

Investigating the Perception of University Students Towards Technology Enhanced Learning of Purulia District

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DOI: <https://doi.org/10.52403/gijash.20230402>

ABSTRACT

The use of technology to support learning and teaching in the educational setting is referred to as technology enhanced learning. Using contemporary technology, technology enhanced learning enables learners to learn anything. This perception is shown mostly in university students. Therefore, the objective of this study is to observe the perception of P.G. level students towards technology enhanced learning. The findings show that there is no significant difference between the attitude of Male-Female, Arts-Science, Rural Male-Urban Male, Rural Female-Urban Female, Rural Male-Rural Female, Arts Male-Arts Female, Science Male-Science Female, Arts Male-Science Male, Arts Female-Science Female and on the other hand significant difference found between the perception of Rural-Urban and Urban Male-Urban Female P.G. level Students towards Technology Enhanced Learning.

Keywords: Technology Enhanced Learning, Perception, P.G. Level students, male-female, arts-science and rural-urban.

INTRODUCTION

The term Technology enhanced learning is used to describe the application of technology to learning and teaching in the educational field. Technology enhanced learning helps learners to learn anything by using modern technology. Technology enhanced learning is the application of various technologies that enhance the

learning experience. Technology enhanced learning is transforming and enhancing the learning experience and education. We have entered the web of technology in the field of education in such a way that technology enhanced learning is not only a valuable resource but also an important tool that helps to enhance the experience and knowledge for both students and educators. Technology enhanced learning covers all circumstances where technology plays an important role in making learning more effective, efficient and enjoyable. It is providing an attractive term because it is open to a very broad range of interpretations-it is not inhibitory with respect to either types of technology or pedagogical approaches. For this study, technology enhanced learning means all online courses that enhance learning making more effective all online courses that are available in the preferred domain on the Internet web and directly support teaching and learning in the educational field. Online courses like OCWS, MOOCs, E-journal, E-books, E-library, Podcast, E-learning, YouTube and various educational audio-visual content on the web in the public domain. Technology enhanced learning is also used with other similar terms e-learning, online learning, web-based learning, M-learning, blended learning digital learning, etc.

LITERATURE REVIEW

Chung and Lee (2018) conducted a study entitled “The effect of flipped learning on learning motivation and attitudes in a class of college physical therapy”. The main purpose of this study was to identify the effect of flipped learning on learning motivation and attitudes in a class of class physical therapy students. After the analysis data, the result showed that there is a significant difference between learning motivation (attention, relevance, satisfaction, and confidence) and attitudes. Khan et al. (2020) conducted a study entitled “Students perception towards e-learning during Covid-19 Pandemic in India: An empirical study”. The objectives of this study were to conduct the importance of e-learning during the phase of the ongoing pandemic and to know the importance of online mode of learning from the perspective of students. In this study, the finding indicates that the students reveal positive perceptions towards e-learning and the students accepted the new learning system. E-learning is very important to the students in COVID-19 pandemic situation. Also, e-learning has enhanced students' learning process and improved the student's learning output. The result of the study will simplify educational policy and institutions to take this online learning process to the next level in a better way. Nambiar (2020) conducted a study on “The impact of online learning during COVID-19: students and teachers' perspective”. The objective of this study was to know the perception and experience of teachers and students towards online classes by conducting online learning. The finding showed that the following areas are important for student and teacher satisfaction with online classes, these areas are: quality and timely interaction between student and professor, technical support availability, structure of online class modules, and modifications to accommodate conduction of practical classes. Harandi (2015) conducted a study on “Effects of e-Learning on students' motivation”. The purposes of this study were to examine the strength of the relationship between e-Learning and motivation among

