Research Paper

Knowledge and Use of Online Education Tools Among The PG Students In PERIYAR University - A Survey

Dr.E.S.KAVITHA
Assistant Professor

E.DEEPA
M.Lib.I.Sc

Department of Library and Information Science,
Periyar University, Salem, Tamilnadu

ABSTRACT
The study examines postgraduate students at Periyar University's understanding of and use of online learning resources. Online resources, which provide flexibility and accessibility, have become essential to modern education with the introduction of digital technology. The purpose of the study is to evaluate students' familiarity with different online platforms and their ability to use them effectively for academic work. A systematic questionnaire was given to a sample of postgraduate students in order to collect information about their awareness, usage habits, problems they encountered, and preferences with regard to online learning materials. The results indicate both the areas that require improvement and the extent to which students use internet resources for studying. These findings' implications highlight how critical it is to raise students' levels of digital literacy and improve instructional techniques in order to more effectively incorporate online resources into academic programmes. This study lays the groundwork for future research and the creation of educational policies by providing insightful information about the state of online learning resources among postgraduate students.

I.   INTRODUCTION
Rapid technological breakthroughs, especially in the area of online education tools, have drastically changed the face of education in recent years. These resources—which range from interactive learning platforms to virtual classrooms—have completely changed how students interact with academic material and work with teachers and peers. In the midst of this digital revolution, it is more important than ever to evaluate how Periyar University's postgraduate (PG) students see and use these online learning resources. Global events that required remote learning solutions have expedited the shift to online education technologies, highlighting the benefits and drawbacks of this style of instruction. In addition to offering insights into the usefulness of these tools, knowing the knowledge levels and usage patterns of PG students about them helps educators and policymakers optimize their incorporation into courses for higher education. This article summarizes the results of a thorough survey that was given to Periyar University's postgraduate students in order to learn more about their acquaintance with different online education tools, their preferences for using them, and their opinions on how these tools have affected their academic path. By looking into these areas, we hope to provide insight into how PG students are currently using technology to enhance their education and provide suggestions for improving digital learning in the university setting of some examples are:

1.   Coursera
Coursera is distinguished by its affiliations with more than 275 prestigious universities across the globe, including Yale, Johns Hopkins, and IIT Kharagpur. Coursera offers access to over 7,000 courses in a variety of subjects, including computer science, public health, business, and machine learning, through a paid subscription model.

2.   Udemy
Udemy is renowned for its vast selection of courses, exceeding 8,000 in number. Known for affordability, Udemy covers subjects ranging from design and marketing to programming. It also offers savings on

certification programs and course bundles, making it accessible for learners seeking specific skill development.

3.   edX

edX, a nonprofit effort founded by Harvard and MIT, provides free courses from prominent universities and organizations around the world. With thousands of courses available, edX offers a broad educational experience spanning fields from data science and engineering to the social sciences and humanities.

4.   Unacademic

Unacademy has become a well-known online learning portal for postsecondary education in India. Unacademy, which provides both free and paid courses in a variety of subjects, is well-known for its mentorship by distinguished educators. In addition, it offers competitive exam preparation classes, online workshops, and offline events, with a focus on Indian students.

5.   NPTEL

The Indian Ministry of Education is supporting the IITs and IISc project, the National Programme on Technology-Enhanced Learning (NPTEL). NPTEL was established in 2003 and has been giving free online courses in more than 600 subjects per semester, including business, science and technology, engineering, and the humanities. NPTEL guarantees that students all around the world have widespread access to high-quality education through its Massive Open Online Courses (MOOC) initiative.

II.   REVIEW OF LITERATURE

A review's general goal is to critically evaluate a subset of the published body of knowledge by the summarization, classification, and contrast of previous research studies, literature reviews, and theoretical works.

Roque-Hernández, R. et al. (2023) this study looks into the connections between instructor presence, student involvement, satisfaction, and interactive collaboration software tools at a Mexican institution during the COVID-19 lockdown. 1417 participants from five different academic programs provided data for the collection. The findings demonstrated that interactive communication technology raises students' impressions of their teachers' presence, which increases their enjoyment and engagement. The study also discovered that two essential elements of the online learning process are the instructor and interactive communication tools. These results are consistent with earlier study done prior to the epidemic and add to our understanding of teaching and learning during the pandemic.

