity that we do to keep things healthy and clean. Washing hands, coughing into our elbows and regular house cleaning are all part of good hygiene.

The novel corona virus (COVID-19) cases keep spreading across the globe. Consistent personal hygiene is said to be the easiest way to avoid the spread of infectious diseases such as COVID-19. The Centre for Disease Control and Prevention (CDC) and World Health Organization (WHO) has repeatedly emphasized regular hand-washing as the simple way to prevent the spread of the novel corona virus (COVID- 19). Frequent hand washing (hand hygiene) prevents life threatening diseases as reported in numerous researches. Another study found that regular hand-washing with soap has a positive impact on respiratory diseases, the practice cut infections by around 15 percent or even more. Previous study reveals that SARS-CoV-2 could be spread through fecal-oral routes. A research conducted at University of Michigan found that use of surgical masks and alcohol based hand sanitizers could cut the spread of flu-like symptoms.

As COVID-19 continues to affect many people worldwide, a public health specialist recommends a daily shower and brushing teeth at least twice daily. Many studies reveal that personal hygiene is very essential in protection against diseases. COVID-19 spreads through droplets when an infected person coughs or sneezes, and sometimes through contaminated surfaces. During this COVID-19 pandemic promoting hand washing behaviors are needed to prevent the spread of this

disease. Surfaces should be clean with disinfectant regularly, avoid traveling with a fever or cough, and stay separately at home if you are sick. The chief of World Health Organization (WHO) recommends that since a viable vaccine isn't available, people should take control of their own health and follow the guidance regarding self protection against the novel corona virus disease (Covid-19). Physical distancing and good hygiene habits amidst the pandemic, health experts have constantly reminded that the simple practice of hand washing with soap and clean water is also one of the most effective ways to prevent the spread of germs and viruses. We know the virus is spread mainly when respiratory droplets of an infected person (generated through coughing, sneezing, talking, singing) get into the mouth, nose or eyes of people who are nearby. We also now know that people can be infected, and spread the virus to others, even without having any symptoms. People may also become infected by touching their mouth, nose or eyes after touching surfaces contaminated with the virus. The virus may survive on surfaces for a few hours up to several days.

Background of the Study

Corona viruses are a group of contagious, flu-like viruses. They cause symptoms that can be as mild as a common cold but in some cases can be fatal. Covid-19 is the disease caused by a new type of corona virus that is spreading quickly around the world. Early symptoms include fever, cough and difficulty in breathing- similar to other flu-like illnesses. In the absence of vaccines, preventing its spread from person to person is vital to reduce the pandemic's impact on people's lives, health, livelihoods and the healthcare systems we all rely on. Good hygiene is key to avoiding spreading it and catching it. The COVID-19 pandemic highlights the importance and preventive power of water, sanitation and hygiene to human health and well-being. Good hygiene, including hand washing with clean water, is the best line of defense against COVID-19 and other viral diseases. Good hygiene behaviours provision is important in both developed and developing countries particularly within formal and informal workplaces which include offices, factories and other locations.

Statement of the Problem

While research into the COVID-19 virus is ongoing, we know the virus is spread mainly when respiratory droplets of an infected person (generated through coughing, sneezing, talking, singing) get into the mouth, nose or eyes of people who are nearby. We also now know that people can be infected, and spread the virus to others, even without

having any symptoms. People may also become infected by touching their mouth, nose or eyes after touching surfaces contaminated with the virus. The virus may survive on surfaces for a few hours up to several days. The novel Corona virus has no border, no religion and spread beyond cast and creed. World was never prepared for this kind of pandemic. The statement of the problem of this study is to draw out best hygienic practices as remedial measures to cope up with pandemic situations.

Review of Related Literature

1. A research entitled Evaluation of SARS & COVID-19 with Prevention and Hygiene Action Plan in May, 2020 has explored the various similarities and differences occurring in the SARS and COVID-19 virus, including their preventive and hygienic measures.
2. Another study Association between Good Personal Hygiene and Covid-19 Pandemic: A Preventive Measure in June, 2020 has revealed that personal hygiene is very essential in protection against diseases.
3. A study Post-Covid 19 hygiene practice can reduce risk of common infections: Study in May, 2020 has explored an increase in everyday hygiene reduces the risk of common infections by 50 percent.
4. Another study Water, Sanitation, Hygiene and Covid-19 pandemic: a global socioeconomic analysis in August, 2020 has found a strong positive correlation between lesser effects of Covid-19 and better access to safe water, sanitation as well as hygiene throughout this time for most of the indicators.

Objectives

The objectives of the study are to:

- sketch the present health and hygiene awareness in pandemic situation
- create awareness for sustainable living in Covid-19 situation.
- identify the hygienic problem in a pandemic situation.
- to find hygienic practices as remedial measures to cope up with pandemic situations.

Spreading of COVID-19 & Present Scenario

COVID-19 spreads easily from person to person, mainly by the following routes:

- Between people who are in close contact with one another (within 6 feet).
- Through respiratory droplets produced when an infected person coughs, sneezes, breathes, sings or talks.
- Respiratory droplets cause infection when they are inhaled or deposited on mucous membranes, such as those that line the inside of the nose and mouth.
- People who are infected but do not have symptoms can also spread the virus to others.

The COVID-19 pandemic in India is part of the worldwide pandemic of corona virus disease 2019 (COVID-19) caused by severe acute respiratory syndrome corona virus 2 (SARS-CoV-2). The first case of COVID-19 in India, which originated from China, was reported on 30 January 2020. India currently has the largest number of confirmed cases in Asia and has the second-highest number of confirmed cases in the world after the United States with more than 9 million reported cases of COVID-19 infection and more than 100 thousand deaths. The per day cases peaked mid-September in India with over 90,000 cases reported per day and have since come down to below 40,000 in December. On 22 March, India observed a 14-hour voluntary public curfew at the insistence of the Prime Minister. It was followed by mandatory lockdowns in COVID-19 hotspots and all major cities. Further, on 24 March, the prime minister ordered a nationwide lockdown for 21 days, affecting the entire 1.3 billion population of India. On 14 April, India extended the nationwide lockdown till 3 May which was followed by two-week extensions starting 3 and 17 May with substantial relaxations. From 1 June, the government started «unlocking» the country (barring «containment zones») in three unlock phases. In March, after the lockdown was imposed, the United Nations (UN) and the World Health Organization (WHO) praised India's response to the pandemic as «comprehensive and robust», terming the lockdown restrictions as «aggressive but vital» for containing the spread and building necessary healthcare infrastructure. At the same time, the Oxford COVID-19 Government Response Tracker (OxCGRT) noted the government's swift and stringent actions, emergency policy-making, emergency investment in health care, fiscal stimulus, and investment in vaccine and drug R&D and gave India a score of 100 for the strict response. Also in March, Michael Ryan, chief executive director of the WHO's health emergencies programme noted that India had tremendous capacity to deal with the outbreak owing to its vast

experience in eradicating smallpox and polio. In June, India was ranked 56th of 200 countries in COVID-19 safety assessment report by Deep Knowledge Group. Other commentators have raised concerns about the economic fallout arising as a result of the pandemic and preventive restrictions. The lockdown was justified by the government and other agencies for being preemptive to prevent India from entering a higher stage which could make handling very difficult and cause even more losses thereafter. In July 2020, India's Ministry of Information and Broadcasting claimed the country's case fatality rate was among the lowest in the world at 2.41% and «steadily declining». By mid-May 2020, six cities accounted for around half of all reported cases in the country like Mumbai, Delhi, Ahmedabad, Chennai, Pune and Kolkata. As of 10 September 2020, Lakshadweep is the only region which has not reported a case. On 10 June, India's recoveries exceeded active cases for the first time. Infection rates started to drop significantly in September, and the number of daily new cases and active cases started to decline rapidly. A Government panel on COVID-19 announced in October that the pandemic had peaked in India, and may come under control by February 2021. India has over 30 anti-COVID vaccines in various stages of development and the first of these is expected to be introduced in early 2021. The pandemic has left a severe impact on the Indian economy, leading to a negative growth rate for the first time in decades. Nevertheless, the economy started to rebound after the lockdown was eased. Increased requirement for consumption had led the government and private firms to repurpose their factories and production lines for manufacturing of more hospital beds, PPE and ventilators. India emerged as the world's second largest manufacturer of PPE during the pandemic. The Union Government also launched a major self-sufficiency campaign to substitute imported products with domestically produced counterparts, especially to replace goods imported from China.

Prevention and Hygiene

COVID-19 transmission mainly occurs from person to person contact, and the local and national government departments have taken various measures which include screening of passengers followed by travel restrictions with halting all travel with control measures into and out of the city. Apart from this very soon implemented physical distancing, discouraged mass gatherings; cancelled or postponed large public events; and closed schools, universities, government offices, libraries, museums, and factories and encouraged residents to avoid crowded places, these measures reduce the impact of the COVID-19 outbreak

and age specific mixing within the population. Awareness provided to the citizens by education campaigns, used of digital platform, etc. and through which citizens started to take preventative measures to protect themselves and others against COVID-19, like staying at home, limiting social contacts, wash hands with soaps or alcohol based sanitizers for at least 20 seconds, avoid unnecessary touch and wearing protective masks when they needed to move in public.

Practicing Personal Hygiene

Simple hygiene measures can help protect our family's health and everyone else's. Good personal hygiene is important for both health and social reasons. It entails keeping our hands, head and body clean so as to stop the spread of germs and illness. Our personal hygiene benefits our own health and impacts the lives of those around us, too. The social benefits associated with personal habits must also be considered. Since it involves washing our body every day and caring for ourselves, it reduces the chances of body odor and thus, any chances of embarrassment at work or at school. We are aware that one must have daily personal hygiene. We have compiled some of the steps in the write-up below so that our family can follow them to keep themselves clean and free of pesky germs that could cause a future illness. Personal hygiene is not difficult. Once we have a personal hygiene routine in place, it becomes a habit in no time. It is also important to set an example for children so that they can also have their own personal hygiene routines to follow.

Hand Washing

The first place to start with our personal hygiene routine is our hands. We use our hands constantly during the day, touching many different surfaces, shaking hands with people, eating our meals, typing on the laptop or using a common telephone at work, or even playing at school. Naturally, our hands are the biggest carriers of germs. One of the quickest and simplest ways to ensure that our family is safe from illness is to practice good hand hygiene. It can keep illnesses such as cold, cough, flu and gastroenteritis (these can all be contracted or passed on through poor hand hygiene) at bay. We can stop the spread of illness-causing germs by washing our hands frequently with water and soap. It is the best line of defence. We should wash hands frequently with soap and water for at least 20-30 seconds. If using a hand sanitizer we should ensure that it contains at least 60 percent alcohol, ensure coverage on all parts of the hands and rub hands together for 20-30 seconds until hands feel dry. If hands are visibly dirty, we should always wash hands with soap and water.

We should wash our hands:

- before eating or cooking food.
- before picking up a baby.
- before touching our face.
- after visiting the toilet.
- after coughing or sneezing, or being in contact with someone who is ill.
- after being in contact with animals.
- after using the restroom.
- after leaving a public place.
- after blowing our nose, coughing, or sneezing.
- after handling our mask.
- after changing a diaper.
- after caring for someone sick.
- after touching animals or pets.

Oral Hygiene

Oral hygiene is an integral part of personal hygiene practices and should not be neglected. Similar to hand hygiene, oral hygiene is essential in reducing infection from the oral cavity, and thus, its transfer to the upper and lower respiratory tract. Although there is no randomized clinical trial, oral hygiene may potentially reduce the morbidity and mortality related to coronavirus disease pandemic potentially. At present, standard oral hygiene measures consist of thorough cleaning of all surfaces of teeth, inter dental areas, and tongue daily.

We should:

- brushes teeth twice a day – after breakfast, and before bed.
- store our toothbrush in a clean, dry place and replace it regularly.

Bathing

We should shower every day using warm water and soap. We could consider showering twice a day when the weather is warm.

Daily bathing is an integral part of good personal hygiene because:

- Bathing daily with soap and warm water prevents body odour because it kills the odour-causing bacteria.
- Skin infections such as Athlete's Foot can be reduced by carefully washing and drying the affected areas daily.

- Shampoo and condition our hair at least once a week to keep the scalp clean and prevent head lice.

Avoid Touching

We should not touch our face, eyes, nose and mouth.

Covering Mouth and Nose

- We should not cough or sneeze into our hands.
- We should cover our mouth and nose with our elbow or tissue when coughing or sneezing and we should dispose of used tissue immediately.
- We should immediately wash our hands with soap and water for at least 20 seconds. If soap and water are not readily available, we should clean our hands with a hand sanitizer that contains at least 60% alcohol.

Keeping Distance

We should maintain a distance of at least 1 meter (3 feet) from people outside our household. We should remember that some people without symptoms may be able to spread viruses. We should keep our distance from others, which is especially important for people who are at higher risk of getting very sick.

Inside Home

- We should Avoid close contact with people who are sick.
- If possible, maintain 6 feet between the person who is sick and other household members.

Outside Home

- We should put 6 feet of distance between ourselves and people who don't live in our household.

Wearing Mask

We should wear masks in public places. If COVID-19 is widespread in our area, a fabric mask should be worn in all public settings where it is difficult. Masks help prevent us from getting or spreading the virus.

One could spread COVID-19 to others even if one does not feel sick. Everyone should wear a mask in public settings and when around people who don't live in our household, especially when other social distancing measures are difficult to maintain. Masks should not be placed on young children under age 2, anyone who has trouble breathing, or is unconscious, incapacitated or otherwise unable to remove the mask without assistance.

