

WHAT IS AFTER COVID-19? : CHANGING ECONOMIES OF THE SHIPPING INDUSTRIES AND MARITIME EDUCATION INSTITUTIONS

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Abstract

Most of the people in the world are struggling to ensure their presence and livelihood activities during this pandemic period. Achieving the third Sustainable Development Goal: “Ensure Healthy Lives and promote Well-being for all at all ages” since the end of 2019 is a big question mark to most of the economies. The first Case of Covid-19 was found in China during the mid of November 2019, still now there is no proper medicine and vaccine were found to cure fully. The vaccination availed after one year also not resulting 100% and the modern medicine there is no satisfactory effective therapy available to cure the Covid-19 infection due to the less genetic information regarding the mutation of this virus. World Health Organization suggested to implement Lock downs to handle this pandemic. Upto the end of first month of this decade more than 100 million people were infected and more than 2 million people were lost their lives. This pandemic severely affected most economic sectors of the world without any partiality. This attempt was made to analyze the impact of Covid-19 pandemic on the Maritime Education sector and Shipping Industry. For the study purpose detailed survey was conducted among the Maritime students, educators, sailors and practitioners in the different parts of the world. Collection of qualitative data for this study is quite difficult due to pandemic. So present study adopts descriptive cum analytical research design was adopted for the study. Totally 1094 respondents of the 16 countries were approached for the study purpose and received the responses from 857 respondents were responded to the survey and results were documented here to understand the future of the Maritime industry. The results of the study are interesting and highlighted the present mentality and economic status of mariners and future of the students. Mariners reported that they have less sailing opportunities compared to the past. Many of the respondents were worried that this economic slowdown due to pandemic had a huge impact on the industry in terms of less Liner schedules and reduced employment opportunities and poor practical

exposure. Maritime Students highlighted that they were unable to get the practical exposures to meet out the challenges and virtual education system gave less chances to learn the practical aspects. Maritime educators pointed that less interaction between the students resulted in terms of adverse results. Meanwhile few of them responded that this pandemic helps them in terms of increased business growth in absence of Air Cargos. This study suggests that both public and private sector should take initiatives to meet out the challenges of this changes in the Maritime sector. Maritime Education institutions have to revise their mandatory policies to meet out the changing trends in education sector. It concludes that both positive and negative aspects of this pandemic resulted the tremendous changes in the Maritime sector hugely in reduced possibilities in the economies of the maritime business ventures. Further, this study suggests future researchers to carry out the segment specific both qualitative and analytical studies to handle the pandemic situation to effectively meet out the needs of the sector for the sustainability.

Keywords: Covid-19, Maritime Education, Mariners, Shipping industry.

Introduction

World Health Organization (WHO) officially announced the discovery of Coronavirus (SARS-Covid-2) on 9th January 2020. It was found in the unknown origin of the Wuhan, China during the 2019 December. Earlier the people were told that it's a viral pneumonia until the announcement made from the WHO. Initially people were not worried about the issue and many of them believe that this is the kind of marketing trick used by the medicine and medical equipment producers to increase the artificial demand and increase the price until it reached to their neighborhood. All the myths and believes were gone nothing in front of novel Covid-19. Without partiality it hits most of the places. In this situation no one told that they are having immunity, world power or medically sustainable. There is a two kind of news we have one is by the Chinese government says that this virus spread by the animals and the rest of the world says that this was created in the virology laboratory and that hits the many of the people in the world. World health Organization declared this as a pandemic on 11th March 2020 when 205 countries reported that they were found the infections among their people and later rest of the world. Later, many countries reported that 1000s of positive cases every day and few countries reported more

than 100000 cases in every day. To avoid the critical condition World Health Organization (WHO) Suggested Lockdown in most of the countries. Lockdown due to pandemic is totally new to the modern world. Governments and public were not taken any precautionary or prefatory measures to handle the situation. Primary and health care sector alone permitted to function and control the pandemic situation and rest were muted their activities. According to UNESCO majority (89.4%) of the total enrolled students in the world were not able to attend their schools and higher education institutions in the 185 countries. This situation affected a lot to the Maritime Education sector, where, most of the courses were practical oriented. In this juncture the study on “What is after covid-19? : Changing economies of the shipping industries and maritime education institutions” will helps to picture about the realty of the maritime industry and education sector.

