



The Crisis Unfurled: An Evidence-based study from South Asia

Abhinandan Das¹

¹*Corresponding Author (Department of Humanities and Social Sciences, Indian Institute of Technology Kharagpur, West Bengal 721302, India.

E-mail: abhinandan94@iitkgp.ac.in, abhinandandas24@gmail.com, abhinandandas2018@gmail.com.
<https://orcid.org/0000-0003-0660-7770>)

Abstract The creativity of artisans of Krishnanagar city of the state of West Bengal in India is renowned all over the world for their majestic creations over the years. These artisans have been present since the times of the then zamindar of Nadia district Raja Krishnachandra in the 18th century. Previously before the Indian Independence of 1947, there were only artisans of miniature clay doll makers, which later got diversified into other creative activities of decoration artefacts making, idol making and sculpture making. The clay doll makers are renowned worldwide for their sublime miniature clay dolls and other artefacts made of clay; the idol makers are renowned for the idol making activities; the decoration artisans are famous for their sublime decoration artefacts; and finally, the sculpturists are renowned for their magnificent, awe-inspiring statues.

The present study reveals that the crisis has been a consistent partner with the creativity of the artisans mentioned above. There have been problems of increment in raw material price, an increase of labour expenditure, low returns from production coupled with the less curiosity among the younger generation to move on and carry forward the parental occupations owing to fear and apprehension. The COVID-19 pandemic has escalated all these issues. The pandemic has been disastrous in the lives of these artisans. The overall analysis of the present study, inclusive of the statistical analysis and the Word Cloud Analysis, have reflected the pangs and vexations of the artisans which are significantly high and worth considering as far as inclusive planning and development is concerned. The analysis clearly reveals that the average annual turnovers in Lakh Rupees have fallen considerably for all the four artisan categories and affected them badly. Moreover, the study also reflects that the fall in annual turnovers has been significant among idol makers, followed by clay doll makers, decoration artisans and sculpturists. Therefore, strong, comprehensive and inclusive planning by the planners, administrators and policymakers are must to ensure all round development of the artisans, fulfilling the promise made by Millenium Development Goals and the Sustainable Development Goals in the future or long run.

Keywords: creativity, crisis, fear, COVID-19 pandemic, annual turnovers.

1. Introduction

Creativity has defined and redefined the existence and evolution of human beings revealing its adaptation with nature and natural processes over the course of human history. Creativity has three important components: new and innovative ideas, ideas of high quality and that are appropriate to the task at hand [1]. Creativity encompasses a divergent thinking process [2]. The creativity which defines human existence has also got four important facets: the creative processes, the person, the product and situation

[3],[4]. Creativity is the ability of a person to produce something novel and appropriate [5]. These facets of creativity have been omnipresent among the artisans of Krishnanagar city of the Nadia, West Bengal, India. These artisans are renowned all over the world for their majestic artefacts like clay dolls, idol-making of deities, sculpture making, making of decoration artefacts for the puja of Bengalis and also for various other festivals outside the state of West Bengal. Thus it can be inferred that creativity is a multifaceted approach of mankind as a function of living, sustainability and livelihood associated with a particular place.

It is worth noting that these artisans belong to the unorganized sector which as per the NSS 68th level data (2011-12) and the Survey of Periodic Labour Force (2017-18) occupies 86.8% share of the total employment of India in 2017-18. As per National Commission for Enterprises in the Unorganized Sector (2007), "the unorganised sector consists of all unincorporated private enterprises owned by individuals or households engaged in the sale and production of goods and services operated on a proprietary or partnership basis and with less than ten total workers"[6]. As per Gazette of India report of 2008, an "unorganized worker" means a wage worker, a self-employed worker, or a home-based worker, in the unorganized sector and includes a labour in the organized sector not covered by any of the acts declared in the Second Schedule of The Unorganised Worker's Social Security Act of 2008 [7]. Despite the fact that the handicrafts sector occupies the second largest sector in employment generation in the state of West Bengal, yet this sector is plagued with many challenges and difficulties like lack of exposure of the market, lack of proper financial capital, poor information and so on [8].

