Awareness and Use of Innovation and Technology in Teaching-Learning Process: The Status of Rural Schools in Upper Siang district of Arunachal Pradesh

Geyin Boli

ABSTRACT

The present study aimed at investigating the awareness and use of innovation and technology in teaching-learning process in the district of Upper Siang, Arunachal Pradesh. Thereof, 20 headmasters from the schools in rural areas and 26 teachers each from the schools in rural and urban areas were selected as a sample. The method of Descriptive cum Normative Survey of educational research was adopted and the tools used were developed by the investigator herself for the present study. Some of the statistical techniques adopted and used were percentage, measures of central tendency, measure of variability, t-test and correlation. After a detailed investigation, astonishingly, the study has resulted that headmasters of various schools in the rural areas of Upper Siang district are unaware of the use of innovation and technology in teaching-learning process as majority of them scored below 10% of the total percentage in the awareness test. However, the calculated CR (t) value of 1.56 for the case of Gender variable was lesser than the table value of 2.01 at 0.05 level of confidence. So there exists no significant difference in the use of Innovation and Technology in Teaching-Learning process among the rural school teachers with respect to Gender. Furthermore, the computed co-efficient of correlation value for teachers of rural and urban areas was 0.09. Therefore, the co-efficient of correlation between teachers of rural and urban areas was Very Low and Positive Correlation.

INTRODUCTION

Although innovation in any field is to challenge a criticism of every kind before its implementation and full acceptance, today’s generation of learners has to grow up in a digital world. Use of digital devices has become not only the ways to get cope up with the developed world and social change but it has become a huge part of our everyday life. Indeed, without the use of it, one remains defunct in a society. In a similar way, the use of technology in education or in teaching-learning process particularly, is the need of the hour. Gage (1962) says “Teaching is a form of interpersonal influence aimed at changing the behavior potential of another person.” Smith (1960), “Teaching is a system of actions intended to produce learning.” Whereas, Innovation literally, is understood as new idea, new method, or reform in any field. It is defined by Bledow, et al., (2009) as, “the development and intentional introduction of new and useful ideas by individuals, teams and organizations.” According to Dosi (1988) it is, “the search for, and the discovery, experimentation, development, imitation, and adoption of new products, new production processes and new organizational set ups.” To experience success in educational sector, new innovations are therefore, required. Besides, innovation in teaching-learning process, Technology is defined by English Dictionary as “the organization of knowledge for practical purposes.” When all these three correlates with one another, it provides a new direction towards educational success.

Some of the results of innovation and technology in teaching-learning process are Collaborative learning, Reflecting teaching, Constructivism, Blended learning, Simulated Social Skill Training (SSST), Computer education, Micro Teaching or scaled down teaching, Interaction Analysis, Training Group (T-Group) etc., all these works for the improvement of educational system as a whole.

However, Upper Siang district in Arunachal Pradesh is almost untouched in terms of research work. Various sectors remain unexplored especially educational sector. So, it was the curiosity of the investigator to have a study conducted in the rural areas of this district in order to find out the awareness level and the use of innovation and technology in teaching-learning process.

REVIEW OF RELATED LITERATURE

A few studies relating to innovation and technology in rural areas are sighted. Bish (1972) in a study to determine different factors which influenced the level of educational
aspirations found that urban boys had higher educational aspirations than the rural boys. Fullan (2011) in a study declared that ICT can be mobilized in the service of four pedagogical criteria such as engaging, precise, high yield and higher order. This research indicated the importance of pedagogical and change knowledge and in discovering learning methods and experiences also about the importance of the use of ITL in teaching learning process. NIEPA (1979) reported the findings that in Assam, Jammu and Kashmir, Orissa, Bihar etc there was inadequate physical facilities and lack of equipment and teaching aids. Besides, monitoring and supervision were ineffective in these states. In an investigation of Ferrari, Cachi and Punie (2009) it was resulted that creativity can be linked to various factors such as cognitive abilities, thinking skills, personality traits, knowledge, culture, environment, field and domain and that creativity is context dependent. The study also concluded that both creativity and innovation in education are inter-related but has differentiated approaches for the field of education where creativity is found to be stronger in learning than the innovation. Sharma (1973) relating to rural education, highlighted in his study that the curriculum was faulty and the textbooks were defective.

OBJECTIVES OF THE STUDY

1. To find out the Awareness Level of the use of Innovation and Technology in teaching-learning process among the rural school Headmasters in Upper Siang district of Arunachal Pradesh.
2. To find out the significant difference in the use of Innovation and Technology in teaching-learning process among the rural school teachers with respect to Gender.
3. To find out the Relationship between Rural and Urban school Teachers of Upper Siang district of Arunachal Pradesh in their use of Innovation and Technology in teaching-learning process.