Here are the basics of how to wear a mask:

- We should clean our hands before we put our mask on, as well as before and after we take it off, and after we touch it at any time.
- We should make sure it covers our nose, mouth and chin.
- When we take off a mask, we should store it in a clean plastic bag, and every day either washes it if it's a fabric mask, or dispose of a medical mask in a trash bin.
- We should not use masks with valves.

Checking and Monitoring Health

- We should monitor our health daily.
- We should be alert for any symptoms of COVID-19 in ourselves and our family.
- We should be alert for symptoms and watch for fever, cough, shortness of breath, or other symptoms of COVID-19.
- We should seek medical care early if symptoms develop, and stay home except to get medical care.
- We should protect our health in this flu season.

The Washing Protocol

Good old soap and detergents are good enough to destroy the coronavirus. We should use them as before, in prescribed quantities. Germs and dirt can cling to our clothes, too. We should wash the clothes after each use so that these germs and impurities are removed. We should remove all traces of germs by adding Antiseptic Liquid to our laundry load.

Here are some things to remember about washing, to defend ourselves from the corona virus and be infection free in general:

Sunlight

It is our friend in this war. After washing we should hang out the clothes to dry in the sun. The UV rays have always been a good disinfectant. For dark clothes, we should hang in shade but where there is air.

Water Temperature

A lot is being said about the water temperature for the washing machine and regular hand washing. Warm water is ok, hot water long term damages fabric fibre. Therefore, cold water is best.

Disinfectant

A good disinfectant should be on every household's shopping list.

Adding it to the detergent and water mix, and soaking clothes for about 15 minutes will take care of many germs. The old ones have not gone away because of COVID.

Baking Soda

This makes the water alkaline. Because we will be washing clothes more often, baking soda helps to keep clothes softer, and its natural deodorizing property makes clothes smell fresh. This can be done once in a while. The baking soda has to be mixed to the detergent mix.

Ironing

Heat kills germs. Ironing is highly recommended, by steam iron particularly. Steam is known to act as a natural disinfectant; it is known to remove allergens. One could look at portable options for steam irons. They also remove wrinkles easily.

We should:

- clean bed sheets, towels and clothes regularly.
- clean the laundry baskets/ bags every day too.
- not shake dirty laundry to minimize the possibility of dispersing the virus through the air.
- launder items with soap or detergent, using the warmest appropriate water setting and dry items completely – both steps help to kill the virus.
- wash our hands with soap and water, or use an alcohol-based hand rub, immediately afterwards.
- wash or disinfect your laundry bag and hamper as well. Consider storing laundry in disposable bags.
- prepare laundry before leaving your home to help minimize the amount of time we spend outside.
- try to go at a time when there are fewer people.
- maintain a physical distance of at least 1 meter from other people.
- wear disposable gloves if available, disinfect the surfaces of all machines we use and not touch your face.
- fold your laundry at home.
- consider storing laundry in disposable bags.
- hand wash our clothes at home with soap or detergent and the warmest appropriate water, If there is no access to laundry facilities.

Cleaning and Disinfecting

We should clean and disinfect frequently touched surfaces daily. This includes tables, doorknobs, light switches, countertops, handles, desks, phones, keyboards, toilets, faucets, and sinks. If surfaces are dirty, we should clean them. We should use detergent or soap and water prior to disinfection. Then, we should use a household disinfectant. We should clean and disinfect surfaces frequently, especially those which are regularly touched, such as door handles, faucets and phone screens.

Cleaning around the Home

Cleaning and disinfecting high-touch surfaces in our home regularly are an important precaution to lower the risk of infection. Every home is different, but common high-touch surfaces include: Door handles, tables, chairs, handrails, kitchen and bathroom surfaces, taps, toilets, light switches, mobile phones, computers, tablets, keyboards, remote controls, game controllers and favourite toys.

For cleaning product instructions for safe and effective use we should:

- take precautions when applying the product, such as wearing gloves.
- make sure we have good ventilation.
- aware that some national authorities have made lists of recommended products for use against the COVID-19 virus.

Using Products to Clean and Disinfect

- If a surface is dirty, first we should clean it with soap or detergent and water.
- Then we should use a disinfectant product containing alcohol (of around 70 per cent) or bleach.
- We should not use Vinegar and other natural products.
- In many places it can be difficult to find disinfectant sprays and wipes. In such cases, we should continue to clean with water.
- Diluted household bleach solutions may also be used on some surfaces.

Process of disinfect

- It's important not to wipe cleaning solutions off as soon as we have applied it to a surface.
- Many disinfectant products, such as wipes and sprays, need to stay wet on a surface for several minutes in order to be effective.

- We should always read the directions to make sure that we are using the products as recommended and to avoid damaging sensitive items such as mobile phones and other electronic devices.
- We should consider using wipe-able covers for electronics.

Handling and Preparing Food

While at present there is no evidence of people catching the COVID-19 virus from food or food packaging, it may be possible that people can become infected by touching a surface or object contaminated by the virus and then touching their face. The greater risk comes from being in close contact with other people while outside food shopping or receiving a food delivery (as receiving any delivery in areas with local transmission). So it is important to keep a distance of at least 1 meter from others, wear a fabric mask in public settings, and frequently wash our hands. As always, good hygiene is important when handling food to prevent any food-borne illnesses.

Food packaging and handling precautions:

- We should remove any unnecessary packaging and dispose into a waste bin with a lid.
- We should remove food from take-out containers, place it on a clean plate and dispose of the container.
- Packaging like cans can be wiped clean with a disinfectant before being opened or stored.
- We should wash unpackaged produce, such as fruit and vegetables, thoroughly under running water.
- We should wash our hands with soap and water, or use an alcohol-based hand rub, immediately afterwards.

Protecting Environment

We should avoid the 3Cs: spaces that are closed, crowded or involve close contact. Outbreaks have been reported in restaurants, choir practices, fitness classes, nightclubs, offices and places of worship where people have gathered, often in crowded indoor settings where they talk loudly, shout, breathe heavily or sing.

The risks of getting COVID-19 are higher in crowded and inadequately ventilated spaces where infected people spend long periods of time together in close proximity. These environments are where the virus appears to spread by respiratory droplets or aerosols more efficiently, so taking precautions is even more important.

We should:

- meet people outside. Outdoor gatherings are safer than indoor ones, particularly if indoor spaces are small and without outdoor air coming in.
- avoid crowded or indoor settings.
- opening a window increases the amount of 'natural ventilation' when indoors.

Conclusion

COVID has been mentally, physically and emotionally exhausting. We have all, literally, been in the eye of the storm. So yes, it is but natural to be scared and worried. But we cannot let paranoia rule our lives. We must take care of ourselves in practical and simple ways. In COVID times, we are now going to be presented with a lot of fancy options. UV boxes for our belongings which claim to kill the germs. New and improved cleaning products, Sanitiser spraying machines for the home and offices are used to kill the germs. At the same time it is essential that we should be well informed and keep the basics in mind.

Currently, humanity is under the grip of novel viral SARS-CoV-2 that causes coronavirus disease COVID-19, however, researchers developed several promising vaccines and drugs in a matter of days, but all are in clinical phases. Healthcare leaders around the world learned various lessons from past pandemic situations and made several strategies including early interventions, tracing of infected people, making of quarantine centers, and implementation of social distancing together contributed significantly to control the spread of COVID-19 infection. There is sufficient evidence to proclaim the importance of personal and community hygiene. With the devastating effects of COVID-19 across the world, it is apparent that countries should collaborate on an international level to create awareness about the necessity of hygiene and the way in which it could aid one to battle small infections and even possibly a pandemic-causing virus.

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IMPACT OF COVID-19 PANDEMIC ON HIGHER EDUCATION IN INDIA

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Abstract:

The Covid-19 pandemic has not only affected global health issues but also social lives, agriculture, employment, economy, higher education etc. Offline or face to face interactive teaching-learning process has been completely shifted into an online process. Pandemic situation has played a devastating change in the teaching, learning and evaluation system. Digitalization in the educational system is the foremost need from pre-primary to every dimension of Higher Education students. The Covid-19 pandemic has increased the inequalities in Higher Education by reducing mobility, flexibility and other developmental opportunities. Once an online method was considered a threat but today it has come as a rescue in the educational field. The investigators have tried to find out positive and negative impacts on teaching and learning processes in Higher Education. They have also pointed out some steps considered by the policy makers to serve a seamless educational opportunity. Some suggestive measures have also been included for pandemic and post pandemic situations.

Keywords: *Impact, Covid-19 Pandemic and Higher Education*

Introduction:

Till today the world is facing a crisis period in various aspects due to the Covid-19 pandemic. Covid-19 was first identified in Wuhan, China [1] and then it gradually started spreading in other parts of the world. World Health Organisation (WHO) [2] declared Covid-19 as a pandemic on 11th March, 2020. In India the first infected case due to Covid-19 was detected in Kerala on 30th January, 2020 and the first death was reported on 12th March, 2020. In the end of March 2020, the Covid-19 pandemic spread over 185 countries and resulted in closure of over 95% schools, colleges, universities and other educational institutions. The Prime Minister of India announced on 25th March, 2020 for the 1st phase of lockdown for 21 days for monitoring the effects of Corona Virus. Several phases of lockdown have been organised for

minimizing the effects of Corona Virus. All the educational institutions throughout the nation have never got any kind of relaxation for starting their offline educational activities. Millions of lives have been claimed across the world. According to a UNESCO report [3] more than 90% of the total student population of the world were affected due to the outbreak of pandemic. Covid-19 pandemic played a deep rooted impact on social, economical and psychological well being of humans in different parts of India. Most of the countries across the world were compelled to shut down the educational institutions of mass gathering. Thus the academic year end evaluation and various other competitive examinations were postponed for indefinitely time. This step was considered to slow down and contain the spread of Corona virus in India by segregating the people who were infected in Covid-19. Most of the Governments around the world imposed various restrictions on the movement and gatherings of people and students to control the spread of Covid-19 airborne disease. Thus all the Indian educational institutions have been shut down from the primary section to universities. This worldwide closure has impacted drastically the world's student population. Regular classes were suspended for the sake of the lives of the learners, teachers and others attached with educational institutions.. The pandemic situation made a global educational change by means of traditional face to face classroom teaching-learning process to online mode of transaction and thus it has significantly disrupted the Higher Education sector in India [4]. This shift in education has brought a great change in the pattern of learning with some positive and negative impacts [4] and students have been habituated with digital pedagogy. The Corona Virus has thrown the world into turmoil. Around 55 million people have been affected due to this viral infection and around 3 million people have died because of it [5]. In the year 1919 there was another similar case of global level pandemic which generated a similar level of statistics as Covid-19. The cause of that pandemic was due to the Spanish Flu which spread like wildfire across the world [5].

Covid-19 pandemic situation taught people to cope with virtual modes of transaction in the educational field. Still there are certain educational institutions which are not very well equipped to the modern technological facilities in the classroom and at home. Rural people are deprived of technology and thus all the students are not benefited by the Internet as well as E-learning facility. So there exist both positive and negative effects on Indian society. The Higher Educational sectors have been massively disrupted by pandemic situations and a paradigm

shift has occurred in the teaching-learning process. Internationally admissions in Higher Education have been hampered a lot.

This paper intends the impacts of Covid-19 on Higher Education in India and some suggestive measures for coping with situational change due to Covid-19. List of initiatives taken by Indian Policy Makers have also been highlighted.

Objectives of the Study:

The objectives of the present study are as follows:

- i) To know the positive and negative impacts of Covid-19 on Higher Education
- ii) To know the Initiatives considered by Indian policy makers to make Higher Education system as learner friendly
- iii) To discuss about the trends of Higher Education after the pandemic
- iv) To find out some suggestive measures for uninterrupted Higher Educational activities during and post pandemic situation

Methods of Study:

The investigators have presented the study through a theoretical basis. The study is based on the secondary data sources. The necessary information related to Covid-19 and Higher Education have been collected from various Books, Newspapers, journals, Magazines, E-contents, Published & Unpublished research articles and also from various internet sources.

Impacts of Covid-19 on Higher Education:

The impacts of Covid-19 on Higher Education can be analysed in two ways as positive impacts and negative impacts.

