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Message from the Director, SCERT, Assam

In the realm of education, research-based interventions have now attained the status of an essential tool, deemed indispensable for ensuring the quality of education. Conventional and stereotypical educational endeavours have proven to yield meagre outcomes in terms of advancing the educational landscape of a nation. Hence, it becomes imperative that our state embraces innovative, research-driven actions to propel itself forward in alignment with the contemporary advancements within the educational domain.

Since its inception, SCERT, Assam, has consistently underscored the importance of research and activities rooted in research, particularly pertaining to school and teacher education. It is with great pride that the Department of Research and Evaluation at SCERT, Assam, presents the Fifth volume of its Educational Research Journal. This compilation showcases research contributions from scholars engaged in diverse educational spheres.

It is my anticipation that this enlightening journal will effectively facilitate the dissemination of research findings amongst educational practitioners. Moreover, I believe it will serve as a valuable resource for teachers, teacher educators, educational planners, and administrators, aiding them in comprehending the current status of school and teacher education. Furthermore, it will empower them to formulate pertinent, outcome-oriented strategies for the advancement of these domains.

I extend my heartfelt gratitude to all the diligent contributors of research papers, the esteemed members of the editorial board, the discerning reviewers, the assiduous editors, and the unwavering support group. Their painstaking efforts have culminated in the publication of this volume.

Dr. Nirada Devi
Director, SCERT, Assam, Ghy-19
Chief Editor

Editorial

The imperative integration of research-derived discoveries for the enhancement of quality control within educational endeavours is now an undeniable necessity for every educational institution. Through research-oriented planning, various indicators of quality education can be rigorously assessed, thereby formulating strategies for the judicious and optimal utilization of available educational resources. While research seminars and conferences have garnered favour among academicians in our state recently, the publication of research papers in the form of a journal remains considerably limited. Consequently, the constrained dissemination of findings from these research inquiries curtails their potential utility.

In an effort to address this shortfall, the Department of Research and Evaluation at SCERT, Assam, is pleased to present the Fifth volume (No. I) of its educational research journal, complete with an ISSN. This endeavour not only aims to disseminate the findings of these studies among educational stakeholders but also to instil motivation among educational practitioners to delve into research endeavours tackling diverse educational challenges within the state. Recognizing the scarcity of such opportunities in Assam, a concerted effort has been made to include a substantial number of research papers, fostering the proliferation of research-driven actions for elevating educational quality.

The editorial board has undertaken minor revisions, ensuring coherence in language and clarity of the content, while retaining the essence of the original submissions. Although individual researchers have undertaken studies, a systematic approach has often been underutilized, potentially due to a lack of orientation or awareness about methodological rigor in research. Consequently, those engaged in educational research should be equipped with proficient research techniques, allowing their comprehensive studies to effectively inform the formulation of education policies. While a significant portion of studies conducted are either action research or applied research, there is an evident need for fundamental and foundational studies across various dimensions of education to uphold quality standards. Thus, appropriate authorities are encouraged to provide comprehensive exposure to individuals driven by research motivation, offering grant schemes that facilitate meaningful research endeavours.

A notable observation pertains to the fact that implementing departments are often less inclined toward research objectives. Consequently, even if high-quality research is conducted, the outcomes tend to languish within university libraries or other repositories, with limited accessibility for those who could enact these findings in practical educational contexts. It is essential to infuse a conducive research environment within the State, nurturing an appetite for innovative methodologies and techniques that yield superior outcomes. This involves continuous orientation of researchers and updates regarding evolving research paradigms from academic organizations.

In this edition, an earnest endeavour has been made to present a peer-reviewed journal, benefiting from the expertise of distinguished educational specialists, particularly in the realm of research. I extend my heartfelt appreciation to Prof. Daisy Borah, Prof. Mukut Hazarika, and Prof. Manashree Gogoi of Dibrugarh University; Prof. Padmini Bhuyan Boruah of Gauhati University; Dr. Yeasmin Sultana, Assistant Professor at Tezpur University; Dr. Pranab Saikia, Associate Professor at KKHSOU; and Dr. Angel Rathnabai, Assistant Professor at CIET, NCERT, for their commendable contributions, instrumental in refining the papers for publication.

Furthermore, I seize this moment to express my gratitude to the dedicated researchers who have contributed their papers to this journal, the members of the editorial board for their rigorous efforts, and the supportive group for their unwavering commitment in realizing this comprehensive volume of the educational research journal.

Dr. Jayanta Kr. Sarmah,
Editor

CONTENT

Locus of Control of Female Teachers Working in Provincialised and Non-Provincialised High Schools of Assam with Special Reference to Jorhat District

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Abstract

This paper studied the locus of control of female teachers regarding their type of post (sanctioned/non-sanctioned), teaching experience (≤10 years and >10 years) and age (<38 years, 38 to 45 years and ≥ 46 years) in the Jorhat district of Assam. Two hundred and twenty four female teachers serving in 56 high schools (36 provincialised and 20 non-provincialised) of Jorhat district formed the sample. The sample was selected through Random Sample Technique. The data were gathered using 'Rotter's Locus of control scale' through survey method. The data were subjected to statistical analysis like percentage, t-test and one way ANOVA. The results showed that the female teachers of non-provincialised high schools were more external as compared to that of provincialised high schools and significant difference existed in locus of control between female teachers with regard to type of post, difference in teaching experience and age.

Keywords: *Locus of Control, High Schools, Provincialised, Non-provincialised*

Introduction

Perception of an individual about the main causes of events in life is referred to as locus of control. It is a dimension of personality which helps explain traits and behaviour of an individual. The Locus of Control Theory postulates that every human being has a "place"- the locus where he/she feels the control of his/her life rests; this place or locus of control can either be internal or external; and it is this position that creativity determines how much "in control" an individual feels about his/her life. People with an internal locus generally feel that they have control over their lives and circumstances; they take initiative and seek to positively change their lives. Individuals with an external locus feel that their lives are controlled by almighty or circumstances such as luck, chance, fate etc.; they feel disempowered to do anything about their lives leaving everything to "fate." They attribute their failure to circumstances beyond their control and they are less likely to seek solutions to their problems. This makes individuals less

likely to work to reach their full potential due to the motivational, emotional and cognitive deficits it creates and such people are more likely to suffer from depression, stress, frustration and other ailments because they believe that their action cannot improve their current position. The far reaching effects of such maladaptive behaviour can have serious consequences.

There are 178 provincialised high schools and 20 non-provincialised or Venture High Schools in Jorhat district of Assam. The teachers of these two categories of high schools are equally accountable to the students, parents, society and higher authorities. Although the permission for opening the non-provincialised high schools and recognition as well are given by the govt. of Assam but these high schools are not provincialised by the govt. on a regular basis on time, may be due to some constraints. From the study it has come to notice that some of the non-provincialised high schools were established before 1980. So the teachers of these high schools have been deprived of regular salary for a longer period of their life. They could neither devote wholeheartedly in the teaching profession nor leave it completely. They are to engage in other profession apart from teaching to minimise their daily life problems. Some of them have already retired from service without getting a single coin from the govt. and some committed suicide on frustration, depression and uncertainty. Thus, vast difference exists between the provincialised and non-provincialised high school teachers in respect of their type of post, service condition, salary, personal and social adjustment, economic condition, and motivation towards their profession. As locus of control plays a vital role in this regard, the present study was undertaken to investigate and explore the control of their destiny from psychological point of view. Furthermore, many studies of locus of control are available but most of such studies have been carried out either on secondary school children or college students or adolescents. None of the studies have been carried out on locus of control of high school teachers. Hence, the present study was undertaken to find out different factors that influence locus of control of female high school teachers.

Review of Related Literature

Research evidences show that locus of control plays a significant role in every one's life. The concept of locus of control was developed by psychologist Julian Rotter (1954), who devised the Internal-External Locus of Control Scale (I-E) to assess the internal as well as external dimension of personality.

Aderman and Midgley (1997) noted that students with an external

locus of control are more likely to respond to failure by giving up hope and not trying harder, whereas those with an internal locus of control are likely to respond to failure by trying harder to improve.

In 1966, the "Coleman Report'' found that locus of control was more highly related to achievement than any other factor in the student's background or school (Colman, 1971).

Locus of control has been found to be related to a variety of choices people make in their lives including vocational and career decisions (Maddux 1991). Individuals who have an internal locus of control generally are more active in trying to pursue their goals and improve their lives (Rotter, 1966). Furthermore, through ingenuity and perseverance, they often figure out ways of exercising some measures of control even in situations containing limited opportunities and many constraints (Bandura, 1990). On the other hand, individuals who believe that they have no control over the outcome of situations are likely to affect little change even in situations that provide many opportunities (Bandura, 1990).

Krueger (2005) in his study found that attribution style of individual determines which forces one hold's responsible for his/her successes and failures in life. Both locus of control and attributional styles have a significant impact on one's motivation, expectations, self- esteem, risk taking behaviour and even on the actual outcome of his /her actions in life.

Hofstrand (2007) said Locus of control is a core factor for managerial attitude in different aspects of life. This is a concept dealing with "*who has contro*l." Those with a positive locus of control believe that success or failure in life is based on the choices they make during life. Those with a negative locus of control believe that success or failure in life depends on the circumstances in which they find themselves and that the choices they make during life are controlled by their circumstances. In this point, locus of control is one of the main concept determining attitudes, behaviours, choices, motivation, decisions, planning and implementations of individuals in life management process.

Locus of control (and especially the internal locus of control) is an important variable in the prediction of behaviour. In other words, the results of a person's own actions play a role in changing the person's view of events and the way in which he/she consequently behaves. These behaviours are indicators of life management system (Smith, 2003).

In the 1970s and 1980s, Whyte correlated locus of control with academic success of students enrolled in higher educational courses. Students who tended to be more internally controlled believed that hard work and

focus would result oftentimes in successful academic progress and they performed better academically. Those students who were identified as more externally controlled, believing that their future depended upon luck or fate, tended to have lower academic performance levels. He further researched how control tendency influenced behavioural outcomes in the academic realm by examining the effects of counselling on grade improvements and the locus of control of high-risk college students.

Research has shown that having an internal locus of control is related to higher academic achievement (Findley & Cooper, 1983). Internals earn somewhat better grades and work harder. This includes spending more time on homework as well as studying longer for tests.

Objectives

1. To assess the percentage of female high school teachers belonging to high external, external, average, internal or high internal locus of control.
2. To compare locus of control of female high school teachers working in sanctioned and non-sanctioned posts.
3. To compare locus of control of female high school teachers of teaching experience 10 years or less with teaching experience more than 10 years.
4. To compare locus of control between young female teachers (age <38 years), Middle aged teachers (age 38 to 45 years) and old teachers (age 46 years and above).

Hypotheses

1. Female teachers of provincialised high schools are more internal than that of non- provincialised high schools.
2. There are significant differences in locus of control between female high school teachers with regard to: (a) Type of post (sanctioned/non-sanctioned), (b) Difference in teaching experience and (c) Difference in age.