HYPOTHESES OF THE STUDY

1. There exists no significant difference in the use of Innovation and Technology in Teaching-Learning process among the rural school teachers with respect to Gender.
2. There exists no significant relationship between Rural and Urban school Teachers of Upper Siang district of Arunachal Pradesh in their use of Innovation and Technology in teaching-learning process.

Findings:

Table 1:- Awareness level of the rural school Headmasters regarding the use of Innovation and Technology in Teaching-Learning process.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Questions</th>
<th>Correct Answer</th>
<th>%</th>
<th>Wrong Answer</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>What does ICT stands for?</td>
<td>10</td>
<td>50%</td>
<td>10</td>
<td>50%</td>
</tr>
<tr>
<td>2.</td>
<td>What is e-learning?</td>
<td>2</td>
<td>10%</td>
<td>18</td>
<td>90%</td>
</tr>
<tr>
<td>3.</td>
<td>What do you understand by Collaborative learning?</td>
<td>8</td>
<td>40%</td>
<td>12</td>
<td>60%</td>
</tr>
<tr>
<td>4.</td>
<td>Explain the use of Keyboard in Computer Education.</td>
<td>20</td>
<td>100%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>5.</td>
<td>Describe the difference between software and hardware materials for learning.</td>
<td>6</td>
<td>30%</td>
<td>14</td>
<td>70%</td>
</tr>
</tbody>
</table>

DELIMINATION: THE STUDY WAS DELIMITED TO

1. 20 Headmasters from 20 schools in rural areas (Rural Areas- Jido, Ngaming, Popu, Bone, Nigging, Angging, Punging, Gelling, Palling, Likor, Maeungkota, Debokota, Panngo, Hinging, Yering, Singa, Gosang, Kinekibo, Haleng and Simong), 26 rural school teachers (13 male and 13 female) and 26 Urban school teachers (13 male and 13 female) as a sample.
2. Upper Siang district of Arunachal Pradesh.
3. Innovation and Technology as Dependent Variables.
4. Gender (Male and Female) and Locality (Rural and Urban) as Independent Variables.

METHODODOLOGY OF THE STUDY

- **Method**: Descriptive cum Normative Survey method of educational research was used in this study.
- **Population**: All the Headmasters of rural schools and all the teachers of both rural and urban schools in Upper Siang district of Arunachal Pradesh.
- **Sample**: The investigator used Purposive Sampling Technique whereby, 20 headmasters of rural schools and 26 teachers each from rural and urban schools were selected as a sample.

TOOL USED

The tools used in the study were self developed tools of the investigator. These tools were developed with the help of various tools developed by different scholars in the related area. The two self developed tools were (i) Awareness tool for headmasters regarding the use of innovation and technology in teaching learning process. (ii) Use of innovation and technology in teaching learning process for teachers.

STATISTICAL TECHNIQUES USED

In order to come out with appropriate results, the investigator used Percentage, measures of Central Tendency, measures of Variability, t-test and Correlation.

ANALYSIS AND INTERPRETATION

Objective 1:- To find out the Awareness level of the use of Innovation and Technology in teaching-learning process among the rural school Headmasters in Upper Siang district of Arunachal Pradesh.
6. What is the full form of SPSS? & 0 & 0% & 20 & 100% \\
7. Define the meaning of innovation and technology in teaching learning process. & 14 & 70% & 6 & 30% \\
8. Differentiate between the meaning of Learner centered approach and Teacher centered approach in teaching. & 7 & 35% & 13 & 65% \\
9. Use of projector will assist a teacher in maximizing the learning among the learners. & 9 & 45% & 11 & 55% \\
10. What are the benefits of group project / search / studies? & 8 & 40% & 12 & 60% \\
11. Creating situations for critical reflections among the students in a classroom is always better? & 9 & 45% & 11 & 55% \\
12. Do you accept that constructivist approach in teaching and learning encourages self- learning and independent thinking? & 8 & 40% & 12 & 60% \\
13. What is Video Conferencing? & 0 & 0% & 20 & 100% \\
14. Name two examples of Social Networking. & 7 & 35% & 13 & 65% \\
15. Why do we take the students to any study tour / exposure trip / field trip? & 6 & 30% & 14 & 70% \\
16. Give any two examples of Audio-Visual aids for teaching learning process. & 9 & 45% & 11 & 55% \\
17. How can you create a situation for team work among the learners? & 14 & 70% & 6 & 30% \\
18. In a Constructivist approach of teaching, what are the roles of teacher? & 4 & 20% & 16 & 80% \\
19. Is a Head of school responsible for creating situations for creative learning? & 20 & 100% & 0 & 0% \\

**Interpretation:** Interview schedule with the Headmasters of the selected schools assisted the investigator in finding out their awareness level regarding the use of innovation and technology in teaching-learning process. Astonishingly, none of the headmasters knew about SPSS and video conferencing. What all of them have correctly agreed upon was the responsibility of head of schools for creating situations for creative learning among the learners and the use of keyboard in computer education. Questions related to e-learning and constructivist approach of teaching secured only 10 % and 20% respectively revealing that the headmasters had very little awareness. Moreover, in the questions related to understanding of collaborative learning, difference between the hardware and software learning materials, difference between learner centered and teacher centered approach, use of projector, benefits of group project, constructivist approach to encourage self and independent learning, examples of social networking, audio visual aids, exposure tours, and question related to critical reflections- all headmasters scored below 50%. 50% of the headmasters knew about ICT and 70% of them had awareness regarding the team work and meaning of innovation and technology.

