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Challenges of Online Education for Students in Rural Areas of Kamrup District, Assam

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Abstract

In the current scenario, the global pandemic has led to the adoption of new education strategies. In urban areas teachers and students often make use of distance learning, while in rural areas it is difficult to achieve. In rural areas, the students lack facilities and opportunity to participate in E-learning mode, but E-learning has now become an integral part of learning during the 21st century and especially during the Covid-19 period. In addition to sophisticated information communication technology, the computer-based digital innovations like web conferencing, videoconferencing, etc. have played a decisive role in academic and professional approaches to knowledge-based interaction between teachers and students. It has also created the need to tackle the catastrophic events, which are foreseen as the "new normal", unexpected and once in a century. But the teachers and students of rural areas have faced lots of inconvenience to switch over from traditional teaching-learning mode to currently demanding e-learning mode. Obviously, there have been significant restrictions on students living in rural areas. The present study is an attempt to study the problems relating to the teaching-learning process faced by students of the rural areas of Kamrup district, Assam during the covid-19 pandemic scenario and to explore necessary steps toward mitigation of this educational gap.

Keywords: *Challenges of Online Learning, Learning from Rural Areas, Learning during Pandemic.*

1. Introduction: The coronavirus crisis has compelled all key sectors to switch their activities online–the education sector is no exception. With lockdowns being imposed across the world, schools and higher education institutions have been shut down to protect students and prevent contagion. Online learning platform in the context of e-learning aims at combating for citizens of educational system questions of equity, equality through access to educational opportunities. Students worldwide have faced these problems relating to online mode of education where lack of proper technological infrastructures and other facilities have restricted the learners from efficiently gaining access to the teachers and online classes.

2. Objectives: The objectives of the study is to
a) Study the problems relating to the teaching learning process faced by students of the rural areas of Kamrup district, Assam during the pandemic scenario.
b) Explore necessary steps toward mitigation of this educational gap.

3. Methodology: In this study both primary and secondary data were taken into consideration. The primary data were collected through questionnaires. During actual visits to three remote villages of Kamrup district, the questionnaires were randomly distributed to the students and parents and the responses were collected. The results of these questionnaires are tabulated and presented in the present study. A total of 70 samples were taken this way.

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4. Kamrup District and its Education Scenario: Kamrup district is positioned at North Latitude 25.46 to 26.49 and at East Longitude 90.48 to 91.50 respectively. The district is surrounded by the districts of Udalguri and Baska to the North, Meghalaya to the South, the districts of Darrang and Kamrup to the East, and the district of Goalpara in the West and the district of Nalbari in the North.

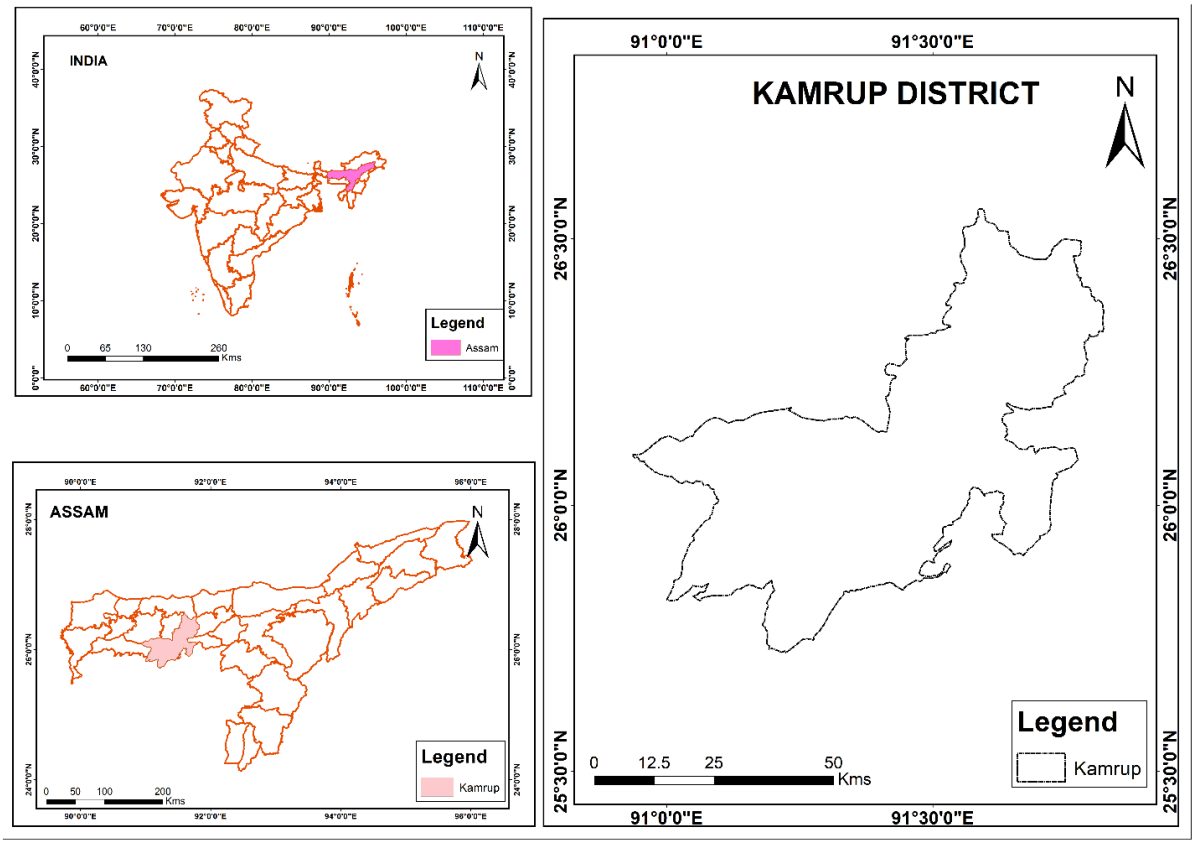

Figure 1: Location of the Kamrup District of Assam

At present, we are living in the middle of a huge education crisis, which is one of our most serious threats to global education in our lifetime. Government has shut down the schools and colleges briefly, in order to prevent the spread of the new coronavirus (Hua, 2020). The pandemic scenario has drastically affected the education system worldwide. The state of Assam is no exception to this crisis as well. State governments throughout the world have proposed a change to online education as a stopover to prevent major academic calendar disruptions. As a result, the key to transforming education has been e-learning. Although virtual learning offers many benefits, the huge digital divide in India means that those who have access to technology will only benefit, those who can adapt to it and, above all, those who can afford it. Computers, laptops, tablets and smartphones support digital classrooms, but in rural areas neither the teacher snore nor the individual students equip with these devices.

According to the Key Indicators of Household Social Consumption on Education in India report, based on the 2017-18 National Sample Survey, only 23.8% of Indian households have internet access (Apte, J., 2020). This statistic is even lower in rural areas, where just 14.9% of households have access to the internet–as opposed to 42% of urban households (Apte, 2020). Only 4% of households in rural India have access to computer based technological facilities. Some children may have a difficult time either

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shunning their curriculum or commuting to a relative or friend with an online platform for classes, which can risk everyone's wellbeing, with such a restricted access to knowledge during the global epidemic. The challenge for the students is electricity, mobile network and lack of digital literacy, and teachers too have challenges. Many of them are digitally inexperienced and a large number of teachers in rural areas in particular have not used an online platform to teach.

Critics also believed that the government needs to work towards solving the disparities in access by improving internet and network services and supporting affordable mobile data for economically backward students to make learning more accessible across different platforms. Whereas, the basic infrastructure causes an immeasurable hurdle to distance education for children and young adults, the interests of the educators must also be taken into account. Professional faculty development programs originally do not necessarily include skills necessary to undertake teaching online, which may require lesson plans to be developed or digital copy of books and study materials. When teachers are inexperienced or relaxed with virtual platforms, their ability to transmit learning materials to their students may eventually lead to less educational quality. Evolution of digital learning can also be an added benefit for those with English as their teaching medium, given that English learning instruments and material are already commonly available. In contrast, opportunities are severely constrained for the local languages comprising the Indian curriculum. Thus Assamese medium schools and students from government schools are the ones suffering from this adverse educational leap taken forcibly due to this global pandemic scenario.

Kamrup district has a rural as well as urban population. The urban areas are well equipped with internet and Ethernet infrastructure, thus enabling the students to uninterrupted educational facilities during lockdown scenario, while the rural areas of Kamrup district are not free from it. Lack of proper facilities like broadband providers, lower economic groups, inadequate technological infrastructure (Smartphone, laptop, desktop, etc), slow 4G networks, lack of computer literacy among parents, etc. are prevalent.

5. Result of the Survey in the Rural Areas of Kamrup District: A survey is conducted among the students group of the rural areas of Kamrup district of Assam. The results are shown below in diagrammatic form. The data clearly shows that the e-learner from rural areas faced many problems. The main findings of the study are summarized as-

a) 70 % of the students have access to the internet, while the rest 30% have to travel to a neighbor's house or a relative's place to conduct regular classes.

b) 16% of the students have access to laptops and desktops while 84% did not own any laptops/desktops.

c) In the absence of laptops and desktops, Smartphones were the alternative for attending the online classes and tuitions. But few economically backward families were unable to attend the online classes due to lack of Smartphones as well. 23% of the total students from the surveyed sample were unable to buy a Smartphone for conducting regular classes.

d) 82% of the total students from the surveyed sample were not well versed with operating a computer. Lack of computer literacy was another problem faced by people.

e) 44% of the learners do not have proficiency in the English language. Only 56% students from the surveyed sample were fluent in English and were familiar with software and computer technologies.

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Thus, it is observed that the aforesaid problems are of serious concern for the people in rural aresa. Students from rural areas are risking their health to travel to a nearby accessible household for computers and internet. These problems are causing disruptions to the students as education is hindered by their troubles.

Sl. No.	Problems faced by students	Number of Students			
		Yes	Percentage	No	Percentage
1	Internet Availability	49	70	21	30
2	Laptop	11	16	59	84
3	Smart phone	54	77	16	23
4	Computer Literacy	13	18	57	82
5	English Proficiency	39	56	31	44

Table 1: Result of Survey Done for Students of Rural Area of Kamrup District

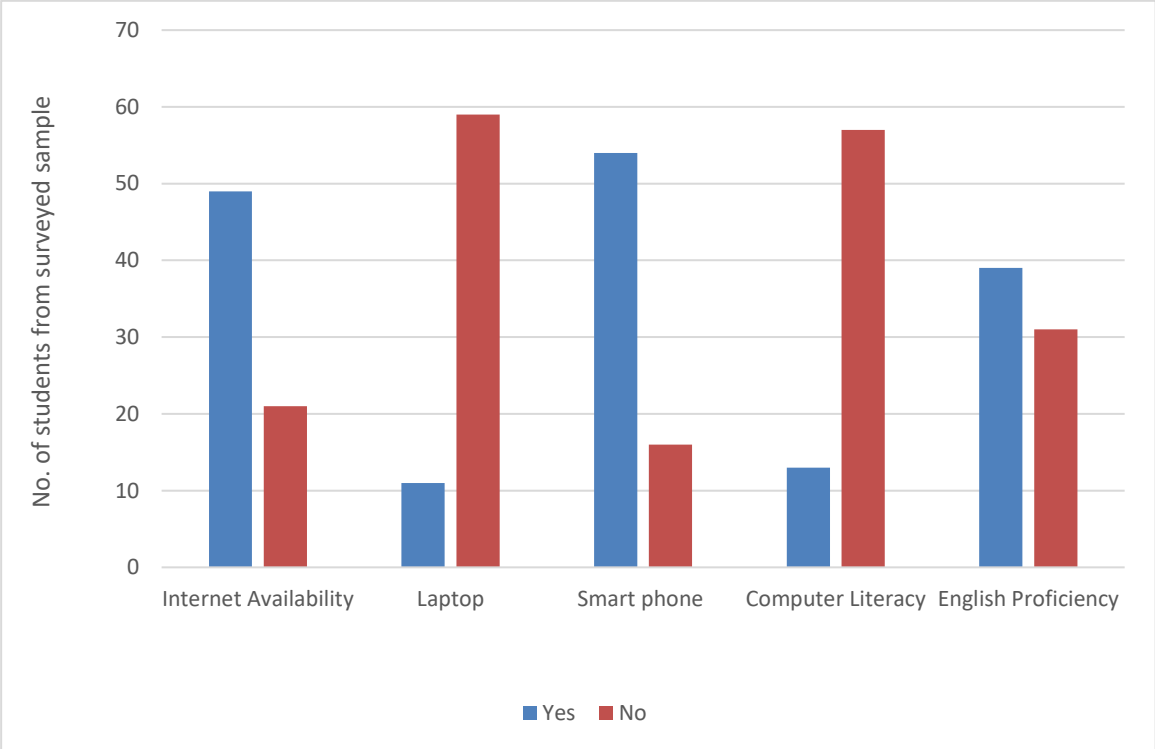

Figure 1: Problems Faced by Students of Rural Area of Kamrup District

6. Measures to Tackle the Digital Divide: To resolve the prior issues faced by students regarding e-learning mode implemented due to the present Covid-Lockdown scenario, few small but necessary measures can be focused on. All these are expected to bring efficient delivery of knowledge to the students.

a) E-learning education campaign should continue.

b) The online mode of education should efficiently be used for training programs for students and trainers alike.

c) Principal, dean and directors and other staff of the educational institutes should try to acquire and manage the online infrastructure.

d) Online classes should be properly organized so that students are allowed to take part in simulated lessons rather than stay at home and only take part in exams.

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e) Government should ensure free internet facilities in the form of data provided to the students below a particular economic background to ensure educational security to the students.
f) Teachers should guide the students suitably to ensure the use of technology and availability of online contents.
g) E-learning courses must be designed to make it easy to use and better suited for all learners.
h) Officials of government should be concerned about e-learner's challenges and initiate necessary steps to resolve them.
i) E-learners in rural communities can benefit from enhanced and unobstructed power supply.
j) Parents of students should ensure the basic knowledge to operate the learning applications and help guide their children during the e-learning.

Although online learning instruments are valued to be personalized, affordable and equitable, internet access is not. In many rural areas of Kamrup, internet connectivity at households is very truncated. Various public-private agencies and non-profit organizations collaborate towards the issues of remote education transformation. Free mobile apps for providing study materials to the students are launched and publicized. Materials are provided for studies with video learning and downloadable e-contents. While these steps yield several positive outcomes, central and state governments will concurrently endeavor to improve their digital infrastructure in virtual learning, adapt their school curricula and teacher preparation to suit into the framework of online courses. Sadly, this issue has not been resolved with significant expenditure.

The distinction between one-to-one learning and online learning produces significant weaknesses in online methods, such as the lack of human interaction, the lack of interactive learning opportunities, teachers' oversight and the lack of practical training opportunities for complex topics such as science and mathematics (Chari, 2020). Most institutions do not need advanced technology. Schools in rural areas can facilitate the use of a simple mobile teaching device (Nanjappa, 2020).

The government should, however, promote that the bandwidth is increased in rural areas. After the poor students return to school, efficient interaction is expected. Teachers must connect to the parents of the students in the lower classes to ensure continuity in education. Children should be encouraged into a peer learning system.

7. Conclusion

The pandemic of COVID-19 revealed serious differences between rich and poor families, between rural and urban households and between men and women. These disparities illustrate the gaps even on virtual platforms of India's access to education. The current system is inadequate to act as a suitable alternative to individual learning, while a push to remote learning is understandable in these difficult times. Only poor, vulnerable and disadvantaged citizens can get further into the margins of society and even worse, leaving them behind in the present path of refusing to build and strengthen the education infrastructure of the country.

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Problems and Prospects of Online Education During Covid-19 Pandemic

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Abstract

Formal Education is completely disturbed in the ongoing lockdown due to the pandemic situation arising from Covid-19. Online education has become the only way of accepting methods for continuing the teaching learning process. The teachers are bound to adopt different tools like video conferencing, Google classroom, YouTube to engage in the teaching learning process and make students positive and vibrant. During the time of online education, various problems regarding the internet connectivity, online learning materials, students' cooperation, etc. have to be faced. So, thre is a high need to analyse the problems of the online education system.

Keywords: *Online Education, Online Teaching-Learning, Education during Covid-19*

1. Introduction: Online education is an adjustable pedagogical transmission system. It surrounds different types of learning which take place with the help of the internet. Online education provides teachers a great probability to connect students who may be unable to admit in a conventional classroom. In this global pandemic situation, it becomes the only approach of communication between teachers and students. Therefore, it is on high priority to study about the existing online education system along with its unavoidable problems. This study is significant from this perspective as it tries to make an analysis on the problems of online education and to suggest some measures for minimizing these problems.

2. Objectives: The main objectives of the study are as follows:
a) To analyze the problems of online education in the Covid-19 pandemic situation;
b) To suggest measures to overcome the problems of online education.

3. Research Methodology: The data used in this study are secondary data which are descriptive in nature. The required data are collected from the secondary sources like various journals, websites as well as from the personal experiences gained during the online classes.

4. Analysis: An objective-wise analysis is made under the following sections:
a) The Problems of Online Education in the Covid-19 Pandemic Situation: During this global pandemic situation in the name of Covid-19, the general education system is hampered. Everyone is bound to adjust with the online teaching learning process as it is the only means of education. The teachers as well as the students are in urgent need to adapt various online communication tools to get connected with each other. In this process, various issues and challenges are faced. These can be analyzed as follows:
i) Lack of Proper Internet Connectivity: It is a big problem faced during the online education process, specially in most of the rural areas, internet facility is so poor that it creates serious problems for running the online teaching learning process.
ii) Lack of Smart Phones/Computers Among the Students: Students from poor economic backgrounds are suffering from this problem. Due to their poor economic condition, they are unable to buy a smartphone or a computer which is an urgent need for engaging in the online classes.