Positive Impacts: Any disruptive change may also bring some new opportunities in Higher Educational field in India and some of the key areas of opportunity are as follows:

a) Rise in Blended Learning: Universities and colleges will shift to a model of blended learning where both face to face delivery along with an online model will become a norm. This will require all teachers to become more technology oriented and go through some training to bring themselves to the level that would be required. New ways of delivery and assessments of learning outcomes will have to be adopted which opens immense opportunities for a major transformation in both curriculum development and pedagogy.

b) Importance of the Role of Teacher: The role or function of teacher will improve in future due to their efforts by coping capability to this pandemic crisis and not compromise on the expected levels of quality and excellence. A personal bonding system can be created between the teacher and the student due to the online mode of delivery of education and that bond will enhance the learning experience of the student in the future after the end of the Covid-19 pandemic period. It is only possible through direct contact with the learner through online mode.

c) Enhancement in Students' Choice: Students always demand more options and this starts with the rise of new academic programs in technology-related subjects. Technology creates new ways for courses to be delivered. A single course may be offered in multiple formats, with students having the option of coming to a classroom, watching a live stream from their homes, or even taking the course on their own time. Thus Covid-19 enhances the students' choice based options.

d) Minimize the Cost for Higher Education: In some cases the cost for higher education has been minimized considering the socio-economic status of students during Covid-19. Many students have been able to complete their courses without huge amount. Higher Educational institutes adopt this process to continue their qualitative and quantitative educational service.

e) Learning Management Systems--A New Norm: A great opportunity has opened for those companies that have been developing and strengthening learning management systems for use by universities and colleges. This has the potential to grow at a very fast pace but will have to be priced appropriately for use by all institutions.

f) New Portal for "On Demand" Delivery: The role of the creation of new portal as on demand delivery of educational content is very much important for students in the post Covid-19 world. This will be beneficial for both students and the service providers by creating a win-win situation for both parties.

g) Improvement in Learning Materials: There is a great opportunity for universities and colleges to start improving the quality of the learning material that is used in the teaching and learning process. Since blended learning will be the new format of learning there will be a push to find new ways to design and deliver quality content especially due to the fact that the use of learning management systems will bring about more openness and transparency in academics.

h) Rise in Collaborative and Cooperative Work: The teaching community to a large extent has been very insulated and more so in a

country like India. There is a new opportunity where collaborative and cooperative teaching and learning can take on new forms and can even be monetized. Collaborations can also happen among faculty members across the nation to benefit from each other.

i) Time & Place - No Longer a Factor for Higher Education: The new paradigm shift by online learning opportunities in the current and post Covid-19 situation will remove the hindrance of time and place for delivering education. Thus both students and teachers will be able to interact with each other at any convenient time throughout the day by means of various apps like Google Hangouts, Zoom etc. A high quality of content and discussion may be provided and students should be benefited a lot.

j) Webinars and E-Conferences: Academicians get much time to improve their theoretical research work and they are able to share their views among various students and academicians by the webinars and e-conferences through virtual platforms. They enhanced their technical skill and could get the opportunity for publishing their research articles or research papers in various journals and publishing or editing books during this free time in a pandemic situation.

k) Faculty Development Programs: Faculty of different colleges, universities and other Higher Educational institutions have been able for their professional enhancement in academic purposes through virtual modes. They have been engaged in Orientation Programs (OP), Refresher Courses (RC), Faculty Development Programs (FDP) and various other online courses.

Negative Impacts: Some of the negative impacts of Covid-19 on Higher Education are as follows:

a) Sluggish Cross-Border Movement for Students: Universities in many countries such as Australia, UK, New Zealand, and Canada are highly dependent on the movement of students from China and India. It is becoming more and more clear that this cross-border movement of students will take a beating at least for the next two to three years and will lead to a major financial risk for universities in these countries who are already under financial pressure. Many parents will avoid sending their students abroad for Higher Education due to high risk from the pandemic.

b) Passive Learning by Students: The sudden shift to online learning without any planning in case of India, the backbone for online learning was not ready and the curriculum was not designed for such a format which has created the risk of most of our students becoming passive

learners and they are losing their interest due to low levels of attention span.

c) Unprepared Teachers' for Online Education: Online learning is a special kind of methodology and not all teachers are good at it or at least not all of them were ready for this sudden transition from face to face learning to online learning. Thus, most of the teachers are just conducting lectures on video platforms such as Zoom which may not be real online learning in the absence of a dedicated online platform specifically designed for the purpose. In such a situation, learning outcomes may not be achieved and it may be only resulting in engaging the students.

d) Changing Format of Student Recruitment: Universities and colleges worldwide are facing a major risk in the area of student recruitment and retention. The risk of losing students is so high that they will need to re-look at their admission practices, admission criteria and the overall recruitment process itself which will include new methods of outreach and application process itself.

e) Academic Research and Professional Development: Covid-19 has made it impossible for researchers to travel and work together with others nationally and internationally. Some of the joint research works or project works have been complicated to complete and some scientific laboratory based testing and research works could not be conducted due to this pandemic situation. Thus Covid-19 played a negative impact on both academic and professional growth in Higher Education.

f) Reduction in Employment Opportunities: Various entrance tests related to job recruitments got cancelled creating negative impact in the life of students attached with Higher Education. In India recruitments in Govt. sector stopped due to Covid-19 and fresh graduates are in fear due to the withdrawal of job offers from various corporate sectors. Passed out students are not getting their job outside India due to various restrictions caused by Covid-19. All these facts are responsible for the increase in the unemployment rate due to the pandemic situation. With the increase in unemployment, the interest for education may gradually decrease as people struggle for food rather than Higher Education [6].

g) Absence of Students' in the Class: During the online class teachers are not sure about the physical presence of students. During this time whether they are involved in other activities or not. In most of the cases videos of students are kept off.

h) Evaluation System: Evaluation in on line system is practically a furse because time limit is not properly maintained. The teachers are not sure whether the answers are given by the proper students or not. Besides these there may be technical problems which also cause problems in online examinations.

i) Question Patterns: Patterns of questions are not changed and as a result students have the opportunity to copy the answers. So, most of the students got higher marks which are not expected. Determination of proper performance is a great problem in online examinations.

Initiatives Considered by Indian Policy Makers For Higher Education:

The Ministry of Human Resource Development (MHRD) and University Grants Commission (UGC) have made several arrangements by means of many virtual platforms with online depositories, e-books and other online teaching-learning materials, educational channels through Direct to Home TV, Radios for students to continue their learning during this pandemic situation. Students have been habituated with popular social media tools like WhatsApp, Zoom, Google Meet, Telegram, Instagram, Youtube live, Facebook live etc. for online teaching learning procedures [7]. University Grants Commission has released Guidelines on Examinations and Evaluation systems for students.

UGC & MHRD considered some digital initiatives for Higher Education during Covid-19 period and those are as follows:

i) E-Gyankosh: It is a National Digital Repository to store and share the digital learning resources which is developed by the Open and Distance Learning Institutions of India. Study materials are available for the students. Items in E-GyanKosh are protected by copyright, with all rights reserved by Indira Gandhi National Open University (IGNOU) [7].

ii) Gyandhara: It is an internet audio counselling service offered by IGNOU. It is a web radio where students can listen to the live discussions by the teachers and experts on the topic of the day and interact with them through telephone, email and chat mode.

iii) Swayam: It provides Massive Open Online Courses (MOOCs) with 1900 courses and 140 universities approved credit transfer features.

iv) Swayam Prabha: It provides high quality educational programs through 32 DTH channels transmitting educational contents.

v) E-PG Pathshala: It is for postgraduate students and they can access this platform for E-books, online courses and study materials.

vi) Gyandarshan: It is a web-based TV channel for educational and developmental needs of Open and Distance Learners and it also fulfills the needs of the society.

vii) E-Adhyayan: It is a platform that provides more than 700 E-Books for the Post Graduate courses. All the E-Books are derived from E-PG Pathshala courses. It also facilitates play-lists of video contents [7].

viii) E-Pathya: It is a software driven course or content package that facilitates students pursuing higher education (PG level) in case of distance learning as well as for campus learning mode. It also facilitates offline accessibility.

ix) E-Yantra: It provides hands-on experience on embedded systems. It has about 380 Lab based experience and more than 2300 colleges were benefited.

x) FOSSE: It is a short form for Free and Open Source Software for Education (FOSSE), which is developed to promote open source software for education as well as for professional use.

xi) National Digital Library of India (NDLI): It is a repository of e-content on multiple disciplines for all kinds of users over the world like students, teachers, researchers, librarians, library users, professionals, differently-abled users and all other lifelong learners. It has developed in Indian Institute of Technology (IIT), Kharagpur and it is also accessible through mobile apps [7].

xii) Shodhganga: It is a platform for research scholars to deposit their Ph. D. theses and make it available to the entire scholarly community in open access. The repository has the ability to capture, index, store, disseminate and preserve Electronic Theses and Dissertations submitted by the researchers. Students from various disciplines are very much benefitted from Sodhganga during their writing and reporting of project works, dissertations, thesis etc.

xiii) Virtual Labs.: It has over 100 Virtual Labs consisting of more than 700 web-enabled experiments which are designed for remote-operation. It provides remote-access to Labs in various disciplines of Science and Engineering. These Virtual Labs cater to students at the undergraduate level, post graduate level as well as to research scholars [7].

xiv) E-Shodhsindhu: It is a collection of E-journals, E-journal archives and E-books on long-term access basis. It has more than 10,000

E-journals and more than 31,35,000 E-books [7]. It provides access to qualitative electronic resources including full-text, bibliographic and factual databases to academic institutions at a lower rate of subscription.

xv) National Educational Alliance for Technology (NEAT): It is an initiative for skilling of learners in latest technologies through a Public-Private partnership model between the Government and the Education Technology companies of India [7]. NEAT brings the best technological products in education pedagogy on a single platform for the convenience of learners.

xvi) Vidwan: It is a premier database and national research network having profiles of scientists or researchers and other faculty members working at leading academic institutions and other Research & Development organisations in India.

xvii) Sakshat: It is one Stop Education Portal for addressing all the education and learning related needs of students, scholars, teachers and lifelong learners. The portal provides the latest news, press releases, achievements etc. related to MHRD [7].

Trends of Higher Education after the Pandemic:

Adaptation with new technologies during pandemic Covid-19 will certainly challenge the traditional paradigms such as classroom lectures, modes of learning and modes of assessment or evaluation. Various trends may be observed in teaching-learning process in Higher Education after the pandemic and some of them [7] are as follows:

i) Students Attendance May Fall: Many guardians may be reluctant to send their children to schools, colleges or universities suddenly after the end of Covid-19 pandemic situation. Some poor family parents who have lost their livelihood during the pandemic may not be able to bear or afford the expenditure for education of their children in institutions. Thus education from home may be raised for another some periods.

ii) National & International Student Mobility May be Reduced: New modes of social distancing will continue for quite some time and may affect the face to face teaching learning process. Most of the parents may restrict movement within the country due to the pandemic. International education has also been affected by the crisis. Many international universities have been closed and are delivering all educational activities through online mode. Many international conferences in higher education have been turned into a series of webinars. So, the national and international student mobility may be reduced.

iii) Personalised Learning May be encouraged: Students may be the virtual learners with one teacher leading dozens of students in the new age, as learning cannot be confined to any boundaries. The learning contents or modules may come from different sources based on learners aspirations and needs. Students may pursue their learning in the new paradigm based on their choice.

iv) Learning Through Social Distancing May Continue: All will maintain social distancing and avoid warm handshake, hug, personal greeting, and intimacy for a long time even in post Covid-19 situations. Invisible restrictions may constraint the fun & joy of campus life. Organising of Sports, Gyms and Tournaments may be in low gear for a longer period resulting in less physical activities of students. Thus the process of learning through social distancing may be continued in Higher Education.

v) Technology Oriented Teaching Learning: Students will use internet technology to communicate virtually with their teachers and fellow learners through Email, WhatsApp, Videoconference, Instant message, Webinar etc. More and more students will depend on technology and digital solutions for teaching, learning, entertainment and connecting themselves with the outside world.

vi) Higher Educational Institutions May Run Shift Wise: Based on the concept of social distancing a class may be run with the least number of students. So, most of the Higher Educational institutions may work in different shifts per day which may put more pressure on the teaching and administrative staff of the institutions to manage.

vii) Gap Between Privileged & Underprivileged Students May Rise: Learners from low-income groups and disadvantaged groups are the more likely to suffer as they may not afford high-speed internet connection and required technical gadgets for continuation of online learning. This may widen the gap between privileged and underprivileged learners creating inequality in the field of teaching learning process.

viii) Examination, Assessment & Evaluation System May Change in New Shape: The evaluation system for students may be reformed in a new aspect. Artificial Intelligence (AI) may help teachers for assessment, evaluation & preparing mark-sheets and monitoring the performance of each student easily. As artificial intelligence may reduce the burden of examiner in handling examination and evaluation systems. In this way academicians would be able to concentrate more on course development, qualitative teaching-learning and skill development for students.

ix) Inclusion of Blended Learning: In Blended Learning there is a combination of both face to face and online learning modes. Covid-19 has accelerated adoption of digital technologies to deliver education and encouraged the educational institutions to move towards a blended mode of learning. All teachers and students became more technology oriented. The traditional offline or face to face mode may be shifted in some cases as online mode leading the education system as blended mode and there should be a transformation or reformation in the structure of the educational system.

x) Demand for Open & Distance Learning (ODL): Covid-19 has forced human society to maintain social distance in every aspect of life even in the case of continuation of teaching learning process. To meet these challenges there is more demand for ODL mode and online mode of education and the same trend may continue in the post Covid-19 period also.

xi) Unemployment Rate May be Increased: If there occurs no recruitment in Govt. sector and fresh graduates are in fear of withdrawal of their job offers from private sectors because of the pandemic Covid-19 [6]. Those who were engaged in overseas services and most of the Indians might have returned home after losing their jobs due to the Covid-19 pandemic. Thus the fresh students who are waiting to enter the job market after completing their courses may face problems in getting suitable employment.

xii) Debt Crisis for Students' May Rise: In India, a large number of students or their parents take education loans for Higher Education. If the new employment facility does not arise then student debt crises may rise and create a serious issue. Thus the anxiety, stress and depression level among the students should be increased due to their loans for Higher Education. As well as their parents should always face anxiety for debt.

Suggestions

The investigators have suggested the following points to overcome the effects after Covid-19 pandemic situation in the case of Higher Education.

i) The Government should provide free internet facilities and free digital gadgets to all learners to encourage the E-learning scheme during the Covid-19 pandemic as well as for the post Covid-19 situation.

ii) Higher Educational institutions should provide proper training to both faculty and students in order to serve effective online classes.