The artisans of Krishnanagar belongs to this group of unorganized sectors famous all over the world for their magnificent artefacts which radiates their own charm and beauty. Among the many crafts of the state of West Bengal, clay dolls and clay sculpture making is one of the most popular arts of the state, characterized by pressing and moulding methods [9]. The 'Mritshilpis' or the clay artisans of Ghurni of Krishnanagar are internationally renowned for the production of clay dolls, producing images of deities, figures and figurines all over the year [10]. According to historical records, Raja Krishnachandra of Krishnanagar hired artists from Natore of present-day Bangladesh in his area and these artisans gradually settled in the Ghurni area and started making clay dolls since then [11]. It is said that these artisans have migrated later in search of better living and livelihood to Kolkata and formed the potter's colony of Kumartuli from the 19th to the early 20th century [12]. However, since the decade of the nineties, plastic products (like puppets) made from China got spread in the Indian market. Moreover, the gradual supplies of Teddies, foreign dolls like the "Barbi Doll" have posed severe challenges to these mritshilpis who are helpless under these situations [11]. Despite these problems, the clay dolls of Ghurni have a universal demand not only in different states of India but also in the foreign countries of Europe and North America. But presently there has been a fall in the demand for clay dolls along with the rising price of raw materials, low returns and less interested young generation to continue the parental activities [10]. This can have severe ramifications, especially in the current pandemic times.

It is worth noting in this regard that the artisans who were clay doll makers later got diversified into variegated categories like sculpturists, decoration artisans and idol makers related to the Puja economy or the festive economy of the state. There are many well-established clay doll makers who are now sculpturists. These section of artisans are involved in the making of statues and sculptures of multifarious types like bronze statues, statues of cement, plaster of paris, fibreglass and so on of various eminent personalities like Mahatma Gandhi, Tagore, Mother Teresa and so on which are demanded by various clubs, committees, organizations, temples and many other religious institutions and communities.

The decoration artisans represent those sections of craftsmen involved in the various decoration artefacts making like “Tin kolkar mukuts”, “Thats”, “Alto”, “Kan pashas”, “Sajaris” and so on required for the festive seasons and the puja economy and for other occasions like marriage ceremonies where items like “Topor”, “Totto” so on are used among the Bengali community. While the idol makers represent those sections of artisans or karigars involved in idols making and figures of various gods and goddesses essential for the festive seasons and the entire economy dependent on it. It is to be noted in this regard that the activities of the decoration artisans and idol makers are directly interrelated with each other. The decoration artefacts are used by the customers during the festive seasons or the Puja seasons after the idol or the figure is prepared by the idol makers. Therefore when the Corona Virus pandemic affected the idol makers, the decoration karigars or the artisans were also affected in the process. In this regard, it should be noted that the Corona pandemic has affected all the above-mentioned artisan categories like most of the employees and workers of unorganized sectors in a developing nation like India.

The observations of the current investigation reflect that yearly income or turnovers of all aforementioned artisan categories in Krishnanagar city declined considerably since the beginning or the onset of the COVID-19. This is well reflected by the statistical analysis and Word Cloud analysis. The word cloud analyses are important methods for the proper conceptualization of words, texts and opinions of public including overall assessment and analysis or examination of contexts [13], assisting in obtaining a basic idea of task at hand, examining words that shows frequently [14]. Artisan’s or karigar’s sufferings are well represented in the word cloud analysis. Moreover, the statistical examination reflects onerous consequence of the COVID-19 on their lives inclusive of international and domestic trade associated with it.

The statistical analysis carried out with the paired sample t-test for all four categories of artisans portrays the onerous and the disastrous effect of the Corona pandemic in their livelihood mechanisms. There has been a dramatic decrement in the average annual turnovers in the post-Corona phase (2020 and 2021) compared with the pre-Corona phase (2018 and 2019). This can have severe ramifications in the lives and livelihood mechanisms of the artisans as, it will be difficult to recover from the onerous effect of the pandemic amidst a situation characterized by low returns, low profits and soaring rise in the price of basic raw materials like clay, straws, cement, plaster of paris, bamboos and the like required for the making of the finished products.

2. Objectives

The main objective of the current investigation is the examination of the effect of Corona pandemic on all four artisan categories like idol makers, clay doll makers, decoration artisans and sculpturists based on ground-based observations.