students and to determine the research carried out and the outcomes which are focused on the motivation of students participating in the research. The result of this study showed that there is a significant relationship between e-learning and student motivation. Ullah, Khan and Khan (2017) conducted a study on “Students' Attitude toward Online Learning a Tertiary level”. The objectives of this study were to investigate the interest of students in computers in relation to their acquaintance with online learning at undergraduate level in district Peshawar and to identify the technology usability among students in relation to their acquaintance with online learning at undergraduate level in district Peshawar. The result indicates state that no significant relationship between the easiness of computer use and the acquisition of knowledge through online learning for undergraduate students. Students have a negative attitude toward online learning because of slow Internet speed. Policymakers should include online learning topics in the curriculum and organize workshops and seminars for teachers to develop their computer knowledge and application of technology in the academic process. Lin, Chen and Liu (2017) Conducted a study entitled “A study of the effects of digital learning on learning motivation and learning outcomes”. The purpose of this study was to know the opinion about digital learning of students and to understand the effects on learning effect in learning outcomes of students. As the sample, this investigation showed that positive effect on the learning motivation of students than traditional teaching does. Researchers revealed that digital learning showed a better positive effect on learning outcomes than traditional teaching. Learning motivation develops a positive effect on learning effect in learning outcomes. In the present case, digital learning will be integrated with the teaching process and it is expected that the student will use the benefits of digital learning to enhance learning effectiveness and develop effective education. Seage and Turgun (2020) have

conducted the study on “The Effects of Blended Learning on STEM Achievement of Elementary School Students.” The main purpose of this research study was to know the effects of Blended Learning on Science, technology, engineering and mathematics (STEM) achievement of elementary school students from low socioeconomic areas. This investigation observed that the students in the blended learning group had significantly higher mean scores than the ones in the traditional group with respect to the 4 STEM scores. Dunn and Kennedy (2019) conducted a research study entitled “Technology enhanced learning in higher education; motivation, engagement and academic achievement.” The purpose of this study was to assess the effect of emotional, cognitive and behavioural admin engagement with technology enhanced learning on higher education students and to also know motivation level differentially predicts engagement across different types of technology enhanced learning. The result showed that intrinsic motivation predicts engagement, whilst extrinsic motivation predicts usages. Research concludes that a sole focus on the usage of technology enhanced learning is misleading, with implication for researchers and educators. Saglam and Arslan (2018) conducted a study on “The Effect of Flipped classroom on the Academic Achievement and Attitude of higher Education Students”. The objective of this research study was to identify the effect of flipped classroom on the academic achievement and attitude toward English courses of higher education students. The result showed that using flipped classroom had increased academic achievement than traditional instruction in English courses and attitude compared to traditional instruction. So, the flipped classroom is more effective than the traditional method in other courses in higher education. Chowdhry, Sieler and Alwis (2017) conducted a study on namely “A Study of the Impact of Technology-Enhanced Learning on Student Academic Performance,” The main objective in this study was to investigate whether the

utilization Vertical Learning Environment (VLE) impact on the academic achievement by students. The findings indicate that the number of VLE visits did not have a direct impact on the final marks obtained by the students. So, the results of the Study emphasised the necessity to improvement of the technology-enhanced teaching and learning skills of the academic. Kunal (2013) conducted a study entitled “A comparative study of the impact of face to face and technology assisted learning on students of the B. Ed program”. The main objective of this study was to compare the impact of these two Modes of learning namely Face to Face (F to F) and Technology Assisted Learning (TAL) on B. Ed. Students. The results determined that the students who were administered TAL mode for learning performed better than those who were taught in the F-to-F-mode. However, when compared between TBT and SBT, it was indicated that students performed better for theory-based topics than the skill-based topics. Deogharia and Gorain (2023); Gorain, (2023); Gorain and Saha (2023a); Gorain and Saha, (2023b); Gorain et al. (2021); Gorain et al. (2018); Gorain et al. (2022); Khan et al. (2023); Mahato et al. (2022); Mondal et al. (2018) all these research work analysis the variable to explore the technological impact on society and education. Haldar et al. (2022) conducted a study on sustainable development and found that urban male and female trainee teachers exhibited a significant disparity in their attitudes towards Sustainable Development. Ansary, Ansary and Adhikari (2022) in their study revealed that there is no significant difference in the attitudes towards social adjustment among under graduate students in Purulia District, regardless of gender, rural-urban background. Khatun, Ansary and Adhikari (2022) found that no significant difference existed between male and female undergraduate students in their attitude toward yoga education. Saha and Maji (2013) conducted a study and found that environmental education, awareness, and training significantly encourage and enhance