Literature Review

The survey conducted by International Association of universities in the title “The Impact of Covid-19 on Higher Education around the World” reported that majority (59%) of them were closed their education institution to reduce the effect of the pandemic. More than three fourth (80%) of them were reported that this lockdown cost huge in the enrolments in both local and international admissions. This survey highlighted that this pandemic converted the education system into the remote learning and students and teachers were encouraged to access the virtual and distance more of education which reduced the importance of learner/teacher centric approach of education system. According to UNCTAD findings responses to this pandemic varied from sector to sector, place to place, people to people and country to country in terms of operational adjustments, financial/economical adjustments, sanitary protocols and processes and adjustments to working practices and organizational aspects to handle the situation and overcome the issues and challenges and highlights that maritime trade will plunge by 4.1% in 2020. It revealed that the waves of pandemic further disturb the supply chain economies might cause a deeper decline. The study found that clear negative impact of COVID-19 related school and public transport closure cost huge (Verschuur J, Koks EE & Hall JW 2021). Literature shows that covid-19 pandemic affected the most of the economic sectors in the world. Hence the literature proves that

there is an impact of Covid-19 pandemic on the maritime industry in all the aspects. This study tries to provide the empirical evidence on this impact.

Statement of the Problem

China is the one of the fast growing economy of the world and fostering multifold growth with their effective production process. They are contributing the most of the economies with their cheapest products. More than two third of the countries involving foreign trade were importing the goods from China. Most of the gadgets we are using recent past were manufactured or using the spare parts from the Chinese products until the third quarter of the 2019. By the end of 2019 most of the countries were closed their gates for China due to Covid-19 Pandemic. During the first quarter of 2020 countries were closed their gates for other countries and later in the beginning of second quarter entire world were imposed lock down due to this pandemic and this cost huge in terms of economic slowdown, medical emergencies and food scarcity. Due to closure of gates many of the countries were not able to function as usual. Due to less productivity of goods the shipping industry also facing the problem in terms of reduced liner schedules. Studies in the area of effect of covid-19 pandemic on the marine education and institutions are rather limited. Hence this study tries to find out the major impact of Covid-19 pandemic on the shipping industry to find out what is after Covid-19 pandemic to the pillars of the maritime industry such as maritime education, maritime sector and warehouses and other stakeholders by collecting information from maritime students, teachers, sailors and practitioners from various parts of the world.

Objectives of the Study

The following objectives were framed to fulfill the aim of the of the study are

- To study the impact of Covid-19 pandemic on maritime industry
- To understand the economic issues faced by the maritime industry
- To analyze the psychological issues and challenges faced by the people in maritime industry

- To suggest suitable measures to handle the pandemic situation by marine industry

Methodology of the Study

The design for the study is descriptive cum analytical in nature. It is the design which describes the different characteristics of the social phenomena under this there is no emphasis on the theory formation only the facts and character were gathered also it presents the view regard to predict future trends which finds out the relationship between the variables and further analyzing the phenomena with suitable statistical tools. According to this study maritime student, maritime educators, sailors, mariners and practitioners were employed as respondents to understand the current station. Totally 1094 samples from 16 countries were approached for the study purpose and 857 respondents were responded to the survey and results were documented here to understand the future of the Maritime industry. This study adopted purposive sampling used to collect the necessary information respondents. The researcher used a structured self prepared interview schedule for collection of data. The interview schedule formulated by researcher is based on the aims and objectives of the study covering the aspects of social, psychological, economical and professional impact of Covid-19 pandemic on the marine industry. The source of data was primary and it was obtained from the maritime student, maritime educators, sailors, seafarers and practitioners from India, UAE, Malawi, Zambia, Canada, England, Australia, Tanzania, Sri Lanka, Singapore, Malaysia, Japan, South Korea, Sultanate Oman, Bangladesh and Ethiopia. The researcher called the 1094 respondents from April 2020 to June 2020 and 857 were spending their valuable time to respond the questions included in the interview schedule. Since the researcher had conducted a telephonic interview has doubled the work in terms of getting their appointment and then conducting the telephonic interview. Marine practitioners used in this study are both the people engaged in the sailing of ships as well as port and warehouse activities. Descriptive statistics, Garrett's Ranking, Chi-Square test and factor analysis were used to understand the scenario.

