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Research Article

Heedful Inquisition On Hybrid Learning

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ABSTRACT

Hybrid learning strengthens learning by mixing of live e-learning, face-to-face learning, self-paced learning, computer-mediated learning and mobile learning. It provides a unique learning experience in space and time. It is pupil-centric that mix classroom teaching methods, learning styles, resource formats, range of technologies, range of expertise to enhance learning. Hybrid learning is the strategically planned integration of numerous pedagogical approaches, varied delivery modalities, online learning, and face-to-face learning. Teachers can now readily connect in online learning settings as a result of the expanding usage of technology and the growth of learning platforms.

If secondary school teachers have proper cognizance on hybrid learning at school level will help students to develop their critical thinking, creative thinking, meta-cognition, collaboration, effective communication and scientific inquiry. After making meta-analysis of related review of literature, no research has been found on hybrid learning in Arunachal Pradesh. There is research gap about the cognizance of secondary teachers towards hybrid learning in Arunachal Pradesh. Papumpare District of Arunachal Pradesh is well-connected educational hub in terms of communication and technology. Hence, the researcher has thought to do research on this and stated the problem as secondary teachers' cognizance, of hybrid learning in Papumpare District of Arunachal Pradesh.

The core objective of the study is to find out the cognizance of secondary teachers towards hybrid learning in Papumpare District of Arunachal Pradesh. The null hypotheses are formulated based on objectives. The investigators adopted Descriptive–cum–Normative survey method. The sample of the study will consist of 40% of secondary school teachers by applying stratified random sampling technique. Cognizance test was constructed and developed. The collected data was analyzed and interpreted quantitatively. The study reveals that individual accountability and personal responsibility can be aliened among teachers and students through effective participation in hybrid learning. Social skills, critical thinking, meta-cognition and technological skills can be cultivated towards changing world. Self-evaluating techniques, self-analysis and self-development can be promoted through hybrid learning

Key words: *Hybrid Learning, Adeptness, Secondary Teachers, Arunachal Pradesh*

Introduction

At present, educational setting for learning has become a hybrid context bouncing from physical to digital spaces with technology involvement. The learners should depend on the use of set of technological tools to accomplish expected learning outcomes. The on-site environment will work in synergy with the online environment through new teaching approaches and new learning styles. COVID- 19 emergency made universities to move from on-site to online by using various resources and services which gradually moved towards hybrid learning processes. Educational technology approaches have rapidly expanded in recent years with various advanced approaches like mobile technologies, augmented realities, virtual realities, social networking, simulation, cloud computing, collaborative learning, flipped classroom and many more.

Technologies provide variety of alternatives for interaction and communication with regard to learning. Technological learning environment is not effective alone and it has to be adopted by the learners in tune

with their abilities, self-management, and perspectives on technology. At present, classroom has become a virtual space in which students can select effective technological instruments for better understanding of the phenomenon.

Hybrid refers to interaction space between student and teacher by reducing the line between physical space and digital space. Hybrid learning is a kind of learning that happens both in physical space and virtual space with a view to combine and boost both the environments. Here, physical space refers to on-site environment and virtual space refers to online environment. Initially, it was considered as virtual dimension that includes synchronous and asynchronous interaction between teachers and taught. Here, students may access online learning at any moment by connecting with technological learning tools. At present, it refers to mixing of face-to-face and distance interaction where real time and time delay are implied. The students should depend on use of set of technological tools to carry out events in order to promote learning progressively.

Hybrid learning is to strengthen learning by mixing of live e-learning, face-to-face learning, self-paced learning, computer-mediated learning and mobile learning. It provides a unique learning experience in space and time. It is pupil-centric that mix classroom teaching methods, learning styles, resource formats, range of technologies, range of expertise to enhance learning. Hybrid learning is the strategically planned integration of numerous pedagogical approaches, varied delivery modalities, online learning, and face-to-face learning. Teachers and students can now readily connect in online learning settings as a result of the expanding usage of technology and the growth of learning platforms.

Rationale

In the light of national perspective, Neetika (2021) investigated the effect of mixed learning on academic performance, motivation, and course satisfaction in Science among adolescents. The findings revealed that mixed learning caused more effective and beneficial for adolescents to promote and sustain their motivation level, course satisfaction and academic performance. Sharma (2021) studied the effect of blended learning on achievement of English and academic anxiety among secondary school students in relation to self-efficacy. This study revealed that academic blended learning strategy may reduce academic anxiety and improves achievement in English. At the same time, self-efficacy was strengthened through on-site and online learning. Banditvilai (2016) had strongly emphasized that using the hybrid learning might be entailed with the use of physical and digital spaces with a view to motivate students to engage as well as interact in teaching English as second language.

Krishnan (2011) studied the effect of blended learning strategy on higher order thinking. The results of the study revealed that blended learning strategy was an influencing factor for developing problem solving, critical thinking and process skills in Science. Sharma and Barrett (2007) remarked that hybrid learning was the more effective strategy for developing study skills like- note making, note taking, receptive and productive skills in language. Subsequently, hybrid learning would help to improve students' engagement, motivation and learning environment. Singh and Reed (2001) expressed that hybrid learning would increase effectiveness of learning and development of cost-optimization. Hybrid learning is also an influencing factor in minimizing the interaction gap between physical space and virtual space.

At international perspective, Zhang and Zhu (2018) found that hybrid learning was a positive factor for achieving learning outcomes. They also revealed that hybrid learning was the important instructional strategy for independent learning and clear interaction. Hybrid learning could help to create positive teaching learning environment which was interactive, inspiring, flexible and holistic. Liu (2013) revealed that hybrid learning was encouraged among students. Then the students developed autonomous learning by decreasing anxiety in communication and increasing academic writing competence. The hybrid learning was also strong factor for improving interaction among students in classroom situation.