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iii) Less Possibility of Practical Classes: Online education is not suitable for imparting the practical works like field study, laboratory practical, etc. That is why students are unable to acquire necessary practical skills required for completing the practical works.

iv) Social Isolation: In online education, students engage in their classes from different places like from their own home rather than the conventional classroom environment. It makes them socially isolated from each other.

v) Lack of Sufficient Feedback: In a conventional classroom, students can get immediate feedback from the teachers when they face any doubt regarding the subject matter taught. But in the process of online education, students' problems remain unsolved.

vi) Problems in Assessment: Assessment of the students' performance is a big issue in the online education system. Students have to complete the activities provided for assessment sitting at their home in which chances of cheating becomes more.

vii) Lack of Sufficient Knowledge on Use of ICT Based Tools: It is a common problem in online education. Lack of sufficient knowledge on use of ICT based tools hampers in smooth continuation of the online classes..

viii) Ignorance of the Students: Another problem regarding online education is that in some cases students ignore the online classes. It may be due to network problems or any other personal problems.

ix) Lack of Sufficient E-resources: Lack of sufficient E-resource is one of the major problems in online education. Again, very less amount of e-resources is found in regional languages. It makes lots of difficulties for the students studying different regional subjects or subjects in their regional languages.

b. Suggestive Measures to Overcoming the Problems of Online Education: As online education is the only means of education during this pandemic situation, so in spite of the problems we have to go with it for the continuation of the teaching learning process as well as for the benefit of the students. Here some suggestive measures are provided which may be helpful for improving the online education system:

i) Improvement of Internet Connectivity: For the improvement of internet connectivity, the government should take necessary steps. If possible, free internet services should be provided for the economically poor students. Sufficient number of mobile network towers should be established in every location.

ii) Provision of Free Tools: Due to the lack of smartphones and other essential tools for attending the online classes, students are unable to attend their online classes. Free smartphones can be provided to the economically poor and needy students.

iii) Accessibility of the Study Materials: Study materials should be easily accessible to both privilege and underprivileged students. All the study materials should be made available at any particular website in various regional languages according to the need and demand of the students.

iv) Motivation of the Students: E-Quiz, online competition on music, dance, essay writing etc. can be organized for motivating and increasing interest of the students towards online learning. This type of creative activity can help students reduce anxiety and tension in this pandemic situation.

v) Organization of Training Programmes for Teachers: Teachers should be trained to use various means of E-Learning. In this regard different workshops or training programmes can be organized for improving the knowledge required for using online learning resources.

vi) Teacher-guardian Online Meet: Teacher guardian online meet should be organized for better understanding of the mental condition of the students during the pandemic situation and to provide suitable suggestions regarding the role of parents in maintaining their mental wellbeing.

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vii) Cooperation Between Teachers and the Students: For the effectiveness of the online teaching learning process, good cooperation should be maintained between the students and the teachers. Teachers should be free to discuss different topics with the students as well as to enhance their mental strength during this pandemic situation.

viii) Maintenance of Regular Routine: Teachers should try to communicate with the students on a regular basis through online classes and should motivate the students to maintain the regular routine.

ix) Provision of Feedback: Provision of feedback should be kept regularly so that students can clear their doubt and confusion regularly. Workshop/webinar/discussion forum can be organized for the students so that they can share their views and comment regarding the courses of their study as well as their personal problems.

5. Key Findings: The key findings of the study are as follows-

a) Online education occupies an important place in today's education system.

b) It has become the only means of communication between teachers and students during this global pandemic situation.

c) Because of various problems such as low internet connectivity, ignorance of the students, lack of sufficient E-Resources, lack of smart phones among the students, less possibility of practical classes, problems in assessment, etc. hampers the smooth running of online education.

d) By taking some suitable measures like improvement of internet services, organization of training programme, maintenance of regular routine, provision of frequent feedback, organization of motivational programme for students and teacher, guardian online meet, etc., the problems of online education can be minimized.

6. Conclusion: The online education is the sudden demand of this pandemic situation. Various online learning means need to be adopted in this situation because it becomes the only means of teaching-learning process. But because of various reasons such as lack of proper internet connectivity, improper knowledge in using online learning tools, lack of cooperation and motivation, ignorance of the students, etc., online education have not been as effective as it should have been. But in today's global pandemic, we can't deny the significance of online education. With the above mentioned suggestions, we should proceed with hope and faith in the journey of online education for making it more effective and fruitful.

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Open Access and its Role in Online Teaching-Learning

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Abstract

This paper discusses a conceptual view of open access movement in general and its role in online teaching and learning with the initiation of open educational resources. The concept of open access is not merely new but many of the users and creators are still unaware of its main meaning and benefits. The purpose of this paper is to define the actual meaning of the term open access and its advantages both for the creator and users. It also explains the approaches or routes through which the articles can be published in open access publication and gives a detailed view of the six licenses of creative commons (CC). Libraries also have a defined role and advantages in popularising the open access (OA) movement and open access also plays a greater role in online teaching and learning through open educational resources (OER).

Keywords: *Open Access (OA), open access movement, online teaching and learning, open education resources (OER), scientific publication*

1. Introduction: With the advent of Information and Communication Technology (ICT), online teaching and learning have drastically gained acknowledgement in higher education. The Internet age has more or less taken over the traditional ways of teaching and learning, which means immensely developing and accepting to the web world. Increasing availability of a vast number of digital or electronic resources has made learning easier for teachers and information seekers. Simply, online teaching and learning are the ways that a tutor or a learner adopts to express, share and gain knowledge through online mode using electronic resources. Synonymously, it can be called e-learning or online learning. Electronic resources or e-resource are generally the materials in digital format which is accessible electronically anytime, anywhere within the network coverage area. But, recently, it is often seen that most of the resources have been restricted for use through various policy systems and the digital divide. The open access publication and open educational resources movement intends to give out such barricades and focus on gaining and disseminating information freely. The concept of open access is the access or retrieval of scholarly publications through online medium immediately with no restriction. With the introduction of open access, the barriers of information restriction have been constantly decreasing. In both open access and subscription-based publications, a standard quality review is followed with a major difference in required fees. In the subscription-based publication, the user requires to pay for the materials they are seeking for while in open access no fee is required in access resources on the internet but a minimum cost is involved in establishing the infrastructure of open access which is usually quite cheaper than a long term subscription of resources. Eventually, the open access movement focuses mainly on scholarly publishing which has a direct benefit to the users by allowing access to free of cost publication as well as for authors of the scholarly publication by providing greater visibility and sharing of their work.

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Figure-1: Changing Trends in Scholarly Communication

(Source: https://theejbm.wordpress.com/2013/10/23/a-movement-in-academic-publishing-open-access-open-review-open-science/)

Open educational resources are the educational resources with least or no restriction available on the internet. The open educational resources are specifically for educational use which can be shared, retrieved, reused and modified by its users but strictly prohibited for commercial purposes. Open educational resources include learning objects such as lecture material, references and readings, simulations, experiments and demonstrations, as well as syllabi, curricula and teachers' guides (UNESCO, 2002).There seems to be a similarity and relation between both open access and open educational resources movement which highlights certain opportunities and visibility for the authors as well as the learners in online teaching and learning platform.

2. Open Access (OA): Open access is free, online,immediate availability of final publisher's version with full reusable right where everyone can read it, cite and helps to provide scholarly publication full exposure. In the subscription-based publication, people need to pay to read any publication but in open access publication, it is free with no or fewer copyright/licensing restrictions. In fact, the journal can request an article publication charge from the author but a certain funder is providing grants to cover the publication charges.In this way, the author will have full exposuer to his work and the scientific research content will be available to everyone in the world with network connectivity to read, download and modify. Since the open access articles have greater exposure than subscription-based, it will eventually receive an extensive citation and follow up by greater impact in the discipline. And another advantage is that the author will own the rights of his work.

The introduction of the concept of open access first came into existence by some idealists in the meeting held at Budapest called Budapest Open AccessInitiative (BOAI). Budapest Open Access Initiative is the first meet held in the open access area by OpenSociety Institute at Budapest, Hungry back on December 1-2, 2001. It is considered to be the first worldwide initiative on open access except for the European countries. This initiative has been taken up to accomplish its mission to remove the barriers of old traditional ways of publication and make research publications visible and accessible worldwide. BOAI aims to make open access publication economically feasible and encourage the readers with extraordinary power to search, access and use relevant literature to make the literature search more valuable and relevant, and it also gives the authors and their publication greater visibility, readership, and

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impact to enhance education. This initiative was also focused to diminish the digital divide by sharing the learning between the poor and the rich and satisfy the thirst for knowledge.

BOAI defines open access as *"free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited".*

Later, after the meeting held in Budapest, on 13th April 2003, some of the personages of Howard Hughes Medical Institute, USA, like biomedical researchers, editors, publishers, funders and librarians, gathered defined open access more deliberately, which is known as Bethesda Statement.

An open access publication must undergo the two following conditions:

a) The author(s) and the copyright holder(s) grant(s) to all the users promises a free, irreversible, interminable right to access to the author(s) contribution across the world and also permits to copy, use, disseminate, transmit present the work freely in digital format for any accountable reason and provide proper attribution of authorship as well as provides the permission to make a little number of photocopies for personal use.

b) A full record of work and all supporting materials, including a copy of the permission as stated above, should be archive in at least one repository in a technically standard electronic format instantly after the initial publication that encourages and supported by an academic institution, scholarly society, government agency, or other well-established organization that seeks to enable open access, unrestricted distribution, interoperability, and long-term archiving like PubMed Central for the biomedical sciences

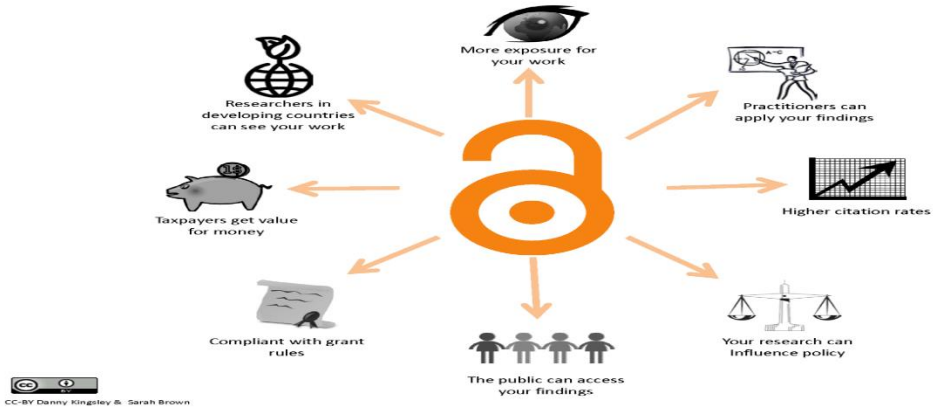

Figure-1: Significance of Open Access

(Source: http://www.oaacademy.org/why-open-access.html)

Finally, soon after the Bethesda Statement, the Berlin Declaration on open access to knowledge in the sciences and humanities was published in a conference. The Berlin Declaration was similar to Bethesda Statement but with additional recommendation i.e. to deposit a copy of a published document in an open access repository and to encourage the authors to publish in a suitable open access journal.

3. Approaches to Open Access: All the scientific output of any researchers like journal articles, book chapters, books, or conference articles can be made freely and publicly available in two structured ways. The two approaches were determined by BOAI which tends to the peer-reviewed literature visible throughout the world. There are:

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a) Green Route or Open Access Repositories*:* There are many forms of green open access but it is usually defined as the self-archiving, an article in a repository, or on a personal website. Self-archiving can be simply called as the process of archiving the published articles by the authors themselves to increase visibility. The repositories will govern to a certain level where the content will be easily exposed and connected forming a network through different web search engines to create one large open access database around the world. All the contents of the database will be indexed by Google Scholar and other search engines. Some of the repositories for self-archiving are:

i) Institutional Repositories: An institutional repository is a database of collection of output, content, or assets of their institution or organization in digital format for worldwide visibility and acknowledgment. Institutions build repositories by using open source software like DSpace, EPrints, Greenstone, etc.

ii) Subject-specific Repositories: The name Subject-specific repositories itself describe its meaning which is the digital collection of the content of a particular disciple created by authors by archiving in a repository or by 'harvesting' content from other repositories by creating a central server. Some of the examples of Subject-specific repositories are 'arXiv', PubMed Central (PMC), E-LIS, PhilArchive, etc.

b) Gold Route or Open Access Journals: The Gold route allows immediate and permanent open access to the final version of an article through the publisher's website to anyone across the world freely instantly after published. The gold route of open access publication can be achieved by payment of an article publishing charge to the publisher by the author, their institution, or their funder which eventually allows them to attain the copyright of the publication. The gold open access publications are generally offered by the three types of a scholarly journal as follows:

i) Fee-based Open Access Journals: Fee-based open access journals are the journals where the users will access the article free of cost online immediately after publication but the author(s), institutions, or funder need to pay an OA publication fee or article processing charge (APC) to the publishers. For the publishers like Elseviers (2960 journal, 48,300 books), Springer journals, Public Library of Science (PLOS), there is a fee to pay a certain amount as article processing charge for publication by the author(s) himself or the funders. The Directory of Open Access Journals (https://doaj.org) includes information for 15,047 OA journals from 133 countries and 5,183,029 articles. 12,065 journals are searchable at the article level.

ii) Hybrid Journals: The hybrid journals are the journals which possess both the open access articles and also the subscription-based articles. In this type of journal, there is a provision to allow the author to choose the ways to publish the article immediately after the acceptance of the article by the publishers. Example: Elsevier.

iii) Subsidized Journals: Subsidized journals are the journals in which the articles are available freely and online for the users and also the authors are debarred from paying the article processing charge. These journals are fully supported and encouraged by the government, affiliated organizations, or a society by providing funds for publication in OA. Example: Journal of Biomedical Research and Reviews.

4. Creative Commons (CC) Licenses: Open access publication directly depends on the copyright provided by the author himself. In open access publication, the author will hold its ownership but has a desire to share and have visibility across the globe. Creative Commons license is the most appropriate licensing for open access publication. Creative common is a non-profit organization launched on 15th May 2001, which helps the creator to gain its ownership but also helps to overcome the legal barriers in sharing the knowledge and encourages creativity. With creative commons license, the content shared can be copied,

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downloaded, disseminated, edited, reused and built upon within the copyright policies. The six categories of creative commons licenses are:

i) Attribution: This license allows the users to share, distribute, disseminate, remix, modify, even commercially but it is necessary to acknowledge the original work. The license is symbolized as CC BY. This license is regarded as most considerate among all the licenses which prioritize maximum dispersal and utilization.

ii) Attribution-ShareAlike: This license is represented as CC BY-SA. This license is not much different from attribution license, which permits the users to copy, re-use, remix, and even commercialize but with the condition of proper acknowledgment and that derivatives must also be made available to the public on the same terms as the previous works. This license is rather influenced by 'copyleft' free and open source software licenses. Wikipedia uses this CC BY-SA license.

iii) Attribution-No Derivatives: This license is denoted by CC BY-ND. This license usually permits the user to reuse and remix the original work for any purpose, even commercial but does not allow to share the remix or modified work and gives importance to provide credit for the original work.

*iv) Attribution-Non-Commercial:*This license is represented as CC BY-NC. This license usually permits to use, reuse, remix, adapt and modify but do not ask for commercialization of the work with proper credit. It restricts commercialization and users don't have a license for their derivative works on the same terms.

v) Attribution-Non-Commercial-ShareAlike: This license is denoted by CC BY-NC-SA. This license permits users to use, remix, modify the original bunton-commercial with proper acknowledgment. This license also allows users to create their work under similar terms.

vi) Attribution-Non-Commercial-NoDerivatives: This license represents CC BY-NC-ND. This license has the most restrictions among all six. Here, the users are only permitted to download and share among others but can't modify the original work with proper credit to the author. This license also restricts from commercializing.

5. Benefits of Open Access: The open access movement has gradually been accepted and supported by many. The OA movement itself has brought out several benefits for the scholarly publication itself and its author(s), their institutions and grant funders.

i) OA diminishes all the price barriers and debars restrictions copyright permission for the users.

ii) OA can enhance relevant, valuable, recent literature search.

iii) OA will help to access free information more quickly than accessing information from a subscription-based publication from the libraries.

iv) OA movement will lead to a decrease in the biases of digital divide among the poor and rich uniting humanity.

v) OA provides greater visibility on a global level to the author(s), their works and their institutions.

vi) With greater visibility, the author will receive more citations and recognition for their work.

vii) OA also encourages interdisciplinary research since it has become easier for one discipline researcher to use the literature of the other discipline.

6. Role of Libraries in Open Access: The foundation of open access does not merely design with the existence of libraries but still, libraries can always be benefited through it. Some of the key benefits that libraries can acquire from open approach noted down below:

i) Encourage users to access OA works: Since the main motive of libraries is to benefit the users by providing the information they are seeking for and through open access articles it

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would be a lot easier for the library professionals. Libraries with their facilities can encourage and monitor their users to the dynamic coverage of OA materials.

ii) Digital Publishers of OA Works: Nowadays, libraries do not only store scholarly information, but also have become digital publishers by creating institutional repositories through free open source software to offer free or open access journals or articles. Definitely, for the implementation of this project, there will be certain requirements like hardware/software, cost, and manpower. But this will boost the services or facilities of that particular and satisfy its users.

iii) Free/Open Access Journals and Books: Most of the renowned libraries today, publishes free/open access journals or books for its users and recognition. Some of the examples of libraries publishing free/open access journals are University Press by Cornell University Libraries, Electronic Green Journal by the University of Idaho's Library.

iv) Institutional Repositories: Libraries can eventually help in creating an institutional repository using open source software like DSpace, Eprints, or by assisting in designing the user interface or in creating the IR metadata and many more.

v) Subsidize Author Fees: Libraries can help the author(s) by subsidizing or reducing the article processing charge through institutional memberships for publishing in OA journals. In this way, libraries can support the open access movement, and make use of its benefit available to all users across the world, which will be a two-way benefit for both.