Method

Considering the objectives, hypotheses and the nature of data to be collected, the normative survey method was adopted in the present study.

Population

The population of the present study comprised 36 provincialised high schools out of the total 178 and 20 Non-provincialised high schools out of the total 20 of Jorhat district of Assam.

Sample

The sample for the study consisted of 224 female teachers of provincialised and non-provincialised high schools (112 from each) selected randomly from Jorhat district of Assam.

Tools

"Rotter's locus of control scale" developed by psychologist Julian Rotter consisting of 29 items, two alternative statements in each, was used to collect data.

Procedue of Data Collection

The investigator personally visited the sample high schools and distributed the questionnaires among the teachers in the month of February and March, 2021 and collected the same after 10 days.

Statistical Techniques

The percentage, t-test and one way ANOVA technique were employed for analysis and interpretation of data.

Findings and Discussion

To test the first hypothesis, descriptive statistics (percentage) were used and the results are given in the table 1.

Table 1

Details of Percentage of Locus of Control of Female Teachers

Locus of Control	CI	Percentage	
		Non-Provincialised	Provincialised
High external	24-29	NIL	NIL
External	18-23	34.82	0.89
Average	12-17	37.50	62.50
Internal	6-11	26.78	36.60
High internal	0-5	0.89	NIL

It is seen in table 1 that 36.60 per cent of female teachers of provincialised high schools have internal locus of control and it is higher than that of female teachers of non-provincialised high schools and the percentage (34.82) of external locus of control of female teachers of non-provincialised high schools is much higher than that of female teachers of provincialised high schools.

The 't'-test was used to test the hypothesis 2(a) framed to achieve the objective 2 and the details are given in table 2.

Table 2

Significance of 't' Between Female Teachers Serving in Sanctioned and Non-Sanctioned Posts

Types of Post	M	SD	N	df	Levels of significance	Critical value of 't'	Calculated value of 't'
Non-sanctioned	14.26	3.98	112	222			
					0.05	1.97	4.88
					0.01	2.60	
Sanctioned	12.16	5.63	112	222			

The calculated 't' value 4.88 with df 222 is much higher than the table value at both levels of significance. It means that there exists significant difference in locus of control between female high school teachers working in sanctioned and non-sanctioned posts. Thus, the null hypothesis (H_0), which states that there exists no significant difference in locus of control between female teachers working in sanctioned and non-sanctioned posts, is rejected. Further, the mean of female teachers serving in non-sanctioned post (14.26) is higher than that of female teachers serving in sanctioned post (12.16) showing a difference of 2.10. Hence the teachers working in non-sanctioned post are more external in comparison to those working in sanctioned post.

The details of 't' test used to find out the significant difference in locus of control among female teachers with regard to difference in teaching experience are given in table 3.

Table 3

Significance of 't' Between Female Teachers With Regard to Teaching Experiences

Teaching Experience	M	SD	N	df	Levels of significance	Critical value of 't'	Calculated value of 't'
10 years or less	14.88	3.93	67	222			
					0.05	1.97	8.50
					0.01	2.60	
Above 10 years	12.50	2.86	157	222			

The calculated value of 't' (8.5) is much higher than the critical value of 't' at both levels of significance and hence the null hypothesis (H_0) is rejected. So it can be interpreted that there exists a significant difference in locus of control between the female high school teachers with regard to their teaching experiences. It was further noted that the mean of female teachers of teaching experience 10 years or less (14.88) was higher than that of female teachers of teaching experience above 10 years (12.50) showing a difference of 2.38. Hence the less experienced female teachers tend to have more external locus of control in comparison to highly experienced female teachers.

To test the significant difference in locus of control between female teachers with regard to difference in age, the investigator classified the female teachers into three age groups viz. young teachers (age <38 years), middle aged teachers (age 38 to 45 years), and old teachers (age 46 years and above), and used the technique of one way ANOVA, the details of which are given in table 4.

Table 4

Details of 'F' ratio (one way classification)

Source of variance	Sum of squares	df	Mean square variance	Calculated value of F	Levels of significance	Critical value of F
Between-groups	SS_b = 670.76	2	MS_b = 335.37	39.27	0.05	3.06
Within-groups	SSw = 1887.53	221	MSw = 8.54		0.01	4.75

The obtained F-value (39.27) is beyond the tabled value 3.06 and 4.75 for (2,221) degrees of freedom at 0.05 and 0.01 levels of significance respectively. Thus, the null hypothesis is rejected and it is concluded that there exists a high significant difference in locus of control between three age-group teachers. Further, the means of young, middle aged and old teachers are 14.79, 13.59 and 12.32 respectively, which gradually decreases from young to old teachers (14.79<13.59<12.32). Thus, it can be interpreted that as people get older, they tend to become more internal.

Conclusion

The findings of the present study indicate that the female teachers of non- provincialised high schools are much more external as compared to that of provincialised high schools of Jorhat district of Assam. The locus

of control is greatly influenced by the factors like type of post, teaching experience and age. The present study has brought into focus that a few non-provincialised high schools were established in 1970. The teachers of these high schools have been rendering their best services in moulding human beings into human resources by overcoming all hurdles in the greater interest of the student community and society. But the govt. of Assam has not taken over the non-provincialised high schools under the Assam Secondary Education Provincialisation Act, 1977, till today. There is a dire need that the Govt. of Assam should strictly initiate necessary steps to provincialise the non-provincialised high schools for the welfare of the teacher community and their psychological well being as internal locus of control, from psychological point of view, is far better for human beings. This initiation will be a great boon and boost for developing internal locus of control and enhancing self-accountability, and it is apt to go a long way in reducing frustration, stress, and depression among all categories of female teachers of non-provincialised high schools.

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A Study on Procrastination Among Secondary School Students of Rohtak District, Haryana in Relation to Their Academic Achievement

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Abstract:

Educational success is a multidimensional and complicated phenomenon. As a result, disparities in educational achievement cannot be attributed to a single factor. Thus, understanding the significant and insignificant links between various factors and academic achievement is critical for a teacher to identify reasons for high and low achievement and, as a result, help to promote success, which is the primary concern of parents, teachers, organizations, and society. Procrastination can lead to a dysfunctional role in time management and goal achievement. It also causes an increase in anxiety and tension at work because of the less believable and unproductive labour. This research demands a deeper knowledge of student procrastination and academic achievement. This will considerably improve students' academic performance, which is important not just to their jobs but also to their general mental health and well-being. Students will achieve more in a shorter period of time, increasing academic production and efficiency.

Keywords: *Procrastination, Academic Performance, Mental Health and Well Being.*

Every one of us is unique. The experiences, situations, attitudes, abilities, and values appear to be the same, but their reactions and performance differ. Every person approaches every situation differently. Hence, at every stage of life, individuals must make adjustments based on their personality traits in order to improve performance in areas such as academic achievement, social adjustment, emotional stability, psychological factors, and so on. These elements have an impact on an individual's performance and are considered valuable assets for an individual. Individual education is heavily reliant on performance.

Technology is also playing an important role in the spread of education throughout civilization. Man lives in society and wishes to spend his time as freely as possible. In fact, it is human nature to prioritize the

most critical tasks. The most critical chores are completed first, followed by smaller duties. Man feels happy when he performs these acts. He simply accomplishes minor tasks for the sake of self-satisfaction. In a nutshell, man postpones a duty that is not urgent at that time. He just has necessary work that can influence his future.

School-age children face a variety of responsibilities/tasks, as well as deadlines that must be met within a certain amount of time, yet the majority of their time is spent unstructured, as postponed practices might have catastrophic consequences. Vij and Lomash (2014) take the concept of priority to the forefront and describe it as giving high and more priority to certain tasks. On the other hand, there are others who identify the term as intentionally drawing some tasks or duties forth or deliberately postponing and suspending a task to be done (Gustavson & Miyake, 2017; Schraw et al., 2007).

Procrastination is a far more serious issue than it appears. It is found in every part of the world. Academic work procrastination is a prevalent issue among students. Steel (2007) notes that procrastination is a common phenomenon that some people have made it their way of life. Most students procrastinate in some academic work to some extent, and around a quarter claim that they routinely postpone to the point where it causes stress and/or lower academic performance.

Procrastination

Procrastination is a well-known tendency that frequently results in negative performance outcomes. Procrastinators were once thought to be self-indulgent and lazy people who are unable or unable to govern their actions and inappropriately manage their time connected to their responsibilities or duties. According to the American Heritage Dictionary (1977), the word "procrastinate" is derived from the Roman word procrastinare, which means "to postpone till tomorrow." Procrastination is typically described as an act of delay as a result of self-regulation failure. Procrastination is a behaviour that involves delaying or postponing a task. One procrastinates when they delay starting or completing a planned course of action. Laeus (2015) explains that the procrastination is avoidance of doing a task that needs to be accomplished. He further states that procrastinate is the process of doing more pleasurable things in place of less pleasurable ones, or carrying out less urgent tasks instead of more urgent ones, thus putting off impending tasks to a later time.

Procrastination is dependent on our cognition to occur; cognition

such as executive function in the frontal region of the brain may be related to procrastination. Laziness, poor time management, a lack of willpower, boredom, overestimation of abilities, impulsivity, and a lack of skills are all characteristics of procrastination. It is entirely dependent on rapid pleasure and has hampered the accumulation of knowledge, skill, and proper practice for success. Procrastination can occur at any point in a person's life and, in some situations, can be associated with substantial bad academic outcomes and psychological problems.

Procrastination is a multifaceted process with affective, cognitive, and behavioural components. Procrastination is classified into two types: active and passive, which differ in cognitive, affective, and behavioural features. Passive Procrastinators do not attempt to procrastinate, but they frequently postpone work until the last minute because they are unable to make immediate decisions and thus act quickly. Active Procrastinators, on the other hand, are able to act on prospective decisions on time, but they actively suspend their actions and focus their attention on various important tasks at the time. Active procrastination, as opposed to passive procrastination, may be connected with more autonomous kinds of motivation and may be a type of delay separate from passive procrastination.

Academic Achievement

Academic achievement is the level of achievement or skill in specific areas of academic or academic activity. It refers to the information and abilities that students learn in their academic school topics and are assessed by teachers. It is the level of eligibility or aptitude in schoolwork, which is commonly stated in standardized examinations and articulated in percentages and marks based on criteria obtained from a large sample of student performance.

Academic success is the information gained through formal educational institutions. Standardized or self-generated school authorities can assess academic accomplishment with the use of achievement testing. It is the ability of kids to demonstrate that they have truly learned in school. It refers to the level of expertise attained in high school or college - the knowledge and abilities acquired. It is a person's level of learning and capacity to apply what he/she has learnt.

Academic achievement is related to the amount and quality of learning in a subject or group of subjects after a period of training. It refers to a student's or group's successful completion of a task, whether personal, academic, social, manual, or extracurricular.