Tayebinik and Puteh (2013) emphasized the views of hybrid learning in place of face-to-face learning or online learning. Hybrid learning may promote students' engagement in developing knowledge independently. Hybrid learning makes students to learn very effectively by using various synchronous and asynchronous technological learning tools. Manan et al. (2012) indicated that hybrid learning was a factor for improving students' authentic learning. They also added that use of on-site and online technological tools may be helpful for interacting among students by using various technological tools like Facebook, Instagram, etc.

Marsh (2012) added that hybrid learning could provide many merits for students and teachers as compared to traditional approach. Students' language learning skills, collaborative learning, active engagement, effective interaction and effective language practice, individualized language learning and the language autonomy could be strengthened through hybrid learning. Yoon and Lee (2010) had found that use of hybrid learning could develop target language with regard to listening, speaking, reading and writing.

Leakey and Ranchoux (2006) found that most of the students preferred to get learning experiences through hybrid learning rather than traditional classroom learning. They also indicated that hybrid learning was better alternate option than the classroom learning. Harkar and Koutsantoni (2005) concluded that hybrid learning would help to increase retention of the students in comparison to distance learning. Hybrid learning would view positive learning outcome specifically for learning English for academic purposes. Dziuban et al. (2004) stressed that hybrid learning would show its potentiality in improving learning outcomes of students compared to fully online indicated course.

NEP-2020 has highlighted on technology enable learning and developing individual as well rounded and creative agent. These two are possible through hybrid learning by balancing the onsite and online education among learners. In Arunachal Pradesh, the teachers at secondary level are facing various problems in onsite and online education due to remote locations, lack of infrastructure facilities, lack of training, network glitches and unaware of recent trends of ICT in teaching learning process. After making meta-analysis of related review of literature, no research has been found on hybrid learning in Arunachal Pradesh. There is research gap about the cognizance of secondary teachers towards hybrid learning in Arunachal Pradesh. Papumpare District of Arunachal Pradesh is well-connected educational hub in terms of communication and technology. If secondary school teachers of Papumpare District have proper cognizance on hybrid learning at school level will help students to develop their critical thinking, creative thinking, meta-cognition, collaboration, effective communication and scientific inquiry. Hence, the researcher has thought to do research on this and stated the problem as given below.

Statement of the Problem

Cognizance among Secondary School Teachers towards Hybrid Learning in Papumpare District of Arunachal Pradesh

Operational Terms

1. *Secondary School Teachers:* It refers to teachers who are working at secondary level taking classes from class XI to X.
2. *Cognizance:* It is referring to state or quality of being conscious of hybrid learning with regard to concept, characteristics, design, and classroom practices.
3. *Hybrid Learning*: It refers to learning that is the combination of physical and digital learning.

Objectives of the study

1. To find out cognizance level among secondary school teachers on hybrid learning.
2. To find out significant difference in cognizance of secondary school teachers towards hybrid learning with regard to gender.
3. To find out significant difference in cognizance of secondary schoolteachers towards hybrid learning with regard to management.
4. To find out significant difference in cognizance of secondary schoolteachers towards hybrid learning with regard to locality.
5. To find out significant difference in cognizance of secondary schoolteachers towards hybrid learning with regard to teaching experience.
6. To find out significant difference in cognizance of secondary schoolteachers towards hybrid learning with regard to educational qualification.

Hypotheses of the study

1. There is no significant difference in cognizance of secondary schoolteachers towards hybrid learning with regard to gender.
2. There is no significant difference in cognizance of secondary schoolteachers towards hybrid learning with regard to management.
3. There is no significant difference in cognizance of secondary schoolteachers towards hybrid learning with regard to locality.
4. There is no significant difference in cognizance of secondary schoolteachers towards hybrid learning with regard to teaching experience.
5. There is no significant difference in cognizance of secondary schoolteachers towards hybrid learning with regard to educational qualification.

Delimitations of the study

This present study is limited to

1. Papumpare District of Arunachal Pradesh.
2. 60 secondary schools' teachers only.
3. Cognizance of hybrid learning only.
4. One dependent variable (Cognizance of hybrid learning) and five independent variables (gender, management, locality, teaching experience and education qualification)

Methods and Instrumentation

***1) Method*:** The present study is related to survey cum descriptive in nature because the study is focusing on discovering the facts based on empirically gathered data. Through survey, it is possible to know the cognizance of secondary school teachers towards hybrid learning within short period. Therefore, the present researcher has thought to adopt survey method to examine the secondary school teachers' cognizance on hybrid learning in Papumpare District of Arunachal Pradesh.

2) Population: It refers to aggregate or totality of all objects or members that conform to set of specifications. It is also known as a well-defined collection of individuals or objects known to have similar characteristics. In the present study, all secondary school teachers working in Papumpare District of Arunachal Pradesh is considered as population of the study.

3) Sample: Sample refers to small proportion of the population which is selected for the purpose of extracting information with a view to execute research work. It is simply a subset of population. The sample must be representative of the population from which it was drawn and it must have a good size to warrant statistical analysis. Since it is not possible to study the entire population, the researcher has selected a sample of 60 secondary school teachers, using stratified random technique. The sample comprises of 60 secondary school teachers of Papumpare District of Arunachal Pradesh.