Teachers and students should participate and interact simultaneously.

iii) For Higher Education the provision of internet accessibility in remote villages, internet connections may be provided from urban areas having good and high speed internet connectivity and accessibility.

iv) In order to improve the quality of Higher Education through an online process, some collaborative and cooperative actions should be considered among various higher educational institutions.

v) Various job related opportunities, internship programs, project work etc. should be highlighted to them as a Higher Educational course completion offer.

vi) The new paradigm shift in assessment and evaluation in Higher Education should be adopted by educational institutions based on qualitative benchmarks through quizzes, projects or online mode.

vii) Government should support Higher Educational institutions to strengthen their resources to run their virtual educational activities.

viii) WHO has recently pointed out that the Covid-19 may never be eradicated and people will have to live with this disease. According to the statement [8] many countries are planning to continue education through distance or virtual mode and India should plan for the same also.

ix) Government should deploy the necessary infrastructure at remote places where people don't have access to the internet and thus the students are facilitated to learn digitally.

x) Various vocational courses should have to be introduced in the curriculum in Higher Education so that after course completion students may be absorbed in service in various organizations, offices, companies, etc.

xi) Open book system for examinations may be arranged but for this purpose the pattern of questions should be changed.

xii) In an online evaluation system, necessary steps have to be taken for proper time management. By using Google Form, multiple choice questions (MCQ) covering the whole syllabus may be arranged with restrictions of time

Conclusions:

This article illustrates the difficulties or problems faced by students in the higher educational sector due to the continuous lockdown of educational institutions and the continuous spreading of Covid-19 across the country. This pandemic changed the pedagogical approaches

to virtual educational approaches in all levels of education. Virtual education is easily accessible and more flexible at this time of crisis due to the outbreak of Covid-19. This should not divide digitally between the rich and poor. In India, due to the lack of computers, electronic gadgets and internet facility especially the village students face problems in continuing their online education satisfactorily in the era of Covid-19. The education system in the post Covid-19 period seems to be a virtual or online education which may be a parallel system of education. Higher educational institutions should design the study pattern in such a way that all the level of students are benefited.

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PARENTAL ATTITUDE TOWARDS DAUGHTERS' EDUCATION IN ECONOMICALLY PRIVILEGED MUSLIM FAMILY IN KOLKATA: A STUDY

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Abstract

The literacy rate of Muslims is comparatively lower than any other community in India. The Sachar Report indicated that poverty is one of the constraints of lower literacy among the Muslims of India. In this study, the attitude of the privileged Muslim parents was studied toward their daughters' education as well as the difference between the attitude of the father and mother is also measured to understand the attitude difference. The purposive sampling method is applied to identify the girls of economically privileged families. The researcher made attitude scale is used to measure the attitude. The results show that economically privileged parents are somewhat positive about daughters' education, but there is a wide gap between fathers' and mothers' attitudes. Fathers have a significantly negative attitude towards daughters' education. Being financially strong, the fathers' negative attitude creates a big question mark in achieving academic degrees for Muslim girls. The significant attitude difference is a major constraint towards the development of the nation as well as for the community.

Keywords: Economically Privileged, Parents attitude, Academic achievement, literacy rate, Muslim girls

Introduction

Education and development are inseparable. Quality in education can ensure sustainable development by minimising the wastage of human resources. It is the top most priority of any egalitarian society to create conducive learning environment for every citizen irrespective of religion, caste, creed, gender, etc. To achieve development, education is a stepping stone. Most importantly, the education of women plays a crucial role in the development process since education starts at home, and mothers are the first educators of their children.

India is a land of diversity and it is characterized by a diversity of religious beliefs and practices. The data given in Table1 shows that the majority of the population in India practices Hinduism and the largest minority is the Muslim community (CENSUS of India). Since Independence, this largest minority of India has always been in discussion for different reasons.

Table 1: Size and Growth of Population by Religion from 1991-2011

Religion	Percent to total in 1991	Percent to Total in 2001	Percent to Total in 2011	Decadal Growth Rate 1991-2001 (%)	Decadal Growth Rate 2001-2011 (%)
Hindu	81.53	80.5	79.8	20.0	16.8
Muslim	12.61	13.4	14.23	29.3	24.6
Christian	2.32	2.3	2.3	22.1	15.5
Sikh	1.94	1.9	1.72	16.9	8.4
Buddhist	0.77	0.8	0.7	23.2	6.1
Jain	0.4	0.4	0.37	26.0	5.3
Other Religion	0.08	0.6	0.66	11.3	19.5
Not stated	0.44	0.1	0.24	21.5	17.7
TOTAL	100	100	100		

* 1991 Source Census of India 1991, For 2001 Source: Census of India 2001 and 2011 Census Data see www.censusindia.gov.in

The above data in Table 1 shows that the 14% (Census 2011) of the total population belongs to Muslim community. Therefore, the education of this community plays a vital role for the overall development of the country. To educate a community, education must be imparted to everyone irrespective of gender, caste and age. The data in Table 2 shows that the literacy rate of Muslims is significantly lower than any other communities and the gender gap exist in literacy rate of any particular community is a major concern of any developing country. Female Education in every sense is one of the basic factors of growth and development of a country. No country can achieve sustainable economic development without significant investment in female education.(Kakkar. S &Kakkar. G, 2017). In India the gender gap in literacy rate of Muslim (Table 2a & 2b) is noticeable in every strata of the country.

Table 2a: Literacy Rate among Religious Communities: (In % age)

Religious Community	Female	Male	Total
Muslim	51.9	62.41	57.155
Hindus	55.98	70.78	63.38
Jains	84.93	87.86	86.395
Christians	71.97	76.78	74.375

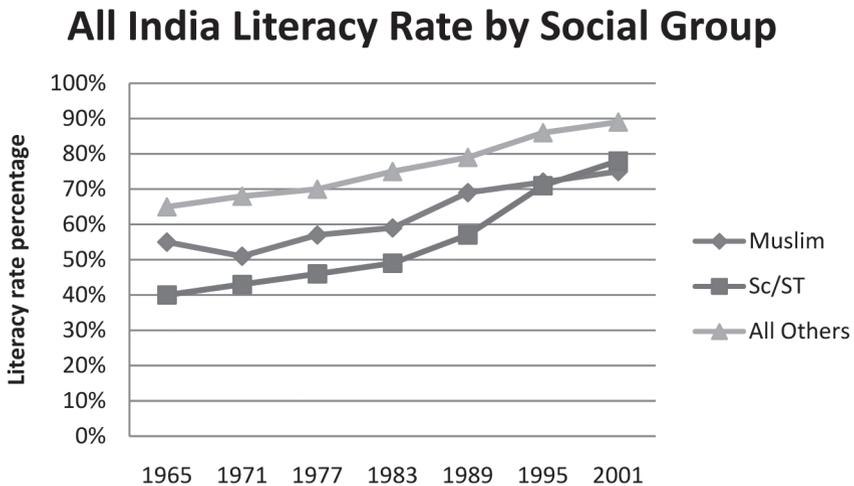
Source: 2011 Census

Table 2b: Literacy Rate of Muslims in Details

Particular	Total	Male	Female
Kolkata	68.06	71.25	63.61
West Bengal	57.18	64.61	49.75
India	51.9	62.41	57.155

Source: 2011 Census

Table 3: Comparison of Literacy Rate by Social Group (In Percentage)



Source: Sachar Report, page 76

In the past few decades, the literacy rate of SC/ST has increased (Sachar Report, Page 76) [Table 3] in comparison to Muslims. But the literacy

rate of Muslims is not significant. This is a matter of concern. To study in detail about factors of the low literacy rate of Muslims, Sachar Committee was formed in 2005. **The Sachar Report** came up with the conclusion that socio-economic factor is one of the reasons behind the low literacy rate of Muslims. Nevertheless, regional differences do also emerge (Mallick A.S, 2018).

If the economy is one of the barriers to achieving education for Muslim girls, it is very important to know the attitude of the parents of Muslim girls belonging to economically privileged families in order to send their daughters to school and their academic degrees. Parental attitudes have a substantial impact on their children's education. Parents play an important role in developing the habits and social character of the child. The relationship between child and parent is the most natural. Therefore, a great responsibility for the daughter's education lies at home rather than at any other agency. In this study, we will focus on the parental attitude of Muslim girls belonging to economically privileged families towards their daughters' education.

In India, a male-dominated society, the education of children often depends on the consent of the father. While the situation is evolving over time, it still prevails in society, and Muslim society is not an exception. . The attitude of parents depends on various factors. Urban parents show more readiness and consciousness towards their girls' education than rural parents (Bedanta. K.K, 2020) When there is a difference in attitude between rural and urban parents, it is necessary to study the attitudes of the privileged Muslim parents towards their daughters' education. Since poverty has been identified as a reason for the low academic achievements of Muslims, then it is important to examine the academic achievements of privileged Muslim girls, as well as their parents' attitudes toward their daughters' education.

Literature Review

- Hossain, M. Khan, M &Khan, A Farooq (2018) worked on "Educational Status of Muslim Women in India: Issues and Challenges". In this article, it is concluded that Muslims are far behind than the other communities. Their vision towards education is still traditional. They don't want to accept modern education due to which they are suffering socially, economically and politically. One of the recommendations of the study to overcome the constraints, faced by Muslim women, to achieve empowerment, a multi dimensional approach is required.
- Shazli, T &Asma, S (2015) in their study "Educational Vision of

Muslims in India: Problems and Concerns” addressed one of the problems of women education in India is negative attitude towards girls’ education among Muslims. Due to hurdles from family they lose the zeal to achieve something through education and thus they themselves do not have academic interest. If at all they are fortunate enough to go to a good school, they are often discouraged to go for higher education, especially overseas.

- Syed, W., A. Ashraf and Ahmad, A. (2012), in their study, “Muslim Women Education and Empowerment in Rural Aligarh (A case study)”. It concludes that education of women has supreme power for the development of individuality. It is also an instrument for strengthening socially useful skills, habits and attitudes of common citizenship. The study reveals that socio economic conditions are the major determinants of women liberation than the religion.
- Hazra, M (2018) in her study, “An Overview of Educational Status of Muslim Women in India” concluded that Indian Muslims women are far behind in achieving the literacy status because of their poor economical conditions and religious superstition. According to her study it is analysed that the education and empowerment of Muslim women are one of the most significant and modern phenomenon of 21st century not only at National level but also International level.
- Biswas, R. (2016), conducted a study which entitled as, “Higher Education for Muslim Women Empowerment in India”, he summed up with the conclusion that the religious leaders should take active role to create proper awareness and convince the Muslim population for spreading female education. The educated and empowered Muslim women should come forward and establish NGOs in order to guide and create awareness among the deprived Muslim women about the educational opportunities.

Objectives of the study

The objective of the study is-

- To assess the attitude of the Muslim parents towards their daughter’s education.
- To identify the differences between the attitudes of Muslim mothers and fathers toward their daughters’ education in economically privileged family.

Delimitation

The study was limited to a particular area, concentrated on the Muslim population. It was difficult to take a large sample from the vast Muslim population in Kolkata. Due to the stringent time frame, the study was limited to a small boundary. The participants were chosen from high fees-structured private English medium schools in the area, Garden Reach. The result of the study is only on the basis of a particular area. The researcher could consider the above-mentioned delimitation and explore other Muslim-populated areas in future research.

Methods

PARTICIPANTS AND DATA COLLECTION: The data was collected by using an attitude scale, developed by the researcher. A total of 50 candidates of the high fees-structured school of Garden Reach were identified. By purposive sampling method, the students were identified from four renowned English medium schools in the area. To measure the attitude of the parents, the parents of same girls were taken into consideration. 50 drop-out girls' parents' were identified to assess the attitude of the parents of the drop-out girls. Due to socio-cultural factors, it was hard to measure the attitude of the parents. Most of the fathers were reluctant to share their views about their daughters' education. Finally, 34 fathers' responses were collected. Many mothers also denied sharing their responses. Though, 43 mothers' responses were successfully recorded to analyse and compare the data of the fathers and mothers to find the attitude differences between fathers and mothers.

TOOLS USED AND MEASURED: The parents attitude towards their daughters' education was measured using a researcher-made self-reporting inventory (see appendix). The parental attitude inventory contains 14 items in three dimensions- attitude of parents towards Women Education and Economy(5 items- 3 positive statement and two negative statement) , Women Empowerment(5 items- 3 Positive and 2 Negative statement) , Gender Discrimination (4 items- 1 Positive and 3 Negative statement). Responses were on a six point scale ranging from 6 (Strongly Agree) to 1 (Strongly Disagree), a mean score from each dimension should give a score towards positive and negative attitude of parents towards daughters education.

The tool was moderately reliable with Cronbach's alpha score of .698. The face and content validity was established by the panel of experts. Construct validity was done through Exploratory Factor Analysis (EFA) using SPSS (v 28), with result having high correlation coefficient.

Result

The result obtained from the study was analyzed in the descriptive analysis method by SPSS (v28) software. The maximum possible score of respondents was 84 and the minimum was 14 as the scale consisted of 14 items including three dimensions (Women's education and Economy, Women's education and Women's Empowerment, and Gender Discrimination in women's education). Total 77 (34 Fathers and 43 Mothers) respondents' scores were recorded. The mean score of the total sample was 55.4026, whereas the mean score of mothers was significantly higher than the total score. On the contrary, the mean score of the fathers was lower than the total mean score. The total mean score shows a slightly positive attitude of the parents towards daughters' education and fathers exhibit a somewhat negative attitude towards their daughters' education (see Table 1 for Range) to compare the attitude. A score below 49 shows a negative attitude towards women's education.

Table 1. Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation
TM	77	49.00	33.00	82.00	53.7922	7.98409
Valid N (listwise)	77					

Table 2. Total Mean Score Report

Gender	Mean	N	Std. Deviation
Female	57.6977	43	3.24063
Male	48.8529	34	9.40384
Total	53.7922	77	7.98409

Table 3. Hypothesis Test Summary

	Null Hypothesis	Test	Sig. ^{a,b}	Decision
1	The distribution of TM is the same across categories of Gender.	Independent-Samples Mann-Whitney U Test	<.001	Reject the null hypothesis.

a. The significance level is .050.

b. Asymptotic significance is displayed.

