IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

UTILISATION OF OPEN EDUCATIONAL RESOURCES (OER) AMONG TEACHER EDUCATORS

[1] **Balachandra Madiwal**, [2] **Patil S S**

[1] Research Scholar, [2] Professor

[1] Department of Education,

[1] Kuvempu University, Shankaragatta, Karnataka, India

ABSTRACT:

For the past decade, teachers worldwide have been inclined towards using open educational resources (OER) in the teaching and learning process. There has been debate among teachers regarding its terminology, advantages, and limitations. OER refers to technology-enabled, openly provided educational resources that users can access and adapt for non-commercial purposes. It's important to note that OER differs from open learning, resource-based learning, or open publishing. OER makes use of new technology, allowing the incorporation of various media. According to Butcher (2011, p.6), OER specifically refers to materials for teaching and learning that can be used for pedagogic purposes, including scholarly articles and content."Teaching, learning, and research materials in any medium, digital or otherwise, that resides in the public domain or has been released under an open license that permits no-cost access, use, adaptation, and redistribution by others with no or limited restrictions" is how the Paris OER Declaration (UNESCO, 2012) defines open educational resources. It refers to undergraduate (UG), postgraduate (PG), and up-to-research and post-doctoral programs in higher education. ICT is significant, the digitalized world is shaping the traditional world under the general heading of globalization. It is possible to obtain knowledge at no cost. Thanks to Open Educational Resources (OER)in this initiation. UNESCO's Paris 2019, one of the recommendations is building the capacity of stakeholders to create, access, re-use, adapt, and redistribute Open Educational Resources. In the pursuant of its Member States including India, it has to be nurtured through the teacher education institutions for teacher educators. It is one of the essential key factors for enriching themselves with current updates. Moreover, it is provided to materials with Copyright sometimes & Open licensing as *depending on its Creative Commons (CC) to empower the continuous capacity building of stakeholders to their in-service & pre-service. For the best utilisation & adaptation of OER stakeholders*

must be aware and have an attitude about this. This is the key factor of OER's best utilisation from everywhere & anywhere with low cost or no cost.

This paper focuses on studying the utilisation of OERs by the teacher educators of secondary educational institutions (B.Ed. Colleges) located at the urban level under the Kuvempu University & Davangere University jurisdictions of Karnataka state.

The sample consisted of 23 teacher educators at the urban level, and the survey method was used to collect the data. It was found that the level of utilisation towards open educational resources is found to be significantly moderate among secondary education teacher educators' awareness, attitude & utilisation in most streams.

KEYWORDS: Open Educational Resources (OERs), Awareness, Attitude & Utilisation, Secondary Teacher Educators.

I. INTRODUCTION:

"Open Educational Resources (OERs) are free digital materials for teaching, learning, and research. They include text, media, and other educational resources that can be accessed and shared online." OERs are available to everyone and come in various file formats.

E-learning involves more than just technology. It encompasses various instructional and pedagogical approaches that establish a comprehensive learning environment on the Internet. In higher education, e-learning is widely utilized to support academic programs. Open Educational Resources (OERs) offer a valuable alternative for improving access to high-quality educational content. Renowned universities worldwide provide these resources under open licenses. Combining these concepts can be a potent strategy for enhancing the quality of curricula in higher education institutions, particularly in developing nations like India. It can help standardize the learning outcomes of international academic programmes and reduce the costs associated with educational content development. This research aims to explore the potential of integrating OERs into e-learning environments.

II. NEED AND SIGNIFICANCE OF THE STUDY:

The focus of this study is on the use and importance of Open Educational Resources (OER) by Teacher Educators in their professional development to train future teachers. Teachers need to constantly update their knowledge, and Teacher Educators have a vital responsibility to prepare individuals who will shape and mould the future of our society. In the past, the only way to access knowledge was through written materials like books, magazines, and newspapers. However, with the advent of digital content, one can gain access to information from anywhere in the world at a low cost. In the twenty-first century, education, learning, and research are more closely linked to ICT and other networking technologies. The internet has become a dynamic and powerful medium for channeling educational resources. The role of teachers, educators, and researchers is constantly evolving, and this has led to changes in the ways and means of accessing and communicating information and knowledge.

The National Policy on Education 2020 emphasizes the significance of technology-oriented education. Open Educational Resources (OER) play a vital role in creating and sharing knowledge, aligning with the

needs of different learning groups. To effectively harness these resources, teachers need to be actively involved in producing and sharing educational materials. Teacher educators should have a strong grasp of accessing open content, which encompasses freely available, openly licensed text, media, and other digital assets that are beneficial for teaching, learning, and research purposes.

III. REVIEW OF RELATED LITERATURE:

The study sought to examine the impact of OER-related, teacher-related, and school-related factors on teachers' use of OER. The research revealed that OER-related variables, particularly the pedagogical quality and content quality exhibit a greater capacity to predict the extent to which teachers use OER. Regarding school-related factors, the use of OER among Chinese K-12 teachers is positively influenced by the school culture support and technological support. Conversely, leadership support has a negative effect on the adoption of OER. Regarding factors related to teachers, the study determined that only the self-efficacy of teachers in utilizing OER has a positive impact on the use of OER in China**, Cai, Dong, Li, and Wong (2023).** The results showed that lecturers were prepared and actively used OERs in education like Netex, to develop personalized learning materials for the learners and integrate dynamic features like audio, video, and self-evaluation into course content, **Ojo, Salawu, and Adedapo (2023).** It is found that the teachers recognized OERs as digital and non-digital materials available at their institutions that can be used to stimulate classroom discourse, increase engagement between lecturers and students, and boost student achievement, **Ojo, Salawu, and Adedapo (2023).** It is discovered that faculty members possess a moderate perception regarding the ease of modification and the overall quality of OER. Even though the teachers had positive views on the benefits of OER and attitudes towards publishing their course materials, it was found that legal issues prevented them from effective application (Kursun, Cagiltay, and Can, 2014), **Al-Zahrani (2023).** This study observed the influence of e-learning on the cognitive, affective, and behavioural aspects of students (Martin et. al,2022**)**. The results showed that e-learning has a greater impact on these areas when compared to face-to-face learning. Furthermore, the impact is more pronounced in higher education as compared to basic, mid-level, and upper-secondary education, **Lizzeth Navarro-Ibarra et al (2023).**