Review of Related literature

Ragusa (2023) showed that academic self-regulation negatively predicted procrastination. In turn, procrastination positively predicted academic stress and anxiety. However, resilience exerted a protective influence by being positively related to academic stress and anxiety. Finally, resilience positively predicted academic performance, whereas stress and anxiety negatively predicted academic performance. Balhara (2022) found a significant difference in academic achievement of secondary school students having high and low academic procrastination. Male students performed high academic procrastination than female students. A significant but negative correlation was found between academic achievement and academic procrastination of secondary school students. Kuftyak (2021) showed that academic procrastination impedes the effectiveness of student study, effects on performance, contributes to stress, that undoubtedly impacts on professional development of future specialists. Girdhar (2020) explains the reasons of academic procrastination and its impact on academic performance. It also highlights how different variables influence academic procrastination and academic performance. Litvinova, Kokurin, Ekimova, Koteneva, & Pozdnyakov (2020) found that, higher the level of students' procrastination, the greater the interaction between the negative aspects of interpersonal relations in the educational environment and the external academic motivation.

Rationale of the Study

In an academic setting, it is critical to establish deadlines, goals, and motives in order to attain achievements within a specific time frame. Yet, procrastination can lead to a dysfunctional role in time management and goal achievement. It also causes an increase in anxiety and tension at work because of the less believable and unproductive labour. The importance of this work stems from the fact that there are rising numbers of students in modern culture who procrastinate in the learning process and have a tendency to put things off until later. Many students achieve nothing in the studies because of procrastination. However, many students spend much time doing unnecessary things instead they are supposed to read their books to acquire knowledge, but they lure to concentrate on irrelevant things and this contributes to their poor academic performance in their studies. Therefore, this led to drop out of many students yearly in secondary schools (Ojo, 2019). Different primary and secondary problems have been found to be associated with academic procrastination, e.g. low achievement of students

and their increased physical and psychological problems (Brownlow & Reasinger, 2000). Simultaneously, there is no task-oriented explanation of the relationship between academic success and procrastination. The primary goal of the research is to better understand procrastination and its relationship to academic accomplishment. Procrastination is incredibly useful in leading and defining an individual's overall performance. This research will aid academics, counselors, and psychologists in developing theories and therapies. They can come up with a variety of tactics and approaches to remove undesirable behaviours. This will considerably improve students' academic performance, which is important not just to their jobs but also to their general mental health and well-being. Students will achieve more in a shorter period of time, increasing academic production and efficiency. The current study will assist pupils in achieving their objectives.

Statement of the Problem

A Study on Procrastination among Secondary School Students of Rohtak District, Haryana in relation to their Academic Achievement.

Objectives of the Study

1. To study the level of procrastination of the students studying in the secondary schools of Rohtak district, Haryana.
2. To compare procrastination among the boys and girls students studying in the secondary schools of Rohtak District, Haryana.
3. To compare academic achievement among the boys and girls students studying in the secondary schools of Rohtak District, Haryana.
4. To find out the relationship between procrastination and academic achievement among secondary school students of Rohtak District, Haryana.

Hypothesis of the Study

1. There is no significant difference between procrastination among boys and girls of secondary schools.
2. There is no significant difference in academic achievement among boys and girls of secondary schools.
3. There is no significant relationship between procrastination and academic achievement among secondary school students.

Delimitations of the Study

The present study deals with procrastination and aggression. It is impossible to cover up all the issues in totality in a single study. The present study has some limitations as:

1. The study was delimited to 200 sample equally divided on the basis of gender only.
2. The sample taken from the students of class 11th only.
3. The study is confined to Rohtak district only.

Method of the Study

As the present study aims to study the procrastination among senior secondary school students, the descriptive survey method is used for this purpose.

Population and Sample of the Study

All the students studying in 11th class in secondary schools of Rohtak district constitute the population of the study for the present investigation. Stratified random sampling technique was used to select the sample. The sample for this study consisted of 200 students of 11th class secondary school students from Rohtak district of Haryana. Proportionate sampling technique was used. Ten schools were selected to collect the sample.

Tools Used

1. Samvaidna's Procrastination Scale (Abrahim, 2013).
2. Academic achievement (Based on percentage of marks obtained in secondary exams conducted by BSEH Haryana).

Description of Samvaidna's Procrastination Scale (Abrahim, 2013)

Procrastination is a prevalent and complex psychological phenomenon that has been defined as the purposive delay in beginning or completing a task. It is vernacular in general populations, and is almost universal among university students (Steel, 2007). Procrastination refers to the act of replacing high-priority actions with tasks of lower priority, or doing something from which one derives enjoyment, and thus putting off important tasks to a later time. In order to obtain information about the procrastination from the adults the Procrastination Scale of Abrahim (2013) was used.

The procrastination scale has been developed on the basis of literature available on procrastination (Lays, 1986, Elli and Knaus, 1997; Chabot and Barrall, 1978: Ferrari, 2000; Bestwick and Mann, 1994; Ferrari, 1993; Lay

and Silverman, 1996; Milgram, 1991: Silver and Sabini, 1981; Anderson, 2003; Akerlof, 1991; Burka and Yuen, 1983; Abraham and Agrawal, 2010; Abraham and Verma (2012) and many others who have studied the procrastinating behaviour of individuals ranging from students to adults who are working around the world.

Reliability

The reliability was worked out by both the test retest (two months interval between retesting) and split half method using the statistical package for social sciences (SPPS) software. The Indian respondents who had agreed to participate in the retest were sent the new outline link of the procrastination scale and once their responses were obtained it was recorded against their previous response. Table below shows the reliability for the procrastination scale.

Scoring: 5- point scale

Strongly disagree	Disagree	Undecided	Agree	Strongly agree
1	2	3	4	5

Statistical Techniques Used

- Mean, Standard Deviation, 't' Test and Correlation

Gender Difference in Procrastination among Students of Senior Secondary Schools

Table 1: Procrastination Among Students of Senior Secondary Schools

Variable	N	M
Procrastination	200	114.24

Table 2: Gender Difference in Procrastination Among Students of Senior Secondary Schools

Gender	N	M	SD	t-value	Sig.
Female	100	112.49	38.73	0.0414	NS
Male	100	115.989899	35.82		

Table 3: Gender Difference in Academic Achievement Among Students of Senior Secondary Schools

Gender	N	M	SD	t-value	Sig.
Female	100	81.01	12.76	2.84	Sig.
Male	100	78.71	11.57		

Table 4: Relationship of Procrastination with Academic Achievement

Variable	N	r	Sig
Procrastination	200	-0.143	Significant
Academy Achievement	200		

Findings of the Study

1. The mean of procrastination scores of students were found to be 114.24.
2. The mean of academic achievement scores of students were found to be 79.86.
3. The study reveals that female and male school students do not differ significantly in their procrastination. Although, the result is not significant yet it is seen that male students have higher level of academic procrastination.
4. The mean procrastination scores of female and male of senior school students are 112.49 and 115.99 respectively. The value of t-ratio is found to be 1.38 which is not significant. Thus the hypothesis, "There is no significant difference between procrastination among boys and girls of secondary schools" is accepted. The study is in accordance with Shahnawaz, (2016) and Ozer, & Ferrari, (2011).
5. The mean academic achievement score of female and male of senior school students are 81.01 and 78.71 respectively.
6. The study indicates that female and male school students differ significantly in their academic achievement and the result is in the favour of females. Thus the hypothesis, "There is no significant difference between academic achievement among boys and girls of secondary schools" is rejected. The study is in accordance with Musa, Dauda, & Umar, (2016).
7. Coefficient of correlation between procrastination and academic achievement is negative and significantly correlated. It indicates that an inverse relationship exists between procrastination and academic

achievement, i.e., when value of procrastination increases the value of academic achievement decreases and vice versa. Thus the hypothesis, "There is no significant relationship between procrastination and academic achievement among secondary school students" is also rejected. The study is in accordance with Onwuegbuzie, (2004).

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Effect of Multiple Intelligence Supported Project-based Learning on Pupils' Attitudes towards English Language

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Abstract

Howard Gardner, a psychologist, classified multiple intelligence into eight categories namely languages, logical mathematics, visual-spatial, interpersonal, intrapersonal, musical, bodily-kinesthetic, and naturalist. He claims that there are at least eight sorts of intelligences, and that people differ in terms of their dominant intelligence. Multiple intelligences could not only give teachers more options for teaching and assessing students, but also allow students to demonstrate what they have learned in a variety of ways. Project-based learning necessitates the use of real language by English language learners. There is research that illustrates the benefits of implementing project-based learning in the classroom. Nevertheless, only a few of them have focused on project-based learning in English education, and no research has been conducted that integrate multiple intelligences with the project-based learning method in English teaching. As a result, this study will provide evidence for the integration of multiple intelligences with project-based learning methods.

Keywords: *Multiple Intelligence, Logical Mathematics, Project-based learning, visual-spatial, interpersonal, intrapersonal, musical, bodily-kinesthetic and naturalist.*

According to Psychology, every individual is unique. Children's Intelligence Quotient (IQ) varies widely. Intelligence is defined as the capacity to learn fast and accurately, solve problems, and react to changing circumstances. To develop an environment that caters to students with varied learning styles, instructors must treat students as individuals, adopting modern language learning methods and approaches in the classroom. Students must overcome several obstacles in order to reach their goals or objectives, including cognitive ability, concentration, memory, intellect, effective learning methods, the learning environment, and the students' development.

To provide effective instruction, teachers must better address their

students' different cognitive profiles. Given that various people have varying intelligences, the same learning activity may not be appropriate for all students. While students with high logical / mathematical intelligence may be benefitted from a detailed grammatical explanation, others may gain from diagrams and physical demonstrations because their strengths are in the visual / spatial domain. Kids with high interpersonal intelligence may require a more involved learning environment.

Intelligence has traditionally been characterised in terms of intelligence quotient, which measures a limited set of verbal/linguistic and logical/mathematical abilities. Gardner (1983) says that humans have multiple intelligences that manifest themselves in different skills and capacities. Intellect is used in problem solving, procedure development, and the creation of objects. There are eight different teaching and learning styles, according to the concept of multiple intelligences. By arming themselves with knowledge and applying different intelligences, teachers may assure variety in the activities they utilise to harness children's learning potential. Additionally, multiple intelligences may provide teachers with extra teaching and assessment methods, as well as enabling pupils to demonstrate what they have learned in a variety of ways.

The Importance of Multiple Intelligences in education is:

(1) to highlight uniqueness of each student.
(2) to bring out the students' dominant intelligences.
(3) to provide a variety of learning experiences.
(5) to provide and suggest a variety of assessment methods.
(6) to provide a variety of means of expression.

Multiple Intelligences Supported Project based Learning and English Language Teaching

Teaching based on multiple intelligences is becoming increasingly common in educational settings. The notion cannot be applied in a single way in teaching. Instructors employ Multiple Intelligences theory to help students develop their eight intelligences, and students learn by applying these intelligences. Multiple intelligence theory opens the door to a myriad of classroom-friendly teaching strategies. English language learners thrive in project-based learning environments because they can learn with others through peer-to-peer exchange, develop their academic vocabulary through conversation, use their own strengths and cultural backgrounds, and accelerate their language acquisition while learning about topics of interest.