A non-parametric test is done to find the significant difference between the attitude of fathers and mothers towards their daughters' education. To analyze the data, Mann-Whitney U Test is done by using SPSS (v28). It is concluded that there is a significant difference between the mean scores of fathers and mothers in Table 3. Due to the small sample size, a non-parametric test was chosen to identify the significance difference and the result rejected the hypothesis at the 0.05 significance level.

Conclusion

Parental behaviour and attitude play a major role in a child's academic performance. The educational attainment of girls in economically privileged Muslim families is not hindered by financial constraints. So, it is important to know the attitude of economically privileged Muslim parents toward their daughters' education. The present study contributes to finding the attitude of the parents as well as the attitudinal difference between the parents. The study shows that parents have a somewhat positive attitude towards their daughters' education. However, the fathers' attitude is negative toward their daughters' education. The result indicates that mothers have a positive attitude toward their daughters' education. Due to the differences in the attitudes of the parents, girls belonging to economically privileged families may have low academic degrees. In future research, it may be possible to find the relation between the academic rate of economically privileged Muslim girls and their parents' attitudes. Future research can examine the causes of fathers' negative attitudes toward their daughters' education.

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RELATIONSHIP BETWEEN ENVIRONMENTAL AWARENESS AND BEHAVIOUR TOWARDS 4R'S (REDUCE, REUSE RECYCLE AND REFUSE) IN SUSTAINABILITY ISSUES

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ABSTRACT

Environmental behaviour related to 4Rs namely reduce, reuse, recycle and refuse are the overarching principles of environmental education. Such actions are always preceded by environmental awareness, knowledge, inculcation of appropriate values etc. The educational institutions are considered to be the nursery of pro-environmental behaviour.

Objectives: This study analyzes the relationship between the environmental awareness of the students with their reported environmental behaviour comprising 4 Rs.

Methodology: The responses were collected from undergraduate students (N=400) studying in colleges (affiliated to University of Calcutta). The research instrument developed by the researchers consists of 14 pair of items related to 4R's. It measures the level of environmental awareness and the degree to which one practices the related environmental behaviour. For analyzing the data chi-square with contingency of coefficient test was employed. Within the framework in environmental awareness and behaviour, the items were categorized into four components namely - reducing, reusing, recycling and refuse.

Results: The results showed that in case of reduce and reuse, the score of awareness and behaviour are significantly correlated. Whereas weak relationship exists between these two scores in terms of items related to recycle. The study implies that positive measures are to be taken to improve the refuse behaviour of the students so that sustainability can be ensured.

Key Words: Environmental awareness, environmental behaviour, reducing, reusing, recycling and refuse

INTRODUCTION

The most important objective of environmental education is developing and practicing those behaviours which have minimum adverse impact on environment. As *Stern* (1997) maintained that environmentally significant behaviour should be defined in terms of its impact on the structure and dynamics of eco system or biosphere. The concept of environmental education has evolved during last decades. The period of metamorphosis demonstrates how the emphasis has shifted from acquiring environmental awareness, and knowledge towards environment towards civic action to minimize and arrest degradation of environment caused by un-mindful human action. But environmentally significant behaviour is a complex issue and many factors are attributed to it apart from mere environmental knowledge, awareness and attitude. *Kollmus and Ageyman* (2002) had analysed the different theories of behaviour to explain the attitude behaviour gap in the context of environment. Among the various theoretical frameworks related to awareness attitude behaviour they have emphasized on *Theory of Reasoned Action* and their *Theory of Planned Behavior* (*Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980*). These researchers pointed out that in order to find out the exact relation between attitudes and behaviour the attitude towards a targeted behaviour should be measured. This is what has been done in this present research. *Rajecki* (1982) ascribed four causes of attitude action gap regarding environmental issues. These are-

- a) **Direct vs. indirect experiences**-Indirect experience of an environmental issue like reading about pollution of a river from a book will result in weak environmental action than direct observation of the ways a river is being polluted.
- b) **Normative influence**- Social norms, cultural patterns and the life styles of the family members exert strong influence on environmental behaviour.
- c) **Temporal discrepancy**- It implies that with passage of time peoples 'attitude and subsequent behaviours are likely to change.
- d) **Attitude behaviour measure**- When attitude is broad in scope then it fails to relate with a particular behaviour. For example an attitudinal question likes 'do you care about environment?' 'May not correlate strongly with 'do you do composting?' Thus result may show discrepancies (*Newhouse, 1991*).

There are varied types of environmentally significant behaviours. Among them sustainable practices have been associated with environmental actions namely Reduce, Reuse and Recycle. These are very important strategies to minimize resource and energy uses and to reduce waste production. To tackle the problem of sustainability, to awaken consciousness among students and implementing it into action - understanding the concept of 3 R's is an imperative need. This study primarily explores the interrelationship between awareness and action practiced by the school students. 3R's are the essential elements in achieving sustainability (*World Class Communications Technologies, LLC* 2011). In terms of hierarchy of 3R's, the first step is reduction. Reduction means to use less of something. It actually motivates the buyers to buy only those items which are of utmost necessity. The second step is reuse, this signifies to use something again without any kind of modification in it. For example, instead of throwing it away as waste, try reusing it different situations. Lastly the process of recycle includes using old items to make the new ones. Today proper implementation of 3R's has created societal, environmental and economic benefit (*World Class Communications Technologies, LLC, 2011*). Following the strategy of 3R's will ensure healthier lifestyles among individuals and a more responsible behaviour towards environment.

Several studies have been conducted on 3R's and sustainability from various perspectives in different countries. Studies related to environmental issues *Shahnawaj* (1990), *Hausebeck, K.W., Milbrath, L.W., & Enright, S.M.*(1992), *Bradley, J.C., Walichek, T.M. & Zajichek, J.M.*(1999), *Kuhlemeier, H., Bergh, H.V.D., & Lagerweij, N.* (1999), *Abdul Wahab S.A.*(2008) may be cited in this respect. However researches on awareness-action as one of the dimensions reflecting 3R's related to sustainability are scarce. Going green or using eco-friendly products is an essential for attaining sustainability. In this respect, *Saxena and Srivastava* (2012) reported that respondents had only a limited understanding of environmental issues which positively impacted their eco-friendly behaviour. *Mishra* (2012), *Sebastian and Nima*, (2005) study showed that the science students have more awareness of biodiversity and its conservation than other students. Whereas no significant differences on environmental awareness among students of public and govt. schools was found (*Mishra, 2012*). Researches on 3R's in the Indian perspective especially in school education context are not adequate. Hence this work is to be accepted as in right direction especially to understand the importance of 3R's vis-à-vis environmental awareness and action.

OBJECTIVES

This paper observes the perceptions of the students regarding their knowledge (awareness) of 4R's. The present study investigates the relationship between students' awareness and behaviour regarding 4R's (reducing, reusing, recycling and refuse). This study is unique as it explores the extent of interrelationship between the two variables and their likely consequences on environment.

METHODOLOGY

Sample

The responses were collected from undergraduate students (N=400) studying in colleges (affiliated to University of Calcutta). In the present study random sampling was done. In random sampling the researcher selects sample units from the population following principle of random selection. The present sample comprises 400 (N) students comprising both girls and boys.

Instrument

The research instrument was based on Environmental attitude and action scale developed by *Kaspolu and Turan* (2008). The items were modified to relate to Bengali culture and practices. It consists of 14 pair of items representing 4R's to measure the level of environmental awareness and the degree to which one practices that environmental behaviour. Actually each item is essentially a pair of awareness and behaviour in the context of a particular environmental issue for example saving water. This item has two parts as indicated below-

- *Awareness: Broken and dripping taps should be repaired*
- *Behaviour: I repair or have someone to repair broken and dripping taps*

All the items are framed in the same manner. Each item has three responses options- always, sometimes and never for behaviour related part and completely agree, neither agree nor disagree and not agree for awareness part.

RESULTS AND DISCUSSION

The results show 14 dimensions of awareness- behaviour item in relation to undergraduate students. It illustrates students' ideas about environmental services and their sensitivity or responsibilities towards environmentalism.

Table No. 1- Showing the Awareness-Behaviour Item Related to Paper Saving, Contingency Coefficient: Chi-square=7.26, df=4, P=0.12278, Cramer's V=0.0953

Action	Awareness	Agree	Neither Agree nor Disagree	Disagree	Total
Always		38	55	42	135
Sometimes		51	34	33	118
Never		48	52	47	147
Total		137	141	122	400

Findings from table no. -1 indicated that there is no significant relationship between students' awareness and behaviour. It signifies that students failed to save papers despite being aware of necessity of reducing use of papers which are mostly manufactured by felling of trees.

Table No. 2- Showing the Awareness- Behaviour Item Related to Saving Energy, Contingency Coefficient: Chi-Square=110.08, df=4, P=0.0001, Cramer's V=0.3709

Action	Awareness	Agree	Neither Agree nor Disagree	Disagree	Total
Always		136	14	5	155
Sometimes		153	6	23	182
Never		18	12	33	63
Total		307	32	61	400

Table no-2 scores revealed that students' relationship between awareness and behaviour towards saving energy was highly correlated. The results demonstrated that students' perception for saving energy was not only high but they also implemented it in practice hence they were aware of the utility of saving fossil fuels by reducing its use.

Table No. 3- Showing the Awareness- Behaviour Item Related to Use Rechargeable Batteries, Contingency Coefficient: Chi-square=3.56, df=4, P=0.4688, Cramer's V=0.0667

Action	Awareness	Agree	Neither Agree nor Disagree	Disagree	Total
Always		37	9	13	59
Sometimes		60	16	37	113
Never		145	27	56	228
Total		242	52	106	400

From *table no. - 3*, it was observed that the students' awareness and behaviour relation to the usage of rechargeable batteries was not significant. This implies that students' sensitivity towards environment may not be low but practicing such behavior is not always possible due to various constraints in this case the high price of the rechargeable batteries.

Table No. 4- Showing the Awareness- Behaviour Item Related to Buying Products Made from Recycled Materials, Contingency Coefficient: Chi-square=6.91, df=4, P=0.1407, Cramer's V=0.0929

Awareness Action	Agree	Neither Agree nor Disagree	Disagree	Total
Always	35	12	61	61
Sometimes	63	29	17	109
Never	137	37	56	230
Total	235	78	87	400

Data from *table no.- 4*, states that students' theoretical knowledge about environment does not necessarily result in recycling behaviour patterns. Knowledge as well as attitudes is not enough to behave responsibly (*Kasapoglu and Turan, 2008*). Thus the relationship is weak and there is lack of sensitivity towards environment. However, it is to be admitted that the students can buy recycled materials only when they are easily available, which is not always the case in Indian market.

Table No. 5- Showing the Awareness- Behaviour Item Related to Saving Water, Contingency Coefficient: Chi-square=85.96, df=4, P=0.0001, Cramer's V=0.3278

Awareness Action	Agree	Neither Agree nor Disagree	Disagree	Total
Always	161	11	6	178
Sometimes	153	13	5	171
Never	22	27	2	51
Total	336	51	13	400

According to the results of *table no-5* regarding saving water, it was reported that the relationship between students' awareness and action towards conservation of water was significant. The value of 'p' signifies the relation between the two variables is positive and high. Thus if awareness towards saving water is high it will lead to rise in practicing environmental friendly behaviours.

Table No. 6- Showing the Awareness- Behaviour Item Related to Buy Second-Hand Books, Contingency Coefficient: Chi-Square=17.27, df=4, P=0.0017, Cramer's V=0.1469

Action	Awareness	Agree	Neither Agree nor Disagree	Disagree	Total
Always		215	25	29	269
Sometimes		36	6	13	55
Never		45	14	17	76
Total		296	45	59	400

Table no-6, showed that students' awareness-behaviour relationship towards reusing old or second-hand book was significant at 0.01 level.

Table No. 7- Showing the Awareness- Behaviour Item Related to Donate Old Clothes and Books, Contingency Coefficient: Chi-square=8.8, df=4, P=0.0663, Cramer's V=0.1049

Action	Awareness	Agree	Neither Agree nor Disagree	Disagree	Total
Always		46	19	14	79
Sometimes		59	11	17	87
Never		171	29	34	234
Total		276	59	65	400

From the table no. 7 it is evident that the students are aware about the importance of reuse of old clothes and books but donating these materials is something which they fail to practice. Hence there is a clear gap between awareness and behaviour in respect of reuse of materials.

Table No. 8 - Showing the Awareness- Behaviour Item Related to Reuse Empty Glass and Jars, Contingency Coefficient: Chi-square=22.44, df=4, P=0.0002, Cramer's V=0.1675

Action	Awareness	Agree	Neither Agree nor Disagree	Disagree	Total
Always		172	22	42	236
Sometimes		58	14	13	85
Never		36	19	24	79
Total		266	55	79	400

Observation of *table no.-8*, reveals that the 'p' value is 0.0002 which is significant at 0.01 level. Table 9, however shows a different result pertaining to reuse of different types of materials namely glasses and bottles. The reuse of bottles is a very common practice which the students have observed and may be encouraged by their family members to do it.

Table No. 9- Showing the Awareness- Behaviour Item Related to Sorting Disposals, Contingency Coefficient: Chi-square=7.75, df=4, P=0.1012, Cramer's V=0.0984

Action	Awareness	Agree	Neither Agree nor Disagree	Disagree	Total
Always		56	8	24	88
Sometimes		39	7	23	69
Never		177	14	52	243
Total		272	29	99	400

Results from *table no.-9*, illustrated that there is no significant relationship between students' awareness and behaviour with regard to sorting waste disposal. As such practices is very rarely been carried out in India, therefore students of twelfth grade often lack the understanding of such concepts.