Table-1 showing demographic characteristics of the sample

Sl. No.	Variables	Sub-variables	Sample size
1	Gender	Male	17
		Female	43
2	Management	Government	42
		Private	18
3	Locality	Rural	12
		Urban	48
4	Teaching Experience	Below 10 years	37
		10 years & above	23
5	Education Qualification	Graduation	27
		Post- Graduation	33

4) Tool used: Since there is no standardized tool for measuring cognizance of secondary school teachers towards hybrid learning the investigator has constructed and developed cognizance test as given below for knowing secondary school teachers' cognizance on hybrid learning.

i) ***Editing of the statements:*** For accumulating pertinent authentic and valid data in any field of research, the selection of suitable and valid instrument or tool is required. In this present study, cognizance test on teachers towards hybrid learning was constructed and developed for collecting data. The investigator has collected various items on theory of hybrid learning in connection with concept, characteristics, process, features and implementation. The researcher designed items in a simple manner by dividing items in four sections. Section-I contains 20 Multiple Choice Questions, Section-II contains 10 Fill in the blanks, Section-III contains 10 true and false and Section-IV contains 5 shorts Questions. For section-I, righteous response will be scored as 1 and wrong response will be score as 0. For section-II, the righteous key word for gaining answer is carried out with score 1. For section-III, true statement is treated with score 1 and false statement is treated with score 0, and for section-IV, at least one righteous answer in the form of statement is carried out with 2-point score.

ii) ***Tryout analysis:*** The total tool consists of 50 scores at maximum. This tool was administered for pilot study by taking a sample of 10 teachers for working at secondary in order to look into Item Difficulty (I.D) as well as Discrimination power (DP). By collecting data from the said sample item difficulty was calculated for each item by using ID formula. For calculating Discriminating Power (D.P), top 27% and bottom 27% of groups were classified as per obtained scores. The D.P was calculated for each item by using relevant formula

Table-2: Showing item difficulty and discriminating power for each statement.

Sl. No.	Item Number	Item Difficulty(ID)	Discriminating Power(DP)	Decision
1	1	68.55	0.32	Accepted
2	2	67.72	0.3	Accepted
3	3	56.88	0.35	Accepted
4	4	46.77	0.36	Accepted

5	5	57.30	0.32	Accepted
6	6	62.65	0.4	Accepted
7	7	45.7	0.4	Accepted
8	8	51.5	0.3	Accepted
9	9	49.70	0.4	Accepted
10	10	58.40	0.3	Accepted
11	11	68.70	0.35	Accepted
12	12	71.8	0.33	Accepted
13	13	67.11	0.3	Accepted
14	14	64.67	0.4	Accepted
15	15	63.8	0.4	Accepted
16	16	52.11	0.3	Accepted
17	17	35	0.3	Accepted
18	18	50	0.37	Accepted
19	19	40.26	0.31	Accepted
20	20	60.10	0.4	Accepted
21	21	58.98	0.3	Accepted
22	22	44.12	0.3	Accepted
23	23	69.27	0.3	Accepted
24	24	33	0.34	Accepted
25	25	33.33	0.4	Accepted
26	26	48.09	0.4	Accepted
27	27	67.88	0.4	Accepted
28	28	66.67	0.3	Accepted
29	29	56	0.3	Accepted
30	30	39.22	0.32	Accepted
31	31	50.09	0.3	Accepted
32	32	47.05	0.3	Accepted
33	33	33	0.31	Accepted
34	34	51.05	0.36	Accepted
35	35	55	0.4	Accepted
36	36	57	0.4	Accepted
37	37	45.67	0.4	Accepted
38	38	55	0.4	Accepted
39	39	49.03	0.3	Accepted
40	40	56.01	0.3	Accepted
41	41	44.37	0.33	Accepted
42	42	34.07	0.4	Accepted
43	43	48.09	0.3	Accepted
44	44	60.08	0.32	Accepted
45	45	44.16	0.4	Accepted

From the table-2, the item which contained DP value as 0.3 and above 0.3 was considered under acceptance. Subsequently, the item which contained DP value below 0.3 and above 0.4 was considered under rejection. The item which contained ID value as 30 and above 30 as well as 70 and below 70 was considered under acceptance. The item which contained ID value as below 30 and above 70 was considered under rejection. In the present study all the items were accepted in the light of ID and DP. But these items were accepted due to better language and non-complexity and good intensity of simplicity.

iii) ***Final Draft:*** Finally, the draft was prepared consisting 45 questions or items and its reliability as well as validity was calculated. The reliability of the test was 0.88 (using Kr21) and intrinsic validity was 0.94.

iv)*Scoring Procedure:* For section-I, righteous response will be scored as 1 and wrong response will be scored as 0. For section-II, the righteous key word for gaining answer is carried out with score 1. For section-III, true statement is treated with score 1 and false statement is treated with score 0, and for section-IV ,at least one righteous answer in the form of statement is carried out with 2 point score. At all the events, the final tool was ranged from 0 to 50. The answer key was prepared.

Analysis and Interpretation

Objective-1: To find out the significant difference between male and female secondary school teachers' cognizance on hybrid learning in Papumpare District of Arunachal Pradesh

Hypothesis-1: There is no significant difference between male and female secondary school teachers' cognizance on hybrid learning in Papumpare District of Arunachal Pradesh cognizance on hybrid learning.

Table-3: Shows Mean, SD, D, SEd and t-values with regard to dimensions of Hybrid learning due to variation in gender.