Results and Discussion

Collected information was grouped and presents in this chapter:

- India (34%), UAE (8%), Malawi (7%), Zambia (6%), Canada(4%), England (4%), Australia (4%), Tanzania (4%), Sri Lanka(4%), Singapore(4%), Malaysia (4%), Japan (4%), South Korea (4%), Sultanate Oman (3%), Bangladesh (3%) and Ethiopia (3%) of the respondents were responded to the study;
- Maritime students (30%), maritime educators (27%), shipping practitioners (24%) seafarers (14%) and sailors (5%) of the respondents were responded from the study area;
- Majority (83%) of the respondents were male and remaining (17%) are female were responded;
- 51.1 percent of the respondents were above 30 years age group and remaining 49.9 percent were below 30 years age group
- Majority (74 %) of them were reported that they have less opportunities compared to the past.
- Majority (84%) Maritime students and Maritime educators (92%) reported that students practical exposure got reduced due to Covid-19 Pandemic lockdown and highlight that absence of physical interaction is the major problem.

Garrett’s Ranking Technique for major problems faced with pandemic

This Garrett’s ranking technique is used to understand the different responses of the maritime practitioners in their order to understand the problems faced by the mariners. The following formula has been used to obtain the rank under the Garrett Ranking technique to rank the problems faced by the marine practitioners in the different parts of the world.

$$\text{Percentage Position} = \frac{100 (R_{ij} - 0.5)}{N_j}$$

R_{ij} = Rank given for the i^{th} item or scheme by the j^{th} individual

j = Number of schemes ranked by the j^{th} individual

The percentage position of each (problems with Covid-19 pandemic) rank thus obtained was converted into scores by referring to the ranking table given by Garrett. The ranking was

done according to the average score obtained from the marine practitioners. In the following table, the ranks obtained from the marine students, educators and practitioners were converted in to scores by applying Garrett scoring technique and finally the average values of the obtained scores were ranked. The problems listed by the marine and shipping practitioners were ranked accordingly in the below table.

Table 1

Garrett's ranking for Problems of Covid-19 pandemic

S. No.	Reason	Total Score	Average Score	Rank
1.	Poor practical interaction	33397	38.97	VI
2.	Absence of face to face interaction	35779	41.75	V
3.	Reduced employment opportunities	53322	62.22	II
4.	Increased cost of Living	48411	56.49	III
5.	Psychological imbalance	41898	49.89	IV
6.	No recreation activities	26575	31.01	VII
7.	Reduced business opportunities	57136	66.67	I

Source: Computed from field data

The results of the Garrett ranking test reveals that, problem faced by the marine practitioners by the responses obtained from the different category of respondents. Ranking average score were rounded with nearest two decimals. From the view of the marine practitioners as defined in this study found that, reduced business opportunities for shipping industry, reduced employment opportunities to close down of the entry points of the host countries and lock down imposed by the home countries, increased cost of living due to the lack of production and less choice of products in the local market, psychological imbalance of stay home without actual payment of salary and new living practice of stay within the door, absence of face to face interactions were reported by the most of the students and teachers, poor practical interaction were reported by many of them and they were revealed that lack of practical interaction may lead to the future generation with less exposure and absence of recreation

facilities. Thus, it is concluded that the covid-19 pandemic changed the life style of the respondents selected for this study purpose.

Chi square Test for age group Vs Reduced income

The chi-square test was applied to find out the significance of association between the age group and reduced income due to covid-19 pandemic.

Chi-square value was derived by using the following formula:

$$\chi^2 = \sum \left[\frac{(O - E)^2}{E} \right]$$

O = Observed Frequency

E = Expected Frequency

The expected frequency is calculated by using the formula:

$$\text{Expected frequency} = \frac{\text{Row total} \times \text{Column total}}{\text{Grand total}}$$

Degrees of freedom (r – 1) (c – 1)

Chi square for age group and reduced level of income due to covid-19 pandemic situation for the analytical purpose age group was divided into below 30 and above 30 years were presented hereunder table 2.