Ayanwale, M. A. et al. (2023) this comprehensive study of online teaching and learning resources in Lesotho higher education institutions (HEIs) indicates that things such a shortage of electricity, gadgets, and internet access hinder their usefulness, success likelihood, environment, and duration. The evaluation, which took place from 2015 to 2021, revealed the need for better e-learning platforms and concluded that relying just on OTL technologies may lower the quality of Lesotho's higher education system.

Nungu, L., et al. (2023) this comprehensive study of online teaching and learning resources in Lesotho higher education institutions (HEIs) indicates that things such a shortage of electricity, gadgets, and internet access hinder their usefulness, success likelihood, environment, and duration. The evaluation, which took place from 2015 to 2021, revealed the need for better e-learning platforms and concluded that relying just on OTL technologies may lower the quality of Lesotho's higher education system.

Magd, H., & Jonathan, H. (2023) the paper discusses how the COVID-19 pandemic has compelled universities to implement remote learning, making online instruction a crucial part of higher education. Still, there are limitations and difficulties with online learning. The primary issues were low student participation, poor performance evaluations, absenteeism, and a lack of knowledge about online resources and technology use, according to a survey done on 25 higher education institutions in Oman. The goal of the study is to shed light on the challenges and limitations of online learning so that Oman's higher education institutions can plan their future efforts with knowledge.

STATEMENT OF THE PROBLEM

With the advent of online educational materials, learning and teaching have undergone a complete transformation, offering never-before-seen opportunities for creativity, accessibility, and flexibility. However, as they become more widespread, it is imperative to evaluate their efficacy in-depth and address the problems preventing their optimal application. Therefore, it is necessary to research students' understanding of and use of online resources in the university departments at Periyar University Salem.

OBJECTIVES OF THE STUDY
* To identify the awareness and familiarity with online tools among the PG
* To determine the adoption of online tool usage in academic
* To find out the challenges involved in online education
* To examine preferences for specific
* To analyze the level of satisfaction with using online

HYPOTHESES
* H_0: There is no significant correlation between the use of Google online tools for academic activity and academic performance.
* H_0: Institutional support and training on using online education tools may not significantly impact the adoption and satisfaction of Google online tools among users.
* H_0: There is no significant association between the satisfaction level with Google online tools and the likelihood of recommending them to others.

Data and Methods
The major data gathering approach was adhered to in the study. A comprehensive survey was created and disseminated to 110 postgraduate students at Periyar University. The respondents provided 108 questionnaires that were fully completed. SPSS is used for the analysis and tabulation of the questions. The response rate as a whole was 98.18%. Random sampling served as the study's foundation. The two most important phases in the research process are interpretation and data analysis. Interpretation entails interpreting the gathered data and analysing it to derive significant inferences. Utilizing statistical tools and other procedures, analysis entails organizing, characterizing, and summarizing the data.

STATISTICAL TOOLS AND TECHNIQUES
Statistical approaches provide a fundamental underpinning for both descriptive and differential analysis. The following techniques were used in the study: The questionnaires were analysed and totalled using SPSS.
* Correlation
* Chi-square test
* T-test

Table 1 Age-wise Classification

S.no	Age	Frequency	Percentage
1	23-26	93	86.1
2	26-30	15	13.9
	Total	108	100

Table 1 shows the frequency and percentage of responders across two age groups. The bulk of those surveyed, according to the data, are in the 23–26 age range. It is clear that the 23–26 age group predominates in the sample because 86.1% of respondents are in this age range. With just 13.9% of the sample, the 26–30 age group makes up a smaller fraction of the population. This suggests that, in comparison to the younger age group, the population of people aged 26 to 30 is comparatively smaller or less represented in the survey.

Table 2 Gender-wise Classification

S. No	Gender	Frequency	Percentage
1	Male	52	48.1
2	Female	56	51.9
	Total	108	100

Table 2 shows the frequency and percentage of Respondents there are a total of 108 individuals surveyed. Among them, 52 individuals identify as male, constituting 48.1% of the total, while 56 individuals identify as female, accounting for 51.9% of the total.

Table 3 Familiarity with Google Education Tools

S.no	Familiarity with Google Education tools	Frequency	Percentage
1	Yes	85	78.7
2	No	23	21.3
	Total	108	100

Table 3 shows the frequency and percentage of respondents in the majority of individuals surveyed (78.7%) are familiar with Google education tools. While the majority are aware of Google education tools, there is still a notable portion (21.3%) who do not know these tools

Table 4 Usage of Google Education Tools

S.No	Options	Frequency	Percentage
1	yes	90	83.3
2	No	18	16.7
	Total	108	100

Table 4 shows the frequency and percentage of respondents in the majority of individuals surveyed (83.3%) have used Google education tools. While the majority have used Google education tools, there is still a notable portion (16.7%) who have not yet utilized these tools.