3. Sample

The study area of the present investigation includes the Krishnanagar city of Nadia, West Bengal (figure 1). Main area of interest of Krishnanagar for the present study includes Ghurni, famous for the clay doll makers, sculpturists and idol makers; Anandamayee Tala and Bagdi Para renowned for the decoration artisans and Bhatjangla-Palpara famous for the idol makers. The city of Krishnanagar is located at a distance of approximately 100 KM from Kolkata, situated beside the banks of river Jalangi and NH32. The city has an area of 15.97 SQ.KM distributed over 24 Wards with an overall population of 1,81,182 and a density of population of 11,000/km². The present study incorporates a sample size of artisans of 41 idol makers, 31 decoration artisans, 50 clay doll makers and 9 sculpturists distributed over the above-mentioned areas. The clay doll makers hold a unique identity of the place of Ghurni [11]. The clay doll

makers are also now observed in Kumorpara, Rathtala and Shastitala areas within the city. Clay doll making is a 250 years old activity of Krishnanagar city. The present study finds that many families have diversified into other occupations over the years like idol making, decoration artefacts making and sculpture making. Anandamayee Tala and Bagdi para are renowned for the decoration works by artisans making variagated items like thermocol, shola, etc. in festive seasons.



Figure 1: Location Map of Krishnanagar Urban Area (Source: Krishnanagar Municipality)

4. Methodology

In order to analyze the effect due to Corona in the life of the karigars or workers of Krishnanagar, primary ground data have been obtained from ground surveys by interview, questionnaire, focus group discussion and in-depth interview methods. The data for the present research encompasses the average annual turnovers of different years of the pre Corona phase (2018-2019) and the post Corona phase (2020 and 2021). To observe the statistical significance of the difference in the annual income or turnovers between the pre and post i.e. before and after COVID-19 phases, the average of annual turnovers have been computed for the pre-COVID-19 phase of 2018 and 2019 and the same has been computed for the post-COVID-19 phase of 2020 and 2021 for all the four artisan categories of the idol makers, decoration artisans, clay doll makers and the sculpturists. After this, a paired sample t-test has been performed in IBM SPSS version 23 software to measure the statistical significance of the decrement of the annual turnovers for all the aforementioned four artisan categories in the post-COVID-19 phase. Furthermore, a word cloud analysis has also been made encompassing all the artisan categories of the study area to reflect upon the onerous effect of the Corona pandemic in their lives. The word cloud analysis was performed in QSR NVIVO 12 PLUS software.

5. Analysis

5.1. Statistical analysis by Paired Sample T-Test

The average annual turnovers in lakh rupees for the idol makers, decoration artisans, clay doll makers and the sculpturists in the pre and post Corona phases are well reflected in figure 2.

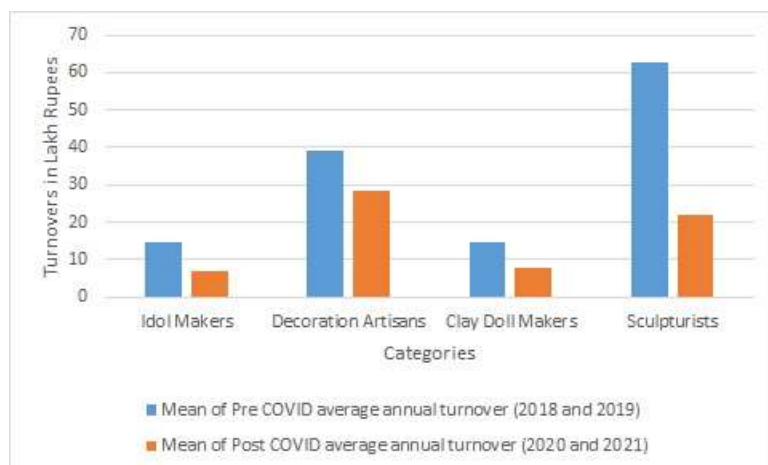


Figure 2: Mean of Pre-COVID and Post-COVID average annual turnovers of all the categories of artisans

The common hypotheses for the present investigation for the analysis of the effect of the Corona pandemic in the lives and livelihood mechanisms inclusive of all 4 categories of the artisans are described below:

H_0 : There is no difference between the average annual income or turnovers of the pre and post-Corona stages.

H_1 : There is a significant difference between the average yearly income of the pre and post-Corona stages or phases.

It is noteworthy here that the above hypothesis test holds true for the paired sample t-tests of all 4 categories of artisans for our present investigation i.e. the study attempts to find how the pandemic has affected all the above mentioned 4 artisans categories individually. This has been studied by the application of paired sample t-test for all 4 categories of artisans (Table 1). Finally, all the logarithmic values of the significant measurements have been used for the computation of a combination of the test result to reflect upon the overall statistical significance of the effect of Corona pandemic among all 4 artisan categories of the Krishnanagar city (Table 1). The mean of the average annual turnovers of the pre-Corona phase and the post-Corona phase for all the 4 artisan categories are reflected in figure 2.