Statement of the Problem

"Effect of Multiple Intelligence Supported Project-based Learning on Pupils' Attitudes towards English Language".

Rationale of the Study: The primary medium of communication is considered to be language. It is the cornerstone for concept development. People use language to communicate their feelings, ideas, and thoughts. Language is the major medium of communication in human culture. Learning and understanding a second / external language validates a person's professional demands, introduces new concepts into one's understanding of life, broadens one's horizons, and raises one's tolerance. English is now widely acknowledged as a world language that plays a vital role in national development. Language learning attitudes influence students' behaviour and performance significantly. There are a number of factors that influence language learning attitudes.

Aside from cognitive factors, social and psychological elements play a role in the learning process. These three factors can be utilized to investigate the concept of attitude. Each of these factors has distinct properties that influence the findings of language attitudes. People generally value the English language, and hearing about children's English learning often makes the average person interested to send their children to English medium schools from the start. English is unquestionably considered as a priority in India, resulting in an increasing demand for English education in the country. This study is an attempt to determine the increase in students' attitudes about English using a project-based learning technique backed by multiple intelligences.

Objectives of the Study

1. To compare the attitude of the students towards English language by using multiple intelligences supported project based learning.
2. To compare the cognitive aspect of attitude of the students towards English language by using multiple intelligences supported project based learning.
3. To compare the behavioral aspect of attitude of the students towards English language by using multiple intelligences supported project based learning.
4. To compare the emotional aspect of attitude of the students towards English language by using multiple intelligences supported project based learning.

Hypotheses of the study: Following null hypotheses were formed:

1. There is no significant difference between the attitude towards English language by using multiple intelligences supported project based learning.
2. There is no significant difference between the cognitive aspect of attitude of the students towards English language by using multiple intelligences supported project based learning.
3. There is no significant difference between the behavioral aspect of attitude of the students towards English language by using multiple intelligences supported project based learning.
4. There is no significant difference between the emotional aspect of attitude of the students towards English language by using multiple intelligences supported project based learning.

Population of the Study: All the Government schools affiliated to BSEH Bhiwani in Rohtak city constitute the target population of the study.

Sample of the Study: Random sampling technique was used to select the sample of the study and a sample of 30 students of class 9 was selected.

Methodology: The present study was a Quasi-experimental one with one group pre-test & post-test design. To this end, participants were assigned to the experimental group randomly.

Tool Used: "English Lesson attitude scale" (ELAS)

Statistical Technique: Mean, S. D. and T-test

Analysis of Data

Table-1 showing t-test Results for Experimental Group on Pre-test and Post-test Scores

	N	Mean	S.D	t	Significance
Pre-test	30	106.96	7.88	-46.56	Significant
Post-test	30	143.83	9.61		

The table value at 0.05 level is -46.56 The obtained value – 46.56 > 2.04. Hence null hypothesis is rejected.

Table-2 showing t-test Results for Cognitive Aspect of Attitude of Experimental Group on Pre-test and Post-test Scores

	N	Mean	S.D	t	Significance
Pre-test	30	36.00	3.07	-20.357	Significant
Post-test	30	48.97	3.09		

The table value at 0.05 level is 2.04.The obtained value – 20.35 > 2.04. Hence null hypothesis is rejected.

Table-3 showing t-test Results for Behavioural Aspect of Attitude of Experimental Group on Pre-test and Post-test Scores

	N	Mean	S.D	t	Significance
Pre-test	30	35.20	3.11	-18.39	Significant
Post-test	30	48.13	2.62		

The table value at 0.05 level is 2.04.The obtained value – 18.39 > 2.04. Hence null hypothesis is rejected.

Table-4 showing t-test Results for Emotional Aspect of Attitude of Experimental Group on Pre-test and Post-test Scores

	N	Mean	S.D	t	Significance
Pre-test	30	36.13	3.18	-19.69	Significant
Post-test	30	49.10	3.08		

The table value at 0.05 level is 2.04.The obtained value – 19.69 > 2.04. Hence null hypothesis is rejected.

Findings of the Study

- Multiple intelligences supported project based learning enhanced the attitude of the students towards English language.
- Multiple intelligences supported project based learning enhanced the cognitive aspect of attitude of the students towards English language.
- Multiple intelligences supported project based learning enhanced the behavioral aspect of attitude of the students towards English language.
- Multiple intelligences supported project based learning enhanced the emotional aspect of attitude of the students towards English language.

Conclusion

The goal of this research was to look at the effects of Many Intelligences Aided Project Based Learning on the attitudes of 9th class students of Rohtak. According to the study's findings, the experimental group that was instructed through multiple intelligences assisted project-based learning outperformed the control group on post-test scores. When the pre-test and post-test mean scores were compared, it was observed that the experimental group's attitude towards the English language improved.

According to the findings and discussions, the Many Intelligences Supported project-based learning technique was more effective than the usual mode of instruction in enhancing students' attitudes towards language learning. The project-based learning technique supported by many Intelligences significantly enhanced all three components of the attitude. As a result, students' attitudes towards English language learning improves. The hypothesis behind Many Intelligences Theory, which views each learner as an individual and implies that all children have varying aptitudes in the eight intelligences, could be the fundamental rationale for these findings. Individual effort is most effective when it is motivated by a desire to express and do something new.

As educators, it is our job to appreciate student differences and recognize a range of genius. Multiple intelligences enabled project-based learning offers educators with a robust framework for creating realistic and distinctive learning experiences. It enables the validation and monopolization of each student's unique strengths. Although it is not a step-by-step recipe for success, it does provide a solid and practical foundation for curriculum development. Furthermore, project-based learning supported by Many Intelligences allows instructors to address the needs of each student individually, making knowledge and curriculum engaging and accessible to all learners. We must persevere and discover innovative approaches to engage and support a diverse spectrum of learners as our pupils grow and diversify.

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A Study on Teachers' Attitude Towards Inclusive Education Among Primary School Teachers in Cachar District

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Abstract

The purpose of this research is to look at primary school teachers' opinions of inclusive education and their overall attitudes towards inclusion in the Cachar district. The study was done on primary school teachers to investigate their attitudes towards inclusive education in order to promote inclusive education practices, improve educational quality, and ensure that all children have equal opportunity to learn and achieve. For the current study, the researcher employed the Descriptive Survey Method. The current study's researcher used the Teacher's Attitude Scale towards Inclusive Education (TASTIE- SA). It was found from the present study that the attitudes of male and female primary teachers, as well as teachers with experience of more than 10 years and less than 10 years, towards inclusive education are the same. However, when comparing the attitudes of urban and rural primary teachers towards inclusive education, urban teachers were found to be more favourable than rural teachers. The study's consequences include providing useful insights into the obstacles and possibilities of implementing inclusive education in elementary schools, as well as informing the creation of policies and initiatives to promote inclusive practices in the region.

Keywords: *Inclusive education, Primary school teachers, Descriptive survey method, TASTIE-SA.*

1. Introduction

Inclusive education is an approach that aims to give all students, regardless of their abilities or origins, an equal chance to study and participate in the classroom. In India, where there is a rising realization of the necessity of ensuring that all children have access to quality education, inclusive education is an essential notion. In India, numerous inclusive education practices are being adopted to promote a more inclusive learning environment. The use of technology is a crucial practice in inclusive education in India. Many schools are utilizing technology to make learning more accessible and inclusive. Peer learning is another major inclusive

education practice in India. This strategy fosters a sense of community while also assisting students in the development of interpersonal skills such as communication, negotiation, and leadership. As stated in international human rights laws such as the United Nations Convention on the Rights of the Child, inclusion is seen as a basic right for every child. The National Curriculum Framework 2005 (NCF-2005) recognizes the importance of inclusive education and advocates for the development of a learning system that is responsive to the needs of all students. The recently issued National Education Policy 2020 (NEP 2020) emphasizes the importance of excellent education that is inclusive and egalitarian. Despite these efforts, learning results in India continue to be poor, particularly in rural and marginalized groups. As a result, the necessity for inclusive education becomes even more essential. In this context, it is critical to understand primary school teachers' perspectives towards inclusive education, as they are the major actors in establishing inclusive practices in the classroom.

The study of primary school teachers' attitudes towards inclusive education in Cachar area is critical for various reasons. To begin with, as they are responsible for establishing a pleasant and inclusive learning environment for their pupils, primary school teachers play a vital role in supporting inclusive education practices. Secondly, the research can aid in determining the elements that impact teachers' views towards inclusive education. Thirdly, the study might shed light on the readiness of Cachar district primary schools to apply inclusive education practices. Lastly, the findings can help the policymakers of Cachar district to make judgements on inclusive education.

A number of studies have examined the attitudes of teachers toward inclusive education. However, no research study on 'Inclusive Education' in Cachar district has been found by the researcher. To have a conceptual and empirical understanding of the issue, some literature related to the subject has been read by the researcher. Among them, a few of the significant evaluations of the prior literature addressing the issue under research are included below.

According to Sharma *et al.* (2019), teachers who participated in an inclusive education professional development programme expressed more favourable attitudes towards inclusion and improved confidence in their capacity to educate students with impairments. Teachers claimed that a lack of support from school officials and insufficient resources, such as assistive technology and classroom modifications, were key challenges to adopting inclusive education in research conducted by Kallimani and Singh (2021).

Giving teachers the assistance and tools help them overcome these challenges and develop more favourable attitudes towards inclusive education. In a research conducted by Ahsan *et al.* (2020), teachers' attitudes towards inclusive education were shown to be impacted by factors such as their personal ideas regarding disability, their level of experience, and their training and support for inclusive practices. Peer support has been proven in studies to improve socialization, reduce negative behaviours, and promote academic performance among children with disabilities in inclusive classrooms (e.g., Cushing, Kennedy, & Humphries, 2016; McConnell & Savage, 2015). Peer support programmes can also help all students by encouraging empathy, tolerance for diversity, and good attitudes towards people with disabilities (Hughes & Guralnick, 2013). Kheirallah and Almaharmeh (2019) discovered that instructors in Jordan had a favourable attitude towards inclusive education. Teachers, on the other hand, acknowledged feeling unprepared to educate pupils with impairments and lacked the essential training. In Israeli research, Gindis et al. (2018) discovered that teachers' views towards inclusive education were impacted by their degree of experience, personal ideas about inclusion, and perceived capacity to educate students with disabilities. Experienced instructors were more optimistic about inclusive education than rookie teachers. Furthermore, instructors who had personal contact with people with disabilities, either via family or friends, were more supportive of inclusive education. Pham and McLeod (2019) discovered that earlier experiences and exposure to inclusive practices impacted teachers' views towards inclusive education in Vietnam. Teachers who had prior experience teaching children with impairments viewed inclusive education more positively than those who did not. Sandoval-Lopez et al. (2020) discovered that instructors in Mexico showed a negative attitude towards inclusive education. Teachers reported feeling overwhelmed by the demands of inclusive education and being unable to address the needs of all pupils due to a lack of training and support. Saloviita and Kauko (2018) discovered that instructors in Finland had a favourable attitude towards inclusive education, but this attitude was impacted by their cultural ideas about individualism and equality. Individualistic teachers were more likely to be enthusiastic about inclusive education, but those who emphasized equality were more likely to be negative. In Pakistan, Naeem and Azher (2019) discovered that societal norms and cultural beliefs affected teachers' views towards inclusive education. Teachers reported feeling divided between traditional attitudes about impairments as punishment or a curse and more progressive beliefs about the significance of inclusive education.