IV. OBJECTIVES OF THE PRESENT STUDY:

The following objectives are framed for the present study:

1. **To study the level of awareness among the Teacher Educators about Open Educational Resources.**
    - 1.1. To evaluate the extent of Open Educational Resources (OER) awareness between male and female teacher educators.
    - 1.2. To evaluate the extent of Open Educational Resources (OER) awareness between arts and science teacher educators.
    - 1.3. To evaluate the extent of Open Educational Resources (OER) awareness between aided and unaided teacher educators.
2. **To study the level of attitude among the Teacher Educators about Open Educational Resources.**

2.1.To evaluate the extent of Open Educational Resources (OER) attitude between male and female teacher educators.

2.2.To evaluate the extent of the Open Educational Resources (OER) attitude between arts and science teacher educators.

2.3.To evaluate the extent of Open Educational Resources (OER) attitude between aided and unaided teacher educators.

3. **To study the level of utilisation among the Teacher Educators about Open Educational Resources.**

3.1 To evaluate the extent of Open Educational Resources (OER) utilisation between male and female teacher educators.

3.2 To evaluate the extent of Open Educational Resources (OER) utilisation between arts and science teacher educators.

3.3 To evaluate the extent of Open Educational Resources (OER) utilisation between aided and unaided teacher educators.

V. HYPOTHESES OF THE STUDY:

1. **There is no significant difference between the level of awareness among teacher educators about open educational resources.**

1.1.There is no significant difference between the level of awareness of Open Educational Resources (OER) among male and female teacher educators.

1.2.There is no significant difference between the level of awareness of Open Educational Resources (OER) among arts and science teacher educators.

1.3.There is no significant difference between the level of awareness of Open Educational Resources (OER) among aided and unaided teacher educators.

2. **There is no significant difference between the level of attitude among the teacher educators about open educational resources.**

2.1.There is no significant difference between the level of attitude of Open Educational Resources (OER) among male and female teacher educators.

2.2.There is no significant difference between the level of attitude of Open Educational Resources (OER) among arts and science teacher educators.

2.3.There is no significant difference between the level of attitude of Open Educational Resources (OER) among aided and unaided teacher educators.

3. **There is no significant difference between the level of utilisation among the Teacher Educators about Open Educational Resources.**

3.1.There is no significant difference between the level of utilisation of Open Educational Resources (OER) among male and female teacher educators.

3.2.There is no significant difference between the level of utilisation of Open Educational Resources (OER) among arts and science teacher educators.

3.3.There is no significant difference between the level of utilisation of Open Educational Resources (OER) among aided and unaided teacher educators.

VI. METHODOLOGY: The researchers employed the descriptive survey method.

VII. POPULATION: The population of the study included 250 teacher educators working in secondary teacher education institutions belonging to aided & unaided colleges of Kuvempu University & Davangere University at the urban level.

VIII. SAMPLE: The study's representative sample included 23 teacher educators from two colleges of Kuvempu University & Davangere University respectively of Karnataka State, India for the Research Pilot Study. The researcher used the stratified random sampling technique.

IX. TOOL USED: In the study, the researcher constructed and validated the following tools.
Open Educational Resource (OER) Awareness, Open Educational Resource OER) Attitude & Open Educational Resource (OER) Utilisation inventory for the collection of data respectively.

X. STATISTICAL TECHNIQUE: The data is analyzed by using the statistical technique of percentage analysis, t-test & correlation

XI. THEORETICAL FRAMEWORK:

The researcher employed the descriptive survey method. And used the tools which are constructed and validated by the researcher as follows. *Open Educational Resource (OER) Awareness, Open Educational Resource OER) Attitude & Open Educational Resource (OER) Utilisation inventory for the collection of data respectively.* The data has been analyzed by using the statistical technique of percentage analysis, t-test & correlation.

XII. ANALYSIS OF DATA:

Objective- 01: To evaluate the extent of Open Educational Resources (OER) awareness between male and female teacher educators.

Hypothesis(H_0)- 01: There is no significant difference between the level of awareness of Open Educational Resources (OER) among male and female teacher educators.

Table -01

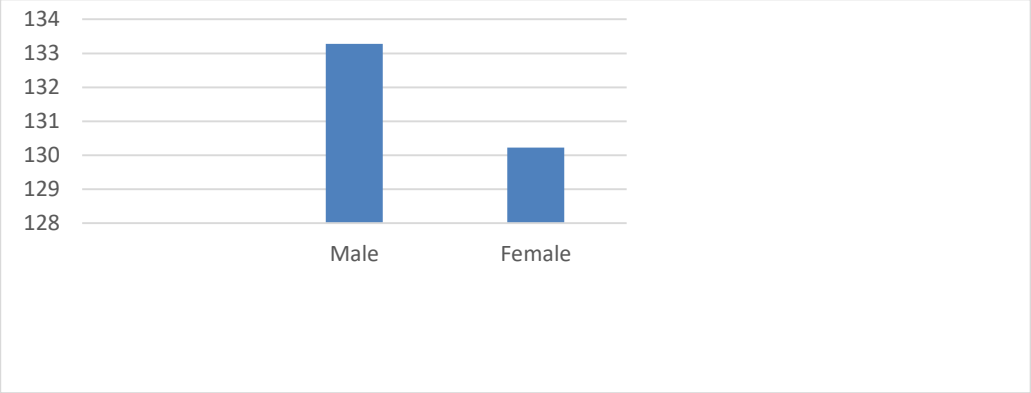
Table showing the number of Male and Female, their mean score, standard deviation, and 't' value

Gender	N	M	SD	t-value	Significance at 0.05 level
Male	14	133.28	09.33	.766	**NS**
Female	09	130.22	09.06		

NS= Not Significant

It is clear from the table - 01 that the calculated 't' value of .766 is lesser than the criterion value of 2.080 at a 0.05 level of significance. So, the null hypothesis is **accepted** that "There is no significant difference between the level of awareness of Open Educational Resources (OER) among male and female teacher educators".

