

Impact of COVID-19 pandemic on society and education: Role of LIS professionals towards normalizing the situation

Sibsankar Jana*

Abstract:

One of the important attributes of society is social interaction. However, the recent COVID-19 pandemic disease has drastically affected the norms and communication patterns in our societies. This pandemic has compelled us to maintain, stay home stay safe, social distancing, home isolation etc. All educational institutions are closed for the time being. Everything are against the societal norm. Therefore, we are slowly getting unsocial. However, being a human, we need to interact with each other and need to carry on our education and learning. Here, information communication via a network is the only mean to be social. In this context, various tools and apps play an important role to bridging the gap evolved during this pandemic situation. Here LIS professional can play important role towards normalization of pandemic with respect to virtual information communication. This paper depicts the imbalanced situation of the society due to emergence of COVID-19 pandemic and how the (Library and Information Science) LIS professional can try to establish the equilibrium in our society.

Keywords: Society, COVID-19, Coronavirus, Information communication, Social interaction, Social distancing, LIS professional, OA resources, Fake news, Information service, Online teaching

1. Introduction:

The present COVID-19 pandemic situation across the globe has drastically changed societal norms, ways of imparting education. This present pandemic is forcing us to acquire new norms, practices, and procedures to cope with the tangled situation. We are approaching towards new normal. We have experienced some remarkable changes over time from end of 2019 to 2020 (Table-1).

Table-1: Changes due to COVID-19 pandemic

End of 2019	During 2020
End of teenage	Beginning of Adulthood
Beginning of COVID-19	Pandemic COVID-19
Beginning of Social distancing	Continuing Social distancing
Beginning of Virtual Interaction	Continuing Virtual Interaction
End of Normalcy	Beginning of New Normalcy
Beginning of Minimizing Pollution	Continuing Pollution-free Globe
End of Classroom Teaching	Beginning of Online Teaching
End of Physical Access of Library	Beginning of Online Library Access

*Assistant Professor, Department of Library and Information Science, University of Kalyani, Kalyani, India,
E-mail: sibs_jana@yahoo.com

Present study is an attempt to reveal the impact of this pandemic on the society in general and education system in particular. Also at the end, the study has identified the domains where LIS professionals can play important role to combat this adverse situation.

2 Objectives of the Study :

This study was carried out to know the present scenario of society due to the attack of pandemic COVID-19 across the globe and to know the role of LIS personnel to normalize this. The specific objectives are as follows:

- To know how society is transforming itself to cope with the present pandemic situation
- To establish the relationship between the number of COVID-19 positive cases and the population of the countries
- To know about the paradigm shift in education system
- To visualize the challenges and opportunities towards implementing online education in India
- To find out the role of LIS professionals to normalize the society and its institutions particularly education system

3. Literature Review :

I did not find any specific research on the present domain of study. However, many studies have already been done on the peripheral components of the subject concerned. The COVID-19 pandemic has resulted in the widespread implementation of extraordinary physical distancing interventions (e.g., stay-at-home orders) to slow the spread of the virus. Although vital, these interventions may be socially and economically disruptive, contributing to adverse psychological outcomes. This study examined relations of both stay-at-home orders and the perceived impact of COVID-19 on daily life to psychological outcomes (depression, health anxiety, financial worry, social support, and loneliness) in a nationwide U.S. community adult sample (N = 500; 47% women, mean age = 40). Participants completed questionnaires assessing psychological outcomes, stay-at-home order status, and COVID-19's impact on their daily life. Being under a stay-at-home order was associated with greater health anxiety, financial worry, and loneliness. Moreover, the perceived impact of COVID-19 on daily life was positively associated with health anxiety, financial worry, and social support, but negatively associated with loneliness. Findings highlight the importance of social connection to mitigate negative psychological consequences of the COVID-19 pandemic (Tull, Edmonds, Scamaldo, Richmond, JRose, & Gratz, 2020).