people's participation in conservation, protection, and sustainable management of the environment. Das, Gayen and Sen (2023) conducted a study on lifestyle of health and sustainability (LOHAS) and found that among science and arts, rural and urban, and male and female undergraduate students of Purulia district in West Bengal, India, there were no significant differences in LOHAS, physical fitness, mental health, emotional health, spiritual health, environmentalism, and social consciousness. Adhikari, Mahato and Sen (2023) conducted a study on anxiety, depression, stress, general self-efficacy and specific self-efficacy and found that all the aforementioned variables are related. Sutradhar et al. (2023b) conducted a study by Mahalanobis Distance on self-efficacy, depression, anxiety and stress of university students and found that the dynamical nature of five dependent variables for various sets of independent variables is not significantly different. Mahato, Sen and Adhikari (2023) conducted a study on depression, anxiety, stress and self-efficacy of post-graduate students and found that all the aforementioned variables are interrelated. Sen et al. (2023b) in a study found strong correlation between the organizational climate and institutional commitment among West Bengal secondary school teachers. Gayen, Sen and Adhikari (2023) found that significant relationships exist among various dimensions of organizational climate and institutional commitment among secondary level school teachers in West Bengal. A study by Sutradhar et al. (2023a) explored the controversial use of correlational statistics in educational research, addressing potential pitfalls and alternative analytical approaches. Sen, Pal and Adhikari (2023) conducted a study on self-efficacy, depression, anxiety and stress of postgraduate students and found significant difference in the dynamical nature of five dependent variables across various groups of independent variables. Gayen and Sen (2021) in their study found that significant relationships were there between anxiety and depression in female students, stress and depression in female students,

anxiety and depression in students of the education department, anxiety and depression in students of other departments, anxiety and depression in 2nd semester students, and anxiety and depression in 4th semester students, with no significant relationships identified among other aspects. Sen et al. (2021a) conducted a study on general self-efficacy and specific self-efficacy of postgraduate students in the COVID-19 Pandemic and found that significant difference in general self-efficacy between male and female students, while gender, department, and semester of study do not indicate any significant difference in specific self-efficacy. A study by Sen et al. (2021b) exposed that a significant difference is there in the levels of depression, anxiety, and stress among postgraduate students in relation to gender, department, and semester, and their overall condition.

OBJECTIVES OF THE STUDY

1. To reveal the difference between the perception of Male and Female P.G. level Students towards Technology Enhanced Learning.
2. To explore the difference between the perception of Rural and Urban P.G. level Students towards Technology Enhanced Learning.
3. To examine the difference between the perception of Arts and Science stream P.G. level Students towards Technology Enhanced Learning.
4. To find out the difference between the perception of Rural Male and Urban Male P.G. level Students towards Technology Enhanced Learning.
5. To explore the difference between the perception of Rural Female and Urban Female P.G. level Students towards Technology Enhanced Learning.
6. To reveal the difference between the perception of Rural Male and Rural Female P.G. level Students towards Technology Enhanced Learning.
7. To express the difference between the perception of Urban Male and Urban

- Female P.G. level Students towards Technology Enhanced Learning.
8. To point out the difference between the perception of Arts Male and Arts Female P.G. level Students towards Technology Enhanced Learning.
 9. To introspect the difference between the perception of Science Male and Science Female P.G. level Students towards Technology Enhanced Learning
 10. To point out the difference between the perception of Arts Male and Science Male P.G. level Students towards Technology Enhanced Learning.
 11. To investigate the difference between the perception of Arts Female and Science Female P.G. level Students towards Technology Enhanced Learning.

HYPOTHESES OF THE STUDY

H₀₁: There is no significant difference between the perception of Male and Female P.G. level Students towards Technology Enhanced Learning.

H₀₂: There is no significant difference between the perception of Rural and Urban P.G. level Students towards Technology Enhanced Learning.

H₀₃: There is no significant difference between the perception of Arts and Science stream P.G. level Students towards Technology Enhanced Learning.

H₀₄: There is no significant difference between the perception of Rural Male and Urban Male P.G. level Students towards Technology Enhanced Learning.

H₀₅: There is no significant difference between the perception of Rural Female and Urban Female P.G. level Students towards Technology Enhanced Learning.

H₀₆: There is no significant difference between the perception of Rural Male and Rural Female P.G. level Students towards Technology Enhanced Learning.

H₀₇: There is no significant difference between the perception of Urban Male and Urban Female P.G. level Students towards Technology Enhanced Learning.