Figure-01



When descriptively analysed the above graph depicts there is comparatively a high awareness of OER among male teacher educators compared to female teacher educators.

Objective- 02: To evaluate the extent of Open Educational Resources (OER) awareness between arts and science teacher educators.

Hypothesis(H_0)- 02: There is no significant difference between the level of awareness of Open Educational Resources (OER) among arts and science teacher educators.

Table -02

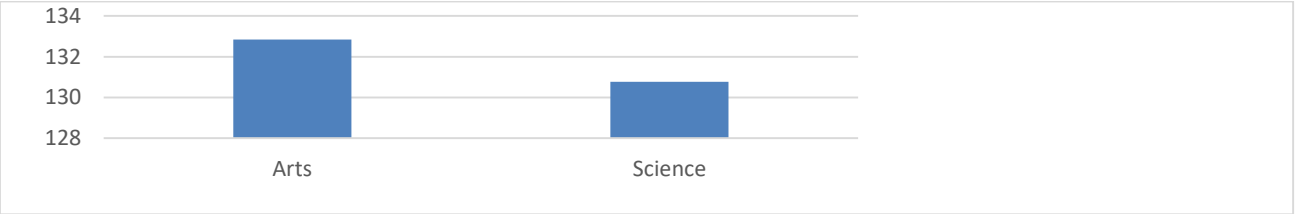
Table showing the number of arts and science, their mean score, standard deviation, and 't' value

Pedagogy	N	M	SD	t-value	Significance at 0.05 level
Arts	14	132.85	09.01	.998	**NS**
Science	09	130.77	09.66		

NS= Not Significant

It is clear from the table - 02 that the calculated 't' value of .998 is lesser than the criterion value of 2.080 at a 0.05 level of significance. So, the null hypothesis is **accepted** that "There is no significant difference between the level of awareness of Open Educational Resources (OER) among arts and science teacher educators".

Figure-02



When descriptively analysed the above graph depicts there is comparatively a high awareness of OER among arts teacher educators compared to the science Teacher Educators.

Objective- 03: To evaluate the extent of Open Educational Resources (OER) awareness between aided and unaided teacher educators.

Hypothesis(H_0)- 03: There is no significant difference between the level of awareness of Open Educational Resources (OER) among aided and unaided teacher educators.

Table -03

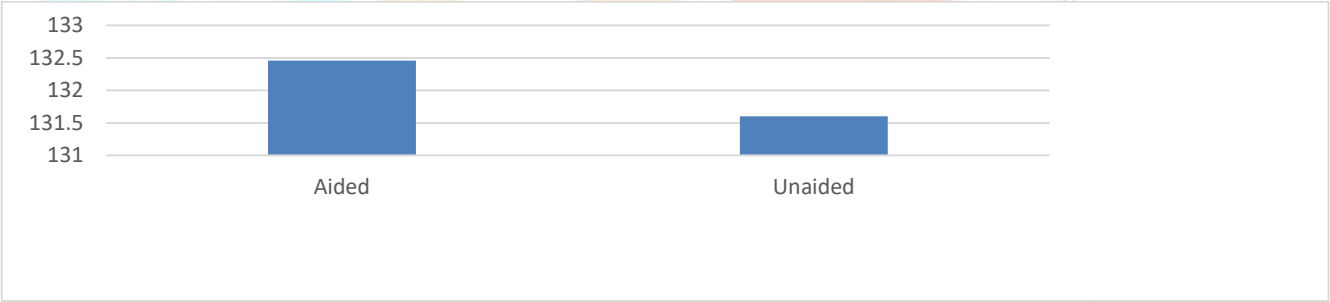
Table showing the number of aided and unaided, their mean score, standard deviation & 't' value

Institution Type	N	M	SD	t-value	Significance at 0.05 level
Aided	13	132.46	10.57	.096	**NS**
Unaided	10	131.60	7.42		

NS= Not Significant

It is clear from the table- 03 that the calculated 't' value of .096 is lesser than the criterion value of 2.080 at a 0.05 level of significance. So, the null hypothesis is **accepted** that "There is no significant difference between the level of awareness of Open Educational Resources (OER) among aided and unaided teacher educators".

Figure-03



When descriptively analysed the above graph depicts there is comparatively a high awareness of OER among aided college Teacher Educators compared to unaided college Teacher Educators.

Objective- 04: To evaluate the extent of Open Educational Resources (OER) attitude between male and female teacher educators.

Hypothesis(H_0)- 04: There is no significant difference between the level of attitude of Open Educational Resources (OER) among male and female teacher educators.

Table -04

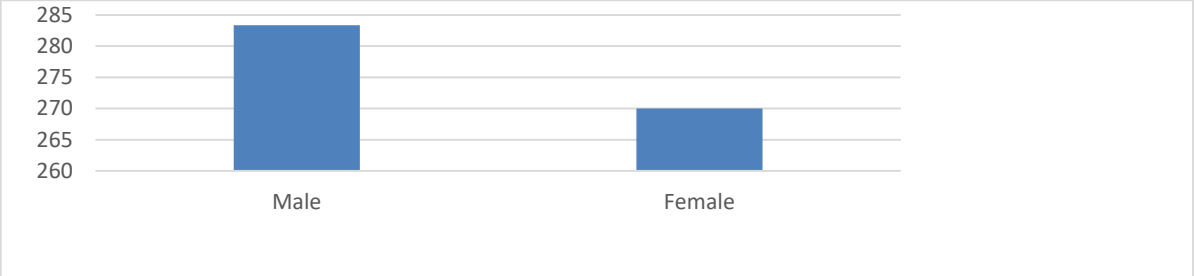
Table showing the number of aided and unaided, their mean score, standard deviation, and 't' value

Gender	N	M	SD	t-value	Significance at 0.05 level
Male	14	283.35	21.40	.162	**NS**
Female	09	270.00	17.33		

NS= Not Significant

It is clear from the table- 04 that the calculated 't' value of .162 is lesser than the criterion value of 2.080 at a 0.05 level of significance. So, the null hypothesis is **accepted** that "There is no significant difference between the level of attitude of Open Educational Resources (OER) among male and female teacher educators".