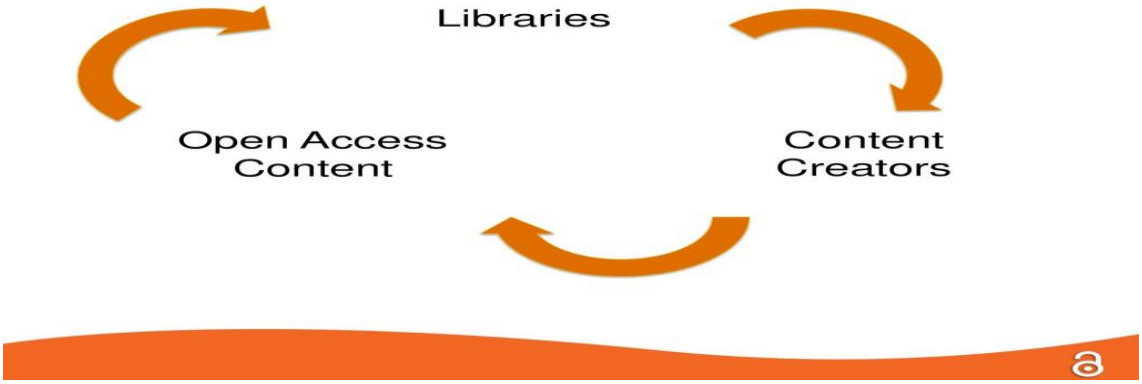

Figure-3: Correlation between Libraries and Open Access Content
(Source:https://slideplayer.com/slide/15022706/)

7. Role of OA in Online Teaching and Learning: Presently, online teaching and learning have gained much more popularity and recognition mostly among professional learners. Online teaching and learning can be regarded as a convenient and flexible mode for both teaching and learning with internet connectivity.Online teaching is a new medium for instructors to make use of their new ideas and techniques for better understanding by using different multimedia tools. Online learning is student-centered learning unlike the traditional mode of learning and also offers collaborative learning and easy access to global resources. In open education, online materials are as important as network connectivity. Online materials are the resources that are available in digital mode and can be shared with others over the web. Online material or open access materials will be much more beneficial for the instructors as well as the learners as it provides open, online, immediate access to resources or material with no or fewer restrictions.

Generally, the educational materials or the resources which are available on the web with little or no restriction not for commercialization are usually referred to as open

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educational resources (OER). OER was first introduced by UNESCO in 2002 and defined as "the open provision of educational resources, enabled by information and communication technologies, for consultation, use, and adaptation by a community of users for non-commercial purposes". Open educational resources offer advantages and opportunities for the instructors to use the non-restricted educational resources and also can share and get recognition among global audiences. The open access movement and OER mainly rely on enabling the availability of the research materials to the users and also enable the authors to publish their work freely to provide greater visibility across the globe. The open access movement mostly relies on the availability and easy production of educational materials over the internet with no distribution cost.The learners and teachers can support the open movement by creating, publishing and also benefited from it. Online teaching and learning through OER and OA movement can debar the digital divide of the economic barrier of learners and enhance the development of uniting humanity.

8. Conclusion: The open access movement will initially change the model accessing and publishing information in every discipline. The initiative of the open access movement is to promote free access and the creation of knowledge as a human right. With the introduction of open access in Budapest Open AccessInitiative (BOAI), 2001, the accession of scientific information is cost-free by alleviating the economic barriers. OA has benefitted both the creators and receiver in many ways i.e. worldwide visibility, free access. It also lets the users use, re-use, remix, adapt and build upon the origin work under certain creative commons licenses. The creators of the knowledge have to choose different approaches to publish their work i.e. green and gold and need to pay a certain amount as the article processing charge (APC). Through open access movement, the learners, contributors and libraries have the main benefits by accessing all the open access materials with few or no restrictions without having to purchase the subscription-based journals. Open access movement also plays a role in online teaching and learning by providing the open educational resources all for free with no barriers and with the option to modify and share debarring the digital divide among information seekers.

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The Dark Side of Technology: Technostress in the Library Environment

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Abstract

The advancement in technology has become a blessing in disguise for the library professionals. Though it has undoubtedly improved and enhanced the library operations and services, at the same time it created many challenges. The usage of ICT technologies like integrated computer systems, multiple databases, CD-ROMs, Internet and World Wide Web (WWW) has given rise to enormous strain on the library professionals resulting in technostress. The term technostress refers to the feelings of anxiety or phobia in the minds of library professionals, which may arise either out of their involvement or over exposure with computer technology. This conceptual paper tries to highlight the issues related to technostress in the library environment. It examines the concept of technostress which includes- its definitions, factors inducing technostress, components of technostress, technostress in libraries and coping strategies to deal with it.

Keywords: *Technostress, Techno Phobia, Computer Anxiety*

1. Introduction: The implementation of sophisticated Information and Communications Technology (ICT) tools in modern libraries is inevitable for providing value added information resources and services to the patrons of the library. "An automated cataloguing, circulation and acquisition system has led to better management of library operations and improved services" (Omosor, 2014, p. 203). However, the widespread use of ICTs in the library environment and increasing dependency on the Internet has created many challenges to the library professionals. With the increasing levels of library automation, both library staff and users often have to deal with concerns over how technology is going to impact them. Vast amount of information is available in a wider variety of formats. Computer operating systems and software versions are changing so rapidly that by the time library staff and users get used to one version of the software, the next version gets released (Sami & Pangannaiah, 2006). During the last two decades, the advancement in ICTs have not only changed the library environment drastically but also altered work roles, expanded required skill sets, and increased uncertainty about future prospects of libraries and library services. Library professionals are constantly eager to adapt new technologies out of the fear of becoming obsolete resulting in technostress. The term technostress also used synonymously with technophobia, computer phobia, computer anxiety and computer stress, is one of the negative effects of the continuous use of ICT in libraries. It is the negative psychological link between people and the new technologies.

Many users found it very difficult to adjust to the new technology in the so-called automated library environment. Those library users, who were previously using library card, now have to become dependent on the library staff for using computer based indexes. Quinn (2000) opined that one of the most challenging problems that the librarians face at the reference desk is working with adult learners. The adult learners may become perceptibly uncomfortable, and appear confused, disoriented, or anxious when they come to know that the library card catalogue no longer exists, or now it is computerized in the form of Online Public Access Catalogue (OPAC). Adult users often feel inadequate, embarrassed, and even frustrated by their lack of computer skills, especially when they compared themselves to younger ones. Students of all ages may experience technostress to some extent, but adult learners seem more prone to it than younger students (DeLoughry, 1993).

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2. Definition of Technostress: Brod (1984) a pioneer in the field of technostress, had coined and defined the term as "a modern disease of adaptation caused due to lack of an individual's ability to cope with new computer technologies in a healthy manner. It manifests itself in two distinct but related ways: in the struggle to accept computer technology and in the more specialized form of over-identification with computer technology." (p.16).

Though Brod (1984) looked at technostress as a disease, other researchers considered it more as an inability to cope with the changes brought by technology. David-Mallis (1998) identified technostress as a condition whereby a person has to adapt to new technology especially when there is inadequacy of the equipment, support, or the technology itself. Weil and Rosen (1997) defined technostress as any negative impact on attitudes, thoughts, behaviours, or body physiology that is caused either directly or indirectly by technology. According to Clark and Kalin (1996), the real definition of technostress is "resistance to change". They claimed that technology is not the culprit because computers and technologies are just tools and stress is a natural reaction. Thus, they suggested that in order to manage technostress, it is the change that has to be managed not the technology.

3. Factors Inducing Technostress: There are generally two main groups of factors that induce technostress (Owusu-Ansah, Azasoo, & Adu, 2016):

a) Environmental Factors: These factor refers to poor working conditions, insufficient lighting, inadequate equipment, inadequate security measures, user incompatibility, noisy equipment, software limitations, lack of funding, electrical issues, risk of accidental data loss, insufficient knowledge and insufficient staff which may cause people to suffer technology-related stress.

b) Social Factors: These factors refer to conflict of interest caused by the use of technology, power struggles, work and role changes, anxiety over loss of employment, work fragmentation and hierarchical changes which may cause people to suffer technology-related stress.

4. Components of Technostress: Tarafdar, Tu, Ragu-Nathan, & Ragu-Nathan (2007) had described technostress as a problem of adaptation resulting from a person's inability to cope with or get used to ICTs. They had developed five components of technostress which are described as:

a) Techno-overload: A situation where the ICTs users are compelled to work more and work faster.

b) Techno-invasion: A situation where ICTs users feel that they can be contacted anytime or anywhere thereby losing their privacy and free hours causing an unclear boundary between work-related and personal contexts.

c) Techno-complexity: A situation where ICTs users feel that their skills are insufficient because of the difficulty related to ICTs which compelled them to spend all their time and efforts in learning and understanding the use of new applications and updating their skills.

d) Techno-insecurity: A situation where the ICTs users feel insecure of losing their jobs, either being replaced by the new ICTs or by other people who have a better understanding of new gadgets and computing devices.

r) Techno-uncertainty: A condition where the ICTs users feel uncertain and mentally disturbed since ICTs are endlessly shifting and need upgrading.

5. Technostress in Libraries: Library professionals in academic libraries have to work in an ever changing technological environment. They cannot remain idle as they have to cater to the learning needs of the library users. They have to work with multiple and rapidly changing computer systems, upgrade the computer hardware and software, manage electronic resources,

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meet the information demands of their parent institution, students, faculties, other staff, and maintain a balance between their personal life and work life. As noted by Al-Qallaf (2006) "today, librarians provide access to eclectic e-collections, create and maintain digital content, support e-learning, provide real time e-reference, negotiate contracts and licensing agreements and struggle with the economics of electronic information" (p.168). Therefore, the usage of ICT technologies like integrated computer systems, multiple databases, CD-ROMs, Internet and World Wide Web (WWW) has given rise to enormous amount of strain on the library professionals resulting in technostress.

Bitchteler (1987) observed that "accompanying the successful and exciting high tech revolution in libraries has been the occurrence of a number of physical, psychological and social problems among staff and patrons" (p.282). The exit from the manual methods of carrying out library services has no doubt improved the quality of services offered by the library to its patrons, but on the other hand it has also brought about a reasonable degree of technostress experienced by professional librarians while rendering library services. Research studies have shown that technostress affects both physical health as well as mental health of the library professionals. Majority of the library professionals found physical symptoms like eye strain, joint pain, back pain, headaches, hand and wrist pain, rapid heart rate, insomnia and other muscular problems as a result of technostress (Mahalakshmi & Sornam, 2012; Chauhan, 2018). The psychological symptoms of technostress include computer anxiety, tension, frustration, irritation, confusion, anger, nightmares and depression (Haneefa, 2016). Okine (2019) identified unrelenting stress, heart diseases, brain damage, low job commitment, computer anxiety and rigidity of workflow as effects of technostress among professional librarians and paraprofessionals.

Kupersmith (1992) in his survey discovered that information overload, networking problems, security issues, computer hardware and software, ergonomics and vendor-produced databases as some of the leading causes of technostress for library and information professionals which may result in poor level of job performance. Bartlett (1995) had stated that causes of technostress such as insufficient training to the library professionals and the lack of standardization in the library affects the librarians physically and psychologically. According to Ennis (2005), librarians experienced technostress especially due to the reasons such as pace of technological change, lack of proper training, increased workload, lack of standardization of hardware and software and changing roles of librarians**.** Owolabi, Aregbesola, & Oyesola (2015) stated that sitting in front of computer for long period was found to be the major cause of technostress among library staff resulting in redness of eyes as well as back and neck pain, while computer phobia and other ICT tools was reported to be the least cause of technostress.

The adoption and utilization of ICTs have no doubt tremendously improved library routine jobs such as information collection, processing, organization, storage, packaging and dissemination. However, the library professionals while carrying out their library routine jobs have to interact with the computer and other tools of information technology for long hours. The job of library professionals is mostly sedentary and therefore, they tend to spend quality time in front of the computer in order to enhance their productivity. Hence the combination of intensive technology use and work demands has resulted in an increase in computer-related anxiety or stress.

6. Coping Strategies: The following strategies are recommended to the library stakeholders for coping with technostress in the library environment:

a) Technology based education and training to both library staff and users;
b) Developing positive attitude towards technology;
c) Providing adequate equipment and technical support;

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d) Purchasing user friendly hardware and software;
e) Regular break intervals while using technology;
f) Avoid multitasking;
g) Effective time management;
h) Regular physical exercise and meditation;
i) Stress inoculation training;
j) Work recognition by way of rewards publicly; and
k) Better ergonomics practice.

7. Conclusion: It is evident that in the 21st century, ICTs have undoubtedly revolutionised modern day life, but at the same time it has also brought with it new problems. Today, the application of technology has become a trend in libraries as technology has generally been found to enhance the efficiency and effectiveness of library services. Nevertheless, it is essential to realize the negative impacts of technology. It has become very critical in recent times for library professionals to be abreast with the latest technology in order to continue to be relevant in their profession. Library professionals need to adjust themselves with the changing library environment and new formats of technologies; develop new technological skills and learn to handle different metadata applicable in the libraries. Libraries should select both hardware and software applications that fit their working environment. This is very essential because the library environment will keep changing to keep pace with technological developments. Hence, it is necessary to create awareness about technostress and its effects and possible ways to manage it. The easier the library professional interacts with the technological system, the less technostress will be created.

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Stress Management by the Women Library Professionals in Assam

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Abstract

Stress depends on the mental condition of people. It can be physical, emotional, situational, etc. and these play an important role in affecting the lives of individuals. Today, in the situation of pandemic COVID-19, people cannot visit libraries in search of books and information but library professionals have to reach each and every reader to provide the required information. This study aims to find out the various physical and mental stresses and anxiety occuring among the women library professionals and to evaluate the satisfaction they get as a library professional.

Keywords: *Stress, Technostress, Covid-19, Women Professionals*

1. Introduction: Stress is a very simple word. It depends on mental condition of people. It can be physical, emotional, situational, etc. and these play an important role in effecting the lives of individuals. It is seen in every profession for the competitive life of modern world. The increasing usability of science and technology and new productivity of it have extended their activities to human life. People would be bounded to adopt new technologies to move forward their lives. There is no room for natural attachment in day-to-day life. As we know nature and science are two sides of the same coin. Like the words of Sivakar Jana, "It is better to call, the present society as an "age of stresses"".

2. Background of the Study: To meet the need of the virtual society of users every library professional has to adopt the various online teaching – learning tools and to make well converse with recent advancement of digital environment. They have also to impart information literacy programme for users.

Ranganathan says that Reference Service is a service which provides right information to right reader at right time in a right personal way. He pens that "Every reference librarian should strive, invoking the full weight of his will, to realize this delightful state of contact with the readers and the books in his daily life."

Today, in the situation of pandemic COVID-19, people cannot visit library in search of books and information but library professionals have to reach each and every reader to provide the required information. Reference Library staff can provide information to readers through e-mail, WhatsApp, messages, blogs and websites in modern era. They can be extended their services using TeamLink, GoToWebinar, Zoom, Cisco Webex, Google Meet, etc.

Earlier library profession was only a service-oriented but now it becomes the teaching, learning and service oriented one. The characteristic of the profession has changed but the professional ethics of librarianship is deeply rooted in Indian Culture.

3. Objective: The objectives of the study are

a) To find out the various physical and mental stresses and anxiety occurs among the women library professional.

b) To evaluate the satisfaction, they get as a library professional.

4. Methodology and Scope: This study has carried out with questionnaire and interview method. The primary and secondary data are also being used.

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The respondents are the women library professionals located within the geographical area of Assam. A total of 35 nos. of professionals from different schools, colleges and universities responded to this study.

5. Definition: The word stress comes from natural science. The concept of stress is discussed and new research has done from 18th to 19th century. Like every natural phenomenon stress has also two different aspects. Here stress has defined with two negative and one positive definitions.

According to the Oxford English Dictionary (2008), stress is "*an adverse circumstances that disturbs, or likely to disturb, the normal, psychological functioning of an individual, such circumstances collectively result a disturbed state."*

According to the National Institute for Occupational Safety and Health (2008) "*Job stress can be defined as the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker. Job stress can lead to poor health and even injury."*

According to Han Selye (1956) *"stress is not necessarily something bad -it all depends on how you take it. The stress of exhilarating, creative successful work is beneficial, while that of failure, humiliation or infection is detrimental*."

6. Causes of Stresses among Library Professional: The cuases of stress among the Library and Information Science professionals can be grouped into the following-

a) Workload at Office: Each and every library has routine work. Sometimes the library personnel feel that his/her role is overloaded qualitatively or quantitatively.

b) Time Pressure: Library hours demand quality time. In case of some staff, they feel hectic and caused stresses.

c) Technological Disturbance: The library staff have to use technological tools. The computer screens can bring detrimental effect to the library personnel. As such constant sitting in front of computer can cause spondylosis and eye-strain.

d) Personal Inadequacy: In library e-environment staff have bound to engage with various technological tools and techniques. Some library staff feel that they are not equipped or have necessary skills or knowledge to perform effectively.

e) Resource Inadequacy: Some library staff feel that they are not provided with nascent information and adequate resources and it causes stress. Frequently changing syllabi also leads to stress on personnel.

f) Decreasing Personal Time: Sometimes the library works are increased and demand overtime, it decreases personal time of staff and can cause stress.

g) Reduction of Staff Strength: Work division among library staff is a common phenomenon. Sometimes staff are decreased by the authority and it can cause stress.

h) Unsecurity of Job: There is limited scope for library professional to undergo in service training programme, higher studies, refresher course, etc. It has increased stress for job security. Further, there is a fear for replacement of LIS professional by IT professional that has create a sense of insecurity among LIS professional about future prospect in service life.

7. Analysis: It is found that 69% of the respondents were Librarian, 19.4% of respondents were Assistant Librarians, 8.3% of respondents were Library Assistant and 2.8% of respondents were Assistant Professor. It shows that the highest number of women library professional are engaged as Librarian and lowest number of women library professionals are engaged as Assistant Professor.