V. Prashad (2020) pointed out that cruel viruses have confronted a destroyed society. He told that the COVID-19 pandemic has laid bare the failure of the capitalist and neo-liberal regime

towards combating the virus. However, people have shown their support for a democratic socialist state that places the health of its populace at its center. He also suggested that the politicians need to listen to this pandemic situation. Another study conducted by A L Wright et al. (2020) emphasized the places of social inclusion as important institutions in democratic society, which can play an important role during pandemic situations like COVID-19. They also revealed the theoretical and practical importance of places as institutions, deepened understanding of custodians and custodianship as a form of institutional work, and offered new insight into the dynamic processes that connect emotions and institutional work. F. Galli et al. (2020) in their paper entitled "Better prepare for the next one. Lifestyle lessons from the COVID-19 pandemic" told about the changing lifestyle in the post-COVID-19 society. A paper entitled "COVID-19: potential effects on Chinese citizens' lifestyle and travel" conducted a study and predicted that COVID-19 will likely affect consumption patterns (the growing popularity of free and independent travel, luxury trips, and health and wellness tourism) of the Chinese travelers'. The study also indicated new forms of tourism including slow tourism, and smart tourism, in near future. The COVID-19 outbreak has already brought a significant impact on nearly every society and industry, study revealed (Wen, Kozak, Yang, & Liu, 2020). A study of 120 responses was analyzed from the respondents of the three Southeast Asian countries (Bangladesh, India, & Nepal) during the recent pandemic. During this COVID-19 lockdown state, there were various factors that were likely to influence intimacy, resulting in an alteration in sexual behaviors. Some factors that facilitated sexual intimacy were increased time spent together, little opportunity for recreation, less work burden, less social or family obligations. However, there were several factors that adversely affected sexual life were - more chances of interpersonal conflicts, stress, lack of privacy, and medical issues (Yasir Arafat, Alradie-Mohamed, Sharma, & Kabirb, 2020).

A survey among the students pursuing various undergraduate and postgraduate courses at those universities in the capital city of Bhubaneswar, Odisha, India and a total of 621 feedbacks were collected. The study revealed many aspects of the changing lifestyles of the students. Although they were somehow aware of the term novel coronavirus (nCoV), a thorough knowledge gap was observed (Samal & Jena, 2020). In this regard, H. Yang et al. (2020) carried out a study to know the attitudinal and behavioral patterns of university students in Wuhan, the first epicenter through online surveys among more than 8000 students from four elite national universities located in Wuhan. The study observed widespread psychological stress among students but positive behavioral compliance with personal hygiene practices. The students demonstrated a high demand for transparency of information disclosure. M. Javaid (2020) conducted desk research through a thorough literature search, and identified several components of Industry 4.0, which could have the potential to fulfill customized requirements during the COVID-19 crisis. They found several useful technologies of Industry 4.0, which help for properly control and manage of the COVID-19 pandemic, and these could help the detection

and diagnosis of COVID-19 and other related problems and symptoms. It is useful to provide day-to-day updates of an infected patient, area-wise, age-wise, and state-wise with proper surveillance systems. They also believed that the proper implementation of these technologies would help to enhance education and communication regarding public health. These Industry 4.0 technologies could provide a lot of innovative ideas and solutions for fighting local and global medical emergencies. Z. I. Almarzooq et al. (2020) in their paper described different disruptive technologies and how these technologies could help graduate medical students towards smooth running of virtual learning during the COVID-19 pandemic. COVID-19 has affected all levels of the education system, from pre-school to tertiary education. Different countries have introduced various policies, ranging from complete closure in Germany and Italy to targeted closure in the United Kingdom for all but the children of workers in key industries. Additionally, over 100 countries have imposed a nationwide closure of educational facilities. UNESCO estimates that about 900 million learners have been affected by the closure of educational institutions (Nicola, et al., 2020).

O'Connor and M. Murphy (2020) carried out a study regarding false messages that were predominantly compromised of text, but some images had been shared, with text describing information that was factually discordant with the image. Voice notes have also been used to share false information, with local accents to increase credibility. Medical misinformation has centered on key themes: food and beverages as cures, hygiene practices, and medicines. They have seen the implications of these fake messages in clinical practice in Cork during this epidemic. The World Health Organization has confronted fake news by offering a WhatsApp service (+41798931892) for updates. Based on evidence, they pointed out that healthcare professionals can stop the spread of false information by refuting or rebutting misleading health information on social media and by providing appropriate sources to accompany their refutation. Another study conducted on social media during the COVID-19 pandemic. This study showed that social media played a crucial role in spreading awareness, and knowledge about public health; however, it had also been misused for spreading fake news, hatred and creating racism during epidemics and civil unrest. This paper discusses how social media and societal responses to COVID-19 negatively affected its control measures in India and what should be possible corrective measures (Kadam & Atre, 2020). The novel coronavirus (2019-nCoV) outbreak has had a significant impact on global health. The emergence of misinformation and racism against patients and Chinese visitors also reached critical levels. On Jan 29, 2020, one Japanese social media outlet uploaded the news story *Will the Tokyo 2020 Olympics be suspended?*, citing an article in *Süddeutsche Zeitung*. However, the original article simply referred to ongoing communication between the International Olympic Committee and WHO, and there was no reference to the possibility of suspending the Olympic Games in Tokyo in 2020. Furthermore, fake news has led to xenophobia towards patients and Chinese visitors. On Jan 24, 2020, misinformation that "Chinese passengers from Wuhan with fever slipped through