H₀₈: There is no significant difference between the perception of Arts Male and Arts

Female P.G. level Students towards Technology Enhanced Learning.

H₀₉: There is no significant difference between the perception of Science Male and Science Female P.G. level Students towards Technology Enhanced Learning.

H₀₁₀: There is no significant difference between the perception of Arts Male and Science Male P.G. level Students towards Technology Enhanced Learning.

H₀₁₁: There is no significant difference between the perception of Arts Female and Science Female P.G. level Students towards Technology Enhanced Learning.

VARIABLE OF THE STUDY

There are two types of variables in this study that are Dependent variable and Categorical variable. Dependent variable is technology-enhanced learning and Categorical variable is gender residence and stream.

POPULATION OF THE STUDY

In this study, entire all P.G. level students of the Purulia district are considered as a population.

SAMPLE AND SAMPLING OF THE STUDY

In this study, through stratified random sampling method, researchers selected 200 P.G. level students of Sidho-Kanho-Birsha University as a sample of this present study.

DELIMITATION OF THE STUDY

The present study was delimited accordingly:

1. The researchers delimited the study in the Purulia district of West Bengal State.
2. The researcher also delimited the study to P.G level students of Sidho-Kanho-Birsha University.

TOOLS USED FOR THE STUDY

In this present study, for collecting data self-made five points Likert-type scale of Technology Enhanced Learning was used. It consists of 32 positive statements and 8 negative statements, a total of 40 statements.

PROCEDURE

Using the Technology Enhanced Learning attitude measuring scale, a descriptive survey of P.G. level students was carried out. They provided primary information, which was used to investigate the hypotheses.

Participants were asked to respond and complete all of the fields of scale.

STATISTICS USED

Using SPSS 26, the researchers employed the Shapiro-Wilk test to determine the normality of the collected data. The significant value is .325, according to Table 1, which is greater than .05. Thus the researchers can state that

the data is normally distributed. In order to analyse the data and test the null hypotheses, the researchers used the t-test.

Table 1: Normality Test on Technology Enhanced Learning

Tests of Normality			
	Shapiro-Wilk		
	Statistic	Degree of freedom	Sig.
Social Isolation	.992	200	.325

