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Exploring the attitude of Nagaland secondary school teachers towards information and Communication Technology

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Abstract
The proper and acceptable use of Information and Communication Technology (ICT) within the field of education provides every teacher and student with numerous learning opportunities that help to enhance their teaching and learning skills, strategies and methods. The present paper focuses on the importance of attitude towards Information and Communication Technology among secondary school teachers of Peren District Nagaland awareness are still a challenging task comparatively with other advanced states and countries. A total of 90 teachers were selected which is further classified into three groups namely Gender (Male and female), type of institutions and Rural and Urban Secondary school teachers. A descriptive survey and inferential statistics were used to find and generalised the results.

Keywords: Usefulness of ICT in teaching-learning process and Significance of ICT, Information and communication technology, digital awareness, technology, productivity

1. Introduction
Information and Communication Technology has been an emerging concept and trending topic in the current field of education influencing the teaching-learning process and inculcating in the growth and development of educational settings. ICT has changed the scenario of education system and has become a supportive tool for human thinking with a broad range of communication skills that ensure and evolved to bring advanced knowledge in the field of learning. Benefits of learning can be achieved through the application of appropriate learning technologies to overcome the challenges of learning productivity. To enhance learning through the use of technology National Education Technology Forum an autonomous body the National Educational Technology Forum (NETF) will be created to provide a platform for a free exchange of ideas on the use of technology which will impact the educational learning system. It throws light upon the need to develop positive attitudes among secondary school teachers towards ICT as the need to assess current technology attitudes amongst teachers and to promote the use of interventions to change it into more advanced ideas and strategies which can inculcate in the growing stage of the technological world. Information Technology plays a major role in today's generation in motivating the students as well teachers in bringing effective ideas, skills and strategies in selecting their course, assessing their material and working at their own pace which also helps in developing independent attitude.

Aliya Mustafina (2016) [11] contributes to the existing knowledge by providing a current picture of the process of ICT integration and shows that teachers possess a positive attitude towards ICT in school mostly due to the advantages that technology offers distance learning and visualization of the material. The study on both non manipulative as well as manipulative teachers concludes that aspects of digital learning are important in affecting teachers' perception regarding their own proficiency in using technology tools in the classrooms Basargekar *et al.* (2017) [1]. Investigated the components that motivate teachers to use technology teaching in remotely located secondary schools in Tanzania and found the need to attain satisfactions however teaching objectives seem to be motivating and efficient.

2. Objectives
- To find out the significant difference between the mean attitude score towards IT of male and female secondary school teachers.
- To find out the interest and acceptance of rural and urban secondary school teachers towards IT.
- To find out the mean attitude scores towards IT of government and Private secondary school teachers.

3. Hypotheses
- There is no significant difference between the mean attitude scores towards IT of male and female secondary school teachers.
- There is no significant difference between the male and female urban and rural secondary school teachers' attitude towards Information technology.
- There is no significant difference between the attitude of government and private secondary school teachers towards Information technology.

4. Methodology
The study adopted descriptive Survey method to accurately and systematically conduct this research. The sample of the study consists of 90 secondary school teachers of Peren District Nagaland, where 40 were male and 50 were female secondary school teachers from both Government and Private schools of Peren District affiliated to Nagaland Board of School Education (NBSE).

Table 1: The following table represents the sample of the study

SL No.	Name of the Institute	Teachers, M-Male, F-Female	Total
1.	Baptist Higher Secondary School, Peren	M =6	14
		F=8	
2.	Govt. Higher Secondary School, Peren.	M =8	18
		F=11	
3.	Govt. Higher Secondary School, Jalukie.	M=7	17
		F=10	
4.	Baptist Higher Secondary School, Jalukie.	M =6	13
		F=8	
5.	Govt. Higher Secondary School, Heningkunglwa	M=6	14
		F=8	
6.	All Saints Higher Secondary School, Peren	M =7	14
		F=7	
Total=6			90

5. Tool Used
The present study uses a Standardized tool developed by Dr. (Mrs) Nasrin and Dr. (Mrs) Fatima Islahi 'Attitude scale towards Information and Communication Technology' (ASTITT) scale for Secondary School Teachers. The scale was designed to obtain respondents' information on their attitude towards IT. The scale was categorized into four dimensions of attitude towards IT as:
- Impact of IT.
- Usefulness for students.
- Productivity for teaching.
- Teacher's interest and acceptance of IT.