Figure-04



When descriptively analysed the above graph depicts there is comparatively a high attitude of OER among male Teacher Educators compared to female Teacher Educators.

Objective- 05: To evaluate the extent of Open Educational Resources (OER) attitude between arts and science teacher educators

Hypothesis(H_0)- 05: There is no significant difference between the level of attitude of Open Educational Resources (OER) among arts and science teacher educators.

Table -05

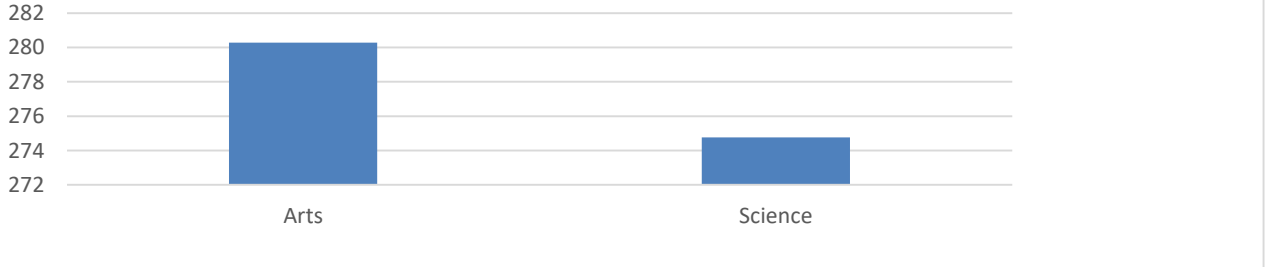
Table showing the number of arts and science, their mean score, standard deviation, and 't' value

Pedagogy	N	M	SD	t-value	Significance at 0.05 level
Arts	14	280.28	22.17	.304	**NS**
Science	09	274.77	18.62		

NS= Not Significant

It is clear from the table- 05 that the calculated 't' value of .304 is lesser than the criterion value of 2.080 at a 0.05 level of significance. So, the null hypothesis is **accepted** that "There is no significant difference between the level of attitude of Open Educational Resources (OER) among arts and science teacher educators".

Figure-05



When descriptively analysed the above graph depicts there is comparatively a high attitude of OER among arts Teacher Educators compared to the science Teacher Educators.

Objective- 06: To evaluate the extent of Open Educational Resources (OER) attitude between aided and unaided teacher educators.

Hypothesis(H_0)- 06: There is no significant difference between the level of attitude of Open Educational Resources (OER) among aided and unaided teacher educators.

Table -06

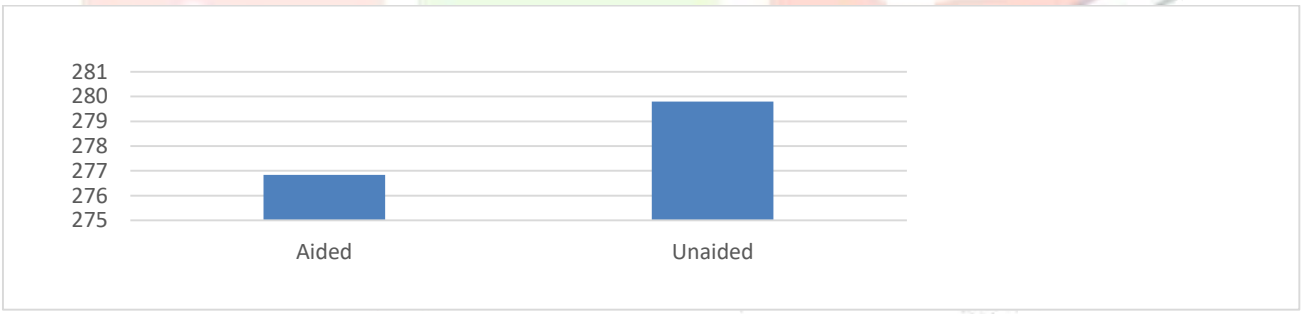
Table showing the number of aided and unaided, their mean score, standard deviation, and 't' value

Institution Type	N	M	SD	t-value	Significance at 0.05 level
Aided	13	276.84	23.75	.235	**NS**
Unaided	10	279.80	16.71		

NS= Not Significant

It is clear from the table -06 that the calculated 't' value of .235 is lesser than the criterion value of 2.080 at a 0.05 level of significance. So, the null hypothesis is **accepted** that "There is no significant difference between the level of attitude of Open Educational Resources (OER) among aided and unaided teacher educators".

Figure-06



Teacher Educators. When descriptively analysed the above graph depicts there is comparatively a high attitude of OER among unaided Teacher Educators compared to the aided

Objective- 07: To evaluate the extent of Open Educational Resources (OER) utilisation between male and female teacher educators.

Hypothesis(H_0)- 07: There is no significant difference between the level of utilisation of Open Educational Resources (OER) among male and female teacher educators.