Sl. No.	Designation	Percentage (%)

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1.	Librarian	69.4%
2.	Assistant Librarian	19.4%
3.	Library Assistant	8.3%
4.	Assistant Professor	2.8%

Table-1: Designation of the Respondents

Sl. No.	Time Involvement	Hours per day
1	Time given in institute	6.18 hours
2	Time given in front of computer	1-2 hours 8.3% 2-4 hours 47.2% 4-8 hours 41.6%
3	Time at home	8.14 hours
4	Time given for children	3.71 hours
5	Time for social service Responded by: 48% Not responded by: 51.4%	1-2 hours 37.1% 2-4 hours 11.4% 5-7 hours 2.9%
6	Time given for creative personal work	1-2 hours 52.8% 2-4 hours 33.3% 5-10 hours 14%

Table-2: Time Involvement of Library Professional

The above table shows that the respondents able to mange a balanced in between different activites. It can be derved that all the respondents used to give time at their institute properly. Almost half of the professionals use computer to smoothly perform their house keeping activities of libraries. It is a good sign of women library professional that they handle computer smoothly, they provide information literacy programme for users. But they feel technostress because the staff strength of their libraries are weak and no technical staff are available at any workplace.

The women library professional give 6.18 hours of time in institute, 8.14 hours at home and 3.14 hours per day for children. 48% of them engaged in social service. All the women library professional involves in creative work.

Sl. No.	Environment	Separate Lavatory	Sexually Abuse	Cooperation with Authority	Cooperation with Colleague	Overall Stress
1	Highly satisfactory 22.9%	No 51.4%	Yes 2.8%	Highly satisfactory 22.8%	Highly satisfactory 22.9%	Yes 74%
2	Satisfactory 65.7%			Satisfactory 74%	Satisfactory 77.1%	No 25%
3	Not satisfactory 11.4%			Not Satisfactory 11.4%		

Table-3: Stress Inside the Workplace

The working environment of the women professional is almost satisfactory. 51% women has no separate female lavatory. It increases stress in workplace. It is found that a smaller number of women are abused sexually. It shows that even the educational institutions are not fully secure for women. If the mindset of male colleague or male

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authorities are not changed, the stress will remain for the women professionals. Overall, 74% of the women library professional face stress in their workplace.

Sl. No.	Level	Percentage (%)
1	High	2.9%
2	Medium	34.2%
3	Low	17.1%
4	No	45.7%

Table-4: Professional Life Hampers the Family Life

The above table shows that most of the respondent's family life are hampered by their professional life whereas 45% feels that their professional life does not hamper their family life.

Stress			No stress
77.1%			22.9%
High	Medium	Low	
11%	66.7%	22.2%	

Table-5: 7.5. Stress on Coming Back to Home

The above table shows that three fourth of the total respondents feel stress after coming back to home. Most of them are medium level of stress. A smaller number of respondents (22.9%) do not feel stress after coming back to home.

8. Findings: The following are the major findings of the study-

a) Library and Informaiton Science is a good profession for women people. 17% of the women LIS professional got social reward or good remarks for their professional activities.

b) All women people adopt some techniques for reducing stress like yoga, meditation, prayer, music, reading, laughing, walking, etc.

c) Three fourth of the total respondents have got cooperation with colleague and authority.

d) In workplaces number of computers are in between 5-16 but there are no technical staff to handle them.

e) Half of the respondents do not have separate female lavatory.

f) One respondent was sexually abused.

9. Recommendations: From the study following recommendations can be made-

a) Women need to work as a team to prevent the harmful effect of stress.

b) Work stress should be minimized by integrating new skills into professional capabilities.

c) Technological skills should be continuously acquired.

d) To maximize the cooperation with colleague and authority communication skill should be improved by the women professionals.

e) Women professionals should give attention to physical health and hygiene.

f) To increase self confidence among library staff, workshop, training or hand-held sessions should be organized.

g) Attending yoga classes and doing regular exercise will decrease the professional stress.

h) Listening music also heals the stress. Reading makes 68% stressless which is found in a research output of Susex University.

i) Women should always care about high dignity and values.

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10. Conclusion: The professional competency and a dream based on reality will not produce stress. The library professionals are always ahead to lessen the hurdle of time. Stress occurs with the changing environment. Every people have inherited ability to adopt the new challenges. The women are not differed from that. They do professional works with caring children in a balanced way. Although they feel various stress, they reduce it by adopting various techniques and provide better services at workplace. Again, medium level of stress is good to cope up with challenges.

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Stress in an Online Classroom amidst Pandemic 2020

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Abstract

This study ventured the stress that develops with online classes, the challenges and the issues. The dominant explanation trying to be focused in this study was thechallenges and issues that layered with Global Emergency that has shutdown nations towards infection control, bringing hold on academic interests of students. Data collected in the form of surveys amidst the lockdown was used to decompose the correlation between online education and its consequences over students' mental, physical and emotional health.

Contrary to the narrative assumed, there was potential rise in stress, largely attributed to the rapid evolving changes in the environment incorporated with online mode of teaching. The purpose of this study was to determine the perceived stress scale of students of different age groups and the effectiveness of online education. Several studies have reported the influences of screen time on health, which has abruptly increased. The survey singularly sorted the effects observed among our test subjects to project an anomaly. This article urges the downside of online teaching which could neutralise the demerits and enhance the quality of learning to every student. This framework would make us presume the influence on one's cognitive capabilities post stressful experience.

Keywords: *Students Stress during Covid-19, Pandemic 2020, acute-stress, lockdown, depression, e-learning, screentime.*

1. Introduction: "The one thing that is certain in life is uncertainty and learning to live with insecurities, is the only security," said John Allen Paulo. WHO declared novel coronavirus as a pandemic on March 11, 2020, from being identified as pneumonia-like from Wuhan, China on 31st December 2019 (World Health Organization, 2020 April). This global health crisis was expected to be controlled with the influence of all governments, businesses, communities, families, and individuals' cooperation and the risk of transmission was called for an international emergency. Over 200, both developed and developing countries have been affected (World Health Organization, 2020). As the outbreak started escalating, the Indian Government decided to have a nationwide lockdown, which interrupted the daily chores, offices, and academics (The Lancet, 2020, April 25). State governments demanded the closure of educational institutions, cinema halls, swimming pools, and gyms.

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Unaware that it could ever be comprehended in such a way where the entire world comes at a standstill and we all are forced to live in solitude. As the Test Positivity Rate (TPR), was rapidly doubled, the virus has shown no mercy on humanity, therefore prevention was the only strategy to keep the population safe. With no scope of reopening the new academic year, many institutions opted for virtual classes ultimately amplifying the existence of electronic environments in student's lives. Not just the existence of the pandemic but as students encountered with the infamous online classes for this particular academic year it largely resulted in stress and anxiety. "2013 Survey of Online Learning," a study conducted by Babsan research group with a large number of participants concluded that 90% felt, "it might be feasible and that most of the high school students will be soon taking an online class in five years to provide relevant educational opportunities to meet career goals" (Babson College, n.d.). Virtual learning was one of the means to support conventional education but with the launch of e-learning, what if all the students are forced to opt for this option indefinitely? The angst of all the foreseen plans coming to halt, just like that because barriers tend to make people, especially students go through a lot of stress. Such situations need a lot of attention and external help to deal with" (Goothy, Goothy, Choudhary, Potey, Purohit, Chakraborty, Pathak, & Mahadik, 2020 April 30).

Stress can be illustrated as a feeling of emotional, mental, and physical pressures that define one's state of mind, and on the other hand fear of the unknown is known as anxiety and in this case, it is the coronavirus (World Health Organization, 2020 March). It was speculated that people facing pandemic had emotional breakdown leading to anxiousness, stress, and depression, furthermore magnified by the inhabitation of electronic learning to fulfill academic ambitions for the student community. Lately, the COVID-19 confinement or lockdown disrupted the curiosity to seek daily chores, hobbies, healthy regimes, lively interactions of a student and a teacher, on-campus routines, and finally eliciting psychological distress are commonly identified.

The chief goals of this study are to understand the present Online Teaching-Learning effects on students with regards to their gender, level of education, residing place, and the uncertainty of the examinations. For instance, a student residing in the same city as their educational institute may not be distressed as someone who resides in a different location due to the impact of migration amidst lockdown (Dandekar, & Ghai, 2020, May). Though teachers are trying to give their maximum effort, the impact of online teaching isn't optimum (Agha, 2020, April 3). The fundamental reason being, all students are unable to access virtual platform usage and smooth functioning of the session by the hindrance of network instability and its affordability. The transition of conventional classes to e-learning isn't trouble-free which can have a huge repercussion on student's career paths. In a study by Roy, Tripathy, Kar, Sharma, Verma, & Kaushal (2020, June) and Acharya, (2020, June 15), high amounts of anxiety and stress were found among Indian students during the COVID-19 outbreak. To the best of their knowledge and efforts, distress experienced by students undergoing online education contains various forms of internal and external stressors. But it is important to explore the stress-induced due to the electronic environment. Thus, this is an attempt to understand the absolute digitalization of education for planning effective mental health management (Rehman, Shahnawaz, Khan, Kharshiing, Khursheed, Gupta, Kashyap, & Uniyal, 2020, June 23) [for] the student community.

2. Methodology: A nationwide lockdown was announced due to the spread of the Coronavirus affecting the mass population. This crisis not only needed a substantial study on the development of vaccines but also on the deteriorating mental, physical, and emotional health as a result of isolation, which demanded the need for observational learning from society. Thus, various questionnaires or online surveys are circulating in and around social

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media. To make our survey accurate in every detail, the questionnaire was designed under certain parameters, as this online survey was pivotal and essential to determine the outcome of the study and has:

a) The main target was to achieve student respondents undergoing virtual learning, as online classes have been taken up by the majority of the educational institutions and the student community to continue their intellectual well-being amidst the social-distancing.

b) Age was the key element of a question to interpret the stress levels of students inclusive of their profuse areas of study and level of education. The inquiry was kept simple, straight forward, and uncluttered to allow students especially those below the age of 12 years to feel comfortable in answering.

c) To gain faith over the authors of the questionnaire and eliminate any doubts or hesitancy of the participants in the survey, no personal information like name, Email id, address, ID card was collected, to make the respondent feel reliable upon the source. This is the bias that was considered to be a benefit in the results.

d) As students, the way of dissemination of the questionnaire was chosen to send across social media like WhatsApp, E-mails, and Instagram. The benefit of this kind of social framework is, the inquiries are amplified by the means of sharing or like a relay until we accomplish a certain aggregate of attendees to establish a significant and meaningful groundwork for data analysis.

e) Lastly, surveys ensured the form could be filled in 3-5 minutes, even if maximum detailed information isn't registered by making it short. This is regarding an affirmative approach towards the stress reliever of the attendees.

The elements that are finalized to be part of the survey questionnaire was divided into three sections containing multiple-choice questions, checkboxes, short answers, and linear scales to ease out the process of reporting to each of the query being asked. Also, 23 out of 25 questions were marked as required (denoted by *) to compute the uniform frequency of responses.

i) The opening of the form included the basic criteria of the student like age, gender, their current educational status.

ii) The second section contained 20 questions on "virtual learning challenges".

iii) The last section comprised questions on stress perception levels inclusive of any effects seen physically, mentally, and cognitively.

The survey accounted for remarkable quantitative data for further study, but to address the qualitative methodological approach to estimate various factors of stress on students under the same given conditions, a limited number of attendees volunteered to follow up on the assessment. The supporting assessment eventuated in the manner of Screen time vs. Stress (SS), the Perceived Stress Scale-10 (PSS-10), Stress Exploration (SE), Signs, and Symptoms of Stress (SSS) each of the studies had 28 subjects who were the part of a case study for 8 days.

The Stress vs. Screen time was a direct query asking the individual's average screen time for the past month and posed a question of whether higher screen time had any effect on their stress and anxiety. This aspect has led the study in interpreting the results regarding electronic environment-induced stress levels. The other form is made in terms of generating Perceived Stress Scale-10 developed by Sheldon Cohen (Manzar, Salahuddin, Peter, Alghadir, Anwer, Bahammam, & Pandi-Perumal, 2019; Maroufizadeh, Foroudifard, Navida, Ezabadi, Sobati, & Omani-Samani, 2018), as it's the most widely accepted scale to analyze the perception of stress, taking into consideration the three perceptions like emotional, environmental and psychological response. Stress exploration was aided in identifying the techniques for stress management suitable for every individual.

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The questionnaire was sent on 2nd August 2020, drafted over Google Forms at https://forms.gle/x2WXo1fQWwHCEwAY8 which is widely available, & can be accessed anywhere, highly user friendly, and easily adapted to mobile devices. Google form is the best alternative resource to prevent fomites based transmission of pathogens amidst epidemiology for paperless research procedures but it remains a unilateral option. The subjects/students who responded and contributed to our study belonged to three groups - Group I (Age- <12 years), Group II (Age- 12-17) & Group III (Age- 18-24).

3. Results: Altogether 343 responses collected in our study via Google forms. Data were organized and statistically analyzed which is diagrammatically & graphically represented in the following figures 1, 2, 3 4, 5, 6, 8, 10. The parallel case studies are tabulated in the form of figure 7, 10 respectively.

The results of the study were very convincing and gave insight into the varying stress levels in different groups. Though we had variation in the number of subjects in each group, out of total responses 73% were from graduate students 20% were from high school, 4 % were postgraduate students whilst 3% were in middle school as tabulated in figure 1.

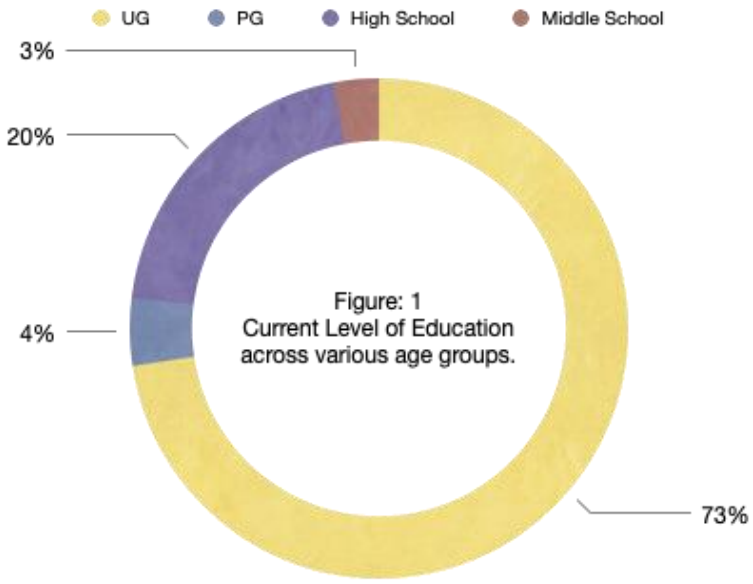

Figure 1: Level of Education of the Respondents

Figure 2 indicates the no. of hours of study for different age groups. 73.95% students under the age group 12-17 have their online classes for 3-6 hours, 15.62 % of the same age group has their class in the time range of 0-3 hours and 10.41% of that age group has their class for more than 6 hours. The age range of 18-24, the majority of them have their class in the time frame between 3-6 hours, 23.23 % have their classes less than 3 hours 19.50% have their class for more than 6 hours. In the age range of students below 12, 50% have their classes in the time frame of 3-6 hours and 50% have it in less than 3 hours. Figure 2 shows that with the increase of age range, the duration of the class time also increases.

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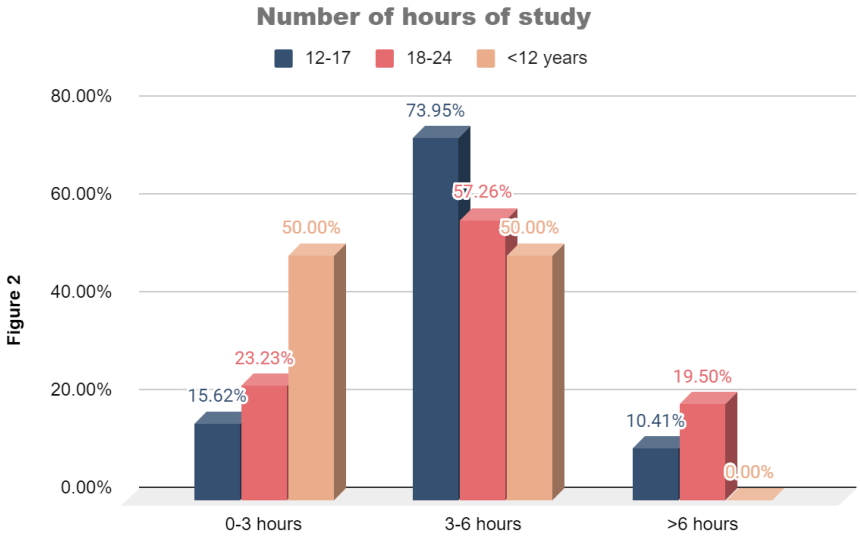

Figure 2: Number of Hours Devoted to Study

Figure 3 shows students below the age of 12 under Group-1, have the potential to reach maximum cognitive, physical growth, and development but they are not aware to greet and accept various situations resulting in stress. The affirmations confirm that virtual communications are not suitable options for close interactions that students are missing out on. This may lead to disinterests, easily exhausted and unavailability of time for physical hobbies and socio-affable relations. Ambivalent responses were observed in cases like online classes being very tough, having a designated place of study, and having a stable internet connection; these kinds of responses are subjected to solitary situations irrelevant to data. Besides, it manifests incapability of students to cope or understand, as teaching pace is much faster compared to regular modes of classes and the simultaneous availability of social media and electronic gadgets around is a recurring source of distraction for students of this age group.