Dimensions	Gender				D	SEd	t-values
	Male		Female				
	M1	SD1	M2	SD2			
Section-I	11.23	3.19	12.51	2.97	1.28	0.87	1.47@
Section-II	3.82	2.18	3.95	2.44	0.13	0.63	0.20@
Section-III	7.70	1.10	7.34	2.77	0.36	0.48	0.75@
Section-IV	3.70	2.54	3.55	3.07	0.15	0.76	0.19@
Overall	26.47	7.07	27.41	8.98	0.94	2.19	0.42@

@= Not Significant at 0.05 Level

From table-3, it is clear that the t-value (1.47) with respect to Section-I relating to cognizance on hybrid learning (M1=11.23, SD1=3.19, M2= 12.51, SD2= 2.97, D= 1.28, SEd= 0.87) P>0.05 is not significant. It indicates that the gender does not influence cognizance among secondary school teachers towards hybrid learning with regard to Section-I. So, the null hypothesis is accepted. It tells that there is no significant difference between male and female secondary school teachers' cognizance on hybrid learning with regard to Section-I. From the Mean values, it is clear that the female secondary school teachers (M2=12.51) are slightly higher on their cognizance on hybrid learning than male secondary teachers (M1=11.23). From the SD values, it is clear that the female secondary teachers' cognizance (SD2=2.97) on hybrid learning is less deviated than the male secondary teachers' cognizance (SD=3.19) on hybrid learning.

From table-3, it is clear that the t-value (0.20) with respect to Section-II relating to cognizance on hybrid learning (M1=3.82, SD1=2.18, M2=3.95, SD2=2.44, D=0.13, SEd= 0.63) P> 0.05 is not significant. It indicates that the gender does not influence cognizance among secondary school teachers towards hybrid learning with regard to section-II. So, the null hypothesis is accepted. It tells that there is no significant difference between male and female secondary school teachers' cognizance on hybrid learning with regard to Section-II. From the Mean values, it is clear that the female secondary school teachers (M2=3.95) are slightly higher on their cognizance on hybrid learning than male secondary teachers (M1=3.82). From the SD values; it is clear that the female secondary teachers' cognizance (SD2= 2.44) on hybrid learning is more deviated than the male secondary teachers' cognizance (SD1= 2.18) on hybrid learning.

From table-3, it is clear that the t-value (0.75) with respect to Section-III relating to cognizance on hybrid learning (M1= 7.70, SD1= 1.10, M2= 7.30, SD2= 2.77, D= 0.36, SEd= 0.48) P> 0.05 is not significant. It indicates that the gender does not influence cognizance among secondary school teachers towards hybrid learning with regard to Section-III. So, the null hypothesis is accepted. It tells that there is no significant difference between male and female secondary school teachers' cognizance on hybrid learning with regard to Section-III. From the Mean values, it is clear that the male secondary school teachers (M1=7.70) are slightly higher on their cognizance on hybrid learning than female secondary teachers (M2=7.34). From the SD values; it is clear that the female secondary teachers' cognizance (SD2= 2.77) on hybrid learning is more deviated than the male secondary teachers' cognizance (SD1=1.10) on hybrid learning.

From table-3, it is clear that the t-value (0.19) with respect to Section-IV relating to cognizance on hybrid learning (M1= 3.70, SD1=2.54, M2= 3.55, SD2= 3.70, D= 0.15, SEd= 0.76) P>0.05 is not significant. It

indicates that the gender does not influence cognizance among secondary school teachers towards hybrid learning with regard to Section-IV. So, the null hypothesis is accepted. It tells that there is no significant difference between male and female secondary school teachers' cognizance on hybrid learning with regard to Section-IV. From the Mean values, it is clear that the male secondary school teachers (M1= 3.70) are slightly higher on their cognizance on Hybrid learning than female secondary teachers (M2= 3.55). From the SD values; it is clear that the female secondary teachers' cognizance (SD2=3.07) on hybrid learning is more deviated than the male secondary teachers' cognizance (SD1= 2.54) on hybrid learning.

From table-3, it is clear that the t-value (0.42) with respect to overall relating to cognizance on hybrid learning (M1= 26.47, SD1= 7.07, M2= 27.41, SD2= 8.98, D= 0.94, SEd= 2.19) P> 0.05 is not significant. It indicates that the gender does not influence cognizance among secondary school teachers towards hybrid learning with regard overall. So, the null hypothesis is accepted. It tells that there is no significant difference between male and female secondary school teachers' cognizance on hybrid learning with regard to overall. From the Mean values, it is clear that the female secondary school teachers (M2=27.41) are slightly higher on their cognizance on Hybrid learning that male secondary teachers (M1=26.47). From the SD values; it is clear that the female secondary teachers' cognizance (SD2= 8.98) on hybrid learning is more deviated than the male secondary teachers' cognizance (SD1= 7.07) on hybrid learning.

Objective-2: To find out the significant difference between government and private secondary school teachers' cognizance on Hybrid learning in Papumpare District of Arunachal Pradesh

Hypothesis-2: There is no significant difference between government and private secondary school teachers' cognizance on hybrid learning in Papumpare District of Arunachal Pradesh cognizance on hybrid learning.

Table-4: Shows Mean, SD, D, SEd and t-values with regard to dimensions of Hybrid learning due to variation in management.

Dimensions	**Management**				**D**	**SEd**	**t- values**
	Government		**Private**				
	M1	**SD1**	**M2**	**SD2**			
Section-I	11.59	2.77	13.44	3.39	1.85	0.9	2.05*
Section-II	3.64	1.94	4.55	3.09	0.91	0.78	1.16@
Section-III	6.95	2.56	8.61	1.53	1.66	0.52	3.19*
Section-IV	2.85	2.59	5.33	2.93	2.48	0.78	3.17*
Overall	25.04	7.48	32.05	8.70	7.01	2.35	2.98*

@= Not Significant at 0.05 Level & * = Significant at 0.05 Level

From table-4, it is clear that the t-value (2.05) with respect to Section-I relating to cognizance on hybrid learning (M1= 11.59, SD1= 2.77, M2= 13.44, SD2= 3.39, D= 1.85, SEd=0.9) P< 0.05 is significant. It indicates that the management does influence cognizance among secondary school teachers towards hybrid learning with regard to Section-I. So, the null hypothesis is not accepted. It tells that there is significant difference between government and private secondary school teachers' cognizance on Hybrid learning with regard to Section-I. From the Mean values, it is clear that the private secondary school teachers (M2=13.44) are slightly higher on their cognizance on Hybrid learning than government secondary teachers (M1=11.59). From the SD values, it is clear that the private secondary teachers' cognizance (SD2= 3.39) on hybrid learning is more deviated than the government secondary teachers' cognizance (SD1= 2.77) on hybrid learning.