Table -07

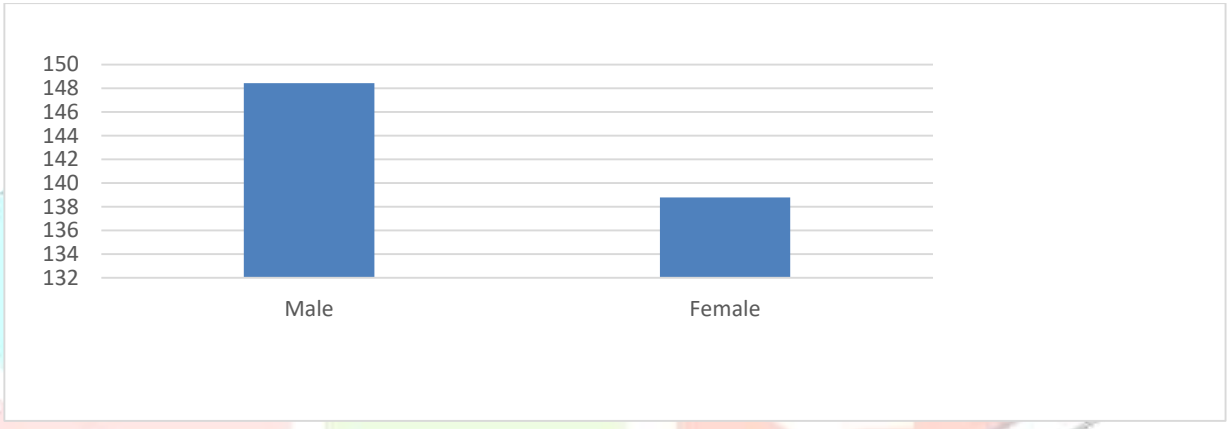
Table showing the number of Male and Female, their mean score, standard deviation, and 't' value

Gender	N	M	SD	t-value	Significance at 0.05 level
Male	14	148.42	14.20	.545	**NS**
Female	09	138.77	16.43		

NS= Not Significant

It is clear from the table- 07 that the calculated 't' value of .545 is lesser than the criterion value of 2.080 at a 0.05 level of significance. So, the null hypothesis is **accepted** that "There is no significant difference between the level of utilisation of Open Educational Resources (OER) among male and female teacher educators".

Figure-07



When descriptively analysed the above graph depicts there is comparatively a high attitude of OER among male Teacher Educators compared to female Teacher Educators.

Objective- 08: To evaluate the extent of Open Educational Resources (OER) utilisation between arts and science teacher educators.

Hypothesis(H_0)- 08: There is no significant difference between the level of utilisation of Open Educational Resources (OER) among arts and science teacher educators.

Table -08

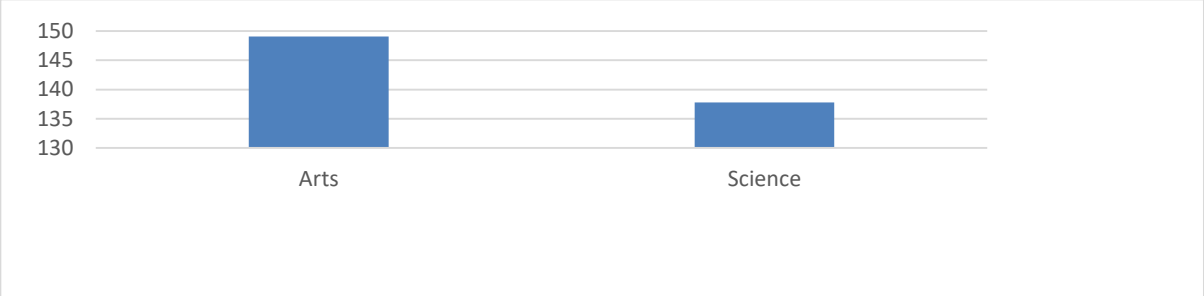
Table showing the number of arts and science, their mean score, standard deviation, and 't' value

Pedagogy	N	M	SD	t-value	Significance at 0.05 level
Arts	14	149.07	14.30	.737	**NS**
Science	09	137.77	15.55		

NS= Not Significant

It is clear from the table- 08 that the calculated 't' value of .737 is lesser than the criterion value of 2.080 at a 0.05 level of significance. So, the null hypothesis is **accepted** that "There is no significant difference between the level of utilisation of Open Educational Resources (OER) among arts and science teacher educators".

Figure-08



When descriptively analysed the above graph depicts there is comparatively a high utilisation of OER among arts Teacher Educators compared to science Teacher Educators.

Objective- 09: To evaluate the extent of Open Educational Resources (OER) utilisation between aided and unaided teacher educators.

Hypothesis(H_0)- 09: There is no significant difference between the level of utilisation of Open Educational Resources (OER) among aided and unaided teacher educators.

Table -09

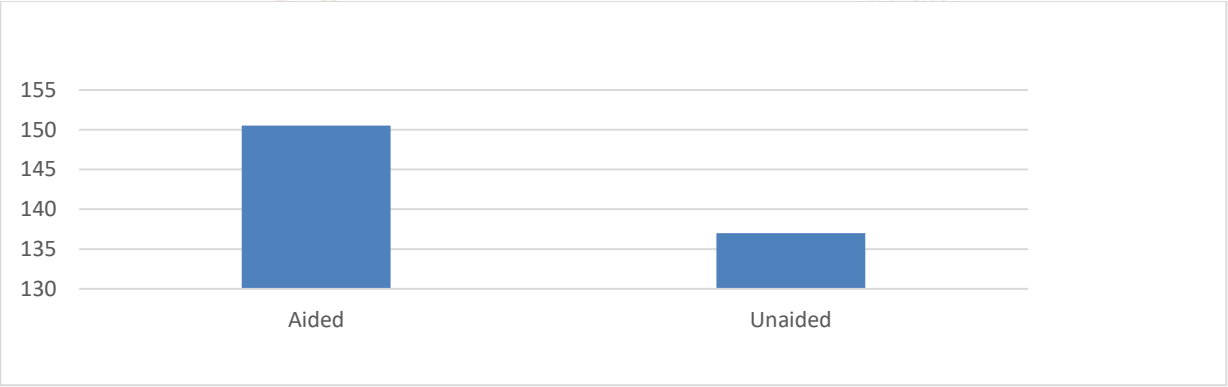
Table showing the number of aided and unaided, their mean score, standard deviation, and 't' value

Institution Type	N	M	SD	t-value	Significance at 0.05 level
Aided	13	150.53	15.58	.593	**NS**
Unaided	10	137.00	12.22		

NS= Not Significant

It is clear from the table- 09 that the calculated 't' value of .593 is lesser than the criterion value of 2.080 at a 0.05 level of significance. So, the null hypothesis is **accepted** that "There is no significant difference between the level of utilisation of Open Educational Resources (OER) among aided and unaided teacher educators".