6. Statistical Techniques
The collected data has been analysed through application of required statistical technique i.e. Percentage, Mean, SD and t-test.

7. Analysis and interpretation of data
H0-1: There is no significant difference between the mean attitude scores towards IT of male and female secondary school teachers.

Table 2: Presenting the Mean, SD, DF and t-value attitude scores towards IT of male and female secondary school teachers

Gender	Number	Mean	SD	DF	T-Value	Remark
Male	40	65.20	5.40	88	5.23	Significant At 0.01 level
Female	50	75.30	5.65			

The above table shows that t-value is 5.23 where the mean of attitude score towards IT in Male teachers are 65.20 and female are 75.30 which shows that there is a significant difference between Male and Female secondary school teachers with regard to their IT. It also indicates that Female teachers have high attitude towards IT as compared to Male teachers. So, the null hypothesis has been rejected.

Ho-2: There is no significant difference between the mean attitude scores towards IT of male and female secondary school teachers in relation to their impact of IT.

Table 3: Presenting the mean, SD, DF and t-value of Impact of IT

Gender	Number	Mean	SD	DF	T-Value	Remark
Male	48	13.20	2.20	88	3.20	Significant at 0.01 level
Female	42	11.50	1.90			

It shows that the t-value is 3.20 where the mean score of attitude towards male teachers with regard to their impact of IT are 13.20 and Female teachers are 11.50. From the table it clearly shows that male teachers have higher attitude towards the impact of IT in Secondary level of school teachers comparing to the female teachers. So, the null hypothesis has been rejected.

Ho-3: There is no significant difference between the mean attitude scores towards IT of male and female secondary school teachers regarding the usefulness of IT for students.

Table 4: Presenting the Mean, SD, DF and t-value of usefulness of IT for students

Gender	Number	Mean	SD	DF	T-Value	Remark
Male	39	17.5	6.3	88	2.20	Significant at level 0.01
Female	51	15.6	5.23			

The above table shows that the t-value is 2.20 where the mean score of attitude towards Usefulness of IT for students in Male teachers are 17.5 whereas the Female teachers are 15.6. It shows that towards the Usefulness of IT for students the score of male teachers has higher score as compared to female teachers. So, null hypothesis has not been accepted.

Ho-4: There is no significant difference between the mean attitude scores towards IT of male and female secondary school teachers with regards to productivity of teaching

Table 5: Presenting the Mean, SD, DF and t-value of productivity of teaching

Gender	Number	Mean	SD	DF	T-Value	Remark
Male	42	15.7	2.90	88	.865	Not significant at level 0.01
Female	48	14.72	2.20			

The above table shows that the t-value is .865. The mean score of attitude towards the productivity of IT for teaching in Male teachers are 15.7 and Female teachers are 14.72. It shows that Male teachers have more or less same values as compared to Female teachers. So, null hypothesis has been accepted.

H0-5: There is no significant difference between the mean attitude scores towards IT of male and female secondary school teachers in relation to acceptance and interest of IT

Table 6: Presenting the Mean, SD, DF and t-value of the acceptance and interest of IT

Gender	Number	Mean	SD	DF	T-Value	Remark
Male	35	11.0	3.20	**88**	**2.10**	Significant at level 0.01
Female	55	13.4	2.94			

The above table shows the mean score of attitude towards teacher's interest and acceptance of IT in Male teachers are 11.0 and Female teachers are 13.4. It shows that towards teacher's interest and acceptance of IT in male teachers is less than female teachers. The obtained t-value is 2.10 which is significant so, the null hypothesis has been rejected.