Table 2

Age Group Vs Reduced Income

S. No.	Income reduced due to Covid-19 pandemic	Age group		Total
		Below 30 years	Above 30 years	
1.	Yes	298	333	631
2.	No	130	96	226
Total		428	429	857

Source: Computed from field data

Table 3

Chi- Square for Age group Vs Reduced Income

Test Statistics	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.236	1	.022
Likelihood Ratio	5.246	1	.022
Linear-by-Linear Association	5.230	1	.022

From the Chi-square test output, it is clear that, a significance level of 0.022 has been achieved and calculated chi-square value is 5.236 which, is greater than the table value 3.84 at 1 degree of freedom. Hence, it reveals that the chi square test is showing a difference between two variables at 95% confidence level. It can be concluded that, there is a significant difference in the income of the respondents of the study due to covid-19 pandemic situation.

Factor Analysis on Opinion of Marine Practitioners about Covid-19 Pandemic lockdown

Factor analysis is used to find factors among observed variables. In other words, factor analysis to reduce the number of variables from many variables. Factor analysis groups variables with similar characteristics together. It produces a small number of factors from a large number

of variables which is capable of explaining the observed variance in the larger number of variables. The reduced factors can also be used for further analysis. There are three stages in factor analysis:

1. First, a correlation matrix is generated for all the variables. A correlation matrix is a rectangular array of the correlation coefficients of the variables with each other;
2. Second, factors are extracted from the correlation matrix based on the correlation coefficients of the variables; and
3. Third, the factors are rotated in order to maximize the relationship between the variables and some of the factors.

Totally sixteen variables have been identified and test the impact of lockdown on the livelihood activities of the marine practitioners. Opinion of the marine practitioners about the selected variables has been collected in order to identify the factors have more impact.

In this context, factor analysis would give the underlying pattern of relationship among the opinion of the marine practitioners about how their livelihood activities were changed. Through factor analysis, the opinion of the marine practitioners was converted into number of factors. The rationale behind this is to identify sum total of high impact factor on their livelihood. The factor analysis was run in SPSS (Statistical Package for Social Sciences) using principle component extraction method with Varimax rotation as these measures had unique advantage of simplifying interpretation by maximizing the variances of the variable loadings on each factor.

The factor analysis has yielded six factors based on Eigen values and percentage of variance accounted for each factor. The results are presented in Table.

Table 4

Factor loadings on Opinion towards Impact of Covid-19 Pandemic Lockdown on the Marine Practitioners livelihood

Factors	Eigen values	Percentage of variance	Cumulative percent of variance
Factor I	3.217	20.104	20.104
Factor II	1.389	8.684	28.788

Factor III	1.355	8.469	37.257
Factor IV	1.212	7.576	44.833
Factor V	1.158	7.237	52.070
Factor VI	1.016	6.347	58.417

Source: Computed from field data

The components having Eigen values greater than ‘1’ were converged as factors. The first factor accounted for 20.104 percent of the variance followed by other factors accounting for 8.684 percent, 8.469 percent, 7.576 percent, 7.237 percent and 6.347 percent respectively. Together, these six factors accounted for 58.417 percent of variation in the opinion of the impact of Covid-19 pandemic lockdown to their livelihood practices and their lifestyles.

The opinion with larger factor loadings under each factor is presented in table. There were three factors having significant loadings on factor I named as economic factor. They were reduced salary (0.909), increased medical expenses (0.896) and increased cost of living (0.865) in the descending order of factor loadings. Factor II named as career opportunities consisted of two opinions with higher factor loadings. They were providing reduced job opportunities (0.841) and Job insecurity (0.723). Factor III named as psychological factor and had bounded inside the home (0.697), afraid about future (0.602) and addicted with gadgets (0.509) higher factor loadings.

Table 5

Factor loadings for Opinion towards Impact of Covid-19 Pandemic Lockdown on the Marine Practitioners livelihood

Opinion	Factor Loadings
Factor I (Economic Factor)	
Reduced salary	0.909
Increased medical expenses	0.896
Increased cost of Living	0.865
Factor II (Employment factor)	
Reduced employment opportunities	0.841
Job insecurity	0.723
Factor III (Psychological factors)	

Bounded inside the home	0.697
Afraid about the future	0.602
Addicted with gadgets	0.509
Factor IV (Ship operations)	
Less ship operations	0.736
Increased cost of shipment	0.702
Factor V (Procedures)	
Protocol for Onboard	0.759
Delay in online procedure	0.547
Changes in the customs procedure	0.518
Factor VI (interaction)	
Recreation and interaction	0.855

Source: Computed from field data

Factor IV Liners consisted of two variables with higher factor loadings. They were less ship operations (0.736) and increased cost of shipment (0.702). Factor V procedures consisted of three variables with higher factor loadings. They were protocol for onboard (0.759), delay n online procedure (0.547) and changes n the customs procedure (0.518) and recreation and interaction (0.855) was having high factor loadings at Factor VI.