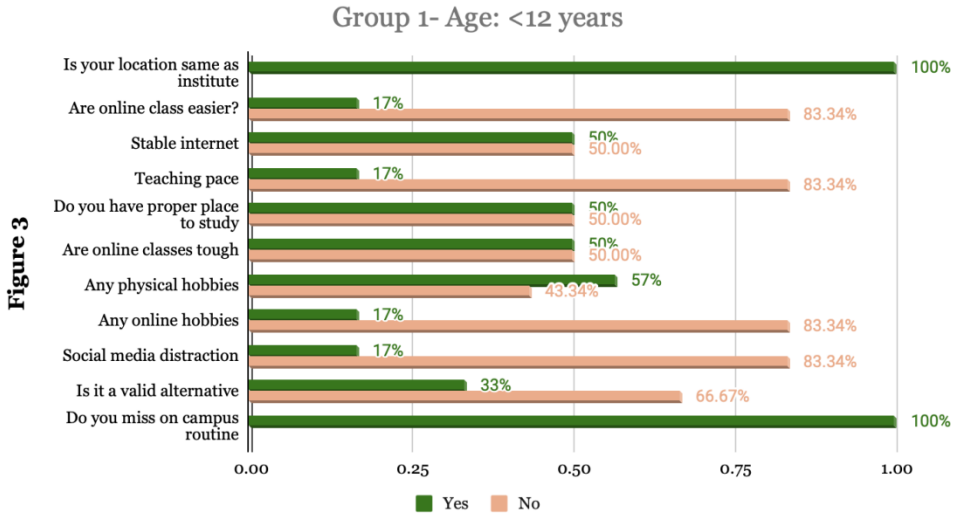

Figure 3: Different Aspects of Online from the Age Group 1 Respondent (Age below 12 Years)

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A large expansion of stress responses of students from age 12-17 years under Group-2 as seen in figure 4, primarily those who belong to high school and undergraduate compared to <12 years of age. The intensity of the academic burden and the transition from one class to another in an off-putting situation, the institutions are either forced to rush in completing the syllabus or is that how online classes function? Facing fast pace learning which is neither easy nor less stressful, even at the comfort of learning from home. Is this a good sign for young minds to be pursuing career paths with education which is not shown to have a major impact on students' minds. Students are taken away from exploration through campus-teaching, finding common interests to pursue among peers, seeking personal hobbies, and increasing physical activity due to prolonged lockdown. Barely there could be any extra-curricular indulgence to have versatile, resilient, and intellectually competent. Around 91.6% of students found missing friends, daily commute, and on-campus routines. A form of social anxiety, a constant feeling of missing peers, and the incessant need to feel included, which is the point of conflict during online classes.

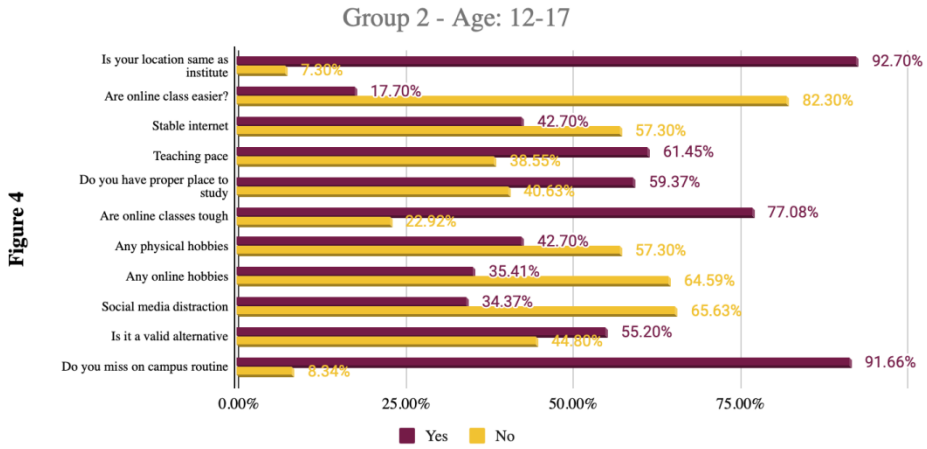

Figure 4: Different Aspects of Online from the Age Group 2 Respondents (Age 12-17 Years)

In figure 5, containing students age 18-24 under Group- 3 includes the major part of our statistical data, the pattern of responses is found to be similar to that of Group-2, and the notable contributor is the disapproval of online classes, a valid alternative to campus education. This contradiction may be due to the complexity of the syllabus and learning potentials among students between 18-24 years of age, which cannot be fulfilled by online modes of teaching influenced by an academic load and other correlating factors that act as stressors. Schools are meant to be the host to produce well rounded and highly skilled citizens. As the studies have progressed and stress is better understood than ever (Reddy, Menon, & Thattil, 2018) as a lifestyle crisis that affects any individual not accounting for their developmental stage (Banerjee, & Chatterjee, 2016). In Indian culture, specifically all that's expected of students is to focus on their studies. The added pressure of online classes isn't helping anyone. The expectations of conquering the world seem pretty unfathomable when you are not allowed to go out in the world. Not just students, but in India parents or guardians are the primary caregivers of the children even at the ages of 23-24. Affording technical equipment for them especially at a time when around 136 million jobs are in jeopardy has proven to be unbearable.

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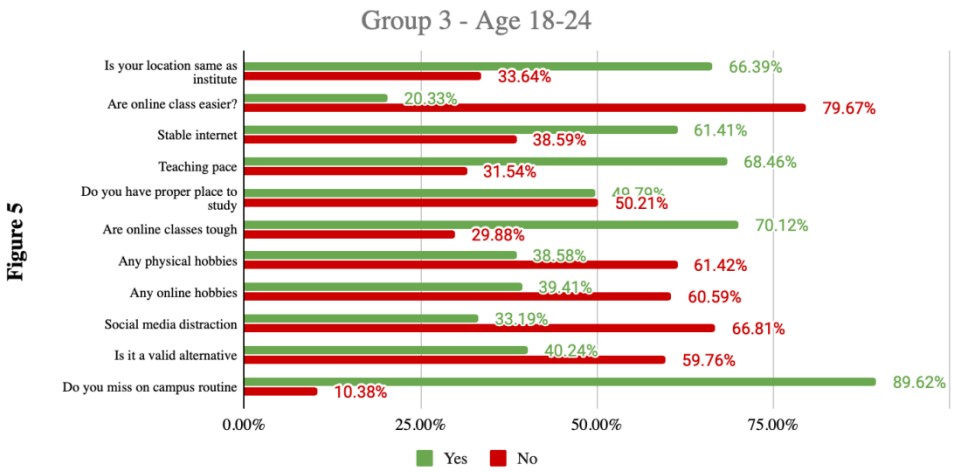

Figure 5: Different Aspects of Online from the Age Group 3 Respondents (Age 18-24 Years)

As tabulated in figure 6, having a hobby can substantially result in the alleviation of stress according to various studies in universities like Colombia and Kettering. However, in our case, 207 out of 345 students report having not enough time to even pursue their hobbies. In the same survey, 44.3% of students report back that they feel fatigued and burnout often in the online class. The same holds for health and exercise (Levy, & Goldman-Rakic, 2000). Still, 37.1% of survey takers report not having a healthy routine and 35.4% can label their routine, healthy sometimes. Biologically, when your brain starts perceiving a chronic threat in the form of stress, the dorsolateral prefrontal cortex experiences shrinking the DLPFC functions like planning, cognition, and memory and as it shrinks one starts losing concentration and focus and the ability to plan and they start developing apathy. What else happens is the hippocampus also starts to shrink where memory is lost. All of these are symptoms of chronic depression and that is why we wanted to make sure that students feel a sense of purpose when we asked them if they felt that, is an online campus a valid equivalent to a real class where the majority doesn't even believe it to be a legitimate equivalent (55.4%) feeling a sense of false achievement.

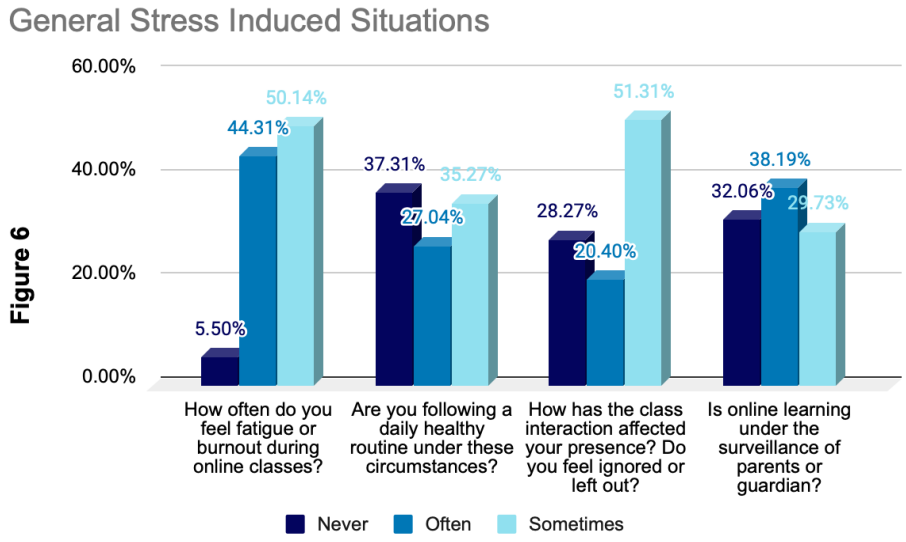

Figure 6: General Stress Induced Situation of the Respondents

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PSS-10 developed by Cohen et al is a tool to study the degree of how stress is perceived by people under similar or even the same happenings. It is a resilient variable to study global stress levels and is a great method in analyzing key factors that have resulted in valuable output to this study. The overall missing data were filled up as this test had minor misled information. A total of 28 students took the test. This test posed 10 questions in terms of linear from 0-4, to answer certain questions for the past month. Every question indicated how often and certain the individual feels to compute a value estimate. The results have been analyzed given several limitations. An informed measurement of perceived stress was necessary to interpret thus, the overall score was categorized on a total score of 40. *0-13 less stressful; 14-26 moderately stressful; 27-40 extremely stressful.* All the results derived from the subjects are depicted in figure 7 and concluded that 69 % were categorized as moderately stressed, while 17.2% and 13.8% were perceived on a low level of stress.

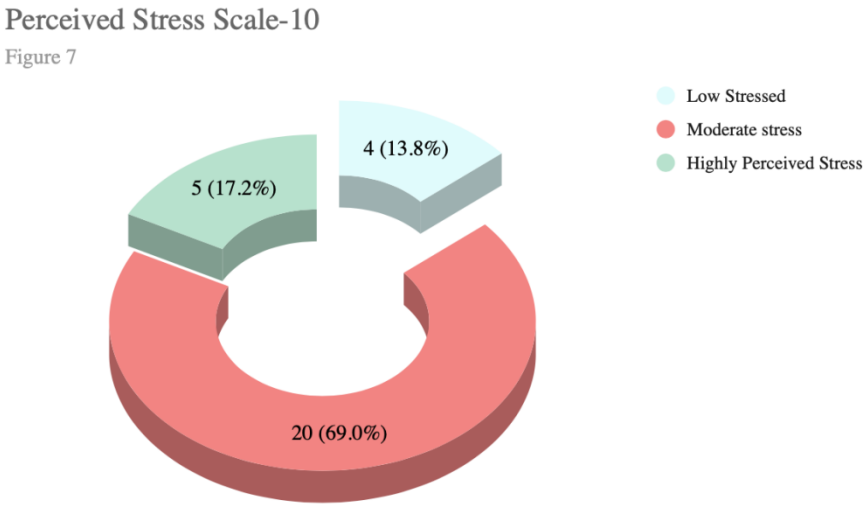

Figure 7: Perceived Stress Scale-10 of the Respondents

Figure 8 shows the most chosen response for all the 3 questions raised. In a campus setting, the students have the prerogative of finding any book on any subject matter in the school's library but in a home setting, this prerogative only comes under the stipulation for only those books that are online. This is why 155 responses were due to not receiving appropriate study material whereas 167 felt they received adequate study material. It has been mentioned above that online classes were never a valid alternative and neither delivered satisfaction to the faculty at large for various reasons. Though modifications have been made, it is just considered adequate to meet the needs of every single student. Not every individual could have computers, laptops, or tablets. Similarly, a proportion of students might not have hands-on experience with Microsoft Office for documentation. As seen in figure 9, 10, the parallel case study conducted has contributed valuable input on-screen time vs. stress. It is important to recognize the correlation between obscure time vs. stress, a parallel case study data has been recorded to support the theory that increments of screen time have psychological impacts or on one's mental health. Notably, around 59.1% of the student respondents opted for this particular academic year as the major contributor towards stress, moreover coupled with the steady increase of screen time has potential health deterioration among various demographics (Stults-Kolehmainen, & Sinha, 2014).

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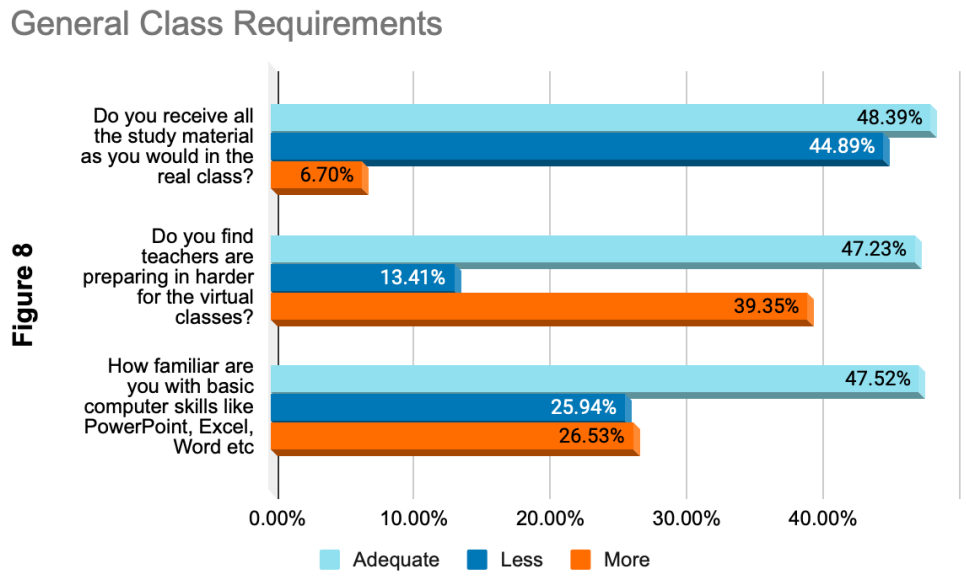

Figure 8: Online Environment as Perceived by the Respondents

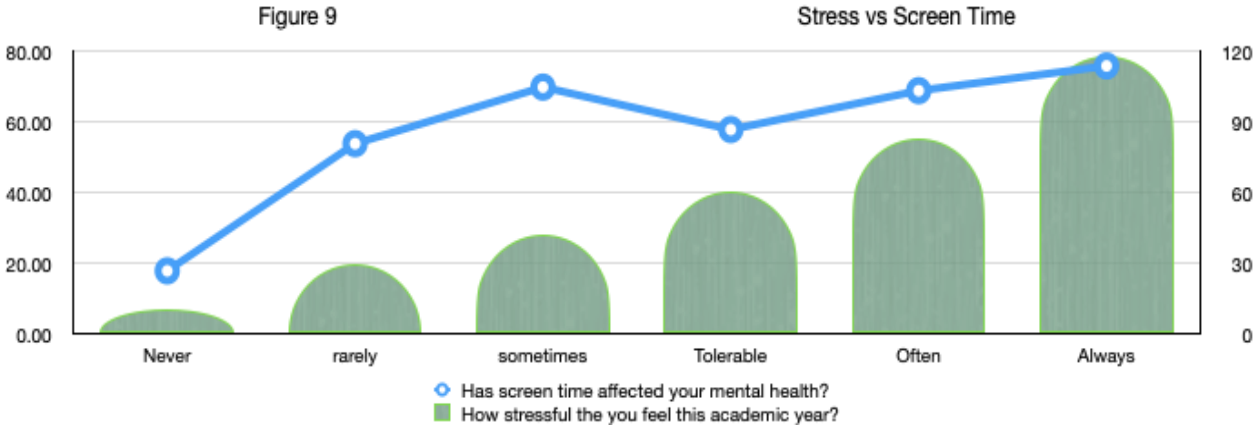

Figure 9: Stress vs. Screen Time of the Respondents

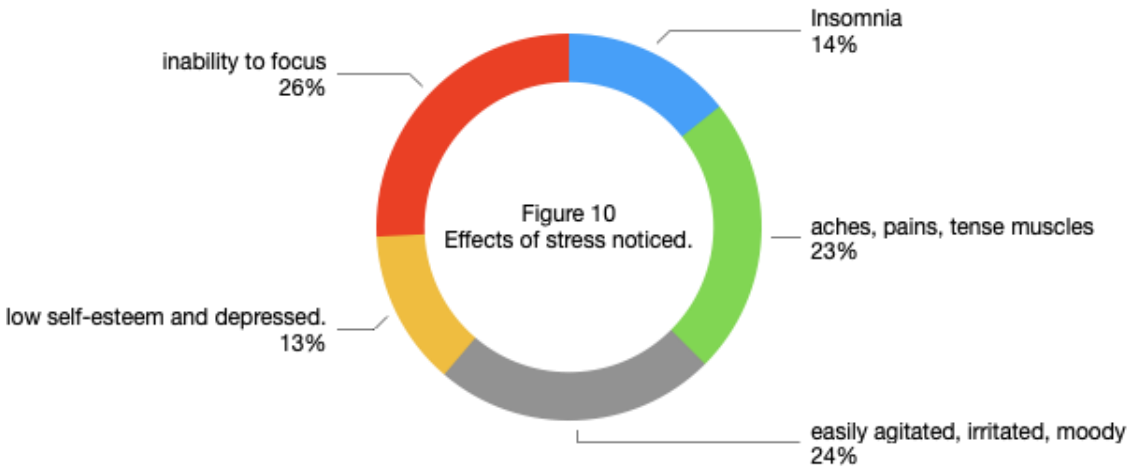

Figure 10: Adverse Effect of Stress

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4. Discussions: There have been studies showing various conclusions as follows.
a) The narrowing of the vasculature of the retina of the eyes among children who are prone to a larger amount of screen time, leading to cardiovascular risks that those who are exposed to external environments or outdoors have developed healthy retinal vasculature.
b) There have been brief complaints or health conditions received by the respondents exclaiming the occurrence of eye-sight.
c) We all are aware that self-quarantine or shutting ourselves at homes amongst the growing health crisis, has limited a lot of an individual's average physical activity.
d) Independent of physical activity, screen time is associated with metabolism dysregulations like high blood pressure, obesity, lipid density, and abnormal blood sugar levels at times.
e) It is a well-known fact that people under the influence or presence of any electronic gadgets tend to overeat, often leading to mindless eating among adolescents.
f) Exposure to continuous electromagnetic fields in the vicinity is associated with flight and fight responses including acquiring a condition of sleeplessness called insomnia.
g) The use of electronic gadgets has resulted in diminished cognitive capability among teenagers, which often could lead to numerous emotions like disinterest in daily routines, avoiding responsibilities, low memory power, and huge amounts of stress and anxiety to fulfill their academic ambitions over the ongoing global catastrophe.