Table 5 Purpose of Using Google Tools

S.No	Options	Frequency	Percentage
1	Google sites	22	20.4
2	Google Classroom	29	26.9
3	Google meet	54	50
4	Google Drive tools	3	2.8
	Total	108	100

Table 5 shows the frequency and percentage of respondents in Google Sites 22 individuals, accounting for 20.4% of the total, who use Google Sites for creating and delivering online education. Google Classroom 29 individuals, representing 26.9% of the total, utilize Google Classroom for online education purposes. Google Meet 54 individuals, making up 50% of the total, employ Google Meet for online education delivery. Google Drive Tools Only 3 individuals, comprising 2.8% of the total, use Google Drive tools for online education.

Table 6 Training on Google Education Tools

Options	Frequency	Percentage
Yes	94	87
No	14	13
Total	108	100

Table 6 shows the frequency and percentage of respondents (87%) who reported that they have received training on Google education tools. 14 respondents (13%) reported that they have not received training on Google education tools. This indicates that the majority of the respondents, 87%, have undergone training on Google education tools, while 13% have not.

Table 6.1 **TOOLS USED T-TEST**

H_0: Institutional support and training on using online education tools may not significantly impact the adoption and satisfaction with Google online tools among users.

Requirements of Training on Google Education Tools	Over all satisfaction Level of google tools	N	Mean	Std. Deviation	Df	T value	Sig	Result
	very satisfied	70	1.0714	.25940	96	-1.587	.116	
	satisfied	28	1.1786	.39002				

The t-test result shows that there is no statistically significant difference in satisfaction levels between those who are "very satisfied" and those who are "satisfied" with Google Education Tools. This conclusion is drawn based on the provided significance level (p-value) of .116, which is greater than the conventional threshold of .05. Therefore, we fail to reject the null hypothesis, suggesting that there is no significant difference in satisfaction levels between the two groups. However, it's important to note that the "Result" column is empty, so without it, the interpretation might not be complete.

**Table 7 Challenges Faced while Using Google Education Tools**

S. No	Options	Frequency	Percentage
1	Yes	50	46.3
2	No	58	53.7
	Total	108	100

Table 7 shows the frequency and percentage of respondents this indicates that a significant portion of the respondents, 46.3%, have encountered challenges while using Google education tools, while 53.7% have not reported facing any challenges

Table 8 Google tools for academic research

S. No	Options	Frequency	Percentage
1	Google Scholar	15	13.9
2	Google search	23	21.3
3	Google Books	43	39.8
4	Google scholar citations	13	12
5	Google dataset search	8	7.4
6	Google Trends	4	3.7
7	Google Alerts	2	1.9
	Total	108	100

Table 8 displays the number of respondents and their percentage in Google Scholar, with 15 respondents (13.9%). 23 respondents (21.3%) used Google Search. 43 responders (39.8%) on Google Books. Citations from Google Scholar Thirteen (12%) responded. Google Dataset Lookup 8 responders (7.4%). 4.7% of Google Trends respondents answered.
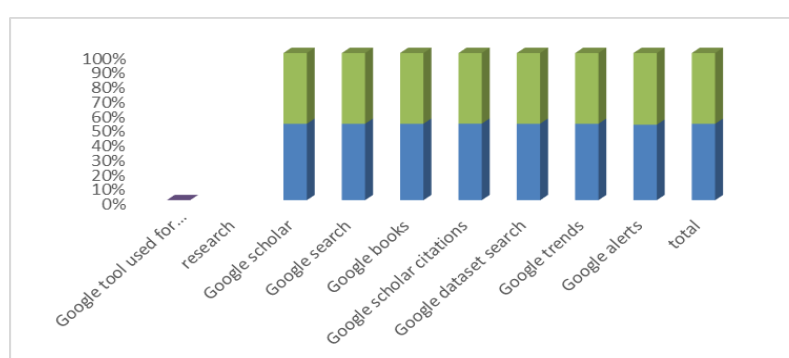
Figure 1 Google tools for academic research