the quarantine at Kansai International Airport” was disseminated through multiple social media channels. Although Kansai International Airport promptly denied this fact, discrimination against Chinese people has become widespread in Japan. In this situation, the mass media must also take responsibility for providing correct information and creating comprehension among citizens. Journalists have an important role in health communication and should acknowledge that their strong but inaccurate and misleading headlines agitate members of the public, cause fear, impinge on public communication, and diminish countermeasures for the outbreak (Shimizu, 2020).

4. Methodology:

The present study is a theoretical desk research through a thorough scanning of different related literature. However, some secondary data about COVID-19 have been collected from the website of WORLDOMETER and Google trend. Some data were also collected from website about spread of fake news during this pandemic. These data were statistically analyzed using diagrams, graphs, bar-diagrams, and Pearson correlations. Finally, some relations have been established among COVID-19 cases, population, searching history, societal change, etc.

5. COVID-19 and society, teaching-learning, and role of LIS professionals:

I have arranged my study in 3 interactive and interrelated levels

- Broadest Level: COVID-19 and Society
- Broader Level: Teaching learning during this pandemic
- Narrower Level: Role of LIS professionals

5.1 COVID-19 and Society :

As I mentioned earlier, a society is characterized by the interactions among the humans belonging to. The first and foremost criterion of a society is to provide a healthy environment for sharing information among members. Society, being an open system, has always tried to maintain its own norms keeping parity with the environment. However, recent pandemic COVID-19 has forced us to break and violate these time-tested societal norms. Since the end of 2019, the whole globe is experiencing a deadly pandemic situation due to the spread of viral disease, COVID-19. Unlike previous viral diseases, including other Coronaviruses, COVID-19 differs totally as per spreading speed, contagiousness, and deadliness of mortality rate. There is no such vaccine or medicine to date to protect us from this pandemic disease. The only thing we can do is to maintain social distancing, and to wear masks, and to sanitize hands.

Society, on one side is trying to maintain social interactions among the members and other while COVID-19 forces us to maintain social distancing. All the actions towards fighting against COVID-19 i.e., lockdown, curfew, social distancing, containment etc. compel us to restructure

the social norms. In this tangled situation, right information should play an important role to reestablishing social norms in a different way in one hand and combat the spread and cure of this disease through research in other hand.

With the rise of this pandemic situation, information communication systems are trying to shape in a very different way. The data in table-2 shows that total COVID-19 positive cases more or less dependent on the number of tests and total population of the country, but not on the geography, culture, economy, development, politics, etc. It spreads through the droplets due to coughing and sneezing. Therefore, population density and magnitude of social interactions are the prime factors for positive cases.

Table 2. COVID-19 disease in top 25 countries (as on 12th August 2020)

Country	Total case	Total death	Total test	Population
USA	5,310,415	167,804	66,993,727	331,224,597
Brazil	3,112,393	103,099	13,231,548	212,731,302
India	2,360,358	46,536	26,015,297	1,381,530,198
Russia	902,701	15,260	31,307,764	145,941,776
South Africa	566,109	10,751	3,278,977	59,391,781
Mexico	492,522	53,929	1,112,114	129,084,654
Peru	489,680	21,501	2,612,599	33,022,595
Colombia	410,453	13,475	1,982,831	50,943,667
Chile	376,616	10,178	1,889,616	19,134,753
Spain	373,692	28,581	7,472,031	46,756,895
Iran	333,699	18,988	2,763,225	84,112,309
UK	312,789	46,628	18,868,566	67,926,890
Saudi Arabia	293,037	3,269	3,933,427	34,873,330
Pakistan	285,921	6,129	2,186,442	221,354,543
Bangladesh	266,498	3,513	1,302,739	164,873,799
Argentina	260,911	5,088	891,817	45,242,544
Italy	251,237	35,215	7,316,918	60,451,358
Turkey	243,180	5,873	5,387,751	84,440,722
Germany	219,614	9,268	8,586,648	83,814,910
France	204,172	30,354	5,500,000	65,290,273
Iraq	160,436	5,588	1,203,883	40,318,386
Philippines	143,749	2,404	1,853,010	109,742,646
Indonesia	130,718	5,903	1,783,673	273,847,853
Canada	120,421	8,991	4,541,747	37,779,537
Qatar	113,938	190	533,995	2,807,805

