

## COGNITIVE ASSESSMENT IN THE ONLINE LEARNING ENVIRONMENT DURING COVID 19 PANDEMIC: A CASE STUDY OF SLIS STAKEHOLDERS

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### ABSTRACT -

In the current era, the Covid 19 has been a widely spreading pandemic to the entire world. Where all organizations, sectors, and companies, even though mankind too suffered. The Indians had been much bearded from it. Entire India had been locked down except for some important services i.e., hospitals and their relevant professionals. In this situation, academic organizations choose to catch the hand of ICT instead of stopping their progress; because the pause situation of teaching-learning denotes the future and development of India would be reversed one step downward. Hence, this decision proved good for all the academic organizations and learners who agreed to shake the hand of ICT and web technology. Since the course curriculum of LIS covered many ICT tools and techniques in the syllabus, the SLIS-CUG also followed the same. They had continued the teaching-learning process of professional courses through various ICT and Web technology, which is completed when the learner inculcates knowledge by understanding the concept and its applications. Therefore, the cognitive assessment had been conducted to identify the realm status of learners in understanding the subject, concept, and its application in the practice of the library profession. In this study, a total of 27 learners and 3 faculties had responded. Overall, all respondents agreed that ICT and web technology can be supplemented with some extended subject concepts.

**Keywords :** Cognitive assessment, Online learning environment, Self-efficacy, contextual memory, short memory, important senses/sensory memory

### INTRODUCTION

In the covid 19 pandemic, the academic organization has been open all the doors by holding the hand of ICT, crossing the boundaries for the learner.

During this period the Indian government allowed all academics organization should perform their teaching, learning, and administrative functions related responsibilities, making students engage in scholastic and co-scholastic activities through online mode, which was the striving to continue the academic functions. This was the crucial period for academicians and learners to assess their dissemination level and acquisition level of knowledge which would be inferred from cognitive assessment.

The cognitive assessment is the spatial process for the academic organization; where contextual memory, divided attention, focused attention, hand-eye coordination, planning, processing speed, response time, short-term memory, spatial perception, updating, visual scanning, visual short-term memory, working memory, etc. have been assessing by using different scales. It will be helped to learners to be great professionals, academicians, and other experts. The cognitive assessment would be more astounding due to learning and practice meant. Library and information science is a professional discipline in which librarians, knowledge curators, research guides, and information scientists, get the nuances, erudition, knowledge, and scholarship of this domain through training and activities. also do all teaching, learning, and professional activities in an online environment.

The curriculum of LIS discipline includes theory as well as practical aspects so, the academic organizations faced difficulties in proper demonstration of practical aspects and somehow in theoretical aspects too.

Since the LIS discipline includes both practical and theoretical aspects in syllabi, the academic

organization also had been suffered from lockdown to deliver both types of content during the pandemic period.

Here, a researcher studied the cognitive assessment process of the School of Library and Information Science for the master's degree learner and faculties of the school. The detailed introduction of SLIS, CUG, curriculum vital to master's degree, etc., does discuss. The objective of this article is to assess the cognitive skills during COVID-19 in an online environment, in the association with SLIS curriculum (MLIBIs), CUG

### **School of Library and Information Science, CUG**

According to the web content of the Central University of Gujarat, the SLIS established in the year 2012, the School of Library and Information Science offers programs that are highly relevant to the present context of the knowledge society. It has been established with the objectives to train competent human resources to build and maintain the reservoir of memory, conserve and communicate the culture, heritage, science, art, and folk traditions of the nation; to prepare students for the application of ICT; to develop competent professionals for promoting access to useful knowledge by the process of digitization and to involve in capacity building activities to create a Digital India at large. Presently it's offering Masters's and Research programs.

### **OBJECTIVES OF THE STUDY**

- To identify the cognitive self-efficacy of SLIS stakeholders.
- To know the maneuver of SLIS toward cognitive engagement.