Table 9 Options for Storing and Sharing

S. No	Storing Mode	Frequency	Percentage
1	Google Drive	40	37
2	Google one	3	2.8
3	Google cloud storage	36	33.3
4	Google photos	15	13.9

5	Google backup and sync	14	13
	Total	108	100

Table 9 shows the frequency and percentage of respondents in Google Drive as the most popular choice among respondents for storing and sharing files in the cloud, with 37% of respondents utilizing this service. Google Cloud Storage is also widely utilized, with 33.3% of respondents using this service. Google Photos, which focuses primarily on storing and organizing photos and videos, is used by 13.9% of respondents. Google Backup and Sync, designed to automatically back up files and folders from local storage to Google Drive, is utilized by 13% of respondents. Google One, a subscription service that provides expanded storage across Google services and additional benefits, is the least utilized among respondents, with only 2.8% using it.
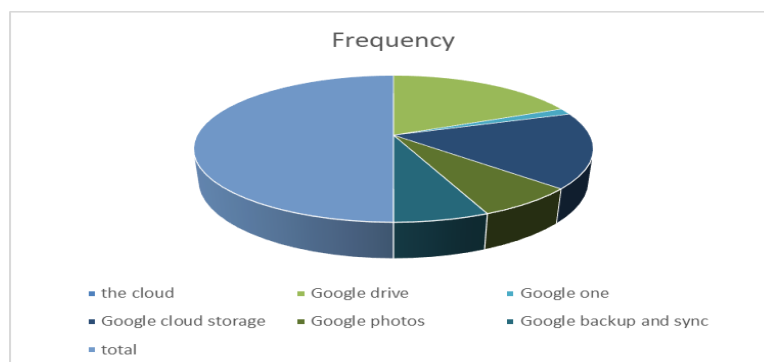

Figure No.2 Options for Storing and Sharing

Table 10 Expectation for Additional Features

S. No	Features	Frequency	Percentage
1	Enhanced accessibility features	29	26.9
2	Enhanced collaboration features	24	22.2
3	Advanced formatting options	28	25.9
4	Improved mobile experience	27	25
	Total	108	100

Table 10 shows the frequency and percentage of respondents in enhanced accessibility features are the most desired additional feature among respondents, with 26.9% expressing interest. Advanced formatting options are also highly desired, with 25.9% of respondents expressing interest. Improved mobile experience is a priority for 25% of respondents. Enhanced collaboration features are desired by 22.2% of respondents.

Table 11 Usage of Google form

S. No	Purpose	Frequency	Percent
1	Conducting research survey	26	24.1
2	Collecting feedback on course materials	29	26.9
3	Creating quizzes for assessment	38	35.2
4	Gathering data for research projects	8	7.4
5	Soliciting peer reviews for papers	3	2.8
6	Administrating course evaluations	4	3.7
	Total	108	100

Table 11 shows the frequency and percentage of respondents it seems that Google Forms is primarily utilized for creating quizzes for assessment, with 38 out of 108 respondents (35.2%) indicating this as their primary use. The next most common uses are collecting feedback on course materials (26.9%) and conducting research surveys (24.1%). Other uses such as gathering data for research projects, soliciting peer reviews for papers, and administering course evaluations are less common, with percentages ranging from 2.8% to 7.4%.

Table 12 Options of Recommendation

S. No	Option	Frequency	Percentage
1	Very likely	58	53.7
2	Likely	38	35.2
3	Neutral	12	11.1
	Total	108	100

Table 12 shows the frequency and percentage of respondents the majority of respondents (53.7%) are "very likely" to recommend something, followed by 35.2% who are "likely" to recommend. A smaller portion of respondents (11.1%) are "neutral" regarding their likelihood to recommend.
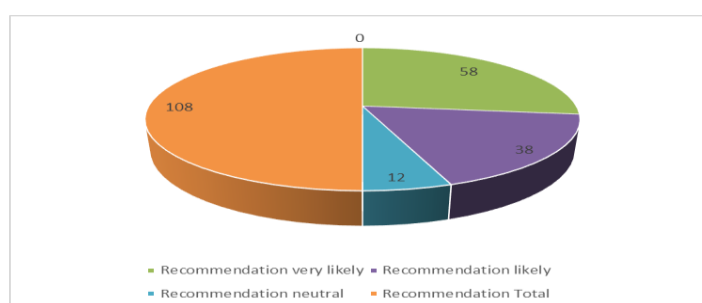
Figure No.3 Options of Recommendation

Table 12 TOOLS USED CHI-SQUARE TEST
H_0: There is no significant association between the satisfaction level with Google online tools and the likelihood of recommending them to others.