Source: <https://www.worldometers.info/coronavirus/?#countries>

Again, it is also clear from Figure-1 that there is an overall conformable relation among the number of tests, number of cases, and number of deaths in the case of 25 top COVID-19 affected countries.

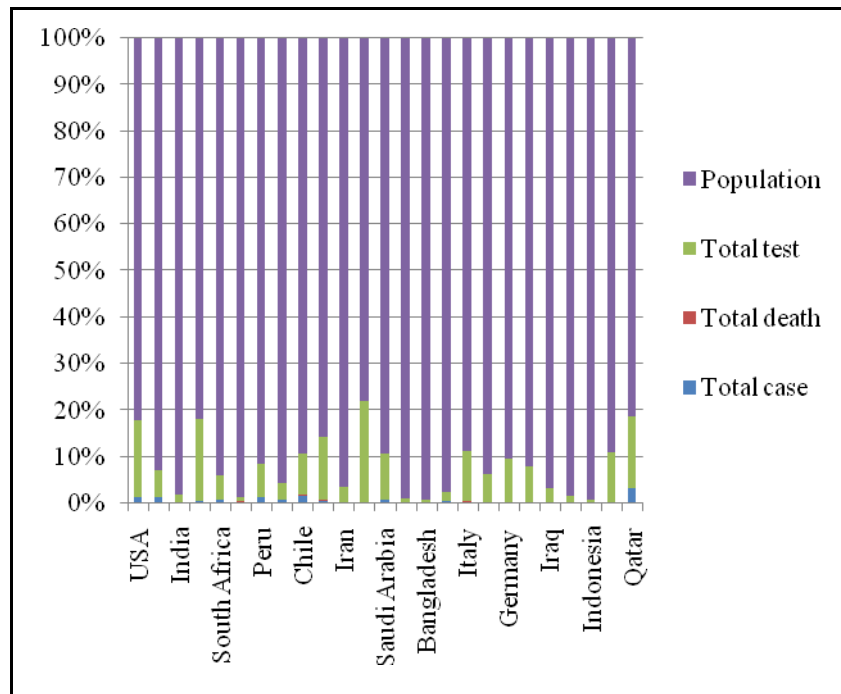


Figure 1. Total tests, total cases, and total deaths of the top 20 countries

Now, if we want to see the correlation between number of the COVID-19 cases and the population of the countries, then we can get some idea about the nature of the spread of disease with respect to population. The data were collected from Worldometer website¹. Here, I considered 97 top countries based on higher COVID-19 positive cases and calculated the Pearson correlation coefficient. Actually, I took 100 top countries, however 3 countries have some missing data; therefore, I selected 97 as the sample size (COVID 19 coronavirus pandemic, 2010). The detailed calculations for finding Pearson correlation coefficient between COVID-19 positive case and population of the countries are given below:

X = Number of COVID-19 positive cases in different countries

$\sum X = 20392142$

$M_x = \text{Mean of X values} = 210228.268$

$\sum (X - M_x)^2 = \text{Square of Deviation of Mean of X} = SS_x = 42214678499521$

Y = Population of different countries

$\sum Y = 6766967095$

$M_y = \text{Mean of Y values} = 69762547.371$

$\sum (Y - M_y)^2 = \text{Square of Deviation of Mean of Y} = SS_y = 4.02276648201218E+18$

¹ Source: <https://www.worldometers.info/coronavirus/>

X and Y Combined

N = Number of top countries based on COVID-19 cases = 97

$$\sum (X - M_x)(Y - M_y) = 5.04548682372071E+15$$

$$R = \sum (X - M_x)(Y - M_y) / \sqrt{(\sum (X - M_x)^2)(\sum (Y - M_y)^2)}$$

$$R = 5.04548682372071E+15 / \sqrt{(42214678499521)(4.02276648201218E+18)} = 0.3872$$

The value of R is 0.3872

The P-Value is .000089. The result is significant at $p < .05$.