The current study is motivated by the above-mentioned studies, and the study is taken as "A Study on Teachers' Attitude Towards Inclusive Education Among Primary School Teachers in Cachar District".

2. Objectives of the Study

The objectives of the present study:

i. To investigate the attitudes of male and female primary school teachers towards inclusive education.
ii. To investigate rural and urban primary teachers' attitudes towards inclusive education.
iii. To investigate the attitudes of primary school teachers with more than ten years of experience and those with fewer than ten years of experience towards inclusive education.

3. Hypotheses of the Study

The hypotheses of the present study are:

i. There is no significant difference in the attitude of male and female primary school teachers towards inclusive education.
ii. There is no significant difference in the attitude of rural and urban primary teachers towards inclusive education.
iii. There is no significant difference in the attitude of teachers having experience of more than 10 years and less than 10 years towards inclusive education.

4. Method of the Present Study

The present study falls under Descriptive Method. Considering the objectives of the present study, the researcher has selected Descriptive Survey Method for appropriate investigation of the study.

5. Population and Sample of the Study

For the present study, the population comprises all the teachers of the Primary school with at least one student with special needs enrolled in the school in Cachar district. There are 1063 such schools in entire Cachar district.

In the present study, mixed random sampling has been applied for the selection of the sample, which is a combination of stratified random sampling and simple random sampling (Lottery Method).

The researcher has selected 30 primary schools, out of which 15 schools are situated in urban areas and 15 schools are situated in rural areas.

From the 30 sampled schools, the researcher has selected 60 teachers, out of whom 30 are male and 30 are female. Again, 30 male teachers have been taken in such a way that 15 male teachers belong to urban area schools and 15 male teachers belong to rural area schools. Similarly, 30 female teachers have been taken in such a way that 15 female teachers belong to urban area schools and 15 female teachers belong to rural area schools.

6. Tool used in the Study

The researcher, for the present study, has taken Teacher's Attitude Scale towards inclusive education (TASTIE- SA), standardized and validated by Dr. Vishal Sood and Dr. Arti Anand.

7. Results and Discussion

The aim of the present study is to determine the attitude of primary school teachers towards inclusive education. This investigation has been conducted in the Cachar district of Assam. This study covers 30 primary schools where at least one CWSN student is there, from where 60 primary school teachers were selected from Cachar district. The researcher in the present study has analyzed the attitude of primary school teachers towards inclusive education based on male and female; urban and rural; and teachers with experience greater than 10 years and less than 10 years.

Hypothesis Wise Interpretation

The researcher has analysed the raw data obtained as per hypothesis.

7.1 T-RATIO BETWEEN MALE AND FEMALE PRIMARY TEACHERS' ATTITUDE TOWARDS INCLUSIVE EDUCATION

H_0: There is no significant difference in the attitude of male and female primary school teachers towards inclusive education.

To verify the hypothesis, t-Ratio was computed between the mean scores of attitudes of male and female primary school teachers towards inclusive education.

Table 1: Mean Scores of Attitudes of Male and Female Primary School Teachers Towards Inclusive Education.

Male primary school teachers N=30	Female primary school teachers N=30
Mean scores = 3395/30 = 113.17	Mean scores = 3382/30 = 112.73

Table 2: t-Ratio for Comparison Between Attitude of Male and Female Primary School Teachers Towards Inclusive Education.

Sl. No.	Group	N	Mean	SD	df	t-Ratio	Level of significance (At 5%)
1	Male teachers	30	113.17	10.48	58	0.1462	Not Significant
2	Female Teachers	30	112.73	12.41			

Interpretation

Table 2 shows that t-value between mean scores of attitudes of male and female primary teachers towards inclusive education is 0.1462. The t-value at 58 df in order to be significant at 0.05 level of significance should be 1.672. Obtained value is less than this, hence it is not significant. This shows that there is no difference between attitude of male and female teachers towards inclusive education.

Hence, hypothesis H_0 "There is no significant difference in the attitude of male and female primary school teachers towards inclusive education" is accepted.

7.2 t-RATIO BETWEEN URBAN AND RURAL PRIMARY TEACHERS' ATTITUDE TOWARDS INCLUSIVE EDUCATION

H_1: There is no significant difference in the attitude of rural and urban primary teachers towards inclusive education.

To verify the hypothesis, t-Ratio was computed between the mean scores of attitudes of urban and rural primary school teachers towards inclusive education.

Table 3: Mean Scores of Attitudes of Urban and Rural Primary School Teachers Towards Inclusive Education.

Urban Primary school Teachers N=30	Rural Primary school Teachers N=30
Mean scores = 3462/30 = 115.40	Mean scores = 3315/30 = 110.50

Table 4: t-Ratio for Comparison Between Attitude of Urban and Rural Primary School Teachers Towards Inclusive Education

Sl. No.	Group	N	Mean	SD	df	t-Ratio	Level of significance (At 5%)
1	Urban Primary teachers	30	115.40	12.03	58	1.6927	Significant
2	Rural Primary Teachers	30	110.50	10.33			

Interpretation

Table 4 shows that t-value between mean scores of attitudes of urban and rural primary teachers towards inclusive education is 1.693. The t-value at 58 df in order to be significant at 0.05 level of significance should be 1.672. Obtained value is greater than this, hence it is significant. This shows that there is difference between attitude of urban and rural teachers towards inclusive education. The above calculated mean shows that the mean scores of urban primary teachers is greater than that of rural primary teachers. So, it can be interpreted that the urban teachers' attitude towards inclusive education is more positive in comparison to rural teachers. This might be due to the fact that the urban teachers are more aware about inclusive education because in urban schools all teachers use internet and media more than rural teachers which makes them more aware than rural teachers.

Hence, hypothesis H_1 "There is no significant difference in the attitude of male and female primary school teachers towards inclusive education" is rejected.

7.3 t-RATIO BETWEEN PRIMARY TEACHERS' ATTITUDE HAVING EXPERIENCE GREATER THAN 10 YEARS AND LESS THAN 10 YEARS TOWARDS INCLUSIVE EDUCATION

H_2: There is no significant difference in the attitude of teachers having experience of more than 10 years and less than 10 years towards inclusive education.

To verify the hypothesis, t-Ratio was computed between the mean scores of attitudes of primary school teachers having experience of more than 10 years and less than 10 years towards inclusive education.

Table 5: Mean Scores of Attitudes of Primary School Teachers Having Experience More Than 10 years and less than 10 Years Towards Inclusive Education.

Primary school teachers having experience more than 10 years N=27	Primary school teachers having experience less than 10 years N=33
Mean scores = 2980/27 = 110.37	Mean scores = 3373/33 = 114.33

Table 6: t-Ratio For Comparison Between Attitude Of Primary School Teachers Having Experience More Than 10 Years And Less Than 10 Years Towards Inclusive Education.

Sl. No.	Group	N	Mean	SD	df	t-Ratio	Level of significance (At 5%)
1	Experience greater than 10 years	27	110.37	12.03	58	1.3276	Not Significant
2	Experience less than 10 years	33	114.33	11.05			

Interpretation

Table 6 shows that t-value between mean scores of attitudes of male and female primary teachers towards inclusive education is 1.3276. The t-value at 58 df in order to be significant at 0.05 level of significance should be 1.672. Obtained value is less than this, hence it is not significant. This shows that there is no significant difference in the attitude of teachers having experience of more than 10 years and less than 10 years towards inclusive

education.

Hence, hypothesis H_2 "There is no significant difference in the attitude of teachers having experience of more than 10 years and less than 10 years towards inclusive education" is accepted.

8. Findings and Conclusion

In the following paragraphs, the scribe makes an attempt to extract the findings of the study conducted on attitude of primary school teachers towards inclusive education.

Findings

Some important findings of the study are summarized below:

i. It is found from the study that there is no difference in the attitude of male and female primary teachers towards inclusive education.
ii. It is found from the study that there is difference in attitude between urban and rural primary teachers towards inclusive education; the urban teachers' attitude towards inclusive education is found to be more positive in comparison to rural teachers.
iii. It is found from the study that there is no difference in the attitude of primary teachers having experience of more than 10 years and less than 10 years towards inclusive education.

Conclusion

In conclusion, the study on primary school teachers' attitudes towards inclusive education revealed several interesting findings. The findings show that, while the majority of teachers have a favourable attitude towards inclusive education, some have negative attitudes and beliefs that may inhibit the successful implementation of inclusive education in schools. The findings also imply that teacher education and professional development programmes should focus on building positive attitudes towards inclusion, as well as equipping teachers with the skills and knowledge essential to establish an inclusive classroom environment. The report also emphasizes the significance of developing a supportive school culture that supports inclusive education and facilitates cooperation among teachers, parents, and administrators.

It is clear that implementing inclusive education in schools necessitates a collaborative effort from all stakeholders. By recognizing and addressing primary school teachers' attitudes and beliefs about inclusive education, we

may establish an inclusive educational environment that meets the needs of all children, including those with disabilities and special needs. As a result, it is critical to continue conducting research on this issue to guarantee that all kids have access to excellent education and equal learning opportunities.

9. Fundings

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11. Competing Interests

The author declares that there are no competing interests regarding the publication of this paper.

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Effectiveness of NISHTHA Training Programmes Delivered Through The Digital Platform DIKSHA on Teachers' Skill and Professional Development

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Abstract

Teachers play a critical role in shaping the future of their students. Therefore, it is imperative that teachers receive appropriate training, possess qualifications and are motivated to provide the best possible learning outcomes for their students. To achieve this, teachers must be up-to-date with the latest developments in their field and actively participate in professional development opportunities. The integration of technology in education has facilitated the delivery of quality training content through online platforms, which has become increasingly popular. The effectiveness of professional development programmes (PDPs) for in-service teachers has gained considerable attention in recent years, given the recognition of the importance of teachers in the educational system. One such initiative is the NISHTHA professional development programme, which is delivered through the online platform DIKSHA, a national initiative of the National Council of Educational Research and Training (NCERT), Ministry of Education, Government of India.

This research paper examines the effectiveness of the NISHTHA programme delivered through the DIKSHA platform on teachers' skills and professional development. The study employed a survey methodology to gather responses from a representative sample of in-service teachers who participated in the NISHTHA programme through the DIKSHA platform in the state of Assam. The findings of the study provide valuable insights into the effectiveness of PDPs delivered through digital platforms. The study concludes that such initiatives can improve teachers' skills and contribute to their professional growth.

Keywords: *Professional Development Programme (PDP), Skill and Professional Development, NISHTHA, DIKSHA, LMS*

Introduction

Teachers are an integral part of any education system as they have the power to shape the future of their students. In order to ensure that students receive the best education possible, it is essential that teachers are well-trained, qualified, and motivated. Professional development programmes (PDPs) provide a pathway for teachers to improve their skills and knowledge, thereby enabling them to deliver effective teaching strategies that help students learn better.