## REVIEW OF LITERATURE

Alexander, Skulmowski, and Kate, Man Xu (2022) published reviewed article entitled “Understanding cognitive load on digital and online learning: a new perspective of extraneous cognitive load” here they explained the comparison of various cognitive load theory models. They also describe the future challenges for cognitive load theory majorly interactive learning media, immersion, disfluency, realism and detailed visualization, redundant elements, and emotional design. They also discuss the cognitive load alignment from basic three elements i.e., sources of cognitive load from Interactivity, from the verbal and procedural cognitive process from the crucial character of the learner, while the assessment for the same through a text and motion based.

Dina, di Giacono, Jessica, Ranieri, and Pilar, Locasa (2017) did research entitled “Digital learning as an enhanced learning processing? Cognitive evidence for new insight of smart learning” here researchers describe the role of digital learning on the cognition of learner. They took 191 learners from various schools and classified them into two-part namely highly digital learners and slow digital learners. They measure the cognitive level of learners on various elements i.e., language ability, logical reasoning, visual memory, digital games, etc. Authors admitted that digital skills enhanced learning, it is required to develop various skills simultaneously competence.

McDonald, Ewan W., Boulton, Jessica L., and Davis, Jacqueline L. (2021) had been studied entitled “E-learning and nursing assessment skills and knowledge: A integrative review” this

research consider here for the review from the samples category belongs to a professional. Here, researchers describe that this “integrative review identifies themes emerging from e-learning and ‘nursing assessment’ literature. Literature reviews have been undertaken in relation to digital learning and nursing education, including clinical skills, clinical case studies, and the nurse-educator role. Whilst perceptions of digital learning are well covered, a gap in knowledge persists for understanding the effectiveness of e-learning on nursing assessment skills and knowledge. This is important as comprehensive assessment skills and knowledge are key competencies for newly qualified nurses”

Richard E. Mayor (2018) had been studied entitled “Thirty years of research on online learning” where the author explained the contributions of towards learning of science. The author also describes “Some recurring themes are that learning is caused by instructional methods rather than instructional media, so research should focus on features that are uniquely afforded by digital learning environments; instructional practice should be grounded in rigorous and systematic research, including value-added experiments aimed at pinpointing the active ingredients in online instruction; research in online learning should identify boundary conditions under which instructional techniques are most effective, and research in online learning should test and contribute to learning theory”

Gwo-Jen Hwang and Hsun-Fang Chang did experimental research (2018) entitled “A formative assessment-based mobile learning approach to improving the learning attitudes and achievements of students” here a researcher describes mobile as an important part of

communication technologies. It is an important tool in a digital environment. They also proved the objective of study that the mobile learning improves the cognitive level of learners same as learning achievement also. These experimental results show that the formative assessment approach not only promotes the students' learning interests and attitudes but also improves their learning achievement.

## **METHODOLOGY**

Here a case research method had been used to explain the title of the study. The type of personal interview tool has been used to collect primary data from the respondents. Since the case denotes its' the faculties and learners of SLIS as samples. The personal interview has been conducted with an open-ended questionnaire which is classified into primary information and all elements related to the cognitive assessment process; during an interview, a researcher has prepared an observation note. According to the case study research methodology, data is collected through personal interviews and observational notes are prepared to conduct a qualitative analysis. The questions have been including primary information and elements of cognitive assessment given by the indeed editorial team are contextual memory, divided attention, focused attention, hand-eye coordination, planning, processing speed, etc.