Although technically a positive correlation, the relationship between the two variables (number of COVID-19 cases and population of the countries) is weak. However, to know whether it is significant or not, we need to calculate the P value. Now, we have to calculate the P value from the Pearson correlation coefficient R. The P value, using the R Score (0.3872), and N number of samples (97 countries) at 0.05 significant level is 0.000089. Therefore, the result was significant at $p < 0.05$. Now, we can say that the number of positive COVID-19 cases is directly proportional to the total number of population of the country. As a high population accelerates the higher chances of social interactions, hence disease spreads quickly. In case of total positive case and total death, the value of R is 0.2954 and the P-value is 0.003309 which is significant at $p < 0.05$. Therefore total positive cases and total deaths are directly proportional to each other. Again, the value of R is 0.5799 for total case Vs. total test and the P-Value is < 0.00001 which is significant at $p < 0.05$. Again due to this huge spread over the countries, strict measures like lockdown, curfew, contentment, and social distancing are implemented which, in other way is contrary to obey social norms.

5.2 Teaching-learning:

Society, being an open system, is characterized by the social interactions among the humans belonging to and sharing information among members. However, recent pandemic COVID-19 has forced us to break and violate these time-tested societal norms by implementing social distancing. Society, on one side is trying to maintain social interactions among the members and other while COVID-19 forces us to maintain social distancing, stay home stay safe, lockdown, home isolation, and containment zone. We all know that society has so many social institutions and places like school, college, club, temple, cinema hall, market, bank, office, etc. where people meet and interact together for different objectives. All these facilities are partially or totally stopped in time being; however, we have to avail these facilities through different modes of communication. Here, information is playing such a tremendous job. Everything is going on in a virtual environment. Most of the functions in education and learning, video meetings, seminars, advisory messages and news about this disease etc., to keep the society alive are happening through information communication networks.

If we go through some statistics of searching interest of keywords/phrases, it is noticed that how we are approaching to accept digital means to communicate each other over time with the rise of COVID-19 positive cases across India. I took statistics on the usage of some search terms through Google which are somehow related to online education and virtual communication in India. I used six keywords such as online education, zoom, google meet, video conferencing, Google Classroom, moodle to get the searching interest in all categories among the people throughout the India during 5th January 2020 to 9th August 2020 (Figure-2). The data shows that the interest in searching these terms reached its culmination more or less in and around 12th April 2020, which again approximately matched with the rise of COVID-19 positive cases in India. Numbers represent search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means, that the term is half as popular. A score of 0 means there was not enough data for this term. People were starting to search the software or apps to conduct online classes and video conferencing during this pandemic.

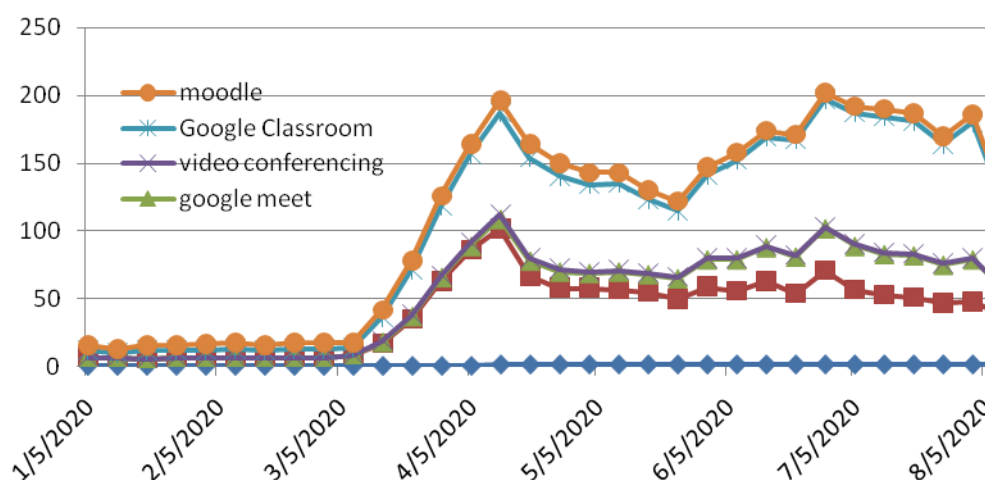


Figure 2. Search interests of some terms in Google during pandemic

Source: <https://trends.google.com/trends/explore?geo=IN>

From this study it was seen that people were trying to cope with the situation in regard to online education. So many hurdles or challenges are there to implement online education. However if we transform ourselves then we can have some opportunities also (Figure-5).