From table-4, it is clear that the t-value (1.16) with respect to Section-II relating to cognizance on hybrid learning (M1=3.64, SD1=1.94, M2=4.55, SD2=3.09, D=0.91, SEd=0.78) P>0.05 is not significant. It indicates that the management does not influence cognizance among secondary school teachers towards hybrid learning with regard to Section-II. So, the null hypothesis is accepted. It tells that there is no significant difference between government and private secondary school teachers' cognizance on hybrid learning with regard to Section-II. From the Mean values, it is clear that the private secondary school teachers (M2=4.55) are slightly higher on their cognizance on hybrid learning than government secondary teachers (M1=3.64). From the SD values; it is clear that the private secondary teachers' cognizance (SD2= 3.09) on hybrid learning is less deviated than the government secondary teachers' cognizance (SD1= 3.64) on hybrid learning.

From table-4, it is clear that the t-value (3.19) with respect to Section-III relating to cognizance on hybrid learning (M1= 6.95, SD1= 2.56, M2= 8.61, SD2= 1.53, D= 1.66, SEd=0.52) P< 0.05 is significant. It indicates that the management does influence cognizance among secondary school teachers towards hybrid learning with regard to Section-III. So, the null hypothesis is not accepted. It tells that there is significant difference between government and private secondary school teachers' cognizance on hybrid learning with regard to Section-III. From the Mean values, it is clear that the private secondary school teachers (M2=8.61) are

slightly higher on their cognizance on hybrid learning than government secondary teachers (M1= 6.95). From the SD values; it is clear that the private secondary teachers' cognizance (SD2= 1.53) on hybrid learning is less deviated than the government secondary teachers' cognizance (SD1= 2.56) on hybrid learning.
From table-4, it is clear that the t-value (3.17) with respect to Section-IV relating to cognizance on hybrid learning (M1= 2.85, SD1= 2.59, M2= 5.33, SD2= 2.93, D= 2.48, SEd=0.78) P<0.05 is significant. It indicates that the management does influence cognizance among secondary school teachers towards hybrid learning with regard to section-IV. So, the null hypothesis is not accepted. It tells that there is significant difference between government and private secondary school teachers' cognizance on hybrid learning with regard to Section-IV. From the Mean values, it is clear that the private secondary school teachers (M2=5.33) are slightly higher on their cognizance on hybrid learning than government secondary teachers (M1=2.85). From the SD values; it is clear that the private secondary teachers' cognizance (SD2= 2.93) on hybrid learning is more deviated than the government secondary teachers' cognizance (SD1= 2.59) on hybrid learning.
From table-4, it is clear that the t-value (2.98) with respect to overall relating to cognizance on hybrid learning (M1= 25.04, SD1= 7.48, M2= 32.05, SD2= 8.70, D= 7.01, SEd=2.35) P< 0.05 is significant. It indicates that the management does influence cognizance among secondary school teachers towards hybrid learning with regard to overall. So, the null hypothesis is not accepted. It tells that there is significant difference between government and private secondary school teachers' cognizance on hybrid learning with regard to overall. From the Mean values, it is clear that the private secondary school teachers (M2= 32.05) are slightly higher on their cognizance on hybrid learning than government secondary teachers (M1= 25.04). From the SD values; it is clear that the private secondary teachers' cognizance (SD2= 8.70) on hybrid learning is more deviated than the government secondary teachers' cognizance (SD1= 7.48) on hybrid learning.

Objective-3: To find out the significant difference between rural and urban secondary school teachers' cognizance on hybrid learning in Papumpare District of Arunachal Pradesh
Hypothesis-3: There is no significant difference between rural and urban secondary school teachers' cognizance on hybrid learning in Papumpare District of Arunachal Pradesh cognizance on hybrid learning.

Table-5: Shows Mean, SD, D, SEd and t-values with regard to dimensions of Hybrid learning due to variation in locality.

Dimensions	**Locality**				**D**	**SEd**	**t- values**
	Rural		**Urban**				
	M1	**SD1**	**M2**	**SD2**			
Section-I	11.16	0.83	12.39	3.36	1.23	0.53	2.32*
Section-II	4.25	1.21	3.83	2.57	0.42	0.50	0.84@
Section-III	7.83	0.71	7.35	2.67	0.48	0.43	1.11@
Section-IV	3.66	2.80	3.58	2.96	0.08	0.91	0.08@
Overall	26.91	3.80	27.20	9.27	0.29	1.72	0.22@