Figure-09



When descriptively analysed the above graph depicts there is comparatively a high utilisation of OER among aided Teacher Educators compared to unaided Teacher Educators.

Objective - 10: To study the relationship between awareness & attitude of teacher educators about their OER

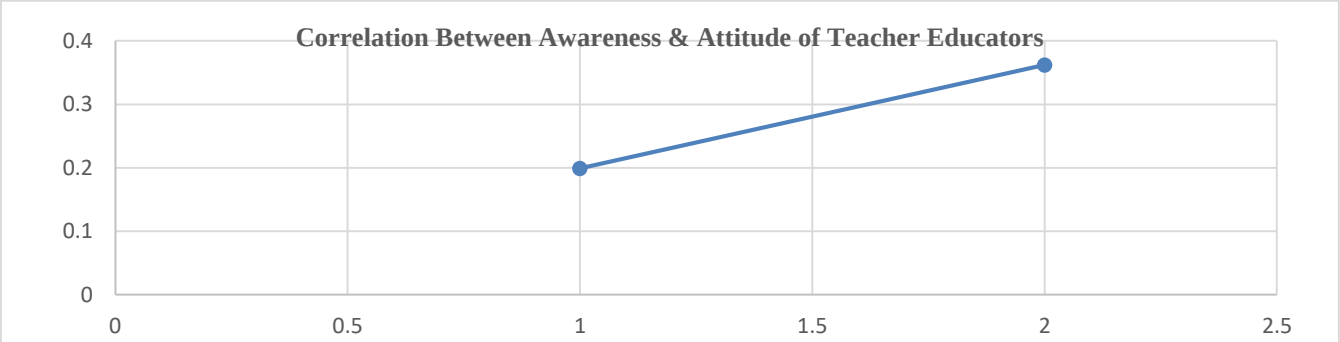
Hypothesis-10: There is no significant relationship between awareness & attitude of teacher educators about their OER

Table 10

Table showing the correlation between the Teacher Educators' Awareness & Attitude about their OER

		TEACHER EDUCATORS' ATTITUDE
TEACHER EDUCATORS' AWARENESS	Pearson Correlation	.199
	Sig. (2-tailed)	.362
	N	23
"CORRELATION IS NOT SIGNIFICANT AT THE 0.01 LEVEL (2-TAILED)		

Figure -10



When descriptively analysed the above graph-10 depicts there is comparatively **No Significant relationship** between awareness & attitude of OER among Teacher Educators.

Objective - 11: To study the relationship between awareness & utilisation of teacher educators about their OER

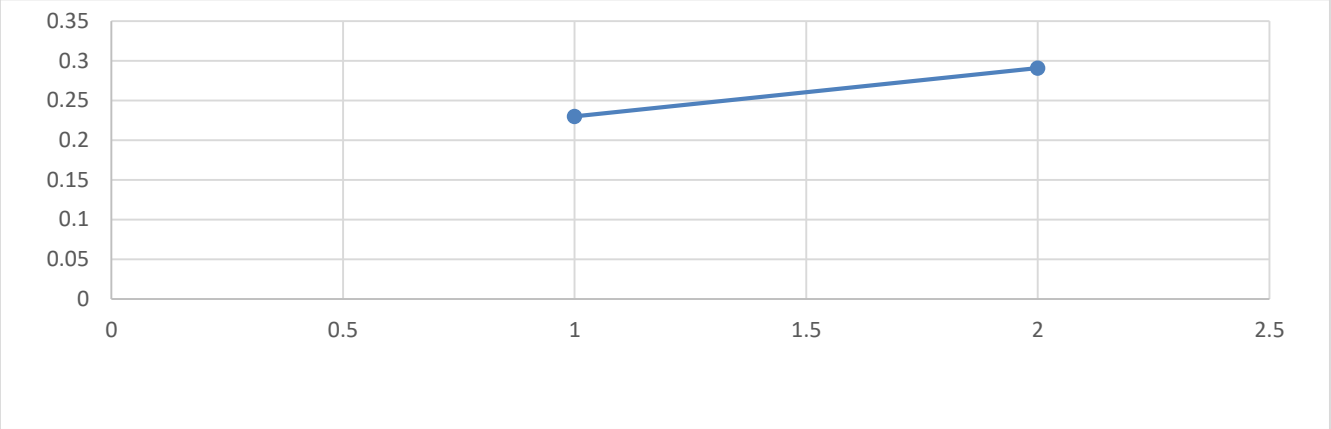
Hypothesis - 11: There is no significant relationship between awareness & utilisation of teacher educators about their OER

Table 11

Table showing the correlation between the Teacher Educators' Awareness & Utilisation about their OER

		TEACHER EDUCATORS' UTILISATION
TEACHER EDUCATORS' AWARENESS	Pearson Correlation	.230
	Sig. (2-tailed)	.291
	N	23
"CORRELATION IS NOT SIGNIFICANT AT THE 0.01 LEVEL (2-TAILED)		

Figure -11



When descriptively analysed the above graph depicts there is comparatively **No Significant relationship** between awareness & utilisation of OER among Teacher Educators.

Objective - 12: To study the relationship between attitude & utilisation of teacher educators about their OER