5.2.1 Challenges:

- Scope and Coverage: It may vary in 3 dimensions namely X, Y, Z. Where X indicates Spatial Distance: Teachers and students are in remote places; Y indicates Networking Facility: All places do not have same network strength, facility; and Z indicates Socio-economic Condition: All students do not have economic support to have smart phone or internet connections.
- Forget about growth and development during this pandemic, 2020 is the year of SURVIVAL. Teaching and Learning is okay but now more priority will be given to Health, Safety and etc.

Forget about normal life, we are now in New normal situation where mask, sanitization, hand wash, social distancing will be our common practice.

- Don't worry about conducting online teaching. It is not about technology – it is an attitude. We need to first change our mindset and attitude to accept the new system.
- It is very much hard to complete full syllabus through online mode. So we need to cut the contents.
- Human touch through classroom teaching will not be substituted by Mouse touch / Touch screen in online mode.
- We can arrange online mode in time being but it is not the alternative to classroom teaching forever.
- Online mode may widen the digital divide. Some students have more digital facilities than others.
- Online teaching is Less Interactive as there is limited scope to ask questions.
- Less scope to give example during teaching which are related to anti-establishment because it may be recorded.
- Online mode is not eye-soothing. Long time in screen may cause eye irritation, headache etc.
- For Holistic education we must need classroom teaching. In online mode we can make the students as per market demand.
- The academic session may be delayed, so how to accommodate full syllabus will be a challenge for us.
- We need to maintain parity among UGC order, Govt. order and University's order.
- Once online mode is established, Authority/Govt may stop appointment of teachers and support staff.
- In online mode big problems may arise in field survey for the courses like Geography, Geology etc.
- It is impossible to conduct laboratory classes in online mode for the subjects like chemistry, physics, engineering, medical etc.

5.2.2 Opportunities:

Change is the only constant in our universe. Everything will change except “CHANGE”. We all know that ‘Necessity is the mother of invention’. Now we have to maintain the COVID-19 protocol, so this new normal situation compels us to invent new mode for education system.

- Online mode can supplement the traditional teaching in post COVID-19 era.
- There may be a scope for chaining of communication during online education. Because some students may have gathered more information due to their intelligent level and network facilities. Teacher can ask them to convey their understandings to other slow-learning

students. In this way chaining of information communication may happen which is a good sign of interactions among students.

- COVID-19 pandemic gives us the opportunity to well acquaint with online classes.
- In post COVID-19 period this online classes can supplement the classroom teaching.
- There was a resistance to implement online admission earlier. Now most of the colleges/universities have already introduced online admission, so why not online classes.
- Corporate can sponsor smart phone, free internet to students.
- UGC/GOVT/University can develop software/app for online classes.
- New syllabus for this pandemic situation may be formulated.
- Orientation programme for teachers for conducting online classes may be conducted.

5.3 Role of Information Professionals:

Librarians are the Teachers of the Teachers.

- Librarian provides teaching materials to the teachers.
- They provide indirect teaching to the teachers.
- They supplies right materials to the students to supplement their learning.
- They give research materials to the scholars to supplement their research works

Here I identified 2 types of roles of LIS professionals during this pandemic.

- Role in broader perspective - The role for societal benefit
- Role in narrower perspective - The role for the benefit of library users

5.3.1 Role in Broader Perspective :

COVID-19 pandemic and side-by-side infodemic, both have worsened the situation, and trying to imbalance the equilibrium in our society. Now fake news is travelling faster than COVID-19 cases. This is the right time for information professional to prove their credibility and responsibility toward our society.

If we see a statistics in a study (Figure-3), from just two in the third week of January 2020, the instances of misinformation rose to 60 by the first week of April 2020. Though fake stories around a cure for COVID-19 lessened in this period, false claims that affected people emotionally increased, the study found. The study used 243 unique instances of misinformation from an archive maintained by Tattle Civic Technology (a Delhi-based news project that aims to make accurate information more accessible to mobile-first users) (Salve, 2020).