@= Not Significant at 0.05 Level & * = Significant at 0.05 Level

From table-5, it is clear that the t-value (2.32) with respect to Section-I relating to cognizance on hybrid learning (M1= 11.16, SD1= 0.83, M2= 12.39, SD2= 3.36, D= 1.23, SEd= 0.53) P< 0.05 is significant. It indicates that the locality does influence cognizance among secondary school teachers towards hybrid learning with regard to Section-I. So, the null hypothesis is not accepted. It tells that there is significant difference between rural and urban secondary school teachers' cognizance on hybrid learning with regard to Section-I. From the Mean values, it is clear that the urban secondary school teachers (M2=12.39) are slightly higher on their cognizance on hybrid learning than rural secondary teachers (M1=11.16). From the SD values; it is clear that the urban secondary teachers' cognizance (SD2= 3.36) on hybrid learning is more deviated than the rural secondary teachers' cognizance (SD1= 0.83) on hybrid learning.
From table-5, it is clear that the t-value (0.84) with respect to Section-II relating to cognizance on hybrid learning (M1=4.25, SD1=1.21, M2=3.83, SD2=2.57, D=0.42, SEd=0.50) P> 0.05 is not significant. It indicates that the locality does not influence cognizance among secondary school teachers towards hybrid learning with regard to Section-II. So, the null hypothesis is accepted. It tells that there is no significant difference between rural and urban secondary school teachers' cognizance on hybrid learning with regard to Section-II. From the Mean values, it is clear that the rural secondary school teachers (M1=4.25) are slightly higher on their cognizance on hybrid learning than urban secondary teachers (M2=3.83). From the SD values, it is clear that the urban secondary teachers' cognizance (SD2= 2.57) on hybrid learning is more deviated than the rural secondary teachers' cognizance (SD1= 1.21) on hybrid learning.
From table-5, it is clear that the t-value (1.11) with respect to Section-III relating to cognizance on hybrid learning (M1= 7.83, SD1= 0.71, M2= 7.35, SD2= 2.67, D= 0.48, SEd=0.43) P>0.05 is not significant. It indicates that the locality does not influence cognizance among secondary school teachers towards hybrid learning with regard to Section-III. So, the null hypothesis is accepted. It tells that there is no significant difference between rural and urban secondary school teachers' cognizance on hybrid learning with regard to

Section-III. From the Mean values, it is clear that the rural secondary school teachers (M1= 7.83) are slightly higher on their cognizance on hybrid learning than urban secondary teachers (M2= 7.35). From the SD values; it is clear that the urban secondary teachers' cognizance (SD2= 2.67) on hybrid learning is more deviated than the rural secondary teachers' cognizance (SD1= 0.71) on hybrid learning.

From table-5, it is clear that the t-value (0.08) with respect to Section-IV relating to cognizance on hybrid learning (M1= 3.66, SD1= 2.80, M2= 3.58, SD2= 2.96, D= 0.08, SEd=0.91) P>0.05 is not significant. It indicates that the locality does not influence cognizance among secondary school teachers towards hybrid learning with regard to Section-IV. So, the null hypothesis is accepted. It tells that there is no significant difference between rural and urban secondary school teachers' cognizance on hybrid learning with regard to Section-IV. From the Mean values, it is clear that the rural secondary school teachers (M1= 3.66) are slightly higher on their cognizance on hybrid learning than urban secondary teachers (M2=3.58). From the SD values; it is clear that the urban secondary teacher's cognizance (SD2= 2.96) on hybrid learning is more deviated than the rural secondary teachers' cognizance (SD1= 2.80) on hybrid learning.

From table-5, it is clear that the t-value (0.22) with respect to overall relating to cognizance on hybrid learning (M1= 26.91, SD1= 3.80, M2= 27.20, SD2= 9.27, D= 0.29, SEd=1.27) P>0.05 is not significant. It indicates that the locality does not influence cognizance among secondary school teachers towards hybrid learning with regard to overall. So, the null hypothesis is accepted. It tells that there is no significant difference between rural and urban secondary school teachers' cognizance on hybrid learning with regard to overall. From the Mean values, it is clear that the urban secondary schoolteachers (M2= 27.20) are slightly higher on their cognizance on hybrid learning than rural secondary teachers (M1=26.91). From the SD values; it is clear that the urban secondary teachers' cognizance (SD2= 9.27) on hybrid learning is more deviated than the rural secondary teachers' cognizance (SD1= 3.80) on hybrid learning.

Objective-4: To find out the significant difference between below 10 years and 10 years & above teaching experience of secondary school teachers' cognizance on hybrid learning in Papumpare District of Arunachal Pradesh

Hypothesis-4: There is no significant difference between below 10 yearsand 10 years & above of secondary school teachers' cognizance on hybrid learning inPapumpare District of Arunachal Pradesh cognizance on hybrid learning.

Table-6: Shows Mean, SD, D, SEd and t-values with regard to dimensions of Hybrid learning due to variation in teaching experience.

Dimensions	**Teaching experience**				**D**	**SEd**	**t- values**
	Below 10yrs		**10 yrs & Above**				
	M1	**SD1**	**M2**	**SD2**			
Section-I	12.43	3.02	11.69	3.15	0.74	0.81	0.91@
Section-II	4.05	2.42	3.69	2.28	0.36	0.61	0.59@
Section-III	7.56	2.29	7.26	2.64	0.3	0.66	0.45@
Section-IV	4.21	2.81	2.06	2.85	1.61	0.75	2.14*
Overall	28.32	8.33	25.26	8.44	3.06	2.22	1.37@

@= Not Significant at 0.05 Level & * = Significant at 0.05 Level

From table-6, it is clear that the t-value (0.91) with respect to Section-I relating to cognizance on hybrid learning (M1= 12.43, SD1= 3.02, M2= 11.69, SD2= 3.15, D= 0.74, SEd=0.81) P> 0.05 is not significant. It indicates that the teaching experience does not influence cognizance among secondary school teachers towards hybrid learning with regard to Section-I. So, the null hypothesis is accepted. It tells that there is no significant difference between teaching experience of teacher below 10 years and above 10 years of secondary school teachers' cognizance on hybrid learning with regard toSection-I. From the Mean values, it is clear that the teaching experience below 10 years of secondary school teachers (M1=12.43) are slightly higher on their cognizance on Hybrid learning than teaching experience 10 years & above of secondary teachers (M2=11.69). From the SD values; it is clear that the teaching experience above 10 years of secondary teachers' cognizance (SD2= 3.15) on hybrid learning is more deviated than the teaching experience 10 years & above of secondary teachers' cognizance (SD1= 3.02) on hybrid learning.