Categories	Paired Differences (Pre COVID average annual turnover and Post COVID average annual turnover)						t	df	Sig. (2-tailed)	ln(Sig)	Decision
	Sample Size	Mean	Standard Deviation	Std. Error Mean	95% Confidence Interval of the Difference						
					Lower	Upper					
Idol Makers	41	7.8171	3.6516	0.5703	6.6645	8.9697	13.707	4	1.06×10^{-16} (Approximately = 0)	-36.78	The Null hypothesis is

											rejected
Decorati on Artisans	31	10.79 03	9.0726	1.629 5	7.462 4	14.11 82	6.62 2	3 0	2.49×10^{-7} (Approxim ately = 0)	- 15.2 1	The Null hypothesis is rejected
Clay Doll Makers	50	6.942 0	4.4850	0.634 3	5.667 4	8.216 6	10.9 45	4 9	9.24×10^{-15} (Approxim ately = 0)	- 32.3 2	The Null hypothesis is rejected
Sculptur ists	9	40.77 78	37.784 8	12.59 49	11.73 38	69.82 18	3.23 8	8	0.01192	-4.43	The Null hypothesis is rejected
Summat ion (Σ)										- 88.7 4	
Combination of Tests ($-2 \times \Sigma \ln(\text{sig})$)										177. 48	The Null hypothesis is rejected

Table 1: Paired Sample T-Test results with the combination of tests and hypothesis results.

Moreover, it is worth noting from table 1, that the null hypothesis is rejected in favour of the alternate hypothesis i.e. the present investigation finds that the Corona effect is significant over all the 4 artisan categories. The combination of tests also confirms the fact that pandemic effect in reduction of the annual turnovers is significant in the post-COVID phase for the artisans of all the categories. It is also evident from the significance values of all the 4 artisan categories from table 1 that the null hypothesis is most strongly rejected among the idol makers followed by the clay doll makers, decoration artisans and sculpturists.

5.2. Word Cloud Analysis

A word cloud analysis has been performed over the pieces of information received from all 4 artisan categories. These are represented by figures 3, 4, 5 and 6. The word cloud analysis reflects the most frequently used words by participants i.e. the artisans during the interview.

6.1. Locational attributes affecting the livelihood mechanisms of the Artisans

The Krishnanagar city is located beside the river Jalangi at a distance of approximately 100 KM from Kolkata. The city is located at a geographic disadvantageous location which is far away from the state capital of Kolkata and is thus far from the airport of Kolkata as well. Therefore, it is difficult for tourists from outside states and from abroad in visiting the place in terms of its accessibility. Moreover, due to lockdowns and restrictions imposed by the government consequent upon the COVID-19 pandemic situation, the foreign tourists are not visiting Ghurni of Krishnanagar, since 2020, which is famous for clay dolls of original human figures, idol makers who make idols and sculpturists who make sculptures. Furthermore, during lockdowns, as the entire transportation network like roads and railways comes to a complete halt, the visit of the domestic tourists from the nearby areas had virtually stopped, or a very few to say the least. These factors have affected the life and livelihood mechanisms of all the four artisan categories. Moreover, previously the idol makers of the city used to take raw mud “Etel mati” and “Bele mati” from the nearby river Jalangi. However, after the pandemic, owing to the restrictions, the mud collection by the idols makers from the Jalangi river has stopped. Thus the idol makers are left with no option but to purchase them separately from landowners at higher prices, which ultimately increases the production costs of idols and affects their livelihood mechanisms. It is also worth noting in this regard that the Ghurni museum which is a symbol of creativity of Krishnanagar city is at complete closure due to the pandemic situation (figure 8). Moreover, it is also located quite far away from Ghurni, therefore making it difficult for tourists to visit Ghurni and its museum simultaneously. Furthermore, the place of Ghurni is somewhat congested. There are no separate car parking facilities and hotels in the nearby areas, thus making it difficult for the tourists to visit the place and enjoy the beauty of creativity and the creative space associated with it.



Ghurni Museum

Figure 8: Ghurni museum at Krishnanagar

6.2. Effect of Corona pandemic in the life of artisans of unorganized sector

It is worth noting that the creative activities of all the above-mentioned artisans belong to the unorganized sector, with no fixed wages and returns from production. The hardships in the life of these artisans have increased many folds since the onset of the Corona pandemic. Some of the many of such hardships and the disastrous effects of the pandemic are described below:

- The pandemic has affected the business of all the four artisan categories. There has been a rise in the cost of production, shortages of labour supply and a rise in the wage rates of the labours.