The National Education Policy (NEP) 2020 has emphasized the importance of continuous professional development (CPD) for teachers, stating that each teacher should participate in at least 50 hours of CPD opportunities every year for their own professional development. While traditional face-to-face training methods have been effective, but the costs and logistics of conducting such programmes are a major challenge for teacher education institutions.

Advancements in technology have opened up new avenues for delivering professional development training. Learning Management Systems (LMS) have emerged as a popular platform for e-learning. LMS provides a digital infrastructure for the delivery of training and learning effectively, offering centralized and automated administration to institutions for planning, organizing, and implementing training programmes in a cost-effective manner.

In recent years, there has been a growing awareness of the importance of effective professional development programmes for in-service teachers, leading to initiatives such as NISHTHA to impart professional development training delivered through the online platform- DIKSHA, launched by National Council of Educational Research and Training (NCERT), Ministry of Education, Govt. of India.

DIKSHA (Digital Infrastructure for Knowledge Sharing)

DIKSHA, a digital platform for knowledge sharing, was launched by the National Council of Educational Research and Training (NCERT) and the Ministry of Education, Government of India, to revolutionize access to education for teachers and students. It offers a comprehensive learning management system through both its web portal and mobile application and provides continuous professional development (CPD) courses for teachers. The platform contains a vast collection of digital resources, including text, images, audio, video, and interactive content, which is available to all users. DIKSHA is widely utilized by teachers across India for personal and

professional development (https://ciet.ncert.gov.in/activity/dikshatraining).

NISHTHA (National Initiative for School Head and Teachers' Holistic Advancement)

NISHTHA is a professional development training programme that was launched by the Ministry of Education, Government of India in August 2019. The programme aims to enhance the capacity of in-service teachers and school heads across all Government Schools in India, as well as the faculty members of SCERTs, DIETs, and resource persons of Block Resource Centres (BRCs) and Cluster Resource Centres (CRCs).

Initially, the NISHTHA training programme was delivered in a face-to-face mode. However, due to the pandemic situation, the face-to-face mode was disrupted. At the same time, the National Education Policy 2020 emphasized the importance of providing continuous professional development (CPD) opportunities for teachers, with a minimum of 50 hours of CPD every year. In response to this, professional development programmes for teachers were redesigned and made available online under the NISHTHA initiative. The online NISHTHA courses are designed to keep learners engaged and address different learning styles. These courses include a variety of resources, such as videos, text materials, interactive activities, reflective activities, external links, and reference materials. NISHTHA is a comprehensive programme that aims to ensure the holistic advancement of teachers and school heads across India (http://nishtha.ncert.gov.in/).

In line with this national initiative, the State Council of Educational Research and Training, Assam, in collaboration with Samagra Shiksha Assam, has also implemented the online NISHTHA programme for the professional development of in-service teachers in the state.

Review of Literature

The importance of Professional Development Programmes (PDPs) for the growth and development of teachers has been emphasized in numerous studies, particularly in the context of the changing educational landscape. Goswami (2015) noted the significance of in-service training programmes for untrained school teachers to keep pace with the evolving education process. A study conducted in Assam found that such training had a positive impact on the professional development of elementary school teachers, with all trained teachers showing a positive attitude towards it. Kaur (2016) highlighted the importance of in-service teacher training

programmes for enhancing teachers' attitudes and effectiveness, with a significant improvement observed in the attitude of teachers after attending the training. Agravat (2017) emphasized the need for government authorities and institutions to focus on teachers' professional development and provide appropriate incentives, recognition, and support to motivate them towards continuing professional development (CPD).

In the digital age, e-learning has emerged as an effective mode of providing professional development to teachers. Jamal and Shanaah (2011) investigated the role of Learning Management Systems (LMS) in teaching and learning processes and found that it offers online interaction and discussion activities that facilitate learning and enable students to learn from their peers. It also allows teachers to manage course materials, assignments, and announcements. The effectiveness of electronic learning management systems (e-LMS) in instructional delivery and knowledge acquisition has been established in several studies. Thiruselvi (2015) found a positive relationship between the usability and accessibility features of LMS and learning styles and suggested that higher education institutions encourage students to use all the LMS features and benefit from different learning styles. Tassi (2016) reported that nurses who received instruction through an e-LMS attained higher median knowledge than those who received traditional face-to-face instruction. Bordia (2019) recommended that training should be conducted at regular intervals, based on individual needs, and suggested that e-learning can be a cost-effective and efficient solution for organisations. E-learning offers flexible learning options, enables learners to upskill more rapidly, provides consistency in training, increases convenience and control of learning for learners, improves monitoring capabilities for employers, and is cost-effective.

The studies cited above confirm that professional development programmes are crucial for teachers' growth and professional development, enhancing their knowledge and skills while improving their attitude. Additionally, the effectiveness of the digital platform LMS in instructional delivery and knowledge acquisition is well-established, making it an important mode of providing professional development to teachers. Therefore, it is imperative for the government and institutions to provide appropriate support and recognition to motivate teachers towards continuing professional development.

Rationale and Objective of the Study

The main objective of this study is to evaluate the effectiveness of NISHTHA

training programmes delivered through the digital platform DIKSHA on teachers' skills and professional development. With the growing emphasis on quality education, it is imperative to understand how such training programmes are contributing to teacher development and ultimately impacting student outcomes. Therefore, this study aims to provide insights into the effectiveness of digital platforms in delivering professional development training and the extent to which such initiatives can improve teacher skills and contribute to their professional growth.

Hypotheses

Ho- Null Hypothesis

1. Ho - Professional Development Programmes- NISHTHA delivered through a digital platform- DIKSHA have no significant influence on teachers' skill development.
2. Ho - Professional Development Programmes- NISHTHA delivered through a digital platform- DIKSHA have no significant influence on teachers' professional development.

Methodology

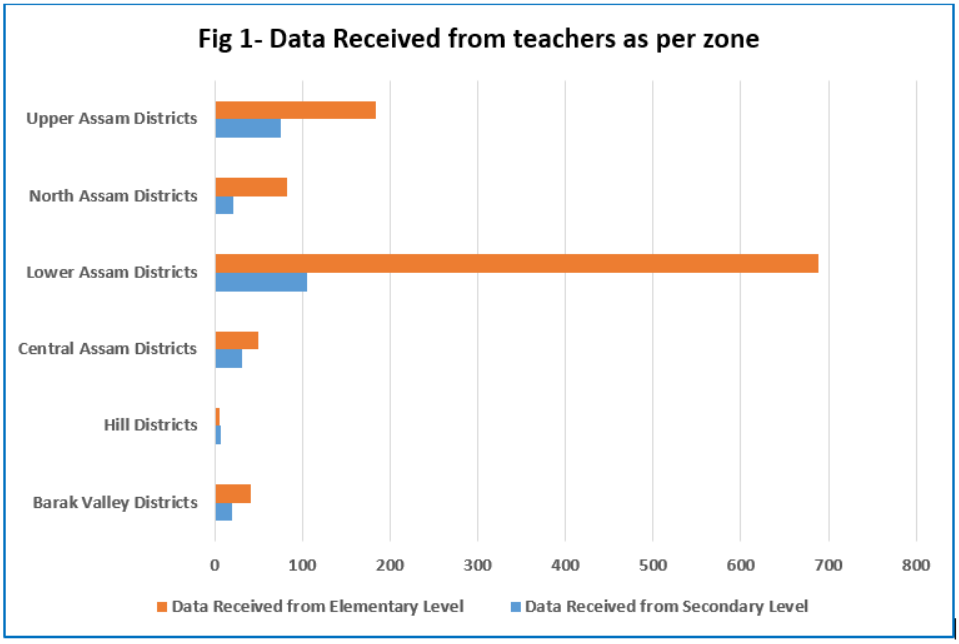
The present study utilizes a survey methodology to gather responses from a representative sample of in-service teachers in the state of Assam who have attended the online professional development programme- NISHTHA. Both primary and secondary data have been employed to obtain relevant and detailed information needed for the research. The research instruments utilized for primary data collection were the statement-based questionnaire in the Likert scale. Adequate measures have been taken to ensure the validity and reliability of the research instruments. Experts' opinions and Focus Group Discussions with selected participants have been considered to ensure the validity of the instruments, and conducting a reliability test on selected responses from a pilot study yielded acceptable results. For secondary data collection, a variety of sources such as books, journals, research papers, annual reports, websites, and the Internet were referred to. The study focuses on two factors- teachers' skills and professional development.

A stratified random sampling technique was deployed in the study, with stratification based on the level of teaching (elementary and secondary level) and the geographical zone. Proportionate sampling was done to elicit responses from six zones of Assam, namely, Upper Assam, Central Assam, Lower Assam, North Assam, Hill districts, and Barak Valley. The survey was administered both physically and online, and a total of 1309 sample data

were collected as illustrated in Table 1 and Figure 1. Appropriate statistical analyses were performed to determine the effectiveness of the NISHTHA programme on the skill and professional development of teachers.

Table 1- Data Received by District Zones from Secondary and Elementary Levels of Teachers

Zone Name	Data Received from Secondary-Level Teachers	Data Received from Elementary-Level Teachers
Barak Valley Districts	20	41
Hill Districts	7	6
Central Assam Districts	31	50
Lower Assam Districts	105	688
North Assam Districts	21	82
Upper Assam Districts	75	183
Total	**259**	**1050**



Data Analysis

In order to assess the effectiveness of the NISHTHA programme delivered through the digital platform- DIKSHA on the skill and professional development of teachers, appropriate statistical analyses were performed. The results of these analyses provide valuable insights into the effectiveness of the NISHTHA programme on the overall professional development of teachers in the state of Assam.

1. **Comparison of Observed Frequencies and Expected Frequencies of Responses to Statements Among In-service Teachers**

The study employed the Chi-square test as a statistical technique to analyse the data collected, and the findings have been presented in Tables 2 and 3 for further examination and interpretation.

Table 2- Frequencies of Responses to Statements- 1 and 2 Among In-service Teachers and Chi-Square Value

Statement		Frequencies					χ^2 value	df	Sig. (p-value)
		SA	A	N	D	SD			
1. Learning from the online Professional Development Training Programmes- NISHTHA delivered through the digital platform- DIKSHA enhanced my knowledge and developed my skills in diverse areas.	Observed	242	951	103	11	2	2410.25	4	0.00
	Expected	261.8	261.8	261.8	261.8	261.8			
2. The online Professional Development Training Programmes- NISHTHA course assessments in the digital platform- DIKSHA helped me to sharpen my skills.	Observed	227	959	112	11	0	1697.49	3	0.00
	Expected	327.3	327.3	327.3	327.3	0			

Where, SA- Strongly Agree, A- Agree, N- Neutral, D- Disagree, SD- Strongly Disagree, df- Degree of freedom

The calculated chi-square values for Statement-1 and Statement 2 are 2410.25 and 1697.49, respectively. The degrees of freedom (df) for Statement-1 and Statement-2 are 4 and 3, respectively. The p-value for both statements is 0.00, indicating that the null hypothesis- "Professional Development Programmes- NISHTHA delivered through a digital platform- DIKSHA have no significant influence on Teachers' skill development" can be rejected at the 0.05 significance level. Therefore, it can be concluded that there is a significant difference between the observed and expected frequencies of responses to both statements, suggesting that professional development programmes delivered through the digital platform DIKSHA have a significant influence on teachers' skill development.