From table-6, it is clear that the t-value (0.59) with respect to Section-II relating to cognizance on hybrid learning (M1= 4.05, SD1= 2.42, M2= 3.69, SD2= 2.28, D= 0.36, SEd=0.61) P> 0.05 is not significant. It indicates that the teaching experience does not influence cognizance among secondary school teachers towards Hybrid learning with regard to Section-II. So, the null hypothesis is accepted. It tells that there is no significant difference between teaching experience of teacher below 10 years and above 10 years of secondary school teachers' cognizance on Hybrid learning with regard to Section-II. From the Mean values, it is clear that the teaching experience below 10 years of secondary school teachers (M1= 4.05) are slightly higher on their cognizance on Hybrid learning than teaching experience 10 years & above of secondary teachers (M2=

3.69). From the SD values; it is clear that the teaching experience 10 years & above of secondary teachers' cognizance (SD2= 2.28) on Hybrid learning is less deviated than the teaching experience below 10 years of secondary teachers') cognizance (SD1= 2.42 on Hybrid learning.

From table-6, it is clear that the t-value (0.45) with respect to Section-III relating to cognizance on hybrid learning (M1= 7.56, SD1= 2.29, M2= 7.26, SD2= 2.64, D= 0.3, SEd=0.66) P> 0.05 is not significant. It indicates that the teaching experience does not influence cognizance among secondary school teachers towards Hybrid learning with regard to Section-III. So, the null hypothesis is accepted. It tells that there is no significant difference between teaching experience of teacher below 10 years and above 10 years of secondary school teachers' cognizance on Hybrid learning with regard to Section-III. From the Mean values, it is clear that the teaching experience below 10 years of secondary school teachers (M1=7.56) are slightly higher on their cognizance on Hybrid learning than teaching experience 10 years & above of secondary teachers (M2=7.26). From the SD values; it is clear that the teaching experience 10 years & above of secondary teachers' cognizance (SD2= 2.64) on Hybrid learning is more deviated than the teaching experience below 10 years of secondary teachers' cognizance (SD1=2.29) on hybrid learning.

From table-6, it is clear that the t-value (2.14) with respect to Section-IV relating to cognizance on hybrid learning (M1=4.21, SD1=2.81, M2=2.60, SD2=2.85, D=1.61, SEd=0.75) P< 0.05 is significant. It indicates that the teaching experience does influence cognizance among secondary school teachers towards Hybrid learning with regard to section-IV. So, the null hypothesis is accepted. It tells that there is significant difference between teaching experience of teacher below 10 years and above 10 years of secondary school teachers' cognizance on Hybrid learning with regard to Section-IV. From the Mean values, it is clear that the teaching experience below 10 years of secondary school teachers (M1=4.21) are slightly higher on their cognizance on hybrid learningthanteachingexperience10years&above of secondary teachers (M2= 2.60). From the SD values; it is clear that the teaching experience 10 years & above of secondary teachers' cognizance (SD2= 2.85) on Hybrid learning is more deviated than the teaching experience below 10 years of secondary teachers' cognizance (SD1= 2.81) on Hybrid learning.

From table-6, it is clear that the t-value (1.37) with respect to overall relating to cognizance on hybrid learning (M1= 28.32, SD1= 8.33, M2= 25.26, SD2= 8.44, D=3.06,SEd= 2.22) P> 0.05 is not significant. It indicates that the teaching experience does not influence cognizance among secondary school teachers towards Hybrid learning with regard to overall. So, the null hypothesis is accepted. It tells that thereisnosignificantdifferencebetweenteachingexperienceofteacherbelow10 years and 10 years & above of secondary school teachers' cognizance on Hybrid learning with regard to overall. From the Mean values, it is clear that the teaching experience below 10 years of secondary school teachers (M1=28.32) are slightly higher on their cognizance on Hybrid learning than teaching experience 10 years & above of secondary teachers (M2=25.26). From the SD values; it is clear that the teaching experience above 10 years of secondary teachers' cognizance (SD2= 8.44) on Hybrid learning is more deviated than the teaching experience below 10 years of secondary teachers' cognizance (SD1= 8.33) on hybrid learning.

Objective-5: To find out the significant difference between graduation and post-graduation secondary school teachers' cognizance on hybrid learning in Papumpare District of Arunachal Pradesh

Hypothesis-5: There is no significant difference between graduation and post-graduation secondary school teachers' cognizance on hybrid learning in Papumpare District of Arunachal Pradesh cognizance on hybrid learning.

Table-7: ***Shows Mean, SD, D, SEd and t-values with regard to dimensions of Hybrid learning due to variation in qualification.***

Dimensions	**Qualification**				**D**	**SEd**	**t- values**
	Graduation		**Post-Graduation**				
	M1	**SD1**	**M2**	**SD2**			
Section-I	11.81	2.66	12.42	3.38	1.24	0.77	1.61@
Section-II	3.51	2.29	4.24	2.39	0.73	0.60	1.21@
Section-III	7.85	1.40	7.12	2.98	0.46	0.58	0.79@
Section-IV	3	2.66	4.09	3.05	1.09	0.73	1.49@
Overall	26.25	6.51	27.87	9.77	1.62	2.11	0.76@

@= Not Significant at 0.05 Level

From table-7, it is clear that the t-value (1.61) with respect to Section-I relating to cognizance on hybrid learning (M1= 11.81, SD1= 2.66, M2= 12.42, SD2= 3.38, D= 1.24,SEd= 0.77) P> 0.05 is not significant. It indicates that the qualification does not influence cognizance among secondary school teachers towards Hybrid learning with regard to Section-I. So, the null hypothesis is accepted. It tells that there is no significant difference between graduation and post-graduation secondary school teachers' cognizance on Hybrid learning with regard to Section-I. From the Mean values, it is clear that the post-graduation secondary school teachers (M2=12.42) are slightly higher on their cognizance on Hybrid learning than graduation secondary teachers (M1=11.81). From the SD values; it is clear that the graduation secondary

teachers' cognizance (SD2= 3.38) on Hybrid learning is more deviated than the post-graduation secondary teachers' cognizance (SD1=2.66) on Hybrid learning.