Ho-6: There is no significant difference between urban and rural school teacher's attitude towards Information Technology

Table 7: Presenting the Mean, SD, DF and t-value of Urban and rural school teacher's attitude towards Information Technology

Locality	Number	Mean	SD	DF	T-Value	Remark
Urban	40	13.6	2.10	88	2.03	Significant at level 0.01
Rural	50	12.7	2.09			

The above table shows that the t value is 2.03 and the score of mean attitude towards IT at urban is 13.6 and in rural is 12.7. It indicates that the teacher's attitude towards IT at urban is higher compared to rural. So, the null hypothesis has been rejected.

Ho-7: There is no significant difference between urban and rural school teacher's attitude towards IT to their impact of IT

The above table shows the t-value is 5.60 and the mean score of attitude towards the impact of IT at urban is 7.91 and rural is 10.41. It indicates that the rural teacher's attitude towards the impact of IT is higher compared to the urban teachers. So, the null hypothesis has been rejected.

Table 8: Presenting the Mean, SD, DF and t-value of urban and rural school teachers' attitude towards their Impact of IT

Locality	Number	Mean	SD	DF	T-Value	Remark
Urban	38	7.91	3.10	88	5.60	Significant at level 0.01
Rural	52	10.41	2.50			

Ho-8: There is no significant difference between urban and rural secondary school teachers regarding the usefulness of IT for students

Table 9: Presenting the Mean, SD, DF and t-value of urban and rural school teachers' attitude towards usefulness of IT

Locality	Number	Mean	SD	DF	T-Value	Remark
Urban	41	10.06	2.70	88	1.50	Not significant at level 0.01
Rural	49	10.41	2.65			

The above table shows that the t-value of the two groups is 1.50 and the mean scores from urban and rural secondary school teachers regarding the usefulness of IT for students are Urban 10.06 and Rural 10.41. So, the null hypothesis has been accepted.

Ho-9: There is no significant difference between of urban and rural secondary school teachers regarding with regard to productivity of teaching

Table 10: Presenting the Mean, SD, DF and t-value of urban and rural secondary school teachers with regard to productivity of teaching

Locality	Number	Mean	SD	DF	T-Value	Remark
Urban	36	8.50	2.25	88	2.50	Significant at level 0.01
Rural	54	12.0	2.19			

The above table shows that the mean score of attitude towards Urban is 8.50 and Rural is 12.0 in regard to the productivity of teaching towards IT. It shows that rural productivity of teaching in IT is higher than Urban. Its t value also comes out at 2.50 so, the null hypothesis has been rejected.

Ho-10: There is no significant difference between urban and rural secondary school teachers in relation to acceptance and interest of IT

Table 11: Presenting the Mean, SD, DF and t-value of urban and rural secondary school teachers in relation to acceptance and interest of IT

Locality	Number	Mean	SD	DF	T-Value	Remark
Urban	37	10.6	3.72	88	.943	Not significant at level 0.01
Rural	53	11.3	4.30			

The above table shows that the mean score of attitude towards the acceptance and interest of IT in Urban is 10.6 and in Rural 11.3. It indicates that rural school teachers in relation to acceptance and interest of IT is less comparing to urban teachers. T-Value is .943. So, the null hypothesis has been accepted.

Ho-11: There is no significant difference between the attitude of government schools and private school teacher's attitude towards information technology

The above table shows that the t-value is 3.20 and the mean score of attitude towards IT of the government school teachers are 16.5 and private school teachers are 18.6. It indicates that the mean of Private school teachers is higher than that of Government teachers. So the null hypothesis has been rejected.