- Owing to the lockdown situations, the cost of raw materials have incremented many folds for all the four artisan categories. The price of raw materials for the idol makers like raw clay (Etel mati), bamboo, straws, colours, dies have increased thrice since the onset of the pandemic. On similar lines, the prices of thermocols, sholas, art papers, beads, avros, stones, Calicol gules and so on have increased many folds which in turn have affected the decoration artisans. The rise in the prices of cement, bronze dust, chemicals needed for the making of fiber glass statues and the rise in the making of the overall cost of the dices have severely affected the sculpturists who are renowned for their wonderful statues and sculptures making. Similarly, the increment in the prices of raw clay, straws, bamboos and other such raw materials have severely affected the clay doll makers who have very limited capital and assets to recover from the unexpected shocks of the pandemic.
- It is worth noting that there is an intricate relationship between the idol makers and the decoration artisans in the light of the puja or the festive economy. After the idols are prepared by the idol makers, the activities of the decoration artisan become very important. The figures of the idols, gods and goddesses are decorated by the decoration artefacts by the decoration artisans. Therefore, it is very straightforward to say that when the idol makers were affected by the COVID-19 pandemic since 2020, the decoration artisans and their activities were also affected in the process. Many artisans are dying in the process.
- Many artisans are unable to carry forward with the heritage occupations due to the pangs and vexations of poverty owing to the pandemic situation. These artisans have taken other occupations like selling cosmetics, grocery items, involvement in the pharmaceutical businesses, tea shops and so on (figure 9). In other words, there has been an occupational shift or transformation forcibly due to the pandemic situation. If the current situation prevails, then heritage activities of idol making, clay doll making, decoration artefacts making and sculpture-making might get lost in the process, especially in a situation where the next generation is not interested to carry forward the heritage activities in the long run.



A clay doll maker keeping tea shop as a side business

Figure 9: A clay doll maker keeping tea shop as a side business

6.3. The pandemic and its onerous effect on the supply chain

It is to be noted that the pandemic has affected all the categories of artisans. The paired sample t-test results confirm this fact for all the artisan categories (Table 1). From table 1, it is clear that this pandemic

has the most significant impact on idol makers followed by the clay doll makers, the decoration artisans and the sculpturists. The ramifications of the pandemic have been severe in the supply chain mechanisms of all four artisan categories. The lockdowns consequent upon the pandemic has reduced the supply of basic raw materials for all the artisan categories and moreover, its paucity has increased the cost of the raw materials and in turn the overall cost of production as well. Furthermore, the lockdowns have affected the supply of the finished products to the final customers. Foreign tourists have vanished and the domestic tourists have fallen considerably in Krishnanagar city. Therefore the final demand by the customers has fallen significantly. Moreover, the lockdowns have affected the final delivery mechanisms of the sculpturists to the religious institutes and customers of both nearby and far off places. Furthermore, the lockdowns have increased the transport cost of transporting all the finished products of all the four categories of artisans which have affected both the domestic and foreign markets. It is to be noted, that the decoration karigars supply a vast majority of the decoration artefacts to the idol makers and decoration artisans in Kumartuli, Kolkata. This supply chain has been severely affected by the COVID-19 pandemic. Furthermore, the avros, beads, stones, colours and so on used by the decoration artisans are purchased by them from the local markets of Krishnanagar, Kolkata and from far places like Surat, New Delhi and so on are also affected by the COVID-19 pandemic. Their supply has fallen along with the rise in prices of these materials. Moreover, the lockdowns have reduced the supply of basic raw materials like clays, straws, colours and so on used by the clay doll makers of Ghurni.

6.4. The ramifications of the Corona or COVID-19 pandemic and reverse migration

It is worth noting in the present study that many labours and artisans have migrated back to their places of origin, in other words back to their home towns. Many labours who work under the artisans of all the four categories come from nearby places like Ranaghat, Shantipur, Bagula and also from far off places like Raiganj, North Dinajpur and so on. The availability of these labours and artisans have fallen significantly after the onset of the pandemic. Most of these labours have migrated back to their home towns and are involved in the making of artefacts like clay dolls, idols, sculptures, decoration artefacts based on their areas of expertise in their places of origin. This in turn can severely affect the labour availability, the overall market situations and the livelihood associated with it for all four categories of artisans.