From table-7, it is clear that the t-value (1.21) with respect to Section-II relating to cognizance on hybrid learning (M1= 3.51, SD1= 2.29, M2= 4.24, SD2= 2.39, D= 0.73, SEd=0.60) P> 0.05 is not significant. It indicates that the qualification does not influence cognizance among secondary school teachers towards Hybrid learning with regard to section-II. So, the null hypothesis is accepted. It tells that there is no significant difference between graduation and post-graduation secondary school teachers' cognizance on Hybrid learning with regard to section-II. From the Mean values, it is clear that the post-graduation secondary school teachers (M2=4.24) are slightly higher on their cognizance on Hybrid learning than graduation secondary teacher's cognizance (M1=3.51). From the SD values; it is clear that the graduation secondary teachers' (SD2= 2.39) on Hybrid learning is more deviated than the post-graduation secondary teachers' cognizance (SD1=2.29) on Hybrid learning.

From table-7, it is clear that the t-value (0.79) with respect to Section-III relating to cognizance on hybrid learning (M1=7.85, SD1=1.40, M2=7.12, SD2=2.98, D=0.46, SEd= 0.58) P> 0.05 is not significant. It indicates that the qualification does not influence cognizance among secondary school teachers towards Hybrid learning with regard to Section-III. So, the null hypothesis is accepted. It tells that there is no significant difference between graduation and post-graduation secondary school teachers' cognizance on hybrid learning with regard to Section-III. From the Mean values, it is clear that the graduation secondary school teachers (M1= 7.85) are slightly higher on their cognizance on Hybrid learning than post- graduation secondary teachers (M2= 7.12). From the SD values; it is clear that the graduation secondary teachers' cognizance (SD2= 2.98) on Hybrid learning is more deviated than the post-graduation secondary teachers' cognizance (SD1= 1.40) on hybrid learning.

From table-7, it is clear that the t-value (1.49) with respect to Section-IV relating to cognizance on hybrid learning (M1= 3, SD1= 2.66, M2= 4.09, SD2= 3.05, D= 1.09, SEd=0.73) P> 0.05 is not significant. It indicates that the qualification does not influence cognizance among secondary school teachers towards Hybrid learning with regard to section-IV. So, the null hypothesis is accepted. It tells that there is no significant difference between graduation and post-graduation secondary school teachers' cognizance on Hybrid learning with regard to section-IV. From the Mean values, it is clear that the post-graduation secondary school teachers (M2=4.09) are slightly higher on their cognizance on Hybrid learning than graduation secondary teachers (M1= 3). From the SD values; it is clear that the graduation secondary teachers' cognizance (SD2= 3.05) on Hybrid learning is more deviated than the post-graduation secondary teachers' cognizance (SD1=2.66) on hybrid learning.

From table-7, it is clear that the t-value (0.76) with respect to overall to cognizance on hybrid learning (M1= 26.25, SD1= 6.51, M2= 27.87, SD2= 9.77, D= 1.62, SEd= 2.11) P> 0.05 is not significant. It indicates that the qualification does not influence cognizance among secondary school teachers towards Hybrid learning with regard to overall. So, the null hypothesis is accepted. It tells that there is no significant difference between graduation and post-graduation secondary school teachers' cognizance on Hybrid learning with regard to overall. From the Mean values, it is clear that the post-graduation secondary school teachers (M2= 27.87) are slightly higher on their cognizance on Hybrid learning than graduation secondary teachers (M1=26.25). From the SD values; it is clear that the graduation secondary teachers' cognizance (SD2= 9.77) on Hybrid learning is more deviated than the post-graduation secondary teachers' cognizance (SD1=6.51) on Hybrid learning.

Educational Implications

(a). Clearly perceived positive and pragmatic competencies can be developed with a view to motivate the teachers for applying hybrid learning.
(b). Considerable interaction with teachers may pave the way for engaging the learners in hybrid learning.
(c). Individual accountability and personal responsibility can be aliened among teachers and students through effective participation in hybrid learning.
(d). Social skills, critical thinking, meta-cognition and technological skills can be cultivated towards changing world.
(e). Self-evaluating techniques, self-analysis and self-development can be promoted through hybrid learning.
(f). Onsite and online learning environment can be provided for teachers and students with a view to make learning as meaningful learning..

Conclusion

Secondary education will bridge gap between primary education and higher education. It is the responsibility of secondary school teachers to promote critical thinking, reflective thinking, and other higher order thinking skills. Secondary school teachers have to carry out pedagogy which is transformational to bring desired changes among students' behavior in terms of knowledge, attitude, values, skill and competencies. Further teachers have to reach optimal learning environment with a view to make students learn logically and meaningfully. To make students more vibrant in teaching-learning process for achieving 21stcentury skills,

the secondary school teachers have to apply technology while teaching along with physical environment. Hence, teachers need proper cognizance to deal students at secondary level in hybrid learning environment. He /she has to carried out teaching learning process which is associated with Hybrid learning which makes students learn concept logically and meaningfully. If teachers are well acquainted with necessary components of hybrid learning, students will achieve expected goals of developing various skills and competencies in the domains of education, communication and technology. The present study will provide at what extent secondary school teachers have proper cognizance on hybrid learning in Papumpare District of Arunachal Pradesh.

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