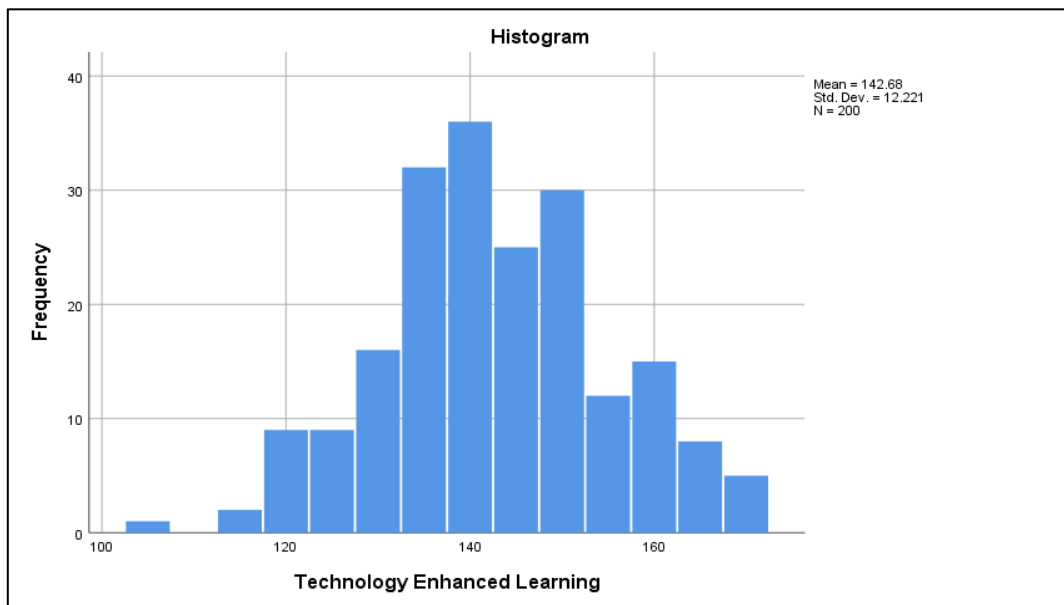


Figure 1: Histogram of Normality Test on Technology Enhanced Learning

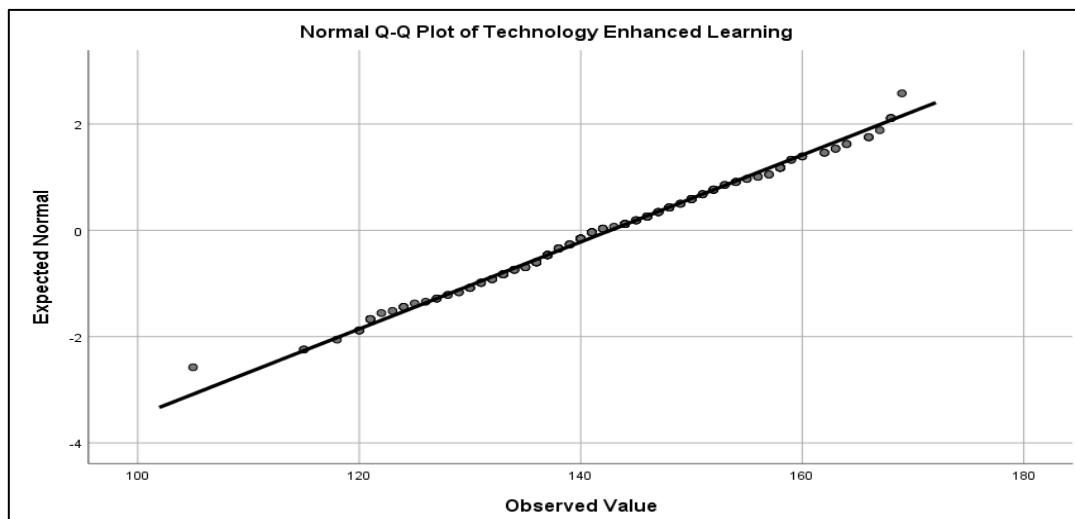


Figure 2: Normal Q-Q Plot of Normality Test on Technology Enhanced Learning

Figure 1, Histogram of Normality Test on Technology Enhanced Learning and Figure 2, Normal Q-Q Plot of Normality Test on Technology Enhanced Learning shows that the data is normally distributed.

ANALYSIS AND INTERPRETATIONS

Testing of H₀₁: There is no significant difference between the perception of Male and Female P.G. level students towards Technology Enhanced Learning.

Table 2: Difference between the perception of Male and Female P.G. level students towards Technology Enhanced Learning

Pair	N	Mean	S.D.	Mean Difference	df	t-value	Sig. (2-tailed)	Remark
Male	77	144.17	13.582	2.413	198	1.361	.175	Null hypothesis accepted
Female	123	141.76	11.246					

According to Table 2, it can be seen that the significant (2-tailed) value is .175 which is greater than .05. So the null hypothesis (H_{01}) is accepted. The results indicate that there is

no significant differences between male and female P.G. level students in their perception towards Technology Enhanced Learning.

Testing of H_{02} : There is no significant difference between the perception of Rural and Urban P.G. level Students towards Technology Enhanced Learning.

Table 3: Difference between the perception of Rural and Urban P.G. level Students towards Technology Enhanced Learning

Pair	N	Mean	S.D.	Mean Difference	df	t-value	Sig. (2-tailed)	Remark
Rural	153	141.50	12.403	5.056	198	2.514	.013	Null hypothesis rejected
Urban	47	146.55	10.856					

According to Table 3, it can be seen that the significant (2-tailed) value is .013 which is less than .05. So the null hypothesis (H_{02}) is rejected. The results indicate that there is a

significant differences between Rural and Urban P.G. level students in their perception towards Technology Enhanced Learning.

Testing of H_{03} : There is no significant difference between the perception of Arts and Science stream P.G. level Students towards Technology Enhanced Learning.