Likelihood ratio	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	43.467[a]	12	.000
Likelihood Ratio	49.917	12	.000
Linear-by-Linear Association	.001	1	.981
N of Valid Cases	108		

Chi-Square and Likelihood Ratio statistics are significant (p < .001), indicating a statistically significant association between the type of Google tool used for academic research and the overall satisfaction level of users. This means that the type of Google tool used is not independent of users' overall satisfaction level; there is some relationship between these variables. The linear-by-linear association test assesses whether there is a linear relationship between the two categorical variables. In this case, the p-value is .981, indicating no significant linear association between the variables. This suggests that the relationship between the type of Google tool used and user satisfaction is not strictly linear. The note regarding expected cell counts indicates that 14 out of 21 cells (66.7%) have expected counts less than 5, with the minimum expected count being. Low expected cell counts in some cells can affect the reliability of the chi-square test results. When expected counts are below 5, it may raise concerns about the validity of the chi-square test.

Table 13 Frequency Usage of Google Education Tools

S. No	Frequency	Frequency	Percentage
1	Daily	97	89.8
2	Weekly	11	10.2
	Total	108	100

Table 13 shows the frequency and percentage of respondents in that the majority of respondents utilize Google education tools daily, with 89.8% indicating daily usage. Only a small portion of respondents (10.2%) reported using Google education tools every week.
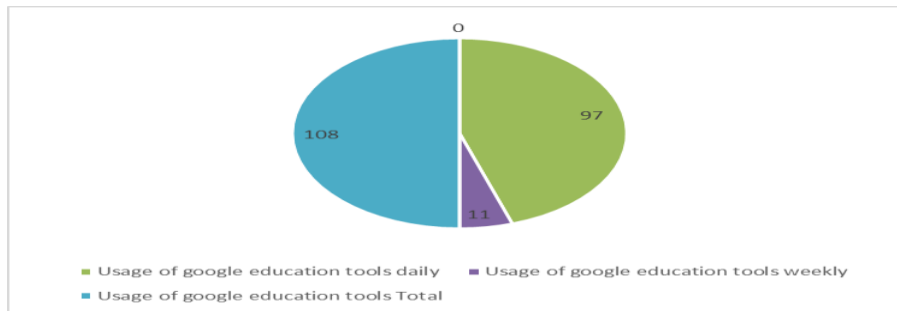

Figure 4 Frequency Usage of Google Education Tools

Table 14 Satisfaction level of Google tools

S. No	Level	Frequency	Percentage
1	Very satisfied	70	64.8
2	Satisfied	28	25.9
3	Neutral	10	9.3
	Total	108	100

Table 14 shows the frequency and percentage of respondents in that the majority of respondents express satisfaction with Google tools, with 64.8% indicating they are "very satisfied" and 25.9% indicating they are "satisfied." However, there is a small portion of respondents (9.3%) who are "neutral" regarding their satisfaction level.
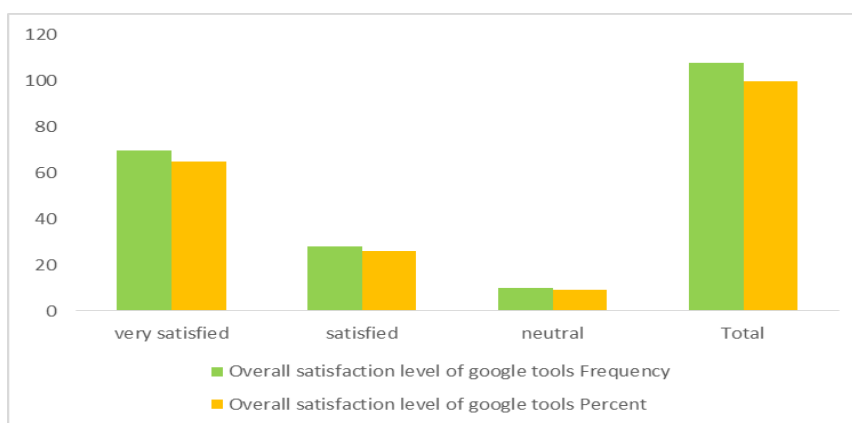
Figure5 Satisfaction level of Google tools

Table 14.1. 1 Satisfaction Level of Google Education Tools

H_0: There is no significant correlation between the use of Google online tools for academic activities and the academic performance.