### **Keywords Definition**

#### **Cognitive assessment**

According to Ischel Gonzalea Kelso and Tadi, Prasanna "The cognitive assessment is useful to test for cognitive impairment—a deficiency in knowledge, thought process, or judgment. Psychiatrists often perform cognitive testing

during the Mental Status Exam. However, when cognitive impairment is suspected, the cognitive assessment can obtain a more detailed analysis by surveying the neuropsychological domains. This detailed investigation of cognition can diagnose major cognitive impairment (i.e., dementia) and mild cognitive impairment, evaluate traumatic brain injuries, help determine decision-making capacity, and survey intellectual dysfunction"

### **Online learning environment**

According to IGI Global Publisher "The use of a computer-based internet learning environment in which a class between teacher and students is taking place. This is used interchangeably with the virtual environment in this chapter. Learn more in: activities: A Way to Promote Hands-On, Minds-On Learning in a Virtual Learning Environment"

### **Self-Efficacy**

According to NCERT "Self-efficacy is another important aspect of ourselves. People differ in the extent to which they believe they themselves control their life outcomes or the outcomes are controlled by luck or fate or other situational factors, e.g., passing an examination"

### **Contextual memory**

According to Cognifit Laboratory, "Contextual Memory could be defined as the ability to memorize and discern the origin of a specific memory. This memory can include time, place, people, emotion, or any other kind of contextual information related to the memory. Partial or erroneous codification of the contextual information of a certain event may be due to time

restraint, stress, distractions, or a deficit in information processing skills”

### Short memory

According to Wikipedia “is the capacity for holding, but not manipulating, a small amount of information in mind in an active, readily available state for a short period of time. For example, short-term memory can be used to remember a phone number that has just been recited”

### Important senses/Sensory memories

According to Web MD “Sensory memories are stored for a few seconds at most. They come from the five senses: hearing, vision, touch, smell, and taste. They are stored only for as long as the sense is being stimulated. They are then reprocessed and associated with a memory that may store in your short-term memory”

## DATA COLLECTION AND INTERPRETATION

Cognitive assessment is required in the academic field to assess learning outcomes. This assessment enlightens learners and teachers about activities. It has been simply done in regular periods where the method of teaching and learner does not affect any physical and virtual factors, while the covid 19 pandemic was a challenge for the entire community. The academic organization had been more affected in this period. The academic organization was taken the advantage of ICT to continue the education system. It seems to teachers that since the online environment took the place of physical classes it badly affects the spatial perception of the domain subject specifically library and information science, where both theory and practical sessions are vital for developing excellent LIS professionals.

**Table 1 : Demographic status of SLIS stake holders**

Particular	Faculty	Students		Total
		Male	Female	
No. of Respondents	03	15	12	<b>30</b>
%	13.33	46.67	40	<b>100</b>

### Demographic status of SLIS Stakeholders

#### Inferences

It is inferred that during the pandemic period the SLIS keep on holds classroom teaching and learning online mode only, therefore all respondents had been enabled online mode was functional to explore various ICT tools and techniques to cope with the academic procedures.

#### Perception of Online Environment

The authors found some interesting observation regards the perception of the online environment from respondents is that it is forced to explore Digital activity or performance are covered by many sectors like banking service, public

relations, business platforms, production strategy, machines operations, library services, and management, including all aspects of teaching and learning. So the all respondent are mostly aware of basic operations related to ITC.

### **Inferences**

All faculties of SLIS carried out teaching, learning, research activities, and assessments through online platforms only, i.e., video meetings, learning management systems, online writing tools, etc., All respondents have good knowledge of the educational online environment. All are familiar with various meeting options i.e., audio and video meetings, communication tools, and other software related to the in-house practices of libraries. It is also found that most of the faculties are enabled to operate MS Teams, Google Meet, Cisco Webex, and zoom through web browsers as well as mobile applications. All are enabled to use the remote access facility of the CUG Library and SI&EMPS portal.

### **Status of Contextual Memory in Online Environment**

The syllabus of the subject entitled “General psychology” of EILM university describe the contextual memory denoted the process of long-term memory, it can help the learner and teacher to inculcate and elaborate on the concept. All faculties experience good confidence in their contextual memory. The online environment provides them with good e-resources, and most importantly it decreases the geographical distance between the subject experts; their online talk/lecture really inculcates the domain knowledge.