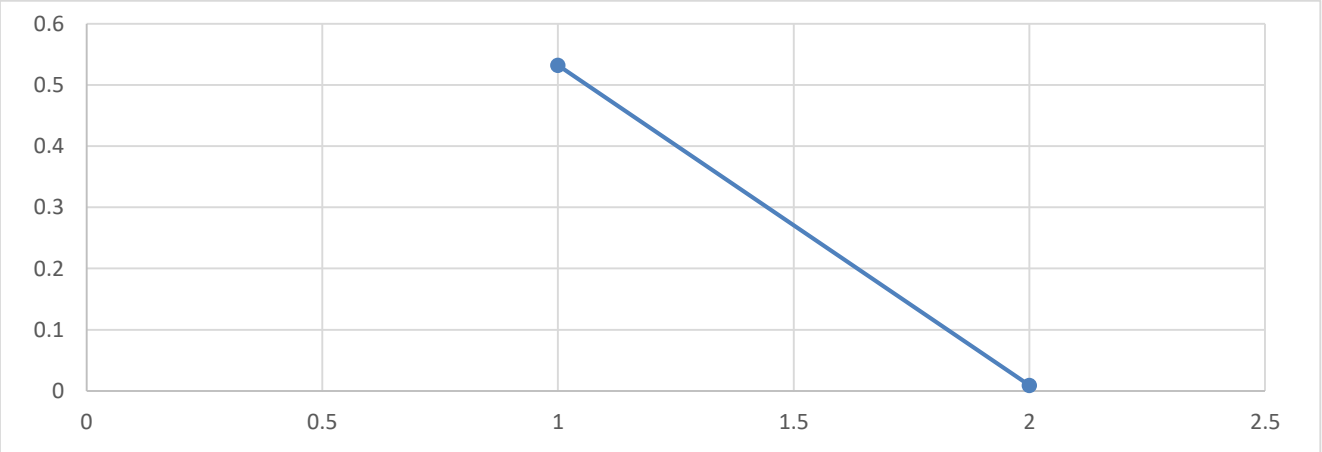
Hypothesis - 12: There is no significant relationship between attitude & utilisation of teacher educators about their OER

Table 12

Table showing the correlation between the Teacher Educators' Attitude & Utilisation about their OER

		TEACHER EDUCATORS' UTILISATION
TEACHER EDUCATORS' ATTITUDE	Pearson Correlation	.532
	Sig. (2-tailed)	.009
	N	23
"CORRELATION IS SIGNIFICANT AT THE 0.01 LEVEL (2-TAILED)		

Figure -12



When descriptively analysed the above graph depicts there is comparatively **Significant relationship** between attitude & utilisation of OER among Teacher Educators.

Objective -13: To study the total level of awareness of teacher educators about Open Educational Resources (OER)

Hypothesis-13: There is no significant difference between the total level of awareness

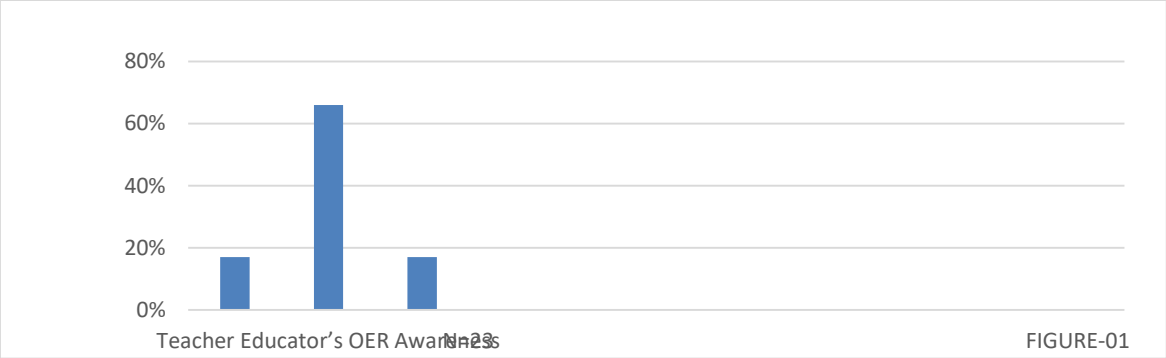
of teacher educators Open Educational Resources (OER)

Table -13

Table showing the Teacher Educators' total level of awareness about their Open Educational Resources (OER)

VARIABLES		PERCENTAGE OF TEACHER EDUCATORS
TEACHER EDUCATOR'S OER AWARENESS N=23	High (04)	17 %
	Moderate (15)	66 %
	Low (04)	17 %

Figure-13



The data has been analyzed by using percentage analysis. It has been found from the Table -13 that there is **moderate awareness** about OER among teacher educators in total. The table depicts moderate awareness (66%) among teacher educators compared to the high (17%) & low (17%) awareness levels.

Objective -14: To study the total level of attitude of teacher educators about Open Educational Resources (OER)

Hypothesis-14: There is no significant difference between the total level of attitude of teacher educators Open Educational Resources (OER)

Table -14

Table showing the Teacher Educators' total level of attitude about their Open Educational Resources (OER)

VARIABLES		PERCENTAGE OF TEACHER EDUCATORS
TEACHER EDUCATOR'S OER ATTITUDE N=23	High (07)	30 %
	Moderate (11)	48 %
	Low (05)	22 %

Figure-14

The data has been analyzed by using percentage analysis. It has been found from Table -14 that there is moderate awareness about OER among teacher educators in total. The table depicts moderate awareness (48%) among teacher educators compared to the high (30%) & low (22%) awareness levels.

Objective 15: To study the total level of utilisation of teacher educators about Open Educational Resources (OER)

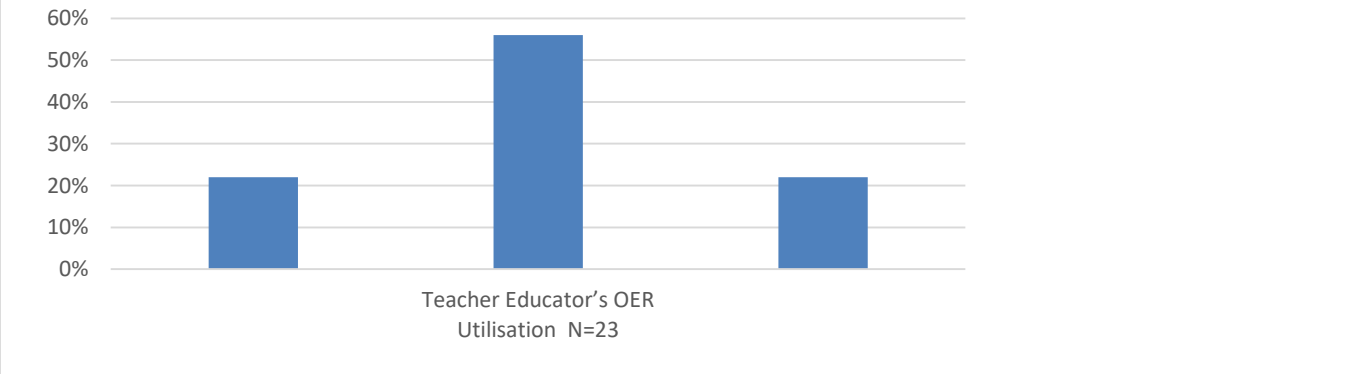
Hypothesis 15: There is no significant difference between the total level of utilization of teacher educators' Open Educational Resources (OER)