Optimistically these observations help us correspond to the stress-related health conditions which have been the whole point of living in solitary away from public interactions. Predominantly the student community undergoing the inescapable and the frequency of symptoms and effects of stress.

5. Conclusion: The study conducted helped us in understanding stress levels around students of different groups from school and colleges. Stress studies were in accordance with similar studies conducted earlier. Our study portrays that the moderate stress level was found in more subjects and it was observed that students were working for better adaptation to minimize the stress and anxiety due to online classrooms amidst pandemic 2020. The efforts were taken by educational institutes and teachers to not give a miss to the teaching and the learning process seems to be working for academic benefits, though overall development of students in terms of physical and emotional wellbeing is getting compromised. The present study has certain limitations that can be corrected and we intend to take up the study further avoiding biases with a large number of subjects to make it statistically significant.

Acknowledgement: We would like to sincerely thank the Dept. of Biochemistry and Management of St. Francis College for Women, Begumpet, Hyderabad; for their continuous support throughout our study. Our gratitude to all those who took the time to give us information.

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Online Teaching and Perceived Stress Among Undergraduate Students During Coronavirus Disease-19 Pandemic

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Abstract

Stress itself is stressful. It is the condition which disturbs the normal psychological and physiological functions of an individual. The coronavirus disease (COVID 19) outbreak in the world has created a sudden closure of physical classrooms and shifted to online classes which has a catastrophic impact on society. This new online learning method affected the students psychologically.

This study hypothesized that stress was associated with these online teaching tools due to different issues as well as lack of face to face communication between teachers and students. It will also find out the different levels of stress regarding online teaching associated with male and female students.

An online survey was conducted from 1st to 6th semester undergraduate students. A total of 310 students voluntarily responded to the questionnaire. The result shows that stress prevailed among the students who could not avail online education. Motivational talks are also required from time to time to create positivity among students and manage self-study time effectively online.

Keywords: *Stress, Online Education, Covid-19*

1. Introduction: Covid-19 pandemic has prompted most universities around the world to shift towards online education and implementations of Information and Communication Technology (ICT) have contributed a lot in the emergence of innovative and smart educational methods for the benefit of the student's community. ICT is rapidly changing the whole world and creating new challenges and opportunities. Online education has become very prevalent today in higher education, notably during this Covid19 pandemic situation. On this unprecedented current situation in the world of academics-one that has not occurred since the second World War, though the scale and human impact of the current pandemic is far far larger than any war in human history. Now the situation is either students have to adapt online education or perish. Smartphones have become workplaces. Student life has been disrupted to a great extent due to this pandemic. Students have high engagement with social media such as Facebook & YouTube but less understanding of, and engagement with other tools that can support their learning. It has brought a drastic change in the educational system and consequently, we can see that Covid19 has shifted the physical classroom setting to a virtual model.

Arguments can be made for both sides concerning the pros and cons of both the methods of teaching. One of the advantages of online education is that learners can take part in the class across the globe, provided they have laptops or smartphones and reliable internet connections. Students can easily access the vast sources, subject materials, video lectures, scholarly articles, and other materials relevant to their course topic at any time as per their convenience. Students can have an in-depth analysis by accessing these materials available on the internet. Remote and E-learning provides easier access to learning, encourage affability so that students can overcome space and time limitations and offers new potential

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for the teaching process to be focused on the learners' needs and possibilities. Change is inevitable for survival. But this transition from traditional classroom to electronic learning can be quite stressful for students as it has changed from normal daily routine and maximum students are not accustomed to the new methods of teaching-learning process. Stress is itself stressful. Stress is the condition which disturbs the normal psychological and physiological functions of an individual. Stress may be defined as the extent to which one feels overwhelmed as a consequence of inconvenient constraints which may be due to mental, physical, emotional, or psychological strain. The term "stress" was first defined by Hans Selye (1936), a hungarian endocrinologist as "the non-specific response of the body to any demand for change". Stress causes physical or mental tensions. Stress may be due to both the internal and external factors. One may experience stress from the environment or social situations, it may be due to an illness or medical procedure and one's thoughts as well. Two main types of stress are acute stress and chronic stress. Acute stress lasts for a short period of time while chronic stress lasts for a longer period. Overtime, chronic stress may lead to health problems such as heart disease, high blood pressure, depression or anxiety, diabetes etc. In the traditional method of teaching-learning, students and teachers are engaged socially with different people from different backgrounds, places, society, etc, while in online mode social features of education become null which may eventually lead to social isolation or withdrawal. There is lack of connection or engagement between the learners and the educators in this method.

To concede the anxiety of online learners, this study investigates the overall impact and effectiveness of the online education process on students in several Colleges under Gauhati University. The effectiveness of online learning is influenced by several factors such as administrative issues, social interaction, academic skills, technical skills, learner motivation, time and support for studies, technical problems, cost and access to the internet.

2. Objectives: As we know the effects of COVID-19, with individuals are required to reduce physical contact to others outside one's household (*social distancing*). Additional measures include curfews, quarantines, and closing of non-essential stores, educational institutes are shut and students are staying at home. In this regard their physical as well as mental health is most important. It is hypothesized that due to non-use of online resources earlier and lack of face to face interaction between teacher and students a significant stress is associated with these students. Keeping in view the above circumstances, our research objectives were stated as follows:

a) To find out sources of stress during this lockdown among the undergraduate student community.
b) To find out the difference level of stress between male and female students, if any.
c) To find out if any the relationship is between online class and stress.
d) To find out how the science, arts and commerce studies connect with the online learning approach.

3. Research Methodology: An online survey was conducted among the Science, Arts and Commerce graduate students in the colleges under Gauhati University. A total of 310 students participated in the study. All the students voluntarily participated in the survey and data from the students was taken through an online survey link on Google form. The study group consisted of from degree 1st to 6th Semester. The questionnaire comprised three sections. The questionnaire scores their stress level during lockdown and on online learning programs. Students from different colleges were requested to take part in the survey designed on the basis of perceived stress score scale.

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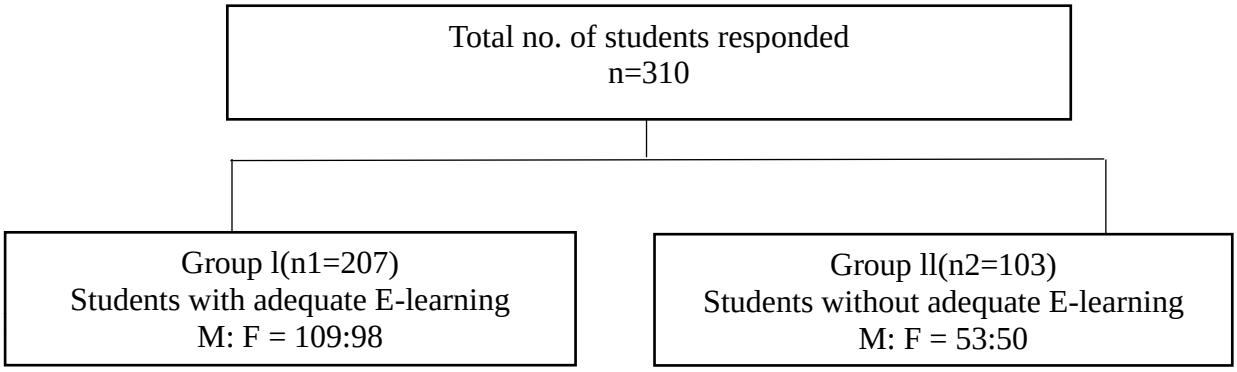
Maximum colleges under Gauhati University have started e-learning process with the help of teaching tools like Zoom, Cisco Webex, Google Meet, Go to meeting, Join.me, Apache Open Meeting, etc. Till the time of this study some colleges had not started the digital learning process. Two groups were made: one group who took part in online classes conducted with the help of a learning management system like Google Classroom, Edmodo, Schoology, Easyclass, Tinkfic, TalentLMS Coggno and another group without having any computer knowledge. A comparative statement prepared on stress score in both the groups. In both the groups, the same questionnaire was given to students and at the same time their stress was scored and compared. Basic questions gathered their background information on gender and location etc. during lockdown.

4. Statistical Analysis: Total 310 participants data were analysed. The students were divided in two groups, group l: students who properly participated in online classes and group ll: not participated in online classes.



a) Gender Wise Distribution of Data: In order to avoid any gender bias, efforts are made to collect data from almost equally distributed samples. It may be noticed from table-1 that data collected from 162 were males and 148 were female students.

Sl.No.	Gender	Numbers of User	Percentage
1	Male	162	52.25%
2	Female	148	47.75%
Total		**310**	**100%**

Table 1: Gender-wise distribution

b) Course Wise Distribution of Data: Table -2 provides the data regarding distribution of students with regard to their course of study.

Sl.No.	Course	Number of Respondents	Percentage
1	Arts	111	35.81
2	Commerce	91	29.35
3	Science	108	34.84
Total		310	100.00%

Table 2: Course Wise distribution of students

Group 1 (n1=207) students with proper e-learning

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Very Low Stress $n_{1=45}$		**Low Stress** $n_{2=62}$		**Average Stress** $n_{3=100}$		**High Stress** $n_{4=0}$		**Very High Stress** $n_{5=0}$	
Male	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
26	19	34	28	46	54	0	0	0	0

Table 3: Perceived Stress Scale of Students

Group 1 (n2=103) students without proper e-learning									
Very Low Stress $n_{1=45}$		**Low Stress** $n_{2=62}$		**Average Stress** $n_{3=100}$		**High Stress** $n_{4=0}$		**Very High Stress** $n_{5=0}$	
Male	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
0	**0**	**0**	**0**	**05**	**09**	**15**	**16**	**27**	**31**

Table 4: Perceived Stress Scale in Between Undergraduate Male and Female Students

Table 3 explains the significant difference in level of stress among group I and group ll students. Those students who continued learning by regular online methods were having less level of stress in comparison to the students who had no exposure to any electronic tools. The female student group having a higher percentage of stress than male students. Maximum percentage of students responded with sometimes as an answer after analysing the individual responses of the questions. The collection was collected on the same time duration and the high response rate by undergraduate students. We have found after analysing finding that maximum number of students are in favour of the online interactive sessions during the pandemic situation. Some students have also commented that the series of online classes are more helpful to them as they are able give more concentration on the speaker in comparison to regular classroom teaching. A few students also informed that e-learning method is more fruitful for them as in regular class they found some surrounding disturbance.

Arts, Science and Commerce students do not differ in experience of stress and time management. Rural students experience more stress than urban students and rural area students use more time management strategies.

c) Students Attitudes towards Online Learning: Table 5 reflects that the students prefer online teaching during this pandemic situation.But most of them agreed that face to face contact with teachers is necessary for learning. Students found it easy to submit the assignment in digital form and maximum students are comfortable in an electronic environment.

Sl.No.	**Questions**	**Agree**	**Somewhat Agree**	**Disagree**
1	Online learning is more motivating than conventional learning in this pandemic?	145(46.77)	94(30.32)	71(22.90)
2	Face to face contact with teachers necessary for learning?	120(38.70)	100(32.25)	90(29.03)
3	No difference between online and conventional learning	80(25.80)	84(27.09)	146(47.09)
4	It is easy to complete group assignments digitally	140(45.16)	90(29.03)	80(25.80)

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5	College/university courses can be completed effectively through internet	105(33.87)	59(19.03)	146(47.09)
6	Comfortable to communicating electronically	147(47.41)	58(18.70)	105(33.87)

Table 5: Attitude towards E-learning

Questions	Group I (n1=207)					Group II(n2=103)				
	Never	Occasionally	Sometimes	Often	Always	Never	Occasionally	Sometimes	Often	Always
How often do you upset during the lockdown?	58 (28.02)	90 (43.32)	56 (27.02)	3 (1.28)	0 (0)	7 (6.7)	25 (24.27)	41 (39.80)	20 (19.41)	10 (9.70)
How often have you felt that you were unable to control the important things in your life during lockdown?	65 (31.49)	108 (52.17)	29 (14.00)	4 (1.93)	1 (.41)	12 (11.56)	16 (15.53)	41 (39.80)	25 (24.27)	9 (8.7)
How often you have been able to control irritations in your life, during lockdown?	10 (4.83)	21 (10.14)	32 (15.45)	96 (46.37)	53 (25.60)	13 (12.62)	15 (14.56)	35 (33.98)	23 (22.33)	17 (16.50)
How often have you felt obstacles were pulling up so high that you could not overcome them during lockdown?	93 (44.92)	49 (23.67)	56 (27.05)	7 (3.38)	2 (.96)	14 (13.59)	13 (12.62)	46 (44.66)	22 (21.35)	8 (7.76)
How often haveyou been angered as things were outside of your control during lockdown?	32 (15.45)	96 (46.37)	53 (25.60)	19 (14.00)	11 (5.43)	9 (8.7)	25 (24.27)	41 (39.80)	16 (15.53)	12 (11.56)

Table 6: Level of stress in between Different Groups:

5. Conclusion: A Matthew Effect in educational technology is frequently observed: those who benefit most from the introduction of technology are indeed the ones who actually have the most. Our findings suggest that maximum students are satisfied with online classroom teaching in the pandemic situation. It has given a positivity and self-motivation to the

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students and remarkably reduces the academic performance perceived stress level among undergraduate students. Developments in online learning are creating groundwork for a revolution in education, allowing learning to be individualised (adaptive learning), enhancing learners' interactions with each other (collaborative learning), and transforming the role of the teacher from disseminator to facilitator. Some important aspects of college and university life such as friendships, personal identity development, exposure to diversity and self-care skills will be much harder to achieve in a solely 'online' environment. But as we develop plans to be re-integrated with, and informed by, the advances made in higher education during the past few months. Overall online learning has acted as the primary key to relieve the stress among students who were away from conventional physical classroom teaching methods of college due to nationwide lockdown in India during the unprecedented situation.

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People Associated with the
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Held during September 3-4, 2020

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Dr. Kankana Baishya is working as Assistant Librarian at National Law University and Judicial Academy, Assam. She has more than twelve years of experience as a LIS professional. She qualified UGC-NET in 2010 and did her Ph.D. on "Management of Indian Institutional Repository: An Evaluative Study" under the supervision of Prof. Sanjay Kr. Singh, Head, DLISc, Gauhati University. She is the University Coordinator for UGC, INFLIBNET Centre and actively engaged in looking after the documentation and affiliation related work of the University. Her paper on "Intellectual Property Rights Issues of Indian Institutional Repository" received the best paper award in the professional summit of NLU, Delhi. Baishya is the founder secretary of Women Librarians' Association of Assam (WLAA) and conducted awareness programmes on inculcating reading habit and a series of web talks on the LIS field.

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Preface

Internet and associated technologies have a greater impact on libraries. Library content, its users, and services have witnessed a sea change. Library content has become more digital now. Library users have been exposed to digital content and gadgets, and it has made today's users expect faster and better services from libraries. Library users often compare libraries with Google, Amazon, etc. for the volume of content, ease of search, and value-added services. Repositioning of libraries through transformation is critical to retain the importance of libraries. As we witness radical changes in all three components of the library – Content, User, and Services – it has become essential for transforming traditional library services to the new age, user-centric value-added digital services. Digital content is an important component of the present-day library and information centers. The need for innovative collection development is increasing day by day due to shrinking budgetary allocations, invasion of digital technologies, and user's expectations. Collection Development in Libraries has seen a paradigm shift. Today, we see more born-digital content getting published than ever before. At the same time, library users are more comfortable in using gadgets to access the content. The digital content offers an 'ease of use' advantage and offers seamless access across gadgets, platforms, and multiple operating systems. The advantages of digital content and tech-savvy users have forced libraries to go for digital content. Library Surveys indicate that major academic libraries in India and Abroad are already spending more than 90 of their budgets on building digital content. This paradigm shift has offered many developments, learnings, opportunities, and challenges to libraries.

The advent of ICT and digital technologies have impacted all walks of life. Libraries are no exception. ICT played a key role in transforming libraries, thus increasing its effectiveness and efficiency. Libraries are at the forefront of embracing contemporary technologies to fulfill the needs of their patrons. Technologies are facilitated as force multipliers for libraries in reaching the unreached user community. The technologies are enabling libraries to venture into new portfolios and reposition themselves as a place of happenings. Today, library technologies are converging and evolving as a single platform to play multiple roles. The content and services of libraries are becoming virtual than physical in this digital world. Information archiving, processing, and retrieval are driven by technologies to quote a few examples indexing & compressing, organizing and classifying content, search and retrieval, semantics & artificial intelligence, enhancing user experience, etc. The 21st-century libraries are in the metamorphic stage and encompassing the growing expectations of 'Digital Natives' and 'Digital Migrants.' The original research work on technology implementation, innovative technologies, case studies, success stories are encouraged to highlight recently constructed or remodeled libraries that model traits of what a 21st-century library could be.