Being a part of the society every LIS professionals must have responsibilities to contribute something to the betterment of the society. They have experiences to handle huge number of information in an organized way and disseminate right information in right time.

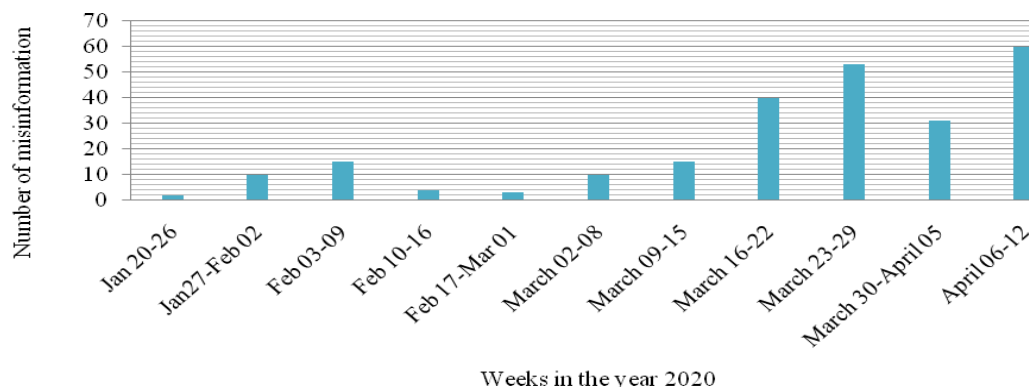


Figure 3. Fake news during pandemic

I think information professionals can do following things in this pandemic to normalize the tangled situation.

- There are so many online fake news detection tools such as AltNews, BOOMlive, Factly, Botometer, FactCheck.org, Hoaxy, Politifact, Snopes, etc. through which they can verify whether the communicated news is fake or not.
- Even they can verify the misinformation or disinformation through GOOGLE reverse image search.
- After identifying the fake news, facts should be circulated/ posted in the same social networking platform/group from where these were seen.
- They should create website, blog, or social networking pages for providing list of fake news/misinformation/disinformation with links.
- They should create website, blog, or social networking pages for providing list of useful information about COVID-19 with authentic sources.
- They should organized webinar to provide right information about this pandemic.

5.3.2 Role in narrower perspective:

Three possibilities may arise in the role of narrower perspective i.e. for the library users.

- i) Role when libraries are closed during this pandemic
- ii) Role when libraries are open in this pandemic
- iii) Role when libraries may open for library staff but not for users

5.3.2.1 Libraries are closed during this pandemic:

For subscribed E-resources, librarian may contact to the service provider to give user name, password for remote access of the resources. So that users can get access from their home. In addition librarians may make a list of Open Access resources and communicate to the library users. The list of OA resources are of four types-

- i) Gold OA: articles published in OA journals, e.g. PLOS

- ii) Green OA: articles published in proprietary journals, but its pre-print or post-print is uploaded in the repository. e.g. SSRN
- iii) Platinum OA: No need of APC, otherwise gold OA
- iv) Bronze OA: No need of APC but publishers may stop open access at any time

(A) List of OA resources librarians can communicate to the teachers and students to get access the open access resources remotely:

- i) **OATD:** The best possible resource for finding open access graduate theses and dissertations published around the world. <https://oatd.org/>
- ii) **DOAJ:** 14,900 Journals, 11,938 searchable at Article level, 133 Countries, 5,067,004 Articles. <https://doaj.org/>
- iii) **OPEN DOAR:** OpenDOAR is the quality-assured, global Directory of Open Access Repositories. <https://v2.sherpa.ac.uk/opensoar/search.html>
- iv) **ROAR:** ROAR is part of the EPrints.org network. <http://roar.eprints.org/information.html>
- v) **BOAB:** 29371 Academic peer-reviewed books from 388 publishers <https://www.doabooks.org/>
- vi) **NDLTD:** The Networked Digital Library of Theses and Dissertations (NDLTD) is an international organization dedicated to promoting the adoption, creation, use, dissemination, and preservation of electronic theses and dissertations (ETDs). <http://www.ndltd.org/about>
- vii) **CORE:** The world's largest collection of open access research papers. <https://core.ac.uk/>
- viii) **PLOS:** PLOS is a nonprofit, Open Access publisher empowering researchers to accelerate progress in science and medicine by leading a transformation in research communication. <https://plos.org/about/>
- ix) **SSRN:** SSRN's eLibrary provides 946,252 research papers from 497,216 researchers in more than 50 disciplines. <https://www.ssrn.com/index.cfm/en/>
- x) **BASE:** Bielefeld Academic Search Engine is one of the world's most voluminous search engines especially for academic web resources. BASE provides more than 150 million documents from more than 7,000 sources. 60% OA. <https://www.base-search.net/about/en/index.php>