### **Inferences**

Seven females (23.33%) stakeholders feel their contextual memory slowly going to be decreasing in an online environment, because of some facilities i.e., calendar, alarm, automatic reply, etc. since the online class is manageable and timely the visual learning skill have to be required, the absentee of enough level of skill, the qualitative knowledge might not come up.

Five males (16.67%) stakeholders feel differently. They believe in practices. Pursuantly they think the MOOC test/evaluation is required after the practice of any tools, techniques, and platform.

Remain, stakeholders feel in agreement with the online environment gives them exposure to enhance their knowledge.

### **Due attention to major three aspects speaking, learning, and listening**

Here, a researcher asked questions about attention mostly required in which aspects among three. All respondents believe these aspects are vital in an online environment specifically in teaching and learning, a learner is enabled to inculcate the domain knowledge from its activeness of it.

### **Inferences**

All faculties believe all aspects are vital in an online environment, but consonance is highest with listening than the other two. While learning and speaking are manageable. All student stakeholders believe their learning aspects are more concerned. For the professional course learner, practice is more important than theory, while the online environment does not fulfill the gap of practice. The remaining aspects of speaking and listening are manageable here from

the various facilities i.e., audio and video recording, mice, voice, and video cutter tools.

### **Significant Skills and Learner Focus**

According to the researcher following five significant skills Listening, ICT, Communication tool, Language, and Management are important in the teaching and learning process in online mode for the following reasons.

Listening to Instructions regarding operating the system and topics

ICT Skill Basic operations, shortcut key, recognition of symbols and keys

Communication Tool Live chat, message writing, post comments, appropriate emojis

Language Skill Short message, appropriate language selection

Management Skill Time, Data, Device, Space, concentration

### **Inferences**

It is inferred that all respondents accept that these five skills are most important in an online teaching and learning environment.

All faculties believe that listening skill is required prior to preparation for the session. All instructions regarding the system and topics need to be prepared well in advance and controlled on learners' audio and video, etc. required proficiency of listening skills. ICT skills would be adding more visual effects on presentation, discussion, and talk. Communication tools are required to learn first specifically the formation of text, recipient list, some symbols, colors, etc. Language skill has been posting the actual message to the learner while the learner also gets

an identical message only. Therefore, as faculty, we believe to give knowledge and instructions to versatile learners as it is. Management skills are also important in an online environment and educational organization.

All students are in consonance with all skills. They are familiar with the recording facility available freely on desktop and mobile. Since learners are doing LIS (Library and Information Science) courses where most of the functions operate through ICT tools and techniques, this skill is extremely important to the extent the LIS professionals. Since it is a service sector belonging to a profession to society, the communication and language skills are immense, which helps a professional to reach out to end-users as well as potential users. The management skills relevant to the online environment are also important, and it also inferred that all students know the data management by controlling applications data, using VPN, ethernet, free Wi-Fi, Bluetooth, etc.

### **Effects of an Online Environment on Short term Memory**

The role of short-term memory is vital in an online environment exclusively for teaching and learning. It has the capacity of holding a small amount of information. It helps the learner to enhance their domain knowledge; the cognitive assessment would be complete with its status on various levels of learner. Therefore, research put up the question about it as well as the effects of the online environment on it.

### **Inferences**

It is found that two faculty experienced the bad effect of online environments on short-term

memory, while for one it does not matter. Overall, 53.33% (4 Female and 12 male) of students also on the word of too badly effects of short-term memory. 30% of students (8 female and 1 male) experienced moderation effects. While the thoughts of remaining, all are it positively bring us towards online environment.

**The online Environment increases the spatial perception of subjective knowledge.**

Academic organizations have a basic function to improve and increase domain knowledge, it can use various tools and techniques including an online environment. All faculties’ respondents feel the online environment to some extent the domain knowledge through various resources and facilities. Maximum students 56.67% (8 male & 9 female) experienced that they can easily find the resources, while many platforms i.e., blogs, and web pages, also could describe the same subject differently, hence the options for understanding the subject get more than the book. Remain, students agreed to consider the online

environment to some extent the subject. The spatial perception of subjective knowledge is required more authentic resources as well as practical exposure to enhance the spatial knowledge.