Google tools used for academic research and any Google education		Google tool used for academic research	Used any Google education
Google tool used for academic research	Pearson Correlation	1	.031
	Sig. (2-tailed)		.752
	N	108	108
Used any Google education	Pearson Correlation	.031	1
	Sig. (2-tailed)	.752	
	N	108	108

Both correlation coefficients are close to zero (0.031), indicating a very weak positive correlation between the variables. This suggests that there is almost no linear relationship between the use of Google tools for academic research and the use of any Google education resources. Additionally, the p-values associated with both correlations are 0.752, which is greater than the typical significance level of 0.05. This indicates that the correlations are not statistically significant.

III.   FINDINGS

It was found that the age-wise respondents, comprising 86.1% of the sample, fall within the 23–26 age range. In contrast, the age group of 26–30 constitutes a smaller proportion of the sample, accounting for only 13.9%. Out of 108 respondents, 48.1% were male and 51.9% were female, despite a relatively balanced distribution within the sample and the significant difference in percentage. It is analyzed that the majority of respondents, accounting for 78.7% of the total surveyed population, are familiar with Google education tools. Despite the majority being aware of Google education tools, a notable portion of respondents, comprising 21.3% of the total, do not know these tools. It was found that the respondents' opinions on using Google education tools. The majority education tools; a notable portion of respondents, accounting for 16.7% of the total, have not yet utilized these tools. Out of 108 surveyed individuals, 22(20.4%) use Google Sites, 29 (26.9%) use Google Classroom, 54 (50%) use Google Meet, and only 3 (2.8%) use Google Drive exclusively for online education. Out of 108 respondents, the majority of them revealed that they are using them for accounting. 87% of the total surveyed population reported that they have received training on Google education tools. 13% of respondents, comprising 14 individuals, reported that they had not received training on Google education tools. It was found that a significant portion of respondents, comprising 46.3% of the total surveyed population, reported encountering challenges while using Google education tools. Conversely, 53.7% of respondents have not reported facing any challenges while using Google education tools. Out of 108 surveyed individuals, 15 (13.9%) use Google Scholar, 23 (21.3%) use Google Search, 43 (39.8%) use Google Books, 13 (12%) use Google Scholar Citations, 8 (7.4%) use Google Data Set Search, 4 (3.7%) use Google Trends, and 2 (1.9%) use Google Alerts. It is identified that a survey for storage mode shows that Google Drive is the most popular for storing and sharing files in the cloud, followed closely by Google Cloud Storage. Google Photos, Google Backup and Sync, and Google One are less commonly used options. Out of 108 respondents, the majority have revealed that enhanced accessibility features are the most desired, with 26.9% expressing interest, followed by advanced formatting options at 25.9%. A quarter of respondents prioritize an improved mobile experience (25%), while 22.2% desire enhanced collaboration features.

IV.   DISCUSSION

It is found that the purpose for usage of Google Forms is mainly for creating quizzes (35.2%), followed by collecting feedback on course materials (26.9%) and conducting research surveys (24.1%). Other uses, ranging from 2.8% to 7.4%, are less common among respondents. It is observed that the opinion for recommendation of time shows that the majority of respondents, 53.7%, said they're "very likely" to recommend something, while 35.2% are "likely" to do so. Only 11.1% feel "neutral" about recommending something. It was found that the frequency of the usage of Google education tools shows that the majority of the respondents are showing interest in daily usage: 89.8% of respondents indicated they use Google education tools on a daily basis. It is identified that the satisfaction level of Google tools shows that the majority of respondents, 90.7%, are satisfied with Google tools, with 64.8% being very satisfied and 25.9% being satisfied. Only 9.3% are neutral about their satisfaction level. It is observed that the correlation coefficients are close to zero (0.031), indicating a very weak positive correlation between the variables. This suggests that there is almost no linear relationship between the use of Google tools for academic research and the use of any Google education resources. Additionally, the p-values associated with both correlations are 0.752, which is greater

than the typical significance level of 0.05. This indicates that the correlations are not statistically significant. It is observed that the t-test result shows that there is no statistically significant difference in satisfaction levels between those who are "very satisfied" and those who are "satisfied" with Google Education Tools. This conclusion is drawn based on the provided significance level (p-value) of.116, which is greater than the conventional threshold of.05. Therefore, we fail to reject the null hypothesis, suggesting that there is no significant difference in satisfaction levels between the two groups. However, it's important to note that the "Result" column is empty, so without it, the interpretation might not be complete. It is observed that the study found a significant association between the type of Google tool used for academic research and user satisfaction, with Chi-Square and Likelihood Ratio statistics showing a relationship. However, the linear-by-linear association test showed no significant linear relationship, indicating a non-linear relationship. The study also found that 66.7% of cells had expected cell counts below 5, raising concerns about the validity of the chi-square test.