Table 4: Difference between the perception of Arts and Science stream P.G. level Students towards Technology Enhanced Learning

Pair	N	Mean	S.D.	Mean Difference	df	t-value	Sig. (2-tailed)	Remark
Arts	100	142.99	12.058	.610	198	.352	.725	Null hypothesis accepted
Science	100	142.38	12.436					

According to Table 4, it can be seen that the significant (2-tailed) value is .725 which is greater than .05. So the null hypothesis (H_{03}) is accepted. The results indicate that there is

no significant differences between arts and science stream P.G. level students in their perception towards Technology Enhanced Learning.

Testing of H_{04} : There is no significant difference between the perception of Rural Male and Urban Male P.G. level Students towards Technology Enhanced Learning.

Table 5: Difference between the perception of Rural Male and Urban Male P.G. level Students towards Technology Enhanced Learning

Pair	N	Mean	S.D.	Mean Difference	df	t-value	Sig. (2-tailed)	Remark
Rural Male	37	144.51	11.632	.664	75	.213	.832	Null hypothesis accepted
Urban Male	40	143.85	15.308					

According to Table 5, it can be seen that the significant (2-tailed) value is .832 which is greater than .05. So the null hypothesis (H_{04}) is accepted. The results indicate that there is

no significant differences between Rural Male and Urban Male P.G. level students in their perception towards Technology Enhanced Learning.

Testing of H_{05} : There is no significant difference between the perception of Rural Female and Urban Female P.G. level Students towards Technology Enhanced Learning.

Table 6: Difference between the perception of Rural Female and Urban Female P.G. level Students towards Technology Enhanced Learning

Pair	N	Mean	S.D.	Mean Difference	df	t-value	Sig. (2-tailed)	Remark
Rural Female	63	142.10	12.305	.695	121	.341	.733	Null hypothesis accepted
Urban Female	60	141.40	10.107					

According to Table 6, it can be seen that the significant (2-tailed) value is .733 which is greater than .05. So the null hypothesis (H_{05}) is accepted. The results indicate that there is

no significant differences between Rural Female and Urban Female P.G. level students in their perception towards Technology Enhanced Learning.

Testing of H_{06} : There is no significant difference between the perception of Rural Male and Rural Female P.G. level Students towards Technology Enhanced Learning.

Table 7: Difference between the perception of Rural Male and Rural Female P.G. level Students towards Technology Enhanced Learning

Pair	N	Mean	S.D.	Mean Difference	df	t-value	Sig. (2-tailed)	Remark
Rural Male	67	142.31	13.130	1.453	151	.718	.474	Null hypothesis accepted
Rural Female	86	140.86	11.844					

According to Table 7, it can be seen that the significant (2-tailed) value is .474 which is greater than .05. So the null hypothesis (H_{06}) is accepted. The results indicate that there is

no significant differences between Rural Male and Rural Female P.G. level students in their perception towards Technology Enhanced Learning.

Testing of H_{07} : There is no significant difference between the perception of Urban Male and Urban Female P.G. level Students towards Technology Enhanced Learning.

Table 8: Difference between the perception of Urban Male and Urban Female P.G. level Students towards Technology Enhanced Learning

Pair	N	Mean	S.D.	Mean Difference	df	t-value	Sig. (2-tailed)	Remark
Urban Male	10	156.60	9.800	12.762	45	3.733	.001	Null hypothesis rejected
Urban Female	37	143.84	9.538					

According to Table 8, it can be seen that the significant (2-tailed) value is .001 which is less than .05. So the null hypothesis (H_{07}) is rejected. The results indicate that there is a

significant difference between Urban Male and Urban Female P.G. level students in their perception towards Technology Enhanced Learning.

Testing of H_{08} : There is no significant difference between the perception of Arts Male and Arts Female P.G. level Students towards Technology Enhanced Learning.

Table 9: Difference between the perception of Arts Male and Arts Female P.G. level Students towards Technology Enhanced Learning

Pair	N	Mean	S.D.	Mean Difference	df	t-value	Sig. (2-tailed)	Remark
Arts male	37	144.51	11.632	2.418	98	.968	.335	Null hypothesis accepted
Arts Female	63	142.10	12.305					

According to Table 9, it can be seen that the significant (2-tailed) value is .335 which is greater than .05. So the null hypothesis (H_{08}) is accepted. The results indicate that there is

no significant differences between Arts Male and Arts Female P.G. level students in their perception towards Technology Enhanced Learning.

Testing of H_{09} : There is no significant difference between the perception of Science Male and Science Female P.G. level Students towards Technology Enhanced Learning.