Table 12: Presenting the Mean, SD, DF and t-value of government schools and private school teacher's attitude towards information technology

Types of Institutes	Number	Mean	SD	DF	T-Value	Remark
Government	41	16.5	4.50	88	3.20	Significant at level 0.01
Private	49	18.6	4.2			

H0-12: There is no significant difference between the attitude of government school and private school teachers in relation to their impact of IT

Table 13: Presenting the Mean, SD, DF and t-value of government school and private school teachers in relation to their impact of IT

Types of Institutes	Number	Mean	SD	DF	T-Value	Remark
Government	36	14.6	3.80	88	7.20	Significant at level 0.01
Private	54	11.6	2.90			

Table 13 shows the mean score of attitude towards IT in relation to their impact at Government school is 14.6 and Private is 11.6. We can see that the Government school teachers have higher impact towards IT as compared to private school teachers. Its t-value is 7.20 so the null hypothesis has been rejected.

Ho-13: There is no significant difference between the attitude of government schools and private school teachers with regards to usefulness of IT for students

Table 14: Presenting the Mean, SD, DF and t-value of government schools and private school teachers with regards to usefulness of IT for students

Types of Institutes	Number	Mean	SD	DF	T-Value	Remark
Government	33	16.1	4.10	88	2.30	Significant at level 0.01
Private	57	15.2	3.20			

The above table shows that the t-value is 2.30 and the mean score of attitude regarding the usefulness of IT for students in government is 16.1 and in Private 15.2. It indicates that the Government school teachers have higher attitude regarding the usefulness of IT for students. So, the null hypothesis has been rejected.

Ho-14: There is no significant difference between the attitude of government school and private school teachers regarding to productivity of teaching.

Table 15: Presenting the Mean, SD, DF and t-value of government school and private school teachers regarding to productivity of teaching

Types of Institutes	Number	Mean	SD	DF	T-Value	Remark
Government	55	16.35	3.19	88	2.08	Significant at level 0.01
Private	35	14.2	4.14			

The above table shows the mean score of two groups where the t-value comes out at 2.08. It indicates that the mean score of Government school is 16.35 and Private school is 14.2 regarding the productivity of teaching. Therefore, it shows that the Government school has higher attitude score towards the productivity of teaching in IT than that of Private school teachers. So, the null hypothesis has been rejected.

Ho-15: There is no significant difference between the attitude of government and private school teachers in relation to acceptance and interest of IT

Table 16: Presenting the Mean, SD, DF and t-value of government and private school teachers in relation to acceptance and interest of IT

Types of Institutes	Number	Mean	SD	DF	T-Value	Remark
Government	31	13.6	3.20	88	2.15	Significant at level 0.01
Private	59	14.5	2.58			

The above table shows the mean score of two groups in relation to acceptance and interest of IT. It also indicates that the mean score of attitude towards the government school teachers is 13.6 whereas the Private school teachers is 14.5. Here the Government school teachers mean score is less than private school teachers and the t-value is 2.15. So, the null hypothesis has been rejected.

8. Findings and Discussion of the study related to hypotheses

Attitude towards Information Technology in Secondary School teachers was evaluated in terms:

- Impact of IT.
- Usefulness for students.
- Productivity for teaching and.
- Teacher's interest and acceptance.

The participants scored the lowest on the teachers 'Productivity for teaching' followed by the 'Usefulness for students' subscale and 'Impact of IT' subscale. The results revealed that the participants have an interest in accessing IT but comparatively did not find IT useful for their teaching, especially in rural areas and even for their students. This should be a matter of concern for educationists and policymakers as to why the teachers in spite of being more acceptable towards technology do not find it useful in its practical application in the educational setup and should be further researched.

- The first hypothesis has not been accepted at 0.01 level of significance. Thus, there is a significant difference in the attitude of Male and Female school Teachers in relation to Information Technology.
- The second hypothesis has not been accepted at 0.01 level of significance. Thus, there is a significant difference between the attitude of Male and Female school teachers in relation to impact of IT.
- The third hypothesis has not been accepted at 0.01 level of significance. There is a significant difference between the attitude of Male and Female school teachers in relation to the usefulness of IT for student.
- The fourth hypothesis has been accepted at 0.01 level of significance. There is no significant difference between the attitude of Male and female school teachers in relation to the productivity of IT for teaching.