The rotated factor matrix of the selected variables along with its rank has been presented in Table 5.

Table 5
Rotated Component Matrix

V. No.	Practice	Factor Loadings	Variable Rank
X1	Changes in customs procedure	.518	XIII
X2	Afraid about the future	.602	XI
X3	Addicted with gadgets	.509	XIV
X4	Protocol for onboard	.759	VI
X5	Less ship operations	.736	VII
X6	Recreation and interaction	.855	IV
X7	Job insecurity	.723	VIII
X9	Increased medical expenses	.896	II
X10	Increased cost of shipment	.702	IX
X11	Reduced employment opportunities	.841	V
X12	Reduced salary	.909	I

X13	Increased cost of living	.865	III
X14	Delay in online procedure	.547	XII
X15	Bounded inside the home	.697	X

Source: Computed from field data

Based on the component loadings, the variables can be ranked for its importance. Out of 16 variables, 14 have been grouped into 6 factors and have been assigned ranks from 1 to 14. The two variables X8 and X16 have not been grouped into any factor and the variance explained by these variables has reported minimum, so they have not been ranked. It also reveals that except these two variables other fourteen variables are most important to test the impact of covid-19 pandemic lockdown on the marine practitioner's livelihood.

Recommendations

The following recommendations were made based on the survey results and suggestions given by the respondents of the study:

- Marine Education institutions must provide advanced skill training to their educators to handle the future changes in the maritime industry;
- Marine and shipping course syllabus and curriculum must be upgraded in line with the future trends to prepare the potential manpower for the industry;
- Marine students must understand the situation and have to prepare themselves to meet the future needs of online world by learning the application of artificial intelligence for the ships and shipping industry to fulfill the future requirements;
- Marine students must learn about the practical aspects and they have to feel that training events are take part in the institution and have to undergo all the practices as scheduled in their institutions;
- Marine and Shipping educators must prepare their modules in the practical mode to experiment all the aspects in detail by the virtual mode and that should provide varied possibilities;
- Maritime education institutions and educators have to prepare the well competent students to meet the online world;

- Shipping companies in maritime industry should ensure the job security to their employees and provide proper online psychological counseling to them for handling this pandemic era; and
- Education institutions in collaboration with shipping companies should conduct the elaborate research on handling this situation, future trends of maritime industry and moderation of the industry.

Conclusion

Maritime industry is evergreen industry providing opportunities to the stakeholders by its varied possibilities. Entire world is suffering with Covid-19 Pandemic lockdown and struggled to come out from the situation. Hence, this study tries to find out the impact of covid-19 pandemic lockdown and what's after that. The results of the study are interesting and highlighted the present mentality and economic status of mariners and future of the students. Mariners reported that they have less sailing opportunities compared to the past. Many of the respondents were worried that this economic slowdown due to pandemic had a huge impact on the industry in terms of less Liner schedules and reduced employment opportunities and poor practical exposure. Maritime Students highlighted that they were unable to get the practical exposures to meet out the challenges and virtual education system gave less chances to learn the practical aspects. Maritime educators pointed that less interaction between the students resulted in terms of adverse results. Meanwhile few of them responded that this pandemic helps them in terms of increased business growth in absence of Air Cargos. This study suggests that both public and private sector should take initiatives to meet out the challenges of these changes in the Maritime sector. Maritime Education institutions have to revise their mandatory policies to meet out the changing trends in education sector. It concludes that both positive and negative aspects of this pandemic resulted the tremendous changes in the Maritime sector hugely in reduced possibilities in the economies of the maritime business ventures. Future economic prosperity of the world is purely depends on the maritime industry and going to contribute the maximum sustainability of the world. Further, this study suggests the future researchers to carry out the segment specific both qualitative and analytical studies to be carried out to handle the pandemic situation to effectively meet out the needs of the sector for the sustainability.

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