Table No. 10- Showing the Awareness- Behaviour Item Related to Single-Use Plastics, Contingency Coefficient: Chi-square=3.58, df=4, P=0.4658, Cramer's V=0.0669

Action	Awareness	Agree	Neither Agree nor Disagree	Disagree	Total
Always		26	8	11	45
Sometimes		75	17	26	118
Never		153	23	61	237
Total		254	48	98	400

From the table no. 10, it is evident that the students are aware about the importance of refuse of single-use plastics but something which they fail to practice. Hence there is a clear gap between awareness and behaviour in respect of reuse of materials.

Table No. 11- Showing the Awareness- Behaviour Item Related to Refuse Unnecessary Product, Contingency Coefficient: Chi-square=17.56, df=4, P=0.0015, Cramer's V=0.1482

Action	Awareness	Agree	Neither Agree nor Disagree	Disagree	Total
Always		88	45	38	171
Sometimes		74	24	27	125
Never		36	43	25	104
Total		198	112	90	400

From table no11, it can be concluded that students' awareness-behaviour link towards refuse unnecessary product was significant. Unnecessary product increases the amount of waste and therefore mostly non-biodegradable materials must be avoided.

Table No. 12 - Showing the Awareness- Behaviour Item Related to Use of Harmful, Wasteful and Non-Recyclable Products, Contingency Coefficient: Chi-square=19.55, df=4, P=0.0006, Cramer's V=0.1563

Action	Awareness	Agree	Neither Agree nor Disagree	Disagree	Total
Always		143	36	46	229
Sometimes		54	35	12	101
Never		33	22	15	70
Total		234	93	73	400

Observation of table no.12 reveals that the 'p' value is 0.0001 which is significant at 0.01 level.

Table No. 13- Showing the Awareness- Behaviour Item Related to Smarter Purchasing Decisions, Contingency Coefficient: Chi-square=5.98, df=4, P=0.2006, Cramer's V=0.0865

Action	Awareness	Agree	Neither Agree nor Disagree	Disagree	Total
Always		57	14	37	108
Sometimes		77	8	31	116
Never		113	18	45	176
Total		247	40	113	400

Results from *table no.13* illustrated that there is no significant relationship between students' awareness and behavior with regard to smarter purchasing decisions. As such practices is very rarely been carried out in India, therefore students of twelfth grade often lack the understanding of such concepts.

Table No. 14- Showing the Awareness- Behaviour Item Related to Excessive Packaging, Contingency Coefficient: Chi-square=6.22, df=4, P=0.1833, Cramer's V=0.0882

Action	Awareness	Agree	Neither Agree nor Disagree	Disagree	Total
Always		48	12	17	77
Sometimes		81	34	23	138
Never		98	55	32	185
Total		227	101	72	400

From *table no.-14*, it can be concluded that students' awareness-behaviour link towards excessive packaging was low and not significant. Unnecessary packaging increases the amount of waste and therefore decorative packages mostly of plastics and non bio degradable materials must be avoided. However, they are attractive and act as advertisement and the consumers are ready to pay higher prices for that. The school students included in the sample group may be aware of ill effects of excessive packaging but their behavior in this respect is not eco-friendly.

CONCLUSION

From the findings, it can be concluded that the students' relationship between awareness-behaviour regarding 4R's for sustainability were moderately correlated. Furthermore the results revealed that the scores of awareness and behaviour were significantly correlated in terms of reduce and reuse items. Awareness often resulted in preserving and conserving the resources. In this respect, students who were motivated to save water, energy, reusing empty bottles, etc. carry out a sustainable behaviour pattern. Results of some previous studies (*Kaiser et al, 1999*), postulated that there is a positive and significant relationship between environmental knowledge and energy consumption behavior. In contrast, the scores of awareness-action relation regarding recycling items reflected low and weak relationship. It is evident from the study that students are more concerned about environmental problems which they face quite frequently like saving fuel, reusing old books, bottles etc but somehow they fail to transform in to daily practice. The study implies that the current curriculum should be revised with

more content from environment including recycling practices as one of the vital approaches to sustainable living. At the same times it must be admitted that traditional curricular transaction fail to motivate students to participate actively in matters pertaining to environmental issues. Environmental education should permeate the whole school life. *Conde and Sanchez (2010)* suggested that environmental education should be integrated with school life and the teachers and school authority should practice what they preach. They emphasized that every action in school must satisfy environmental criteria and there should be environmental monitoring by the eco vigilante.

IMPLICATION

The present study highlights the fact that teaching environmental education by traditional approach does not help to attain the objectives of the subject. The environmental awareness may increase but the students fail to translate the knowledge into environmentally significant behaviour. The school authority must introduce drastic changes within the school campus so that the students have enabling situation to practice 4Rs related to environmental action. The present study highlights the importance of introducing Environmental Education as a separate discipline in the school curriculum. Apart from imparting theoretical knowledge some practical oriented concepts like 4R's should be introduced. Thus teaching environmental education should be based on a coherent approach. *Garcia (2000)* stated that greening of curriculum can be ensured when environmental consideration is taken into account as an educational principle in decision making process. The contexts of green curriculum are preparation and use of appropriate teaching materials, motivating the students, improving their attitude and habits and adding more environment related contents in the curriculum (*Conde and Sanchez, 2010*). In other words the school ethos should reflect environmentalism whereby students will acquire courage, commitment and motivation to take active part in solving environment related issues.

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STRESS AMONG STUDENT-TEACHERS IN B.ED. PROGRAMME: A SURVEY OF DETERMINANTS

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Abstract:

In India, the two years Bachelor in Education (B.Ed) programme has been proposed to be compulsory, in place of one year programme) in Gazette notification (NCTE, 2014). The present study focuses on the determinants to elucidate if there is any stress among student-teachers in pursuing a Two-years Bachelor in Education (B.Ed) programme with the help of survey and statistical procedures. Thus, objectives of this study are to investigate: the stress in relation to Age, Gender, Stream of study, and geographic location of the student residency (rural; urban; semi-urban), language of instruction during school education (i.e., English Medium or Regional Language). Sample: Sample size of the study was restricted to 100(n=100). The participants were the students-teachers pursuing B.Ed. course at the University of Calcutta, India. Tools: A 14-item Perceived Stress Scale (PSS), constructed by Cohen et al (1983) was used to collect the data from the student -teachers. Research Design: Survey descriptive type of research approach was implied to the study. Data analysis: Suitable inferential and differential statistics were used to analyse data. Result and Findings: The study result portrayed females showed lesser stress than their male counterparts. The result showed that students -teachers hailing from science background had lesser amount of stress than those hailing from humanities background. The participants from commerce background were found to report the highest amount of stress. To sum it up, the study showed varied results that helped to show the interplay of various stressors that creates and generates discomfort among the student-teachers. Educational implication: The study contributes to understanding that the management of the educational institutions requires to be more

lenient and systematic in formatting the syllabus and curriculum and coping tricks regarding the probable stressors among student-teachers.

Keywords: Student –teachers; Stress; B.Ed programmes.

1.0 INTRODUCTION

Stress was very well defined by Altmaier (1983) as “The fuel the body uses to meet the challenges of our fast-paced modern life; for others, it is the aversive by-product of such a life”. With every development in human society stress has taken a prime position in everyone’s life. Various studies on stress have not only shown how one’s health deteriorates but social life gets thwarted. When talking in the context of daily life and its relation to stressful events one thing is evident that its presence is pronounced in the life of everyone, starting from the kids at schools to the adults. The worst hit victims are the students. Academic workloads have taken a toll not only on psychosomatic well-being but also on their psycho-social aspect. Depression, anxiety and stress were found to play pivotal roles in students’ life (Fine & Carlson, 1994; Stark & Brookman 1994), stress (Dusselier, Dunn, Wang, Shelly, & Whalen, 2005), and anxiety (Anson, Bernstein, & Hobfoll, 1984). Several studies have addressed the issue of stress and its inverse relation to academic achievement. The present study focuses primarily on the student-teachers who face several difficulties while pursuing the course of their teacher training. Maintaining a perfect balance between home and work becomes very difficult where both the zones are important.

2.0 REVIEW OF RELATED LITERATURE

Being engaged in professional courses tends to suffer from tremendous anxiety especially because bagging a job becomes the ultimate aim. In learning about the various stress factors among student –teachers In another case involving students’ academic stress, it was found that depression was the obvious by-product. Speaking about professional courses, Zaid, Chan, and Ho (2007) found that emotional disorder was very common among the trainees. The trainees were medical students who, being under severe academic pressure showed deformities of character and social mixings. In India, ‘teaching’ as a profession has been gaining ground too rapidly. Souroche (2015) pointed out factors that contribute to stress among the student-teachers in Pondicherry, India. He studied certain demographic factors like the family pattern (nuclear or joint); locality (rural or urban); birth order; and marital status of the student-teachers in order to notify the probable reasons for causation of stress.

The B.Ed. (Bachelors of Education) degree has not only become a degree to vie for, but it rather helps one to secure a prestigious place in society. Ever since it has become mandatory for getting a job as a teacher in India, it is a much sought after course that millions of students target for. There are private and public institutions that provide the degree and the course fee sometimes range from thousands to lakhs. Thus, student-teachers tend to get very serious about their performances on which their chance of getting a better placement in schools and colleges stands.

Other concomitant factors like huge study courses; short span of time to complete a huge syllabus; and the practical works along with extensive theoretical assignments creates stress among the students – teachers. Perceiving the situations that get created in the academic set up and environment often produces tension and panic among the students. In this regard, ‘stress’ has been very succinctly defined as a mechanism of any internal or external demand made upon the body (Dusselier *et al.*, 2005). Stress creates physical as well as psychological discomfort. Speaking in reference to students’ stress Dusselier *et al.*, 2005 also commented that stress is generally created when interaction of an individual takes place with his/her environment and that too when the latter is too demanding. The stress created due to various demands hamper the individual’s well-being too. A very good observation stated that a person’s response to threat can be either seen as a threat or a challenge (Lazarus & Folkman, 1984). A research stated that there are huge differences between academic and non – academic settings in respect of their workloads and activities and hence the stress created in both the settings cannot be measured in the same balance (Chang & Lu, 2007). The B.Ed. course pursued by the teacher –students is generally under tremendous pressure clearly because the B.ED course is a professional course and its successful completion demands bagging a job. Thus, performing well in each semester has almost become a personal thumb-rule for the student-teachers. The ever growing demand for such professional courses has made the completion very tough. Psychosomatic disturbances like depression, anxiety, spinal problems, headaches and other ailments are unavoidable concomitants and are obvious fall outs of stress. Another very startling observation showed that these students –teachers often quit their training program in the mid-way due to work overload and stress (Chambers and Roper, 2000). Global Burden of Disease study (Murray & Lopez, 1997) reported that by the year 2020 depression would rank second to heart disease and allied factors like substance

use disorder and death and suicide rates will shoot up. In Finland, it was studied that the teaching profession becomes so strenuous, that teachers start suffering from various health (physiological and psychological) issues. It becomes important for the organisation to provide perennial support to the teachers and make them feel engaged (Hakanen, Bakker, & Schaufeldi, 2006). The student-teachers often get intimidated, apprehending about the classroom –situation they would face in their future. Students' discipline and the art to handle classes are also stress creators (Bezzina, 2006). In a German study on student-teachers, the investigation result projected that mental health were strong and many reported discomfort about their working conditions and work commitment related matters (Zimmermann, Wangler, Unterbrink, Pfeifer, Wirsching, & Bauer, 2008). Thus, the study objectives are .

1. To find out the difference in experience of stress in relation to gender.
2. To find out the difference in experience of stress in relation to age.
3. To find out the effects of stress in relation to the stream of study.
4. To find out the effects of stress in relation to geo-political areas where students are lying.
5. To find out the difference of stress in relation to the medium of instruction of the student-teachers.

Keeping in mind the objectives, the null hypotheses of the study was formulated as:

Ho 1. There is no significant difference in experience of stress in relation to age.

Ho 2. There is no significant difference in experience of stress in relation to gender.

Ho 3. There is no significant effect of stress in relation to the stream of study.

Ho 4. There is no significant effect of stress in relation to the geo-political area where student-teachers hail from.

Ho 5. There is no significant difference of stress experienced by the student-teachers hailing from English and non-English medium backgrounds.

3.0 METHODOLOGY

Research design

Descriptive survey research type design was employed to carry out the study. Both qualitative and quantitative approaches were used to meet the objectives set for study.

Participants of the study

Student-teachers pursuing the Bachelors of Education (B.Ed.) degree from the University of Calcutta were randomly chosen as participants for the study. Here, the sample size was hundred($n=100$)

Data collection and Instrument

Data was collected with the help of a questionnaire. This tool is a 14-item Perceived Stress Scale (PSS). This scale was designed by Cohen et al, 1983 and reused by Alemu, Teshome, Kebede and Regassa in 2014 to study stress among the student- teachers in Ethiopia. The tool was designed so that the participants had to answer on a 5point answer scale ranging from 0: "never" to 4: "very often." In total, the questionnaire contained 14 items, out of which 7 statements were framed as positive statements and the rest were framed in negative tone. The maximum score one could procure is $56(14 \times 4=56)$ and the least would be $0(14 \times 0=0)$.

The internal reliability score of the tool was found to be 0.71

Data analysis

For analysing the data, statistical procedures were used. ANOVA, Mean, *t*-test, were implemented to analyse the data. Statistical Package for the Social Sciences (SPSS) version 17 was used to compute the data.