Today, the librarian job is not limited to conventional library jobs, information processing, and dissemination. They are expected to play a multifaceted role in institution-building and branding. One of the vital task librarians is engaged in recent years, research data management portfolios, which are essential for accreditations and ranking systems in the academic system. The performance excellence of an institution is measured by critical assessment supported by data and metrics. Librarians performing multifaceted roles have employed several metric systems starting from librametrics to knowledge metrics to evaluate libraries' efficiency in all aspects. In today's competitive world, especially in research and higher education institutions, quality assessment has become a fundamental parameter, which is largely measured through accreditation grades and institutional rankings. Scholarly metrics make chunk in both accreditation and ranking. With their vast knowledge about meaningful and reliable metrics, Librarians can play a catalytic role in aggregating and presenting research data for the institution. Today, Librarians are challenged by the new and emerging strategic needs of institutions for data-driven research intelligence that provides a comparative edge in the global world of higher education and research. Collaborative efforts made several global efforts of librarians, academicians, technologists, and publishing firms to evolve platforms to aggregate, consolidate and visualize research data, for example, euroCRIS,

IRINS, PURE, and so on. Apart from scholarly data & metrics, libraries are also venturing into a new portfolio, "Office of Data and Analytics," which collects, analyzes and reports entire data pertaining to the institution. Proposals of original work in handling and implementing new initiatives, data management; data visualization; Data aggregation Sources & Models; Publication metrics for ranking & accreditations; Usage metrics-driven decision making; Online metric tools for Librarians so on, are invited for the virtual conference.

The global scientific research is doubling every nine years, and we are witnessing a large volume of scholarly content. On the other hand, publication and research ethics have been compromised. Research misconduct incidents such as plagiarism, data falsification and fabrication, image manipulation, and copyright infringement are also increasing. Libraries have an important role in creating awareness among its scientific & academic user community about ethical research.

The library is a major component of a society that always strives to create a well-informed community. Libraries are also used as an instrument to exchange cultural, political, and social heritage among several countries to strengthen their bilateral ties. In today's connected era, with libraries having a World Wide Web link to whatever degree it is, from just having a website to being a website, all libraries have the potential to build a global character. Or in other words, every library is unique and can engage with the worldwide community- individuals to institutions. The purpose of diplomacy is to strengthen the state, nation, or organization it serves in relation to others by advancing its charge interests. For sure, libraries of all hues have been inherently working at strengthening the organization or community it serves. Today, with libraries besieged by competing technologies and a host of new-age influences, libraries can look at diplomacy as a path or an activity to better engagement with global and local communities.

The primary focus of the virtual conference is to bring together the practicing librarians, LIS teachers, researchers and students. During this virtual conference, invited authors discussed & presented their best practices, innovative implementations, success stories. The present volume of conference proceedings contain the contributions presented during the LISACON2020, a 3rd LIS Academy conference on "Reinventing Excellence in Librarianship" from 27th -30th August 2020. The virtual conference provided a platform to discuss and deliberate the recent advancements in wide spectrum of topics namely:

- Reinventing Library Services in the Digital Age
- Leveraging library technologies
- Data, Metrics, and Ranking: Role of Librarians
- Role of Libraries in Inculcating Research Ethics
- Library Diplomacy

The conference volume is enriched with twenty invited papers from LIS experts on the above mentioned topics. The published papers were subjected to similarity check with acceptable norms as decided by the conference editorial committee in line with leading publishers policies. The plagiary free papers were got blind reviewed by the expert reviewers and improvements incorporated based on the reviewer's comments.

We would like to thank all authors for their contributions to the conference program and for their contributions to the proceedings, our special thanks to the reviewers of the conference papers and virtual conference organizing committee for their meticulous planning and execution of the conference.

We whole heartedly thank conference co-organizers University of Hyderabad, Hyderabad and Telangana state Library Association, Telengana, for their excellent support. It is our pleasant duty to acknowledge the generous financial assistance from the sponsors.

Editors

Date : 27-08-2020

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Prof. K. K Aggarwal
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FOREWARD

I am glad LIS Academy is continuously engaged in organizing quality programs to enrich and empower education & research in general and the Library and Information Science Profession in particular. I have witnessed a couple of LIS Academy programs, and I am sure LIS ACON-2020 virtual conference will set a benchmark among Virtual Conferences and this will be another feather to the LIS Academy crown. The conference theme "Reinventing Excellence in Librarianship" is aptly selected by organizers for the current situation where the library profession is at crossroads. I am sure the broad spectrum of sub-themes have addressed several issues and help participants to reinvent and reposition themselves in this changing scenario.

Reinventing excellence is becoming crucial in the era of disruption, especially by technological inventions and innovations. The library is regarded as the heart of an academic institution, and its success largely depends on how best the library is equipped with resources & services to serve its patrons. Libraries and library professionals need to be more and more service-oriented in the present scenario than ever before as the role of libraries is changing and will be changing forever. The competitive environment has made education institutions go for accreditations and ranking frameworks for branding and set standards, demanding a variety of data related to institutions, including publication metrics. Libraries need to reposition themselves to handle any data pertaining to their institutions; maybe it should play the role of 'Office of Data' to provide single point access to all types of data. The benchmarking of publication metrics will be a great value addition from Libraries to the institutions and help healthy competition among institutions.

Many disruptions have come and gone in the way of library development, but covid-19 has created a long-standing impact on libraries' future and their services altogether. For instance, the print versions itself was a disruption, smartphone, digitalization, and artificial intelligence is also a disruption, perhaps COVID-19 is, however the largest disruption we have experienced in our lifetimes. It will change the world in total, but education in specific leading to a new normal. Centralization of library activities and services was the order of yesterday. However, decentralization and dividing the library into smaller and focused segments would be the new normal to serve the user community better in a university environment. There were 33 crore students in India alone, and 1.6 billion students globally which were kept out of the classroom during the lockdown. In this scenario, there is a bright ray of hope which can be seen in the field of libraries as the users kept using the library and library resources more so than ever to reap the dividends. It is also important on the part of library and library professionals that more and more information supply to the user and scientific community may assist them in increasing their research productivity during this pandemic.

The presentations delivered by a renowned galaxy of speakers have shared their best practices and success stories with the participants about various sub-themes. I am sure the conference insights will enlighten LIS professionals to reinvent excellence in their tasks and stay relevant much more efficiently. I wish all the LISACON-2020 virtual conference participants professionally rewarding and enjoyable learning.

Prof. KK Aggarwal
Chairman,
National Board of Accreditation,
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Contents

LEVERAGING THE TECHNOLOGIES IN LIBRARY ASSOCIATIONS AND ORGANIZATIONS IN INDIA

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Abstract

This study aims to understand how the existing library associations and organizationsare trying to reach out to their member-base and beyond by using the technologies and how much they are successful in achieving their goal and what went wrong. The website of the associations/ organizations are compiled, different data related to the associations were collected from their website and then they were analyzed based on different parameters like availability of RSS feed, Email subscription options, inclusion of social networking sites like Facebook, Twitter, Telegram and YouTube links, overall Alexa rank and frequency of updating the social networking sites. The stakeholders of the association and organizationare well aware about the use of the web technologies for showcasing the objectives and activities of the associations, However, in many cases stakeholders failed to form or present an integrated and coherent structure that can bring the benefit to the associations and organizations and in most of the cases it is not being transferred to the next successor. The paper helps in introspection; present the desirable actions that can bring benefit to the associations and organizations and how these can be promoted to make it an integral part of the association and organization.

Keywords: Library Associations, Organizations, India, Web 2.0 Technologies. Website, RSS, Mailing List, Facebook, Twitter, Telegram, YouTube.

Introduction

A library association is a formal group of professionals in Library and Information Science domain who are serving in the libraries or knowledge resource centres or teaching in library science schools working with an objective of furthering the growth and development of the profession, libraries and or its members. A library association acts as a common forum for the people associated with them for exchange of ideas, information, experience and expertise. They constantly put pressure in front of the appropriate authority for the welfare of the user, betterment of the library environment, its staff, salaries, grades, service, working condition, status and for the continuous growth and development of the profession and or raise voice against unjustified proposals and decisions that goes against the interest of the professionals. They periodically hold seminars, conferences, workshops, training programs, meetings, lectures, webinars, institute prizes as encouragement and bring out publications to disseminate information and knowledge. They serve as a platform for coordinated efforts, promote the library and information services and to protect the interest of their members to build up the image of the library profession in the society.

If we look back at the history, we can find that the American Library Association (ALA) which was formally inaugurated on October 4, 1876 is the 1st library association in the world. This was followed only a year later i.e. 1877 by the Library Association (LA) in the United Kingdom which later on in 2002 merged with Institute of Information Scientists (founded in 1958) to form the Chartered Institute of Library & Information Professionals (CILIP). Andhra Pradesh Library Association (APLA) founded in 1914 (formerly known as Andhra DesaGranthaBhandagaraSangham) is the 1st library association in India.

Functional Library and Information Science Related Association

When we track back the history of the library associations in India, we can find the names of many library associations which were established at different period of time, flourished and reached its epitome of activities during the leadership of presidents or administrators of the association and later on in some other period remain as inactive and then again resurface with a fresh air surrounding them and perform a lot of activities. So, at any moment of time, it's very difficult to find out what are the functional library and information science associations in India. Therefore, for the study purpose, the author has defined a functional library association as that library and information science related association / organizations / NGOs / trusts / societies that have a functional website mapped to a custom domain name.

There is logic behind acceptance of the above criteria for the functional library associations. Firstly, the library and information science professionals are considered as the master of masters and so, it will be unlikely that an association of these professionals do not have a website. Again, the use of a custom domain will demonstrate that the association is still functional as the custom domain needs to be renewed periodically.

The associations / organizations which launched their website by using free sites like Google Sites, Blogger, Tripod, WordPress, OoCities, GeoCities which were not mapped with a custom domain name and launched in the sub-domain of the free hosting account are not considered as a functional association on the ground that the association unable to provide a single source for authentic information and these type of sites can be created over the web by any people with a motive to drive traffic to earn revenue or for a definite objective. Again, if any association is unable to demonstrate its existence to the world in the form of a website it must be in a hibernation stage. Further, regional chapters or branches of global associations / organizations though they have a functional website by using custom domain namesare excluded from the study.

Methodology

To compile a list of functional library associations / organizations / NGOs / trusts / societies in India, the author has made a systematic search in the Google for terms like <(Name of the State) Library Association> for example "Assam Library Association" (without quotes, triangular bracket and parentheses) and then repeat this search technique for all the states and union territories of India. The top twenty results retrieved by Google were considered for compiling the list of functional library associations / organizations / NGOs / trusts / societies in India. In this way the author has compiled a list of 35 library and information science related associations / organizations / NGOs / trusts / societies in India and other two came from reference from two friends, so, in total it became 37 library and information science related associations / organizations / NGOs / trusts / societies in India. The study intentionally excluded Raja Rammohun Roy Library Foundation (RRRLF) - an autonomous organization established and fully financed by the Ministry of Culture, Government of India as other organizations / associations being a government set up.The lists of websites thus compiled were visited over the web to find out the type of technology they have integrated and used to leverage. The study was limited to the links provided from the home page only and all data thus compiled were stored in a Google Sheets for analysis.

Functional Library and Information Science Associations in India

As on 5thAugust, 2020, there are 37 functional associations / organizations / NGOs / trusts / societies related to Library and Information Science in India. Among all the associations / organizations, in terms of members, Indian Association of Special Libraries and Information Centres (IASLIC) is the largest association in India.

Sl.No.	Name of the Association / Organization	Abbreviation	Year of Establishment	Location of Main Office	Total Registered Member (Approximate)	Website Address
	Academic Library Association	ALA	1996	Kerala	700	http://www.alaindia.org
	All Bengal School Librarians' Association	ABSLA	1990	West Bengal	350	http://www.absla.org.in
	Andhra Pradesh Library Association	APLA	1914	Andhra Pradesh	900	http://www.apla.co.in
	Assam College Librarians' Association	ACLA	1973	Assam	180	http://acla.co.in
	Assam Library Association	ALA	1938	Assam	160	http://www.ala.net.in
	Bengal Library Association	BLA	1925	West Bengal	1300	http://www.blacal.org
	Central Government Library Association	CGLA	2004	Uttarakhand	300	https://cgla.org.in
	Delhi Library Association	DLA	1939	Delhi	2500	https://www.dlaindia.in
	Federation of Health Science Library Associations	FHSLA	2018	Rajasthan	250	http://fhsla2018.org
	Haryana Library Association	HLA	1966	Haryana	700	http://haryanalibraryassociation.in
	Himachal Pradesh Library Association	HPLA	2019	Himachal Pradesh	150	http://www.hplas.org
	Indian Association of Special Libraries and Information Centres	IASLIC	1955	West Bengal	7600	http://www.iaslic1955.org.in

	Indian Association of Teachers of Library and Information Science	IATLIS	1969	Punjab	3200	http://iatlis.org
	Indian Library Association	ILA	1933	Delhi	5400	https://www.ilaindia.net
	Jharkhand Information and Library Association	JILA	2007	Jharkhand	600	http://www.jila.org.in
	Kalyana Karnataka Librarian's Association	KKLA	2016	Karnataka	700	http://hkla.in
	Karnataka State Library Association	KSLA	1979	Karnataka	1100	http://kalaonline.com
	Kerala Library Association	KLA	1972	Kerala	1300	http://www.keralalibraryassociation.org
	Library and Information Science Professional Association	LISPA	2013	Assam	190	https://www.lispa.org.in
	Library Professionals Association	LPA	2010	Delhi	130	http://lpaindia.in
	LIS Academy	LISA	2017	Karnataka	9	http://www.lisacademy.org
	Madhya Pradesh Library Association	MPLA	1959	Madhya Pradesh	900	http://mpla.org.in
	Madras Library Association	MALA	1928	Tamil Nadu	270	http://www.madraslibraryassociation.com
	Maharashtra University and College Librarians Association	MUCLA	2014	Maharashtra	1100	https://www.mucla.in
	Odisha Library Academy	OLA	2015	Odisha	200	http://www.olibacademy.org

	Punjab Library Association	PLA	1916	Punjab	1100	http://www.punjabla.org
	Rajasthan Technical Library Association	RTLA	2010	Rajasthan	300	https://rtlaindia.org
	Rajasthani Medical Library Association	RMLA	2017	Rajasthan	200	http://www.rmla2017.org
	Ranganathan Society for Social Welfare & Library Development	RSSWLD	2009	Uttar Pradesh	50	https://www.ranganathansociety.org
	Satinder Kaur Ramdev Memorial Trust for Advancement of Librarianship	SATKAL	2000	Punjab	25	http://satkalindia.org
	School Library Association (India)	SLA	2017	Delhi	220	http://www.slaindia.org
	Society for Advancement of Librarianship	SAL	2014	Delhi	100	http://sal.org.in
	Society for Advancement of Library and Information Science	SALIS	2002	Tamil Nadu	1900	http://www.salis.in
	Society for Information Science	SIS	1975	Delhi	130	http://www.sis.org.in
	Society for Library Professionals	SLP	2008	Delhi	21	http://www.slp.org.in
	West Bengal College Librarians' Association	WBCLA	1962	West Bengal	1300	http://www.wbcla.org.in
	Women Librarians' Association of Assam	WLAA	2019	Assam	40	https://wlaa.ala.net.in

Table 1: Alphabetical List of Functional Library Associations / Organizations / NGOs / Trust / Societies in India

Leveraging the Technologies by the LIS Associations/ Organizations

When we talk about the leveraging, it is about the advantage or an investment where the profit is expected to be more than that of our normal return on the investment. To leverage the technologies, a modern association / organization / NGO / trust / society may revolve around seven fundamental technology components and they are Website, RSS (Rich Site Summary), Mailing List / Email Subscription List, Facebook, Twitter, Telegram and YouTube. People can goes on and include Apps, WhatsApp, Pinterest, LinkedIn, Instagram, Flickr, Blog, and others, however, in case of library and information science associations, it is difficult to leverage as because when we comes to Apps – it become popular only in case the service or facility it provide is essential for the people to survive or make their life easy. WhatsApp comes with its own limitationof upper cap of 257 membersin a group, so to accommodate the large members; it needs a better platform to spend sufficient time in updating them. In case of Pinterest, LinkedIn, Instagram, Flickr, all these have a low adoption rate among the LIS professionals and in the last, though the blog is a very essential technology to leverage, one will not feel the need of a blog if the website has modern design and developed by using content management system and has the provision of submission of the content by the user and RSS feed.

a) Website: The website is a distinct location on the internet, identified by an Internet Protocol (IP) address and can be accessed by using HyperText Transfer Protocol (HTTP) request. It contains all essential information related to the organization and acts as a publishing powerhouse for the associations and organizations. Alexa is a web traffic analysis company that collects data on internet browsing behavior through the toolbar users choose to install in the Internet Explorer, Firefox and Google Chrome web browsers and then transfer those data to the Alexa website where they are stored and analyzed. In addition, Alexa also gathers data from the direct sources in the form of sites that have chosen to install the Alexa script on their site and certify their metrics. Alexa is a global pioneer in the world of analytical insight. Their global traffic rank is a measure of how a website is doing relative to all other sites on the web over the past 3 months. The rank is calculated using a methodology

that combines a site's estimated average of daily unique visitors and its estimated number of pageviews over the past 3 months. The site with the highest combination of visitors and pageviews is ranked #1.