V.   SUGGESTION

To address the identified challenges and further enhance the effectiveness of online education tools, several suggestions can be considered. Firstly, providing comprehensive training programs tailored to the specific needs of PG students could improve their proficiency in using these tools. Incorporating enhanced accessibility features and advanced formatting options would enhance usability and cater to diverse user needs. Moreover, promoting awareness and utilization of less utilized tools, such as Google Scholar and Google One, could enrich the educational experience of PG students.

VI.   CONCLUSION

The study highlights the prevalent use of Google education tools among PG students at Periyar University. Google Meet emerges as the favored platform for online education delivery, indicating its popularity and effectiveness. Despite challenges reported by a significant portion of respondents, such as the need for enhanced accessibility features and training, overall satisfaction with these tools is high. This underscores their importance in facilitating online education among PG students.

REFERENCES

[1].   Al-Sharafi, M. A., Mufadhal, M. E., Sahabudin, N. A., & Arshah, R. A. (2019). Acceptance of online social networks as technology-based education tools among higher institution students: Structural equation modeling approach. Scientia Iranica, 26(Special Issue on: Socio-Cognitive Engineering), 136-144.
[2].   Angus-Leppan, H., Caulfield, A., Moghim, M. M., Nightingale, J., Sloan, R., Stables, T., & Schrag, A. (2022). Confidence College–an online education tool for neurology patients. ACNR, Advances in Clinical Neuroscience and Rehabilitation.
[3].   Archambault, L., Leary, H., & Rice, K. (2022). Pillars of online pedagogy: A framework for teaching in online learning environments. Educational Psychologist, 57(3), 178-191.
[4].   Ayanwale, M. A., Mosia, P. A., Molefi, R. R., & Shata, L. (2023). Reliability Components of Online Teaching and Learning Tools in Lesotho Higher Education Institutions: A Systematic Review. Pertanika Journal of Science & Technology, 31(1).
[5].   Bajaj, P., Khan, A., Tabash, M. I., & Anagreh, S. (2021). Teachers' intention to continue the use of online teaching tools post-COVID-19. Cogent Education, 8(1), 2002130.
[6].   Barros-del Río, M. A., Nozal, C. L., & Mediavilla-Martínez, B. (2022). Practicum management and enhancement through an online tool in foreign language teacher education. Social Sciences & Humanities Open, 6(1), 100273.
[7].   Beach, R. (2012). Uses of digital tools and literacies in the English language arts classroom. Research in the Schools, 19(1), 45.
[8].   Broadbent, J., & Poon, W. L. (2015). Self-regulated learning strategies & academic achievement in online higher education learning environments: A systematic review. The internet and higher education, 27, 1-13.
[9].   Cunningham, P. D. (2017). Bridging the distance: Using interactive communication tools to make online education more social. Library Trends, 65(4), 589-613.
[10].   Davis, N. L., Gough, M., & Taylor, L. L. (2019). Online teaching: Advantages, obstacles, and tools for getting it right. Journal of Teaching in Travel & Tourism, 19(3), 256-263.
[11].   Davies, S., Lorello, G. R., Downey, K., & Friedman, Z. (2017). Effective learning environments–the process of creating and maintaining an online continuing education tool. Advances in medical education and practice, 447- 452.
[12].   Deribigbe, S. A., Hamdi, W. B., Alzouebi, K., Frick, W., & Companion, A. A. (2022). Understanding student perceptions of social computing and online tools to enhance learning. PLoS One, 17(10), e0276490.
[13].   Diczbalis, M., Liu, Y. T., Young, D. J., & Vaghadia, H. (2022). Development and implementation of a quick reference (QR) code linked online education tool in anesthesiology practice. BMJ Open Quality, 11(4), e002030
[14].   Fajardo-Flores, S., Gaytan-Lugo, L., Santana-Mancilla, P., & Rodriguez-Ortiz,
[15].   M. (2021). Accessibility Assessment for Online Education Tools: Towards Accessible Principles for a Mexican University. EAI Endorsed Transactions on e-Learning, 7(21).
[16].   French, B., Daley, D., Perez Vallejos, E., Sayal, K., & Hall, C. L. (2020). Development and evaluation of an online education tool on attention deficit hyperactivity disorder for general practitioners: the important contribution of co-production. BMC Family Practice, 21, 1-10.
[17].   Kauffman, L., Weisberg, E. M., & Fishman, E. K. (2022). Using Facebook Live and Zoom as tools for online radiology education: A practical guide. Current Problems in Diagnostic Radiology, 51(4), 423-426.
[18].   Krishnan, A. G., Srisai Devikrishna, D., & Aich, S. C. (2021). Online education amidst pernicious COVID scourge: Altering traditional educational system and implementation of arts-friendly distance education strategies. Annals of the Romanian Society for Cell Biology, 7470-7475
[19].   Livy, S., Muir, T., Murphy, C., & Trimble, A. (2022). Creative approaches to teaching mathematics education with online