4.0 RESULTS & DISCUSSIONS:

This section of the study deals with the analysis of data collected over 100 B.Ed. Student-teachers. The data has been subjected to statistical analysis and discussed in different sub-headings related to the objectives of the study. The statistics give a comprehensive picture of 'Stress faced by the student-teachers in the B.Ed. course' in relation to demographic different determinants.

4.1 To find out the difference in experience of stress in relation to age,

The data is subjected to Mean, S.D., and *t*-value is calculated as shown in Table No. 4.1.1.

The Mean of stress among student-teachers shows that, the Mean value

34.09 is obtained below 30 years and Mean value 34.43 obtained in above 30 years student-teachers. The calculated t-value is -0.193 and df is 98. From the 0.05 level of significance calculated 'p' - value is 0.846; found that this difference has considered statistically *not* significant at 'p' > 0.05. The result reflected that, there is no significant difference in experience of stress among student-teachers in relation to age. Therefore, the null hypothesis H₀1, There is no significant difference in experience of stress in relation to age, *stands accepted*.

Table No. 4.1.1: Experience of stress in relation to age.

Age (years)	N	Mean	SD	t-value	df	'p' value
Below 30	52	34.09	8.05	-0.193	98	0.846
Above 30	48	34.43	9.53			

Significant at 0.05 level.

4.2. To find out the difference in experience of stress in relation to gender the data is subjected to Mean, SD. and t-test. The result of the t-test is given in Table No. 4.2.1.

Using t-test, it has been found (Table No. 4.2.1) that there is a not significant difference of stress among student-teachers in relation to gender. The male student-teachers show the highest mean (38.96) and female show lowest mean (29.56) on experience of stress. Therefore, the null hypothesis H₀2, there is no significant difference in experience of stress in relation to gender, *stands accepted*.

Table No. 4.2.1: Experience of stress in relation to gender.

Age (years)	N	Mean	SD	t-value	df	'p' value
Below 30	50	38.96	7.92	6.344	98	6.924
Above 30	50	29.56	6.85			

Level of Significance: 0.05

4.3. To find out the effects of stress in relation to stream of study, the data is subjected to Mean, S.D., and f-value is calculated as shown in Table No. 4.3.1.

Using F-test, it has been found (Table no. 4.3.1) that there is an extremely statistically significant effect of stress in relation to stream of study. The student-teachers with humanities stream show lowest mean (32.27) and commerce stream show highest mean (38.09) on Experience of stress. Therefore, the null hypothesis H₀3, that there is

no significant effect of stress in relation to stream of study, stands **not accepted**.

To find out the further difference, the data has been subject to Student-Newman significant difference Post-hoc test in Table 4.3.2. The Post- hoc test explains that mean stress for student-teachers with Commerce stream is significantly different from mean received by student-teachers with science, and mean stress for student-teachers with Commerce stream is significantly different from mean received by student-teachers with Humanities also. However, there is no mean difference reflected between student-teachers with streams of Science and Humanities.

Table No. 4.3.1: Experience of stress in relation to stream of study.

Stream of Study	N	Mean	SD	f-value	p' value
Science	32	32.84	10.19	2.099*	0.016
Humanities	37	32.27	7.04		
Commerce	31	38.09	7.98		

*Significant at 0.05 level

Table No. 4.3.2: Student -Newman Post-hoc test.

Stream of Studies	N	Subset for alpha = 0.05	
		1	2
Science	32	32.84	
Commerce	31	38.09	38.09
Humanities	37		32.27
p		0.030	0.020

4.4. To find out the effects of stress in relation to the geo-political area where student-teachers are hailing from, the data calculated is subjected to Mean, S.D., and t-test. The results are given in Table No. 4.4.1. The Mean of stress among student teachers show that the highest Mean value (34.66) was obtained on city student-teachers and comparatively lowest Mean value (33.9) obtained in outskirts student-teachers. The calculated t-score is 0.428 and df is 98. From the 0.05 level of significance calculated 'p' - value is 0.669; found that this difference (result) was considered statistically not significant at 'p' > 0.05. The result reflected that, there is no significant effect of stress in relation to the geo-political area where student-teachers hail from. Therefore, the null hypothesis H₀₄, there is no significant effect of stress in relation to geo-political area where student-teachers hail from, *stands accepted*

Table No. 4.4.1: Experience of stress in relation to student teachers' geo-political area.

Location	N	Mean	SD	t-value	df	p' value
City	47	34.66	8.29	0.428	98	0.669
Outskirt	53	33.9	9.21			

Significant at 0.05 level

4.5. To find out the difference of stress in relation to the medium of instruction of the student-teachers, the data collected is subjected to t-test as shown in Table 4.5.1. Using t-test, it has been found (Table no. 4.5.1) that there is no significant effect of stress among student-teachers in relation to the medium of instruction. The student-teachers with English medium show lowest mean (33.14) and other than English medium show highest mean (35.06) on experience of stress. Therefore, the null hypothesis H_05 , there is no significant difference of stress experienced by the student-teachers hailing from English and non-English medium background, stands *accepted*.

Table No. 4.5.1: Difference of stress in relation to medium of instruction.

Medium	N	Mean	SD	t-value	df	p' value
English	42	33.14	6.87	-1.086	98	0.279
Non-English	58	35.06	9.88			

Significant at 0.05 levels.

5.0 Discussions

The study result has invariably surfaced the factors that cause stress among the student-teachers. As in the case of geo-political location, the rural participants were found to experience less stress than the urban counterparts. This ground again involves further analysis and leaves much room for future research. Keeping in mind the various complications faced in urban life, for example, a higher cost of living; transportation and commodities –financial strain acts as a stressor. The urban students are exposed to various social gatherings and situations which demand ones' necessity to have a designation. Thus, students-teachers falling under this kind of social pressure are always under constant notion of finishing the course and securing a job. While doing the study survey, many student-teachers apprehended about the student misbehaviour which they might have to face. This was also studied by (Bezzina, 2006). It is to be seen rather introspective into the matters as to why the disparities between stress

level lie for different streams of students; what are the major elements that irks the male students; why are the non-English medium school students succumb to stress more than those whose schooling were in English medium. The study helped to showcase the present status of stress level among the student-teachers, but reasoning out the results could be done more illustriously in future researches. Thus, the study also leaves enough room for further research.

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STUDENTS' ATTITUDE TOWARDS ONLINE LEARNING AT DIFFERENT LEVELS: A REVIEW PAPER

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Abstract:

This paper is related to the Online Learning system in Education which is a method whereby students learn in a fully virtual environment. In the Covid-19 Pandemic situation, online learning plays a major role in educational fields and it shifts the paradigm from traditional learning to Online Learning. The study aims to analyze and review the students' attitude towards Online Learning at different levels. The researchers have collected all the secondary data from different research papers. Then researchers analyzed and interpreted all the collected data. After reviewing all previous studies, the researchers have

concluded that the attitude towards Online Learning of Higher Secondary Level, UG Level, PG Level and Professional Courses is favorable.

Key words: Online Learning, Attitude, Traditional Learning.

1. INTRODUCTION:

In the end of third week of March, 2020 Central & West Bengal Government & Others across the country began shutting down schools and colleges temporarily as a measure to contain the spread of the novel corona virus. It's close to a month and there is no certainty when they will reopen. This is a crucial time for the Educational Sectors – Nursery School Admissions, Board Examinations, Entrance Tests (like NEET, NET, UG and PG Admission Tests) of various Departments, Colleges, Universities and Competitive Examinations, are all held during this period. The structure of teaching and learning was the first to be affected by these closures. The pandemic has significantly disrupted the higher education sector as well, which is a critical determinant of a country's economic future. Rather to say, the pandemic has transformed the centuries sold - chalk-talk teaching model to technology. Immediate measures are essential to ensure continuity of learning in Government Schools and Universities. Open-source digital learning solutions and Learning Management Softwares should be adopted so the teachers can conduct teaching online.

Today, digital learning has emerged as a necessary resource for students all over the world. For many educational institutes, this is an entirely new way of education that they have had to adopt. Online learning is now applicable not just to learn academics but it also extends to learning extracurricular activities for students as well. In recent months, the demand for online learning has risen significantly, and it will continue doing so in the future. **Online Learning** is a method of education whereby students learn in a fully virtual environment. First introduced in the 1990s with the creation of the internet and utilized in distance learning. Online learning (also called e-learning) is most prevalent in higher education, enabling students from different geographical areas to engage with an academic institution and other students join online and learn flexibly, at their own pace, while working towards a degree or certificate.

The usage of Internet and computer technologies for teaching-learning purposes has increased vividly (Cole et al., 2017; Halverson & Smith, 2010; Kontos, 2015; Sela, 2005; Tynan, Ryan, & Lamont-Mills, 2015). This contributed rise to the opportunity of developing online courses (Anderson & Dron, 2011). Online courses allow a huge audience

of learners to receive high quality education on a wide variety of subjects and modes. The main characteristics of online learning are use of technological media, physical separation between teacher and learner, and two-way communication (Fraj-Hussein, Barak, & Dori, 2012; Sela, 2005). In addition, online teaching and learning offers a differential approach to categories of learners who have definite training and individual needs (Tudor, Stan, & Paisi-Lazarescu, 2015). The online learning atmosphere allows individual and collaborative work supported by a variety of tools and learning methods. Dropping the student's dependence on the teacher as a source of knowledge highlights the central contribution of online tools to facilitating social interaction in a learning environment (Beldarian, 2006; Kumi-Yeboah, Dogbey, & Yuan, 2017; Simpson, 2006).

As with most teaching methods, online learning also has its own set of pros and cons. Decoding and understanding these pros and cons will help institutes in creating strategies for more efficiently delivering the lessons, ensuring an uninterrupted learning journey for students.

Online learning has been viewed as the ability to focus on the requirements of individual learners. For instance, focusing on the needs of individual learners can deliver knowledge in digital age effectively as compared to educational institutions' needs or instructors (Huang and Chiu, 2015). Several studies have shown the positive effects of online learning from the insights of learners or students (Gautam and Tiwari, 2016; Martínez-Caro, Cegarra-Navarro and Cepeda-Carrión, 2015; Chang, 2016). For instance; online learning allows to observe much flexible learning ways to go for classes with much reduced need for travel. Learners are allowed to get deeper insights of the information through activities that are carried-out in the classroom through interactive video facility (Gautam and Tiwari, 2016; Martínez-Caro, Cegarra-Navarro and Cepeda-Carrión, 2015). This allows learners to respond promptly toward the activities. Despite of the significant advantages of online learning, students encounter several challenges which ultimately lead towards either limited or negative outcomes. Such as; Arkorful and Abaidoo (2015) in their study outlined that online learning, in certain cases is held through remoteness and contemplation resulting in lack of student's interaction. In comparison with the contemporary mode of education, online learning might result in being less effective due to the absence of face-to-face encounter with instructions or

teachers. Since in online learning method, assessments are generally held online which reduces the possibility of restricting illegitimate activities such as; cheating, plagiarism etc (Arkorful and Abaidoo, 2015).

EdTech Start-ups are tapping all the right opportunities by providing free online courses to students amidst this crisis. UNESCO also suggested that these EdTech Start-ups and learning apps can help students during such hard times. Digital payment companies, such as Paytm, Mobiwik, Tez, PhonePe, and so on, grew rapidly during and after demonetization. Now, in this pandemic outbreak, EdTech start-ups are hoping for improved performance. EdTech start-ups are trying hard to make most out of this situation by providing several free courses and e-resources to the students. Although the availability of electricity and a stable internet connection is still a bigger challenge in their way as a lot of Indian cities especially small cities still face frequent electricity shortages (Dhawan, S, 2020). Higher education institutes offering online degrees can source up to 40 per cent of their course content externally and develop the remaining 60 per cent in-house with the assistance of ed-tech companies, according to the guidelines drawn up by the **University Grants Commission** (The Indian Express).

2. OBJECTIVES:

- To analyze and review the students' attitude towards Online learning at School Level.
- To analyze and review the students' attitude towards Online learning at Under Graduate Level.
- To analyze and review the students' attitude towards Online learning at Post Graduate Level.
- To analyze and review the students' attitude towards Online learning at Professional Level.

3. METHODOLOGY:

As it is a review paper, so there is no chance of primary data collection by the researchers. The researchers have collected all the secondary data from different research papers. Then researchers analyzed and interpretation of the collected data.

4. ANALYSIS AND INTERPRETATION:

Researchers have analyzed the previous studies according to the objectives-

Attitude towards Online Teaching at School Level.

School Students' attitude towards online learning in respect to **Gender**: the studies found that there are the significant differences between male and female (Das, 2021 and Suraparamath 2021), whereas the other studies found that there are not significant differences between male and female (Mahato, Jaiswal, Sen, 2021, Singh, 2021, Balaramulu, Maheshwari, 2015).

School Students' attitude towards online learning in respect to **Locality**: the studies concluded that there are the significant differences between Rural and Urban Students' (Surapuramath, 2021, Mondal, Das 2021, Balaramulu, Maheshwari 2015) and the

other studies found that there are no significant differences between Urban and rural students (Mahato, Jaiswal, Sen, 2021, Jayaraman, Jayalakshmy Suresh, 2022).