**Online tools and techniques for self-updating**

Reading must increase the self-updating level of human beings. The online environment has many things that can be used to be self-updating. In this study, all respondents are familiar with the calendar, RSS Feed, mail services, etc., and they all agreed to consider the online environment updated themselves.

**Interactive Experience of Online Learning**

Here, the video meeting tool, online activities, submissions, modification of activities, interaction, and assessment options had been given.

**Table 2 : Interactive experience in Online learning**

<b>Interactive Experience</b>	<b>Very Satisfied (5)</b>	<b>Satisfied (4)</b>	<b>Unsure (3)</b>	<b>Dissatisfied (2)</b>	<b>Very Dissatisfied (1)</b>
Video Meeting Tools	30 Respondents				
	100%				
Online Activities	3 Faculties 10 Male 12 Female	Remain 5 Respondents			
	83.33%	16.67%			
Submission	2 Faculties 8 Male 9 Female	1 faculty 4 Male 3 Female	2 Male		
	63.33%	26.67%	6.67%		

Modification of Activities	3 Faculties 12 Male 9 Female	2 Male 2 Female	1		
	80%	13.33%			
Interaction	30 Respondents				
	100%				
Assessment	1 Faculty	1 Faculty			1 Faculty
	3.33%	3.33%			3.33%

### Inferences

It is inferred from the above interpretation that most of the respondents of the study are satisfied with online interaction. While respondents (Faculty) have been very dissatisfied with the assessment. It is noticed that the online environment serves many resources to the learner, hence, the authenticity of text would be verified by the learner, and copying text level may increase, hence the plagiarism directly increases as well as a learner could not scalp crush to increase their domain knowledge. This process might spoil the real research method. Overall interactive experience shows the marching of the academic organization toward digital learning.

### Challenges and Divination for Online Learning

All faculties and students strongly agreed on the challenges and benefits of online learning after it would not overcome the classroom challenges.

### Inferences

While they all considered the blended model can be adopted some more time. While subject to network connectivity and uniformity in all parts of the country are major challenges. It can be a supplement for self-learning or additional qualifications. 15 students believe that now a day all disciplines going to be vast with the practical task, which would not be overcome. The Techno world will not be able to create a physical laboratory for the learner.

### Findings according to objectives

#### Objective 1: To identify the cognitive self-efficacy of SLIS stakeholders

Cognitive self-efficacy denotes that the task, device, and e-platform must be self-managed. It could be identified by the assessment and inferences of the responses of all participants of this research.

**Table 3 : Cognitive self-efficacy of SLIS stakeholders**

Online Environment	Cognitive Self-Efficacy of SLIS Stakeholders
Perception of the Online Environment	The teaching & Learning proceeded in an online environment during the pandemic period; therefore, all respondents extremely have efficacy to operate the online environment.

Due attention to the major three aspects namely speaking, learning, and listening	All three aspects are vital in an online environment. Now a day it isn't perfectly working, but if we wish to the transformation of physical into digital everyday practices is required.
Significant Skills and Learner Focus	All mentioned skills going to be improved differently in respondents. Hence, in the future, the SLIS stakeholders will be able to immediately classify the skills in the online environment, as well as be able to multitask.
The online Environment increases the spatial perception of subjective knowledge	Because many resources are easily available while most stakeholders enable to operate the online environment, hence, it might work to some extent for the subject, hence cognitive self-efficacy is the greatest way.
Online tools and techniques for self-updating	All respondents are aware as well as used too from the tool & techniques, hence, the individual presence of self-efficacy is seen.
Interactive Experience of Online Learning	All respondents have good experience from interactive experience of online learning; Hence, the cognitive self-efficacy of all respondents is on a good level, and they might be caught the knowledge in online environments.