(B) List of learning resources librarians can communicate to the teachers and students:

- i) **SWAYAM** is a programme initiated by Government of India and designed to achieve the three cardinal principles of Education Policy viz., access, equity and quality. swayam.gov.in
- ii) **UGC-MOOCs** is one of vertical of SWAYAM. http://ugcmoocs.inflibnet.ac.in/ugcmoocs/moocs_courses.php
- iii) **e-PG Pathshala:** (1) e-Adhyayan is a platform to provide 700+ e-Books for the Post-Graduate Courses. (2) UGC-MOOCs is one of vertical to produce course on Post Graduate subjects in SWAYAM (Online Courses). (3) e-Pathya is one the verticals of e-PG Pathshala which is software driven offline course. <https://epgp.inflibnet.ac.in/>

- iv) The Consortium for Educational Communication. Education through TV. 21 media centres in different universities. <http://cec.nic.in/>
- v) The **SWAYAM PRABHA** is a group of 32 DTH channels devoted to telecasting of high-quality educational programmes on 24X7 basis using the GSAT-15 satellite. <https://swayamprabha.gov.in/>
- vi) The Consortium for Educational Communication through You tube channels. <https://www.youtube.com/user/cecedusat>
- vii) National Digital Library of India. One Library All of India <https://ndl.iitkgp.ac.in/>
- viii) **SODHGANGA**-A reservoir of Indian theses. <https://shodhganga.inflibnet.ac.in/>
- ix) e-ShodhSindhu evolved by merging three consortia initiatives, namely UGC-INFONET Digital Library Consortium, NLIST and INDEST-AICTE Consortium. <https://ess.inflibnet.ac.in/index.php>
- x) **VIDWAN** is the premier database of profiles of scientists / researchers and other faculty members working at leading academic institutions and other R & D organization involved in teaching and research in India. <https://vidwan.inflibnet.ac.in/>

(C) LIS professionals may organize online orientation programmer for the teachers about :

- i) How to organize webinar
- ii) How to organize online lectures using Meet, Zoom, GoToWebinar, Microsoft Teams, OBS, Webex etc
- iii) How to create online class room using Moodle, Google Classroom, Edmodo etc.
- iv) How to use online education management system using Skolaro
- v) How to use Virtual Labs like
 - <http://onlinelabs.in/>
 - <http://www.vlab.co.in/>
 - <https://phet.colorado.edu/>

5.3.2.2 Libraries may open in this pandemic:

If libraries may open during this pandemic then various measures may be taken:

- a) Sanitization tunnel in the entrance of library
- b) Mask is mandatory for users
- c) PPE should be provided to the personnel in security desk and Bag counter
- d) Proper N95 mask for library staff in circulation counter, reading room and reference section
- e) Returned books may be sanitized or kept in separate almirah for few days
- f) Social distancing in Reading room and reference section
- g) Frequent sanitization of keyboards of computer kept for OPAC

5.3.2.3 Libraries may open in this pandemic only for staff not for users:

If libraries may open only for staff during this pandemic then various measures may be taken:

- a) Open only for library works like, cataloguing, classification, purchasing, accessioning etc.
- b) Users can use ASK A LIBRARIAN link for any queries for getting some portion of books or journal articles.
- c) Librarians should send scanned copies of limited portion of books, articles etc. to the users.
- d) Librarians should develop IDR, where they can upload scanned copies of printed books (Copyright free)
- e) However, library staff should maintain COVID-19 protocol in the library.

6. Conclusion:

In conclusion, it can be stated that although this pandemic has tried to destroy the normal lives of people in our society throughout the world, we the rational, intelligent, and social animals have also tried to adapt ourselves using a virtual information system. As I stated that human beings are rational animals, they should think rationally by using earlier facts and information. Still people may be confused by consuming fake information. However, information professionals should take active participation toward normalize this pandemic as well as infodemic. As far as online education is concerned, the LIS professionals may train the teachers about conduction of online classes. They also should make provisions so that teachers and students can access subscribed e-resources and OA resources remotely.

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