School Students' attitude towards online learning in respect to **Type of Schools**: the study revealed that there is the significant difference between Government and Private Schools students' (Suraparamath, 2021), whereas other studies found that there is no significant difference between Government and Private Schools Students towards online learning (Jayaraman, Jayalakshmy Suresh, 2022)

School Students' attitude towards online learning in respect to **Stream of Study**: the study concluded that there is the significant difference between Science and Arts students (Mondal, Das, 2021) and the other study found that there is no significant difference for the same. (Jayaraman, Jayalakshmy Suresh, 2022)

Attitude towards Online Learning of Higher Secondary Students in Education is varied among the participants. Boys had more positive attitude towards online learning than girls (Das, 2021, Singh 2021) whereas the other study found that Tribal student are not interested to attend the online classes (Anish, Mathew, Adithya, 2021). Another study found that female had favourable attitude than male (Singh, 2021) whereas, it showed that there is the favourable attitude towards online learning in Urban students than the Rural students (Mondal, Das, 2021, Suraparamath, 2021). Besides these, it mentioned that the instructional strategy could enhance the attitude towards Blended Learning (Suprabha, Subramanian, 2020) whereas, the other studies found that some factors like self-confidence, 'left out' from classes if they are not able to cope up with the online classes, cyber safety or digital safety etc are affected for online learning (Bhaumik, Priyadarshini, 2020). The study found that the main problem faced by students in online

learning was “rush up the syllabus” (Senthikumar, Pandian, 2021). Besides all of these, the main problem which they have mentioned the others’ problems like Poor attendance, lack of personal touch, and lack of interaction due to connectivity issues were not only faced by the faculty members but also by the students. It increases the stress level among the young generation and increases the negative attitude towards the educational system. From the study the researcher can say that 16% studies found positive attitude towards online learning 16% were found negative and 66% had moderate attitude towards online learning.

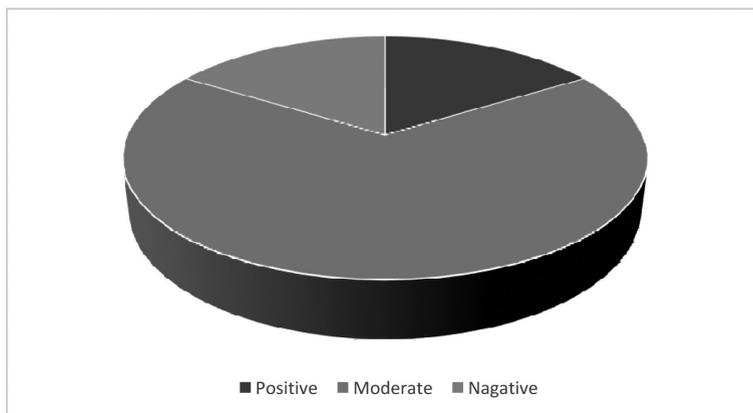


Fig.1: STUDENTS’ ATTITUDE TOWARDS ONLINE LEARNING AT SCHOOL LEVEL

Attitude towards Online Teaching at Under Graduate Level.

Attitudes towards online learning of UG level students in Education is varied among the participants. Out of twenty-one reviews, **ten reviews are favourable**, [Online classes are more beneficial for teachers and students (Kumar, Prakash, & Srivastava, 2021), the willingness and the positive attitudes of a large number of bachelor students to the use of technology in education is favourable (Peytcheva, Yovkova, & Aleksieva, 2018), it has also been found that the students who has used e-learning as learning strategy they have got high marks or percentage than the less user of e-learning strategy (Konwar, 2017), learners’ attitudes toward e-learning are positively influenced by perceived e-learning usefulness, self- management of learning, and self-efficacy (Um, 2021), digital citizenship behaviour, digital learning process could be a positive response to COVID-19 closure period (Akcil & Bastas, 2020), the students have a positive attitude towards

the use of Internet in education (Sepahpanah, Movahedi, &Farani, 2015), Students also have a positive attitude and showed a moderate level of readiness to implement blended learning (Tuguic, 2021), the majorities of students felt positive attitudes toward the use of internet for their learning (Prasetyo, 2021), the attitude of the female University students were positively related to e- learning and demonstrated that Usefulness, Flexibility, Interactivity, and University Support were critical determination of female student's attitude towards E-learning (Alshaiekh, & Singh, 2018), more than half of the students had a positive attitude towards virtual learning (Upadhyay, Koirala, & Sedain, 2021)] **three reviews show the significant relationship**, [the study shows that there is no significant relationship between students' interest in computer, usefulness of computer to students and easiness in using online learning at under graduate level. (Ullah, Khan, & Khan, 2017), the another study revealed that there are significant inverse relationships between the importance of social interaction and the preference to use online learning technology (Wong, & Fong, 2014), next study found that several factors, including academic issues, accessibility issues, technological skills, mental well-being and lecturer commitment, impact depreciating the online learning efficiency, which has made a significant impact on learner satisfaction and learner commitment during the COVID-19 pandemic. (Ranadewa, Gregory, &Boralugoda, 2021)], **three reviews are in favour of traditional teaching**, [A number of the students prefer to have conventional teaching and learning activities. (Male, Murniarti, Simatupang, Siregar, Sihotang, & Gunawan,2020), traditional learning in the classroom was more inspiring (Hajar, & Khalid, 2021), the majority of students preferred face-to-face education (Alqudah, Barakat, Muflih, & Alqudah,2021)], **four reviews are different in perspectives**, [the study concluded that both Computer Science and Non-Computer Science College students have average attitude towards e- learning. (Dhas,2017), the majority of students agreed that online courses helped assign reading and homework time better than on-campus approach and comfortable to actively communicate with my classmates and instructors online (Mujh, Abuhammad, Karasneh, & Mujh, 2020), the majority of students felt preventative measures were based on good science and medical knowledge (Meiran, & Unger, 2020), the learner's attitudes play a role in predicting e-mentoring (Dahalan, Hassana, & Atab, 2011)] and **one review shows the average attitude**, [the findings of the study concluded that the attitude of students towards online based learning system in the new normal is multidimensional. (Alliesa, Flore, Princess Apas, &Tomas, Diquito2021).

After analysing all reviews, the researcher has concluded that 47.62% studies have the positive attitude towards online learning, 14.28% studies have the significant relationship between student's interest, social interaction, academic issues and online learning, 14.28% studies are in favour of conventional teaching, 19.05% studies have different results regarding online learning and 4.76% studies have multidimensional attitude towards online learning.

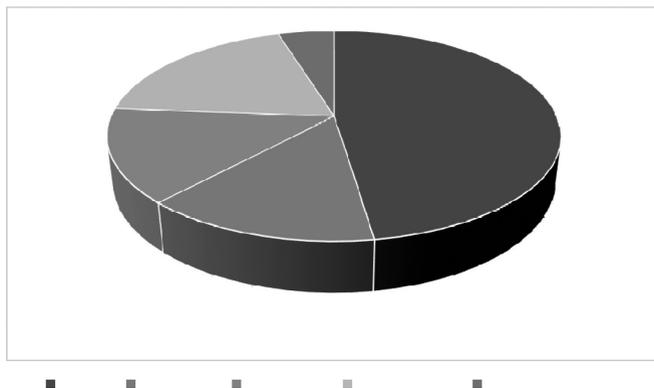


Fig. 2: STUDENTS' ATTITUDE TOWARDS ONLINE LEARNING AT UG LEVEL

To analyze and review the attitude towards Online Teaching at Post Graduate Level.

Attitudes towards online learning of PG level students in Education is varied among the participants. The study revealed that the students' have high attitude towards online learning and their attitude scores did not differ significantly with their personal variables such as, gender, stream of study and residence (A. K. D, 2021; Halder, A, 2021; Upadhyay, Koirala, & Sedain, 2021; Muthuprasad, Aiswarya, Aditya, Girish, Jha, (2021); Kar, Saha, Mondal, 2014)

The studies additionally uncovered that the attitude of Post Graduate students towards blended learning as for their Gender (Male-Female), Locality (Rural-Urban), Semester (2nd - 4th), Internet User (User-Non user), Family type (Joint-Nuclear), Caste (Hindu, Muslim, and Sari), Guardians Occupations did not differ significantly. On the other hand, the attitude of Post Graduate students towards blended learning with respect to their Streams (Arts, Science and commerce) differs significantly. (Nadeem, Shareef, Zeeshan, Ramey, Husain, 2021 and Mahato, Behera, Ansary, 2021) The attitude of PG Arts and Science students was statistically significant and the attitude of PG students

towards mobile learning was more favourable, (Gope, Sharma, 2022; Mahato, Behera, Ansary, 2021; Akcil, Bastas,2021; Goswami, Thanvi, &Padhi, 2021;Ghatak,& Das, 2021; Singh,& Riza, 2022; Khan, Nabi, Khojah, & Tahir, 2021;Nadeem, Shareef, Zeeshan, Ramey, Husain, 2021; Mahato, Behera, Ansary, 2021; Mehra, &Omidian, 2011; Suri, Kaur, Sharma, 2016; Kusum,& Behera, 2017).

No studies found in the basis of neutral attitude towards online learning of PG level students.

After analysing the above studies of Attitude towards Online Learning of PG level students, the researcher concluded that Most of the studies were positive attitude towards online learning.

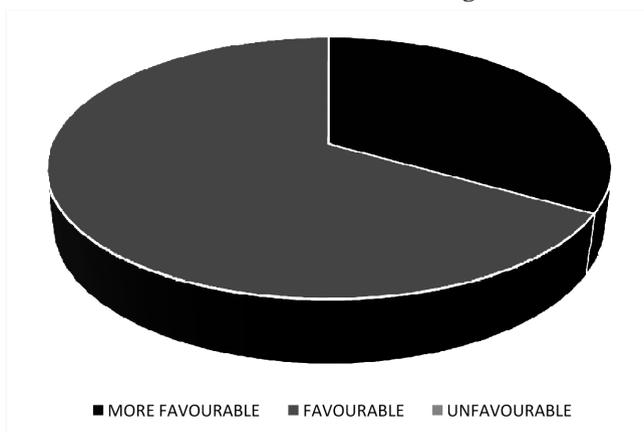


Fig.3: STUDENTS' ATTITUDE TOWARDS ONLINE LEARNING AT PG LEVEL

To analyze and review the attitude towards Online Teaching at Professional Level.

Attitudes towards online learning of Other Professional level students in Education is varied among the participants. The previous studies analyzed that the attitude of Professional Level students towards online learning. Here, the researcher mainly considered the B.ED., Nursing, Medical, Engineering and Management Students as the Professional Stream. Analyzing the different types of papers related to these streams, the researcher revealed the following findings:

The studies showed that there are more favorable or highly positive attitude towards online learning (Periasamoni, 2019, Thakkar and Joshi, 2017, Maurya and Nayak, 2020, Ashaand Antony, 2017, Chalise, 2021).

Other studies revealed that there are favorable or average positive attitude towards online learning (Behera, Sao and Mohamed, 2016, Doley, 2020, Sao, 2018, Kumar, 2017, Gopal and Anandan, 2013, Khan, 2017, Basu, 2020, Thapa, Bhandari and Pathak, 2021, Rana, Taywade, Medhi and Hiwarkar, 2021, Ghanizadeh, Mosallaei, Dorche, Sahraian and Yazdanshenas, 2018, Sharmila and Rajendran, 2013).

The studies showed that there is unfavorable attitude towards online learning (Visalam and Kumar, 2015, Laha, 2020).

After analyzing the previous studies, the researcher found that there are no significant differences of professional students' attitude towards online learning with respect to the

gender, locality and steam (Behera, Sao and Mohamed, 2016, Singh, 2021, Gopal and Anandan, 2013, Thakkar and Joshi, 2017, Khan, 2017).

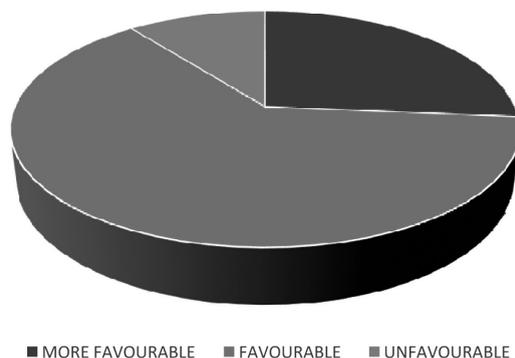


Fig.4: STUDENTS' ATTITUDE TOWARDS ONLINE LEARNING AT PROFESSIONAL LEVEL

5. Discussion:

According to the research objectives, the findings are, i.e., the researcher can say that 16% studies found positive attitude towards online learning 16% were found negative and 66% had moderate attitude towards online learning at school level. The study concluded that 47.62% studies have the positive attitude towards online learning, 14.28% studies have the significant relationship between student's interest, social interaction, academic issues and online learning, 14.28% studies are in favour of conventional teaching, 19.05% studies have different results regarding online learning and 4.76% studies have multidimensional attitude towards online learning at UG level. The study also revealed that Most of the studies were positive attitude towards online learning at PG level. Last but not the least, the studies showed that there are

more favorable or highly positive attitude towards online learning at professional courses.

After comparing all previous studies of all levels, the researchers have concluded that the attitude towards online learning of Higher Secondary Level, UG Level, PG Level and Professional Courses is favorable (67%, 76.20%, 66.66%, 63.15% respectively). On the other hand, the attitude towards online learning is highly favorable (16%, 4.76%, 33.33%, 26% respectively) and the attitude towards online learning is unfavorable (16%, 4.76%, 00%, 10.52% respectively).

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Education is the kindling of a flame, not the filling of a vessel.

—Socrates

Man's mind, once stretched by a new idea, never regains its original dimensions.

—Oliver Wendell Holmes

Being a student is easy. Learning requires actual work.

—William Crawford

Education is not the filling of a pot but the lighting of a fire.

—W.B. Yeats

Don't just teach your children to read. Teach them to question what they read. Teach them to question everything.

—George Carlin

Live as if you were to die tomorrow. Learn as if you were to live forever.

—Mahatma Gandhi

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