Table 3- Frequencies of Responses to Statements- 3 and 4 Among In-service Teachers and Chi-Square Value.

Statement		Frequencies					χ^2 value	df	Sig. (p-value)
		SA	A	N	D	SD			
1. The acquired knowledge from the online professional development training programme- NISHTHA delivered through the digital platform- DIKSHA enhanced my self-confidence.	Observed	214	962	122	11	0	1704.74	3	0.00
	Expected	327.3	327.3	327.3	327.3	0			
2. The online professional development training programme- NISHTHA delivered effectively through the digital platform- DIKSHA helped in my professional development and progression.	Observed	221	924	156	8	0	1523.75	3	0.00
	Expected	327.3	327.3	327.3	327.3	0			

Where, SA- Strongly Agree, A- Agree, N- Neutral, D- Disagree, SD- Strongly Disagree, df- Degree of freedom

The calculated chi-square values for Statement-3 and Statement-4 are 1704.74 and 1523.75, respectively. The degrees of freedom (df) for Statement-3 and Statement-4 are 3 and 3, respectively. The p-value for both statements is 0.00, indicating that the null hypothesis- "Professional Development Programmes- NISHTHA delivered through a digital platform- DIKSHA have no significant influence on Teachers' professional development" can be rejected at the 0.05 significance level. Therefore, it can be concluded that there is a significant difference between the observed and expected frequencies of responses to both statements, suggesting that professional development programmes delivered through the digital platform DIKSHA have a significant influence on teachers' professional development.

Key Findings and the Conclusion

Studies have established the importance of Professional Development Programmes (PDPs) for teachers' growth and development and suggest that in-service training programmes have a positive impact on the professional development of teachers, enhancing their attitude and effectiveness. E-learning, specifically through Learning Management Systems (LMS), has been found to be an effective mode of providing professional development to teachers, enabling flexible learning options, providing consistency in training, and being cost-effective.

The statistical analyses performed in this study corroborate the findings of earlier studies. It concludes that NISHTHA programmes delivered through digital platforms- DIKSHA have a significant influence on teachers' skills and professional development. The NISHTHA programme has been effective in enhancing teachers' knowledge, and skills contributing to their professional growth. The findings of this study have important implications for policymakers and institutions in promoting the use of digital platforms for providing continuous professional development to teachers. Further research is needed to explore the long-term impact of such programmes on learning outcomes.

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Effect of Covid-19 Pandemic on Mental Wellbeing of Pre-school Children in Kamrup District of Assam

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Abstract: *The unprecedented effect of Covid-19 pandemic seems to be quite immense especially for pre-schoolars since this stage plays an enlightening role in promoting importance of personal hygiene, physical activity, health and body habits apart from preparing children for School with cognitive, emotional, social and motor skill development. UNICEF Executive Director Henrietta Fore (2020) observed that 'Childcare and early childhood education builds a foundation upon which every aspect of children's development relies. The pandemic is putting that foundation under serious threat.' Some studies also state that prolonged school closures and home confinement might have the negative effects on children's physical and mental health (Brazendale, K et al.,2017). The researcher has therefore made an effort to critically analyze the effect of Covid-19 pandemic on mental wellbeing of pre-school learners taking the perception of teachers of schools in Kamrup district, Assam into account. The present descriptive study reveals that there is a significant effect of Covid-19 pandemic on mental wellbeing of pre-school children. Lack of dedicated teachers for pre-primary section, digital divide, lack of awareness of parents etc., have greatly affected the learning of children at this stage. Thus, need of hour is to look at pre-school education from new normal and in the tune of recommendations of New Education Policy, 2020. Special drive to address the learning gap of children emerged due to Covid-19 pandemic need to be taken on priority. A holistic approach with the support of all stakeholders may be one of the useful ways out to address this emergent issue.*

Introduction

Pre-primary education is pre-requisite for primary education and onward. The learning experiences of pre-school years influence the rest of one's life. This early period in development provides a foundation that

guides children academically, socially and emotionally. Various studies from around the world highlighted the importance of early childhood education and enumerated that investment in high quality of early childhood education has the highest dividend in terms of human resource development.

The Article 45 of the Indian Constitution retains ECE as a Directive Principle. It reads 'The State shall endeavour to provide early childhood care and education for all children until they complete the age of six years.' The Kothari Commission (1964-66) recommended activity-oriented and play-way curriculum. Kothari Commission had also suggested that 'programme' to be used for pre-school stage instead of curriculum. The National Curriculum Framework (NCF, 2005) describes the early childhood stage as the most critical period when foundations are laid for lifelong development and realization of the child's full potential. Activities and experiences for this group of children should be developmentally appropriate and be realized through play-way, activity based methodology. The NCF, 2005 also suggested two years preschool education as a part of school education.

The RTE Act, 2009 emphasized that quality preschool education should be given at pre-primary level. The Section 11 of Chapter 3 of RTE Act, 2009 mandates for pre-school education as 'with a view to prepare children above the age of three years for elementary education and to provide early childhood care and education for all children until they complete the age of six years, the appropriate government may make necessary arrangements for providing free pre-school education for every child.' Samagra Shiksha (2018), a flagship programme of Govt of India on school Education has emphasized on holistic, child centered, developmentally appropriate and process oriented programme for pre-school education. The importance of Early Childhood Education has been given a significant importance in the New Education Policy, 2020 of India. It has categorically mentioned that every child in the age of 3-6 years should have access to free, safe, high quality, developmentally appropriate care and education.

The 'Early Childhood Education Impact' study (2017) conducted by the Ambedkar University, New Delhi in three states namely Assam, Rajasthan and Telegana has showed that a significant proportion of children in India, who completed pre-primary education, public or private, did not have the needed school readiness competencies when they have joined in primary schools. Devee and Deepali (1990) in a study on 'Pre-school children and their problems in rural areas of Kamrup District' had showed that poverty and apathy from parents have affected remarkably the growth and development of children in pre-school stage. Similarly, Kaul, Venita

and *et al.* (1992) in a study on 'Impact of ECE on retention of Primary grades' had observed that children with ECE experience were found to have a better retention rate in comparison to children who had direct entry in the schools.

Biswas, A and Agarwal, S.P. (1986) in the book titled 'A Historical Survey of Educational Documents before and after Independence' observed that the first pre-primary schools were opened to look after the children of working mothers or to provide suitable environment to little boys and girls who lived in uncongenial and crowded tiny tenements. There is not much to report about pre-primary education in India before 1947. For the first time in 1944, the Report of the Central Advisory Board of Education on Post-war Educational Development in India recommended that pre-primary education should be an essential adjunct of any National System of Education, though the main object of teaching at this stage should be to give young children social experiences rather than formal instructions.

The available statistics show that the pre-primary education has been rapidly gaining in popularity in India after Independence. The Report of the Committee on the Pre-primary Education in Mysore State (1961) followed by the recommendation of the Education Commission (popularly known as Kothari Commission) were significant for expansion of Pre-primary education in the country both quantitative and qualitative dimensions.

The National Policy of Education,1986 followed by the programme of Action, 1992 had widened the scope of growth and development of Pre-primary Education across the country. The Ministry of Women and Child Development had also geared up in expansion of Angawadi/Balwadi centers mostly in rural areas during this period. Simultaneously, considerable growth of private institutions was observed during these days which catered to sizable portion pre-school aged children mostly in urban set up.

In Assam, pre-school education is provided through three types of Institutions viz, Govt. schools having pre-primary section, Anganwadis and Private Schools. The Pre-primary class was introduced in all government primary schools vide notification of the Govt of Assam No. A(I) E.967/98/7, dated 11th January,1999. The child at the age of 4 years above is admitted in the Pre-primary class. The class is notified as 'Ka-man Shreni'(known as Ka-shreni'). The Ka-shreni is running with the theme based curriculum, developed by SCERT, Assam. A Thematic Activity Book in 16 different themes and the workbooks namely 'Akonir Karmaputhi' and 'Beginners English' are developed by SCERT and are used for class-interaction with Ka-sreni learners. Similarly, the private institutions mainly follow Kindergarten

and Montessori education while activities based on National ECCE policy is followed in Anganwadi Centers for Pre-schoolers.

It is evident that Pre-schooling institutions play a significant role to promote children mentally & physically at this developmental stage. It also plays a key role to prepare children for school with cognitive, emotional, social and motor skill development. According to the EFA Global Monitoring Report (2007), the School readiness encompasses development in five distinct but interconnected domains - physical wellbeing, motor development, social and emotional development, approach to learning, language development, cognitive development and general knowledge. Study of Kaul, Ramachandran & Upadhyay, (1992) revealed that children with ECE experience were found to have a better retention rate in comparison to children who had direct entry in the schools.

However, the petrifying impact of Covid-19 pandemic and to close down the schools on health issues had badly affected the learners specially the pre-schoolers. According to UNESCO (2020), nearly 90% of the world's student population-over 1.5 billion learners in 165 countries-have had their learning experiences disrupted by precautions and policies implemented to quell the spread of the disease. Worldwide, the Covid-19 had pushed the early childhood education system to the verge of collapse (NAEYC 2020; Zero to Three 2020). Study conducted by Samagra Shiksha, Kamrup, Assam & MATRI, a advocacy group of child rights on Impact of Covid-19 on Children with focus on virtual education revealed that the pandemic situation had serious impacts on students' learning and mental wellbeing, and that it potentially raised concerns and challenges ranging from widening the existing gap in terms of socio economic status amongst children in their equitable access to resources to influences in the engagement pattern of teachers, parents, and students further influencing the quality of education. Janice H. Kim et al (2021) in a study on the Implications of COVID-19 for Early Childhood Education in Ethiopia: Perspectives from Parents and Caregivers revealed that learning disruption due to COVID-19 school closures was likely to be substantial and would probably widen existing inequalities further. OECD Policy Responses to Coronavirus (COVID-19), Combating COVID-19's effect on children (2020) opined that the COVID-19 pandemic was harming health, social and material well-being of children worldwide, with the poorest children, including homeless children and children in detention, hitting hard. School closures, social distancing and confinement increase the risk of poor nutrition among children, their exposure to domestic violence, increase their anxiety and stress, and reduce

access to vital family and care services. Nathalie Bigras *et al.* (2021) in a study on Early Childhood Educators' Perceptions of their emotional state, relationships with parents, challenges, and opportunities during the early stage of the pandemic in Quebec (Canada) indicated that half of the respondents reported a decrease in their level of well-being at work and an increase in their stress level.