- The fifth hypothesis has not been accepted at 0.01 level of significance. There is a significant difference between the attitude of Male and Female teachers in relation to Teacher's interest and acceptance of IT.
- The sixth hypothesis has not been accepted at 0.01 level of significance. There is a significant difference between the Male and Female of urban and rural school teachers towards the Information Technology.
- The seventh hypothesis has not been accepted at 0.01 level of significance. There is a significant difference between urban and rural school teachers' attitude towards IT to their impact of IT.
- The eighth hypothesis has been accepted at 0.01 level at significance. There is no significant difference between Urban and Rural school teachers regarding the usefulness of IT for students.
- The ninth hypothesis has not been accepted at 0.01 level of significance. There is a significant difference between Urban and Rural secondary school teachers with regard to productivity of teaching.
- The tenth hypothesis has been accepted at 0.01 level of significance. There is no significant difference between Urban and Rural secondary school teachers in relation to acceptance and interest of IT.
- The eleventh hypothesis has not been accepted at 0.01 level of significance. There is a significant difference between the attitude of Government school and Private school teacher's attitude towards Information Technology.
- The twelfth hypothesis has not been accepted at 0.01 level of significance. There is a significant difference between the attitude of Government schools and Private school teachers in relation to their impact of IT.
- The thirteenth hypothesis has not been accepted at 0.01 level of significance. There is a significant difference between the attitude of Government schools and Private school teachers regarding with regards to usefulness of IT for students.
- The fourteenth hypothesis has not been accepted at 0.01 level of significance. There is a significant difference between the attitude of Government and Private school teachers regarding to productivity of teaching.
- The fifteenth hypothesis has not been accepted at 0.01 level of significance. There is a significant difference between the attitude of Government and Private school teachers in relation to acceptance and interest of IT.

9. Way forward

Information Technology changes the way we learn and enhances the teaching-learning processes, hence both teachers and students are using ICT resources to achieve their goals. With the implementation of IT, the costs of accessing to educational materials are cut down and makes it easier for students and teachers to learn more effectively and efficiently irrespective of time and space. Integrating ICT in education has an active role in bridging the gap between traditional and modern system of learning as it incorporates internet with different digital technologies such as computers, tablets, mobile phones etc. which improves educational outcomes, facilitates interactive learning environment, encourage collaboration and prepare students with essential digital literacy and skills. Therefore, some of the suggestions which can be implemented with the help of digital technologies are the use of blended learning approach where the learning takes place in person with online learning activities, here the teachers get more option to understand the student needs and how they learn best, this way ICT comes to the rescue to reach the unreachable and paved the way for students who live far away and provide education to them.

10. Conclusion

Technology has impacted educational settings and brought a scope to cater holistic, multidisciplinary and broad-based quality education. Education in the 21st century is the centre from which all changes and developments prevails. ICT promotes autonomous learning for students therefore developing a learning strategy needs to be learned along with the use of hardware resources [2]. The system needs to be educated to use IT otherwise, the purchase and transfer of technology and investment will be nothing but wasting resources. Although these technologies are not impartial in any sense they should be used as means for communicating information in the existing social structures.

Educational technology has a wide scope as it includes its application and practices of using technologies to guide, direct, access, support and enhance learning. It is a complex, dynamic and interdisciplinary enterprise (Ronghuai Huang *et al.* 2019) [5]. Therefore, there is a need to enlarge teacher's role by using advanced technology, necessary expertise, and proper guidance by training the teachers, knowledge and skills. The teaching profession as a whole should develop the ability to adjust to these changes and teachers should be able to anticipate the changes and modify their education system that can bring positive and advanced growth in education through the use of Information Technology.

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