Rank	Name of the Association / Organization	Website Address	Global Alexa Rank	Sites Linking In
	Bengal Library Association	http://www.blacal.org	6,60,928	53
	Indian Library Association	https://www.ilaindia.net	9,51,220	82
	Assam Library Association	http://www.ala.net.in	18,59,557	8
	LIS Academy	http://www.lisacademy.org	20,29,809	7
	Society for Library Professionals	http://www.slp.org.in	30,71,309	32
	Assam College Librarians' Association	http://acla.co.in	40,50,185	8
	Madhya Pradesh Library Association	http://mpla.org.in	43,30,955	4
	Library and Information Science Professional Association	https://www.lispa.org.in	46,46,053	1
	Indian Association of Special Libraries and Information Centres	http://www.iaslic1955.org.in	46,51,718	70
	Ranganathan Society for Social Welfare & Library Development	https://www.ranganathansociety.org	46,67,098	9
	Andhra Pradesh Library Association	http://www.apla.co.in	46,77,371	14
	West Bengal College Librarians' Association	http://www.wbcla.org.in	47,19,423	9
	Maharashtra University and College Librarians Association	https://www.mucla.in	50,21,955	3
	School Library Association (India)	http://www.slaindia.org	64,83,638	3
	Delhi Library Association	https://www.dlaindia.in	65,04,749	44
	Jharkhand Information and Library Association	http://www.jila.org.in	66,30,535	6
	Society for Advancement of Library and Information Science	http://www.salis.in	73,56,685	11
	Library Professionals Association	http://lpaindia.in	74,08,258	10

	Central Government Library Association	https://cgla.org.in	77,43,187	63
	Society for Advancement of Librarianship	http://sal.org.in	77,68,234	1
	Kalyana Karnataka Librarian's Association	http://hkla.in	No Rank	37
	Kerala Library Association	http://www.keralalibraryassociation.org	No Rank	35
	Society for Information Science	http://www.sis.org.in	No Rank	18
	Indian Association of Teachers of Library and Information Science	http://iatlis.org	No Rank	10
	Karnataka State Library Association	http://kalaonline.com	No Rank	9
	Punjab Library Association	http://www.punjabla.org	No Rank	8
	Odisha Library Academy	http://www.olibacademy.org	No Rank	6
	Academic Library Association	http://www.alaindia.org	No Rank	4
	Madras Library Association	http://www.madraslibraryassociation.com	No Rank	4
	All Bengal School Librarians' Association	http://www.absla.org.in	No Rank	2
	Himachal Pradesh Library Association	http://www.hplas.org	No Rank	2
	Rajasthan Technical Library Association	https://rtlaindia.org	No Rank	2
	Rajasthani Medical Library Association	http://www.rmla2017.org	No Rank	1
	Haryana Library Association	http://haryanalibraryassociation.in	No Rank	1
	Satinder Kaur Ramdev Memorial Trust for Advancement of Librarianship	http://satkalindia.org	No Rank	1
	Federation of Health Science Library Associations	http://fhsla2018.org	No Rank	0
	Women Librarians' Association of Assam	https://wlaa.ala.net.in	Not Applicable	Not Applicable*

Table 1: Global Alexa Rank wise List of Functional Library Associations / Organizations / NGOs / Trust / Societies in India

Alexa generally ranks sites at the level of their domain (example: http://www.lislinks.com) and subdomains (e.g. http://job.lislinks.com) are not ranked separately unless they are identified as personal home pages or blog and as such the global rank of Women Librarians' Association of Assam which is hosted in a sub-domain of Assam Library Association cannot be calculated.

The Global Alexa rank wise list of functional library associations, organizations / NGOs / trust / societies shows that Bengal Library Association is placed at the top level which is followed by Indian Library Association, Assam Library Association, LIS Academy and Society for Library Professionals. In terms of incoming links to the website, among all the LIS associations in India, as per Alexa, Indian Library Association (ILA) website received the highest number of incoming links from other websites followed by IASLIC and CGLA.

b) Real Simple Syndication (RSS):RSS publishes the content from frequently updated websites in a simplified or condensed form which can be used to send updates from the website to the user in the form of Email alert and others. The study of 37 library associations shows that 9 (24.32%) have enabled the RSS feed and it is displayed prominently in their website and these associations are ACLA, ALA, HLA, JILA, KKLA, KLA, KSLA, SALIS and WLAA.

c) Mailing List / Email Subscription List: An electronic mailing list automatically delivers new messages to the subscriber. Even the RSS feed can be configured to perform this task. Out of the 37 associations, 4 (10.81%) associations have enabled the mailing list / Email subscription i.e. ACLA, ALA, SALIS and WLAA and among these 4 associations, SALIS has the largest number of subscribers / members (1258 people).

d) Facebook: Facebook (http://www.facebook.com) is a social networking service and website launched on February 4, 2004, operated and privately owned by Facebook, Inc.. Out of 37, 16 (43.24%) associations either have a Facebook Page or Group and these are linked from their website and among these, BLA has the largest number of reach (3057) followed by RSSWLD (2157) and SALIS (1465). The statistics of HPLA cannot be collected as the group was made private. Interestingly, ACLA, BLA, RTLA and WBCLA Facebook page / group was not updated with any new information for more than a year.

One issue to be noted here is that some associations have a Facebook Profile, some have a Facebook Page and some other have a Facebook

Group. So, it is difficult to consider the characteristics of a profile or page or group to apply common criteria for all. Therefore, the number of reviews or ratings which is only applicable to Facebook Page is not considered as a criterion. The study tries to only highlight the number of reach, in case of Facebook Profile, it will be number of friends and followers, in case of Facebook page it will be number of likes and followers and in case of Facebook Group it will be number of members.

e) Twitter : Twitter (http://www.twitter.com) is a microblogging and social networking website in which users post and interact with messages known as tweets. Out of the 37 organizations, 10 (27.03%) organizations have Twitter accounts that link to their organization website and they are ACLA, APLA, CGLA, KLA, OLA, RSSWLD, SALIS, SLA, SLP and WBCLA. Out of all these organizations, SALIS has the highest number of followers (182) followed by KLA (77) and OLA (52) and WBCLA twitter account was not updated for the last one year.

f) Telegram : Telegram is an instant messaging and voice over IP service just like WhatsApp with the added feature of making the group and profile public and unlike WhatsApp whose group members are restricted to 257, in Telegram one can have upto 2,00,000 users. Two organizations (5.41%) precisely ALA and OLA have their own Telegram channel and group and linked it from their website. The OLA's group has the largest i.e. 748 members in it.

g) YouTube : YouTube is an American online video-sharing platform that works as a subsidiary of Google.Six organizations (16.22%) i.e. ACLA, LISA, MPLA, OLA, RSSWLD and SLA have their own YouTube Channel. Among them,RSSWLD has uploaded the highest number of videos (44) followed by LISA (29) and SLA (22). The OLA channel has the highest number of subscribers (2050) followed by LISA (709) and ACLA (579). The videos uploaded by OLA received the highest number of views (46,012) followed by ACLA (11,038) and LISA (7414).

h) Others : Three associations i.e. HLA, LISA and SALIS have their own Android Apps and among them, the SALIS Android Apps has the highest number of installations (1000+). ALA and ACLA have their own WhatsApp group which is linked from their website. Pinterest, LinkedIn and Instagram are used only by Andhra Pradesh Library Association (APLA).

6. Findings : As on 5th August, 2020, there are 37 functional associations / organizations / NGOs / trusts / societies related to Library and Information

Science in India.Andhra Pradesh Library Association (APLA) founded in 1914 is the oldest library association in India which is still functioning.In terms of members, Indian Association of Special Libraries and Information Centres (IASLIC) is the largest LIS association in India.

Among all the LIS associations / organizations in India, 9 (24.32%) have enabled RSS feeds, 4 (10.81%) enabled Email subscription link, 16 (43.24%) used Facebook, 10 (27.03%) organizations have Twitter account, 2 (5.41%) used Telegram and 6 (16.22%) organizations used YouTube.

As per Alexa, website of the Bengal Library Association (BLA) is the highly used website among all other websites of LIS related associations in India. The BLA also has the credit of having the largest number of reach on Facebook.

Among all the LIS associations in India, as per Alexa, Indian Library Association (ILA) website received the highest number of incoming links from other websites.

Society for Advancement of Library and Information Science (SALIS) has the highest number of followers in Twitter, largest number of Email subscribers and highest number of installation of its Android App.

Odisha Library Academy (OLA) has the largest number of members in its Telegram group. It also has the highest number of YouTube subscribers and its video received the highest number of views in YouTube.

Ranganathan Society for Social Welfare & Library Development (RSSWLD) has uploaded the highest number of videos on YouTube.

7. Problems in Leveraging the Technologiesby LISAssociations: The library and information science professionals are accustomed with the technologies; however, if you look at the websites of LIS associations it is prominently not visible.. Some of the possible issues observed in implementation of these technologies in library websites are:.

a) Investment of the associations is low on IT Infrastructure: If we look into the list of world's richest people, we can find that more and more people from the IT companies or the people who have invested heavily on the IT infrastructure are included in the list like Mark Zuckerberg (Facebook), Jeff Bezos (Amazon), Bill Gates (Microsoft), Steve Ballmer (Microsoft), Larry Page (Google), Sergey Brin (Google), Larry Ellison (Oracle Corporation), Colin Zheng Huang (Pinduoduo) and it goes on.LIS associations invested least in the IT infrastructure and more on other aspects.

b) Technologyinfrastructure is not accepted as a property of the associations: In most of the associations, IT infrastructurecreated by active members of the association is not passed on to the succeeding administration or committee. Neither the person who has created bothers to transfer it to the next nor the receiver demands for it. For example: If someone created a Facebook page / group of an association, a blog, a WhatsApp group or Telegram group/ channel, it does not reflect the changes that took place in the association from time to time in the form of change in leadership (new executive body / president / general secretaryand so on).

c) Technologies are not placed at the front end: During these days, there are hardly any associations which are out of reach from Facebook, WhatsApp, Blog and others and almost all the associations are using these in some form or others. However, all these online tools are not exist on websites which is the front face of the association. A few associations have their own registered domain name and even have a blog on WordPress, Blogger or other platforms; however, they have not mapped their blog to the sub domain of their main domain. The same is happening with the Telegram group / channel or others; they are not linked from the home page of the website of the association.

d) Emphasis oncommunication: The effective communication is the building block for the success of any association and in the association activities it is not being given an importance. Still it isbelieved that uploading any kind of information on the website will suffice to update the members.

e) Words are suppressing our actions: All associations / organizations regularly organize seminars, training programs, and workshops on web 2.0, library 2.0, digital library, and social media and so on. However, the statistics shows that only a few associations have implemented and integrated these tools on their websites.

f) More time consumed in paper work than to implement it: The associations are a group of people and in most cases these were led by a small group of people, we generally called them the executive body which were elected or nominated for a single year, two year or rarely for three years. They come to power because of their achievements in the past and all these responsibilities need to be carried out as a voluntary task and in most cases there is no reward for it. If anyone willing to do any new things in any associations / organization, the first thing he/she will hear from others is that - kindly write a letter explaining what you are going to

do and this simple sentence is putting a full stop to the whole idea as when the work is voluntary and takes only an hour to implement, people find it difficult to put three hours of their time in paperwork.

g) Indian Ideology: In most of the cases the responsibilities of the associations were vested on such people who have demonstrated and achieve a desirable level in their professional life and in Indian society, people were taught not to go against the elder and this creates a barrier in the flow of ideas from the younger people that might be of beneficial for the whole association.

8. Conclusion: The library associations / organizations consist of a group of likeminded people. The effective communication is crucial for fulfilling its aim and objectives. There are hardly any associations which are left out from the reach of Facebook, WhatsApp, Telegram and so on. However, the interesting part to be noted is that even the existence of those platforms that is supposed to connect the members are very hard to discover as they were not mentioned in the prominent places of the associations for people to find them. All associations put their much effort in publicizing their events, activities to others. However, at the same time associations do not exist in social media or their social media profiles were not updated for years and their followers / subscribers who showed interest in receiving the content were not made aware of what is going on in the associations / organizations. So, we are simply neglecting the people who are interested in us and working hard to reach those who do not have an inclination towards us. Self introspection will help the associations to achieve the set objectives of the association and to empower the members with new knowledge.

Disclaimer: *The data regarding the total registered member (approximate value) were collected from the website of the respective associations / organization if they were available, otherwise, the zones or chapters and their pattern of membership number and list of new members that were published in the newsletters were consulted to have a rough estimate of the total members.*

Note on the Conflict of Interest: *The author is working as a General Secretary of Assam Library Association (ALA) and responsible for the design and development of the website of Assam College Librarians' Association (ACLA) and Women Librarians' Association of Assam (WLAA). He is also a life member of Indian Association of Special Libraries and Information Centres (IASLIC) and a member of Ranganathan Society for Social Welfare*

& Library Development (RSSWLD) and Library and Information Science Professional Association (LISPA). This article represents the status of the associations as it is and based on verifiable facts and in no way the personal involvement of the author with any of the associations has influenced any part of the article.

Access to Raw Data: *The access to the raw data on which this article is based on is available in a MS Excel Sheet. Once the article is published, all these data will be made public and available at http://file.badanbarman.in/data/library-association.xlsx*

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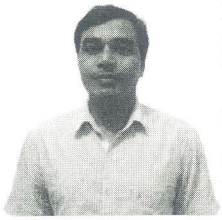
About the Author



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Editors' Profile

Dr. Shivaram. B. S, presently serving as team leader digital archiving group at ICAST, CSIR-NAL, Govt. of India. Prior joining to CSIR-NAL he served DRDO-MTRDC, a premier R&D laboratory under Ministry of Defense, GOI and NCSI, IISc, Bangalore. Presently, he is serving has Governing Council and Steering Committee member of VTU E-Resource Consortium. Shivaram B. S, is a UGC-NET qualified, holds Ph.D from Kuvempu University, Karnataka and dual Master's degree in Applied Psychology and Library & Information Science from Annamalai University and Bangalore University respectively. He has done Information and Knowledge Management course from NCSI, Indian Institute of Science, Bangalore.

Dr. G. Mahesh is a Senior Principal Scientist and was Head of the Information Resources and Media Division at CSIR-NISCAIR that includes the National Science Library, ISSN National Centre, Scientometrics, etc. He is also a Professor at the Academy of Scientific & Innovative Research (AcSIR) where he teaches S&T communication. He has published research papers in the national and international journal including journals such as Scientometrics, Libri, Program, Electronic Library, etc. He was also the National Focal Point Co-ordinator of the SAARC Documentation Centre. He is a Fellow of the Society for Information, IFLA-ALP Fellow and also served a stint at the Edinburgh University as a Common wealth Professional Fellow. He is currently the Editor of Annals of Library and Information Studies and Editor-in-Chief of COLLNET Journal of Scientometrics and Information Management.Presently he is with the Science Communication and Dissemination Directorate at CSIR Hq.

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Dedication

Smt. Joymati Barman

Shri Joykanta Barman

यन्मातापितरौ वृत्तं तनये कुरुतः सदा।
न सुप्रतिकारं तत्तु मात्रा पित्रा च यत्कृतम्।।

Prof. Narendra Lahkar

Prof. Rajani Kanta Barman

Prof. Sanjay Kumar Singh

गुरुर्ब्रह्मा गुरुर्विष्णुः गुरुर्देवो महेश्वरः।
गुरुः साक्षात् परं ब्रह्म तस्मै श्री गुरुवे नमः।।

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My students at the Department of Library and Information Science, Gauhati University are my pillars. My everyday interaction with them as part of their course curriculum has contributed insights and inputs helping me to develop the contents further. It is their need that prompted me to update the contents of this book.

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Badan Barman

Preface

Since my childhood, I had the habit of preparing a small note on each and every topic of the syllabus that I need to study as part of a course or programme. This spontaneous habit was sincerely followed even while preparing for the UGC NET Examination in the post graduate level in Library and Information Science (LIS). After qualifying in the UGC NET examination in LIS [now conducted by National Testing Agency (NTA)] consecutively for two times, I thought of keying the handwritten notes. During that time, to enhance my computer typing speed, I was enrolled in a typing course in my local area and in home to do the practice part; I used to key my handwritten notes in my personal computer leading to two benefits - first, it gave me more practice in typing, and second, my handwritten notes were converted to computer readable files without any need to invest money in a DTP operator.

From April 2011 to September 2011, I provided paid access to my personal notes through the UGC NET Guide (http://www.netugc.com) website. In September 2011, DVS Publishers, Guwahati took the task of publishing the online content in a hardcopy book format. Later on, UGC NET Guide website was made freely accessible for all from 29th December 2011 and the hard copy of the book was published in the name of "Library and Information Science: UGC-NET Guide"' by the DVS Publishers. This book was sold out within one year of release and in 2013 "Library and Information Science: UGC-NET Guide, 2nd Revised and Enlarged Edition with Objective Type Questions and Answers" was published. Even the second edition of the book was sold out within two years from the date of publication.

In 2008, I got a chance to work as an Academic Consultant & Librarian i/c at Krishna Kanta Handiqui State Open University. As part of my work, I authored four other books namely "Library and Society", "Library Management", "Library and Information Services", and "Computer Applications in Library". All these four books served as course materials for Diploma in Library and Information Science Programme of Krishna Kanta Handiqui State Open University.

In 2016, I published three other books titled "Systematic Facts File in Library and Information Science", "Popular Person in Library and Information Science", and "Glossary of Abbreviations in Library and Information Science". All these three books were avidly welcomed by the readers.

When all the books were sold out, many readers contacted me via phone calls, SMS, and WhatsApp messages with requests to reprint the books. There was no question of ignoring such demands from esteemed readers; however, the content was quite outdated and revising the vast amount of content for re-publishing was not practically feasible for me. Covid-19 lockdown period came to my rescue in this case providing me with more time to edit and revise the content. This allowed me to intensively work on it, and this book is the result of that effort.

Thus, this book is the consolidation of my previously published 9 books the content of which have been edited and revised thoroughly. Sincere and complete effort has been made to bring out the book in a flawless manner, despite all the limitations of the author. So, the author begs pardon for any errors, omissions or inconsistencies that may occur with or without his knowledge.

The time that I have devoted in writing this book was the time that I should have shared with my father, mother, wife and my daughter. I beg pardon from them as well.

Badan Barman

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