Table 10: Difference between the perception of Science Male and Science Female P.G. level Students towards Technology Enhanced Learning

Pair	N	Mean	S.D.	Mean Difference	df	t-value	Sig. (2-tailed)	Remark
Science Male	40	143.85	15.308	2.450	98	.965	.337	Null hypothesis accepted
Science Female	60	141.40	10.107					

According to Table 10, it can be seen that the significant (2-tailed) value is .337 which is greater than .05. So the null hypothesis (H_{09}) is accepted. The results indicate that there is

no significant differences between Science Male and Science Female P.G. level students in their perception towards Technology Enhanced Learning.

Testing of H₀₁₀: There is no significant difference between the perception of Arts Male and Science Male P.G. level Students towards Technology Enhanced Learning.

Table 11: Difference between the perception of Arts Male and Science Male P.G. level Students towards Technology Enhanced Learning

Pair	N	Mean	S.D.	Mean Difference	df	t-value	Sig. (2-tailed)	Remark
Arts Male	37	144.51	11.632	.664	75	.213	.832	Null hypothesis accepted
Science Male	40	143.85	15.308					

According to Table 11, it can be seen that the significant (2-tailed) value is .832 which is greater than .05. So the null hypothesis (H₀₁₀) is accepted. The results indicate that there is

no significant differences between Arts Male and Science Male P.G. level students in their perception towards Technology Enhanced Learning.

Testing of H₀₁₁: There is no significant difference between the perception of Arts Female and Science Female P.G. level Students towards Technology Enhanced Learning.

Table 12: Difference between the perception of Arts Female and Science Female P.G. level Students towards Technology Enhanced Learning

Pair	N	Mean	S.D.	Mean Difference	df	t-value	Sig. (2-tailed)	Remark
Arts Female	63	142.10	12.305	.695	121	.341	.733	Null hypothesis accepted
Science Female	60	141.40	10.107					

According to Table 12, it can be seen that the significant (2-tailed) value is .733 which is greater than .05. So the null hypothesis (H₀₁₁) is accepted. The results indicate that there are no significant differences between Arts Female and Science Female P.G. level students in their perception towards Technology Enhanced Learning.

know the student's perception about technology enhanced learning through this study. Based on the above findings and discussion, researchers conclude the result that no difference between male and female students' perceptions and no difference between arts and science students' perceptions of technology enhanced learning. But there is a significant difference on the basis of residence. In this study, the investigator shows that urban students have more perception than rural areas students towards technology enhanced learning. We all live in the 21st century where without technology all kinds of human activities are stuck. We are all used to using more or less technology. Every teacher should need to be prepared to face the challenges of the 21st century in modern society. So, the teacher has most important responsibility to develop e-content and create a new environment for learners to learn through modern technology. Hence not students and teachers, it is absolutely necessary for everyone to have knowledge about technology. Students who have a low perception of technology enhanced learning there should be engaged to use technology. So, we should all need to increase our attitude and perception about technology enhanced learning. Therefore,

RESULT AND DISCUSSION

On the basis of analysis and interpretations, the findings show that there is no significant difference between the attitude of Male-Female, Arts-Science, Rural Male-Urban Male, Rural Female-Urban Female, Rural Male-Rural Female, Arts Male-Arts Female, Science Male-Science Female, Arts Male-Science Male, Arts Female-Science Female and on the other hand significant difference found between the perception of Rural-Urban and Urban Male-Urban Female P.G. level Students towards Technology Enhanced Learning.

CONCLUSION

When we use Technology information and knowledge to enhance and enable our teaching learning process, it is called Technology Enhanced Learning. Here the researcher has done the study to directly

every institute should adopt educational technologies and use them outside and inside the classroom to enhance and effective teaching learning process.

Declaration by Authors

Acknowledgement: None

Source of Funding: None

Conflict of Interest: The authors declare no conflict of interest.

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How to cite this article: Jayanti Oraon, Sourav Chandra Gorain. Investigating the perception of university students towards technology enhanced learning of Purulia District. *Galore International Journal of Applied Sciences & Humanities*. 2023; 7(4): 7-18. DOI: [10.52403/gijash.20230402](https://doi.org/10.52403/gijash.20230402)