**Objective 2: To know the maneuver of SLIS toward cognitive engagement.**

Cognitive engagement is an emergent task for all academic organizations. It has drawn up the future of learners to the next level of the profession. By understanding its significance, the SLIS faculties emphasize future scholastic and co-scholastic activities i.e., online talks, webinars, blended mode competitions, virtual conferences, etc. while teaching, learning, and research would partially be based on online/virtually will be supporting the curriculum and increase the domain knowledge of the learner. All these curricular-based activities have been providing exposure to SLIS learners which will differentiate them sharply in comparison to other LIS professionals.

**CONCLUSION**

Cognition is a momentous process; disciplinary knowledge would be increased within it. Since the Library and Information Science is the professional disciplinary domain, both the theory and practice have been a basic part of the cognitive process. While the Online environment is made up of ITC tools for the proceeds. A greater number of academic libraries are using the latest technology and types of equipment in in-house and out-house functions of the library. Hence, it has become necessary for future LIS Professionals to develop their knowledge and train and make enable them to operate and handle ICT tools in an online environment. During a pandemic, the SLIS faithfully does the following scholastic and co-scholastic activities as per table no. 4 & 5 to make their learner works efficiently and wisely.

**Table 4 : Scholastic and Co-scholastic activities – From the annual report of SLIS-CUG**

Sr. No.	Name of the lecture	Name of the speaker	Date
01	Trends in Knowledge Organization	Prof. Bhaskar Mukherjee, Head, Department of Library and Information Science, Banaras Hindu University, Uttar Pradesh	5 <sup>th</sup> February 2020
02	Data Analysis using Statistical Methods and SPSS	Dr. Hansa Jain, SPISER, Ahmedabad	20 <sup>th</sup> – 21 <sup>st</sup> November 2019
03	Career prospects in library and information science	Prof. Pravakar Rath, Head, Department of Library and Information Science, Mizoram University	13 <sup>th</sup> September 2019
04	Disaster management in Libraries	Prof. Parul Zaveri, Head, SNTD, Department of Library and Information Science, Women's University, Mumbai	6 <sup>th</sup> September 2019
05	Academic Writing	Drs. Dr. Maria João Amante and Prof. Vasco Matos Trigo, ISCTE, Portugal	29 <sup>th</sup> and 30 <sup>th</sup> August 2019

**Table 5 : Scholastic and Co-scholastic activities – From the Annual report of SLIS-CUG**

Sr. No.	Name of the Workshop/Seminar/Conference	Date
01	SLIS Digital Lab Inauguration	11 <sup>th</sup> March 2020
02	First Alumni Meet	22 <sup>nd</sup> February 2020
03	Archives, Libraries & Museums: Hubs of cultural preservation- Collaboration with Ministry of Culture, Nagaland	14 <sup>th</sup> December 2010
04	Peer Review Week	16 <sup>th</sup> -20 <sup>th</sup> September, 2019
05	Librarians Day	20 <sup>th</sup> August 2019
06	Statistical Techniques in Research' Dr. Hansa Jain	22 & 23 Oct. 2019
07	Online Seminar: Digital Repositories and Research data: Roles and Prospectus Invited Guest: Prof. Pit Pichhapan	16 <sup>th</sup> September 2020
08	Virtual International conference on Statistical tools and techniques for research data analysis	21 <sup>st</sup> & 22 <sup>nd</sup> January 2021
09	Literacy Initiatives for Bridging Readers and Resources Involving Educators and Schools: Two-day Workshop	27 & 28 Feb.2021

10	WEAVE-2021- Webinars to Engage Alumni through Virtual Environment	12 <sup>th</sup> June 2021
11	‘International Day for Universal Access to Information (IDUAI)’ International Day for ‘Universal Access to Information – Right to Know	5 <sup>th</sup> October 2021
12	“Fake News and Misinformation: Issues and Challenges”	30 <sup>th</sup> June 2021
13	"World Book & Copyright Day "	23 <sup>rd</sup> April 2021
14	“Library as a Collaborator for Digital Learning”	12 <sup>th</sup> August 2020

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