tools   during   COVID-

[20].   International Journal of Mathematical Education in Science and Technology, 53(3), 573-581.

[21].   Lynch, D. E., Haj-Mohammad, S., Yeoman, L. M., & Sparangis, T. (2018). Pedagogía del arte dramáticoy aprendizaje en línea:¿ una herramienta potencial para aprender en una sociedad del conocimiento?. Education in the Knowledge Society (EKS), 19(4), 69-80.

[22].   Magd, H., & Jonathan, H. (2023). Limitations and Challenges of Online Teaching at Higher Education Institutions in Oman. International Journal of Information and Education Technology, 13(5).

[23].   Munteanu, L. H., Gorghiu, G., & Gorghiu, L. M. (2014). The role of new technologies for enhancing teaching and learning in arts education. Procedia- Social and Behavioral Sciences, 122, 245-249.

[24].   Munusamy, S., Osman, A., Riaz, S., Ali, S., & Mraiche, F. (2019). The use of Socrative and Yammer online tools to promote interactive learning in pharmacy education. Currents in Pharmacy Teaching and Learning, 11(1), 76-80.

[25].   Nungu, L., Mukama, E., & Nsabayezu, E. (2023). Online collaborative learning and cognitive presence in mathematics and science education. Case study of the University of Rwanda, College of Education. Education and Information Technologies, 28(9), 10865-10884.

[26].   O'Doherty, D., Dromey, M., Lougheed, J., Hannigan, A., Last, J., & McGrath,

[27].   D. (2018). Barriers and solutions to online learning in medical education–an integrative review. BMC Medical Education, 18, 1-11.

[28].   Priya Batra, P. B., Mangione, C. M., Cheng, E., Steers, W. N., Nguyen, T. A., Bell, D., .. & Gregory, K. D. (2018). A cluster randomized controlled trial of the My Family Plan online preconception health education tool.

[29].   Roque-Hernández, R. V., Díaz-Roldán, J. L., López-Mendoza, A., & Salazar- Hernández, R. (2023). Instructor presence, interactive tools, student engagement, and satisfaction in online education during the COVID-19 Mexican lockdown. Interactive Learning Environments, 31(5), 2841-2854.

[30].   Ayanwale, M. A., Mosia, P. A., Molefi, R. R., & Shata, L. (2023). Reliability Components of Online Teaching and Learning Tools in Lesotho Higher Education Institutions: A Systematic Review. Pertanika Journal of Science & Technology, 31(1).

[31].   Nungu, L., Mukama, E., & Nsabayezu, E. (2023). Online collaborative learning and cognitive presence in mathematics and science education. Case study of University of Rwanda, college of education. Education and Information Technologies, 28(9), 10865-10884.

[32].   Magd, H., & Jonathan, H. (2023). Limitations and Challenges of Online Teaching at Higher Education Institutions in Oman. International Journal of Information and Education Technology, 13(5).

[33].   https://study.com/academy/lesson/what-are-online-learning-tools-definition-typesexamples.html#:~:text=There%20are%20a%20wide%20variety,help%20supp ort%20teaching%20and%20learning

[34].   https://www.teachmint.com/glossary/o/online-education/

[35].   https://adamasuniversity.ac.in/a-brief-history-of-online-   education/#:~:text=Though%20the%20internet%20wasn't,by%20the%20University%20of%20Toronto.