**Hypothesis 1:** There exists no significant difference in the use of Innovation and Technology in teaching-learning process among the rural school teachers with respect to Gender.

**Findings:**

**Table 2:** Use of Innovation and Technology in Teaching-Learning process between Male and Female Teachers of rural areas.

<table>
<thead>
<tr>
<th>Use of Innovation &amp; Technology</th>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>df</th>
<th>t-value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>13</td>
<td>4.77</td>
<td>1.41</td>
<td>50</td>
<td>1.56</td>
<td>Not significant at 0.05</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>13</td>
<td>5.46</td>
<td>0.76</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Interpretation:** By the computed mean and standard deviation, it is understood that the difference of mean score of male and female teachers of rural schools does not vary significantly. Female teachers use innovation and technology slightly more than the male teachers of rural areas in teaching learning process. However, the calculated CR (t) value of 1.56 is lesser than the table value of 2.01 at 0.05 level of confidence. Therefore, the first hypothesis- “There exists no significant difference in the use of Innovation and Technology in teaching-learning process among the rural school teachers with respect to Gender” is accepted.

**Hypothesis 2:** There exists no significant relationship between Rural and Urban school Teachers of Upper Siang district of Arunachal Pradesh in their use of Innovation and Technology in teaching-learning process.

**Findings:**

**Table 3:** Relationship in the Use of Innovation and Technology in teaching-learning process by teachers of both rural and urban areas.

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>N</th>
<th>ΣXY</th>
<th></th>
<th>ΣXY</th>
<th>t’ VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural (X)</td>
<td>26</td>
<td>248</td>
<td>0.09</td>
<td>Very Low Positive</td>
<td></td>
</tr>
<tr>
<td>Urban (Y)</td>
<td>26</td>
<td>125</td>
<td>0.96</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Interpretation:

The computed mean scores of rural and urban school teachers were 1.96 and 4.28 respectively. This has revealed that urban school teachers uses innovation and technology in teaching learning process much more than the rural school teachers in Upper Siang district of Arunachal Pradesh. Nonetheless, teachers of both rural and urban schools more or less uses no innovation and technology in teaching-learning process as their total scores were only 51 out of 572 for rural teachers and 125 out of 572 for urban teachers. The computed co-efficient of correlation value for teachers of rural areas and teachers of urban areas was 0.09 which indicated a Very Low and Positive Correlation between the two variables. Therefore, it can be concluded that the use of innovation and technology in teaching learning process between the rural and urban school teachers in the district is having very low and positive correlation.

Discussion and Conclusion

Needless to compare innovative & technological classroom with that of traditional classroom for the development of learners as no learner can develop fully without the use of new innovations and technologies in education in the present context. Besides, it is the evidence today that technology and good innovations in education improves student learning. Furthermore, investigation has resulted that headmasters of various schools in the rural areas of Upper Siang district are unaware of the use of innovation and technology in teaching-learning process as majority of them secured below 10% of the total percentage. There were only two questions which all the headmasters have correctly responded such as: responsible of head of head of schools for creating situations for creative learning and the use of keyboard in computer education. Astonishingly, none of the headmasters knew about SPSS and video conferencing.

The calculated CR (t) value of 1.56 for the case of Gender variable was lesser than the table value of 2.01 at 0.05 level of confidence. Therefore, there was no significant difference in the use of Innovation and Technology in Teaching-Learning process among the rural school teachers with respect to Gender. The computed co-efficient of correlation value for teachers of rural and urban areas was 0.09. This has indicated that the relationship between teachers of rural and urban areas was Very Low and Positive.

In addition to all the findings, it was revealed that except for very few, no difference in the adoption of teaching methods were found among the rural and urban school teachers. Their common methods of teaching were storytelling, lecture, question answer and discussion method. These teachers hardly uses methods like collaborative learning, constructivist approach, computerized assisted instruction, programmed instruction, role play and so on.

Overall, innovation and technology in teaching-learning process are hardly been used by the schools of rural areas in Upper Siang district, Arunachal Pradesh. The reason behind such findings could be- lack of infrastructure and physical facilities, unavailability of computer education, problem of electricity and transportation, lack of trained teachers etc. It is believed that, in the near future, this state in general and district in particular will experience developed phases of time with the proper use of innovation and technology in education.

References