6.5. Artisan's opinions amidst the effect of the Corona pandemic

From the figures of the word cloud analysis, it is clear that the COVID-19 pandemic has severely affected all four artisans categories. It is evident from the word cloud analysis figures from 3 to 6 that the words like "pandemic", "government", "orders", "COVID" and so on were mostly used by the idol makers; "pandemic", "decoration", "business", "affected" and so on were frequently used by the decoration artisans; "clay doll", "pandemic", "COVID", "business", "affected", "steps", "low" and so on were mostly used by the clay doll makers and finally, the words like "pandemic", "statues", "COVID", "many", "business", "affected", "government" and so on have been used most often during the interview by the sculpturists. Both the interview and the word cloud analysis derived from it highlights the role of government in the current pandemic times where everything seems to be at loss. It is worth noting in this regard that the artisans of all four categories have shown disappointments with regards to the role and contributions of the government towards their welfare and survival. The majority of the clay doll makers, idol makers and sculpturists have artisan identity cards, however, the government has not taken any proactive steps to restore the already deteriorating business of all the four artisan categories. The interview of the present research finds that a vast majority of the karigars are affected by low returns and incomes from their business. Many artisans opine that it could be very difficult to continue the business if

the situation does not improve and if the government does not take any inclusive steps for their betterment amidst the current pandemic times.

7. Conclusion

It is clear from the present investigation that pandemic effect is very severe among all the artisan categories of the city of Krishnanagar. This in turn poses challenges towards the survival of these artisans and keeping the present generation interested in the future prospects of being in their father's heritage occupations. More inclusive and sustainable steps from the government are of utmost necessity. The government can provide loans with nominal interest rates to the artisans like Differential Rates of Interests (DRIs) amidst the pandemic situation. It is very important to provide money capital directly in the hands of these artisans during the current onerous times of the pandemic. This in turn could rejuvenate the market including the demand and supply chain mechanisms of the artisans at a large scale. The government can also look forward to the progressive integration of the activities of the artisans like idol making, clay doll making, decoration artefacts making and sculptures making with the art colleges of the state to enable the transfer of both skill and technology. Moreover, our mother Earth could witness many more pandemics, in the long run, therefore progressive inclusive steps by the central and state governments are of utmost importance now following the promise of the Millenium Development Goals and the Sustainable Development Goals to ensure the survival of these artisans in future.

8. Conflict of interest declaration

Present study undertaken has no conflict of interest.

9. Acknowledgement

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References

- [1] Kaufman JC. og Sternberg, RJ (2007). Creativity. Change: The Magazine of Higher Learning.;39(4):55-60.
- [2] Brown RT. Creativity. In: Handbook of Creativity. Boston, MA: Springer US; 1989. p. 3–32.
- [3] Mackinnon DW. Creativity: A multi-faceted phenomenon. Creativity. 1970:17-32.
- [4] Mooney RL. A conceptual model for integrating four approaches to the identification of creative talent. Scientific creativity: Its recognition and development. 1963:331-40.
- [5] Lubart TI. *Product-centered self-evaluation and the creative process* (Doctoral dissertation, Yale University).
- [6] Gov.in. [cited 2023 Apr 16]. Available from: https://dcmsme.gov.in/Condition_of_workers_sep_2007.pdf
- [7] The Gazette of India report of Part II, Section 1, December 31, 2008.
- [8] Jana S. Role of Human Information Sources towards Identifying the Factors Responsible for the Development of Clay dolls and Clay models of Krishnanagar area of Nadia district of West Bengal. Indian Institute of Social Reform & Research. 2015 Jan.
- [9] Das U. An Overview of Traditional Handicraft Industries of Krishnanagar Clay Doll, District-Nadia, West Bengal. International Journal of Research in Social Sciences. 2018;8(9):467-77.
- [10] Saha S. Pottery Entrepreneurship, an Age Old Glory in a Declining Stage: Ways to Revive.

- [11] kanti Hazra K. NECESSITY TONOURISH THE EARTHEN CRAFT INDUSTRY FOR EMPLOYMENT AND ECONOMY. *Population.*;1991:03-1.
- [12] Sen M. Craft, identity, hierarchy: the Kumbhakars of Bengal. In *The Politics of Caste in West Bengal* 2015 Sep 25 (pp. 216-239). Routledge India.
- [13] DePaolo CA, Wilkinson K. Get your head into the clouds: Using word clouds for analyzing qualitative assessment data.
- [14] Heimerl F, Lohmann S, Lange S, Ertl T. Word cloud explorer: Text analytics based on word clouds. In *2014 47th Hawaii international conference on system sciences* 2014 Jan 6 (pp. 1833-1842). IEEE.