Table -15

Table showing the Teacher Educators' total level of about their Open Educational Resources

VARIABLES		PERCENTAGE OF TEACHER EDUCATORS
TEACHER EDUCATOR'S OER UTILISATION N=23	High (05)	22 %
	Moderate (13)	56 %
	Low (05)	22 %

Figure-15



The data has been analyzed by using percentage analysis. It has been found from the Table -15 that there is moderate awareness about OER among teacher educators in total. The table depicts moderate awareness (56%) among teacher educators compared to the high (22%) & low (22%) awareness levels.

XIII. FINDINGS OF THE STUDY:

The study found a moderate level of Open Educational Resources (OER) at all streams of secondary teacher educators in total. Except these, the following are the other findings of the present study.

1. The Male teacher educators have higher level compared to the Female teacher educators about their Open Educational Resources (OER) awareness.
2. The Arts Pedagogy teacher educators have a higher level compared to the Science Pedagogy teacher educators about their Open Educational Resources (OER) awareness.
3. The Aided College teacher educators have a higher level compared to the Unaided College teacher educators about their Open Educational Resources (OER) awareness.
4. The Male teacher educators have higher a level compared to Female teacher educators about their Open Educational Resources (OER) attitude.
5. The Arts Pedagogy teacher educators have a higher level compared to the Science Pedagogy teacher educators about their Open Educational Resources (OER) attitude.
6. The Unaided College teacher educators have a higher level compared to the Aided College teacher educators about their Open Educational Resources (OER) attitude.
7. The Male teacher educators have a higher level compared to the Female teacher educators about their Open Educational Resources (OER) utilisation.
8. The Arts Pedagogy teacher educators have a higher level compared to the Science Pedagogy teacher educators about their Open Educational Resources (OER) utilisation
9. The Aided College teacher educators have a higher level compared to the Unaided College teacher educators about their Open Educational Resources (OER) utilisation.
10. There is no significant relationship between awareness & attitude of teacher educators about their Open Educational Resources (OER).
11. There is no significant relationship between awareness & utilisation of teacher educators about their Open Educational Resources (OER).
12. There is a significant relationship between attitude & utilisation of teacher educators about their Open Educational Resources (OER)
13. There is a moderate level of awareness of teacher educators about their Open Educational Resources (OER) compared to their high & low levels.

14. There is a moderate level of attitude of teacher educators about their Open Educational Resources (OER) compared to their high & low levels.

15. There is a moderate level of utilisation of teacher educators about their Open Educational Resources (OER) compared to their high & low levels.

XIV. CONCLUSION:

When the overall findings are observed it was found that, the teacher educators of both universities have a moderate level of awareness, attitude & utilisation about the OER. Though the awareness, attitude & utilisation of Teacher Educators towards OER is found to be positive. But this shows that the usage of OER which is provided by different agencies have not been utilized up to the mark by the teacher educators. Hence efforts are necessary in this regard by both the universities in particular and educational institutions in general to train the teacher educators in this regard. So that student teachers can become more knowledgeable & efficient in the profession of teaching.

XV. REFERENCES:

1) Bakhru K M (2017). Personal Competencies for Effective Teaching: A Review Based Study, *an International Journal of Education and Applied Social Science*-. Vol. 8, pp. 297-303.
2) Valaramathi C (2017) Open Access Journals and their Implication on Science Technology and Medical Library Users An Analysis Quality Factor. (http://hdl.handle.net/10603/142726)
3) Vijayalakshmi.K et al, (2017).The Perspective of Teacher Educators and Teaching Competencies for Imparting Two Year B.Ed. Program Suggested by NCTE in Karnataka, *IOSR Journal of Business and Management*, pp. 51-54.
4) Khamees, Ruaa Ali (2017).Improved & efficient intelligent educational system using open resources (http://hdl.handle.net/10603/286369)
5) Lizzeth Navarro-Ibarra et. al (2023). Knowledge gaps in education and ICT: A literature review in open access publications. Contemporary Educational Technology.https://www.cedtech.net/download/knowledge-gaps-in-education-and-ict-a-literature-review-in-open-access-publications-13770.pdf
6) Mangai, G. (2019). Impact of Open Access Resource on Higher Education a comparative study between the research scholars of Alagappa & Bharathidasan University of Tamil Nadu. -(http://hdl.handle.net/10603/288573)
7) Manju (2022). OER-Its Utilization and Impact an Evaluative Study of Central Universities in Delhi. **(http://hdl.handle.net/10603/404480)**
8) Nair Preeti (2017).A Study on Identifying Teaching Competencies and Factors Affecting Teaching Competencies with Special Reference to MBA Institutes in Gujarat.
9) Sujatha Santhosh(2017). A study into policy status & use of open access Educational Resources in Distance Education & Training Institutions in India. **(http://hdl.handle.net/10603/217587)**
10) Victoria I. Marin et. al (2020) A Comparative Study of National Infrastructures for Digital (Open) Educational Resources in Higher Education.

11) Recommendation on Open Educational Resources (OER) https://unesdoc.unesco.org/ark:/48223/pf0000373755/PDF/373755eng.pdf.multi.page=3

12) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3921481

13) https://theconversation.com/how-blockchain-could-help-the-world-meet-the-uns-global-goals-in-higher-education-152885#:

14) https://theconversation.com/open-educational-resources-for-emergency-remote-teaching-a-new-paradigm-155899

15) https://theconversation.com/open-education-resources-offer-many-benefits-how-to-remove-obstacles-171687

16) https://www.sciencedirect.com/science/article/pii/S0360131519302465