The impact of Covid-19 at foundational stage of learning may have a long lasting consequence among children. The researcher had therefore made an effort to critically analyze the effect of Covid-19 pandemic on pre-school education especially on mental wellbeing of learners taking perception of teachers into account. The principal researcher, being an educational administrator of Kamrup district, had observed the issues from the core and hence, insights of the researcher through this investigation and findings would be useful for administration, educators and policy makers to address the gap that arises due to impact of Covid-19 pandemic on pre-school education. The study had been delimited to 10 government schools of Kamrup district, which is having substantial number of elementary schools with pre-primary enrolment, diverse communities & different geographical terrain (hill/char).

Operational Definitions of the Terms

Effect: A change which is a result or consequence of an action or other cause or a cause (something) to happen. In this study, effect is meant for changes occurred during Covid-19 pandemic situation.

Covid-19: Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus. The virus can spread from an infected person's mouth or nose in small liquid particles when they cough, sneeze, speak, sing or breathe. These particles range from larger respiratory droplets to smaller aerosols.

Pandemic: An outbreak of a disease that occurs over a wide geographic area (such as multiple countries or continents) and typically affects a significant proportion of the population: a pandemic outbreak of a disease.

Mental wellbeing: Mental wellbeing refers to a positive state of psychological and emotional health; it indicates that a person is able to function cognitively and emotionally in a manner that is productive and fulfilling.

Pre-school: Relating to the time before a child is old enough to go to school. A preschool, also known as nursery school, pre-primary school, or play school, is an educational establishment or learning space offering early childhood education to children before they begin compulsory education at primary school.

Objectives of the Study

i. To study the influence of Covid-19 pandemic on mental wellbeing of pre-school children.
ii. To find out the perception of teachers on effect of Covid-19 pandemic on mental wellbeing of pre-school children.
iii. To become familiar with the gap and issues emerged in pre-school education due to surge of Covid-19 pandemic.

Research Questions

Following were the research questions to which the researcher wants to answer;

1. Has the Covid-19 pandemic affected the mental wellbeing of pre-school children?
2. Has the Covid-19 pandemic widened the existing issues and gaps in pre-school education?

Methodology of the Study

Considering the nature of the research problem, the researchers had adopted descriptive survey method to carry out the study. The study is designed to obtain pertinent and precise information concerning the current status of phenomenon and draw a valid general conclusion from the facts identified. The population of the study was restricted to 10 Lower Primary Schools of Kamrup district, out of which 10 teachers entrusted for pre-primary education and the Head Teachers of schools concerned were covered. Sample had been selected through simple random sampling method. Primary data was collected through two structured questionnaires, one for Ka-shreni teacher and the other for Head Teacher. Secondary information was collected from earlier researches, internet, reference book, offices and magazines etc. The field survey was conducted systematically & through online mode. Once the questionnaires were prepared, google sheets were generated. Name and contact details of Head Teachers and Teachers concerned were collected from Block Offices of Samagra Shiksha

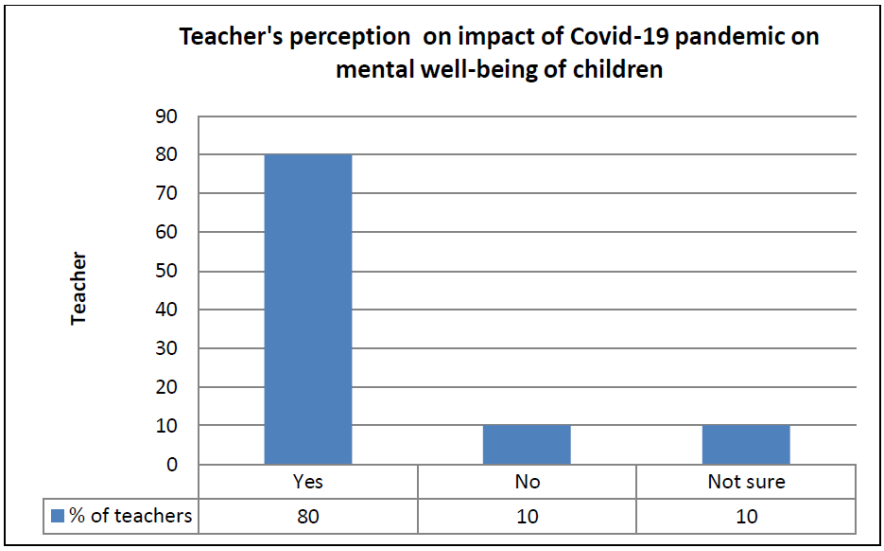
and they were communicated in advance regarding the study. Thereafter, the questionnaires in the form of google sheet were communicated to the teachers and responses were collected from them.

Findings

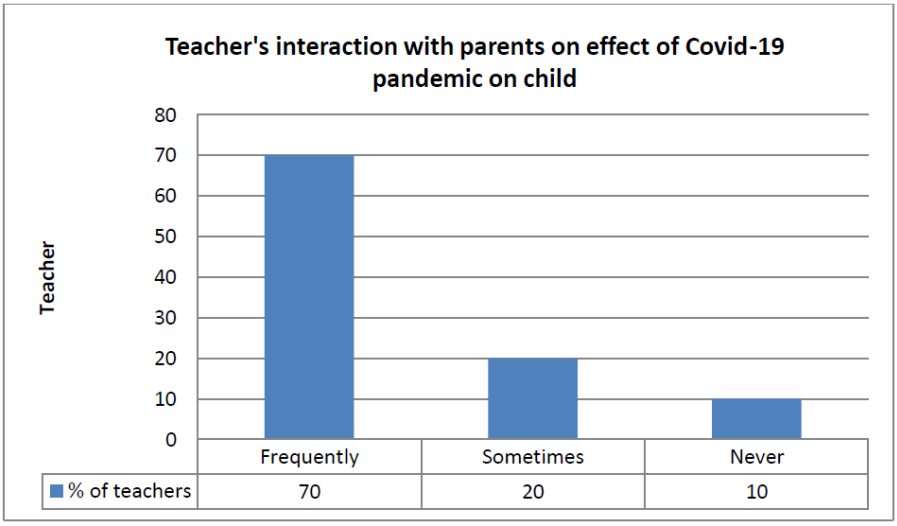
The data gathered was carefully analysed in the light of set objectives and discussed with the help of percentages. Some previous reports were also consulted to analyse the data.

The findings of the study can be summarised as below:

1. This study showed that schools were not having specific teacher appointed for Pre-primary (Ka-shreni) instead one of the teachers was entrusted responsibility to look after pre-primary section in the school.
2. Most of the schools were having health care facilities for pre-school children. As responded by teachers, 80% schools were having such facilities either in the schools or tied up with nearest PHC/CHC.
3. In this study, it was found that 80% schools were having the provision of running water facility & only 10% schools were having separate toilet for children at Pre-primary section.
4. Learning exposure of children play a crucial role for overall development of a child. 70% teachers responded that children were brought outside the schools for learning exposure.
5. Children were to be given adequate play materials in the schools. In this study it is found that only 60% of schools were having outdoor play materials for pre-schoolers.
6. Only 40% of respondent teachers were having training on Child Psychology, which is one of the essential qualifications to deal with the children at Pre-primary level.
7. Present study reveals that only 50% schools were having print-rich environment in the Pre-primary classes.
8. In the sample schools, 40% of the respondent teachers followed Play and Activity oriented method and 60% of teachers followed both Formal Teaching of 3 R's and Play and Activity oriented method while giving instruction/demonstration in Pre-primary classes.
9. It was opined by majority of the teachers that the Covid-19 pandemic had an effect on mental well-being of children. Under this study, 80% of the teachers had observed impact of Covid-19 pandemic on children especially on mental wellbeing, while 10% of teachers had observed no such impact and 10% of teachers are not sure about it.



10. The present study shows that teachers were in contact, though not all, with parents of the children and shared various aspects of Covid-19 pandemic and its impact on child's health and education. As responded, 70% of the teachers interacted with parents frequently during pandemic period while 10% of teachers had no communication with parents.



11. 80% of the respondent teachers had a perception that Covid-19 adversely affected on children's learning while 10% of teachers were not sure about it.
12. The schools carried out numerous activities for physical, language, socio-emotional, creativity and aesthetic development in children.
13. Teacher's perceptions about the adverse effect of Covid-19 pandemic on learning of children:

Table 1

Sl No.	Teacher's perception
1	Home environment is not suitable for their learning
2	School environment help them learning
3	Teachers support is required for their learning
4	Children will not be ready for school

14. Teacher's perceptions about the adverse effect of Covid-19 pandemic on school readiness of children :

Table 2:

Sl No.	Teacher's perception
1	Closure of school will affect their cognitive & motor development
2	Child will be deprived of learning early literacy and numeracy in formal set up
3	Lack of school readiness among pre-schooler invites poor retention in higher classes
4	Child will find difficult to adjust in school environment after a long closure of school

Discussion and Conclusion

Importance of early childhood education is immense for one's life. The investment in high quality of early childhood education has the

highest dividend in terms of human resource development. The importance of Early Childhood Education has been given a significant importance in the New Education Policy, 2020 of India. It has categorically mentioned that every child in the age of 3-6 years should have access to free, safe, high quality, developmentally appropriate care and education. However, the unprecedented and petrifying impact of Covid-19 pandemic has shaken the world to its core. Closure of the educational institutions to address the health issues has affected the learners from pre-school to higher educational institutions.

Present study reveals Covid-19 pandemic had significantly affected the mental wellbeing of pre-primary students. Closure of schools had deprived the children specifically children of poorer family for getting continual learning supports from the teachers/caregivers in schools. Study further reveals that only 70% of the students were communicated by teachers during pandemic period without adequate learning supports. This shows that a substantial number of children remained unattended from teachers/ caregivers during pandemic period. This had certainly affected on their developmental stage particularly in the domains like physical, language & numeracy, socio-emotional, creativity and aesthetics. Lack of school readiness among pre-schooler may therefore invite poor retention in higher classes and may have adjustment difficulties with the fellow students after resumption of the schools.

This has obviously widened the gap in pre-school education. Therefore, need of hour is that the pre-primary education has to be looked at from a new perspective under new normal and in the tune of recommendation of New Education Policy, 2020. Adequate and child-friendly infrastructure, adequate play materials & equipments, print-rich environment are to be made available in pre-primary classes. Teachers are to be encouraged to adopt innovative and need based approach while facilitating the learning of children at pre-school stage. Training on child psychology should be a part of training calendar for teachers entrusted/appointed for pre-schoolers. Promoting blended mode of teaching-learning process (online & offline) may be an appropriate approach to support learners in the present context. The findings of this study may give a solid base for policy makers & implementers, who work for addressing the gap, emerged due to Covid-19 pandemic, especially for pre-schoolers. Studies with improved design and expanded coverage alongwith case studies may give better insights and understanding to design

a holistic approach for addressing this emergent issue.

Recommendation

The following recommendations have been made on the basis of the findings of the study.

1. **Dedicated teacher for Pre-primary classes**

Adequate teachers/caregivers are a need to ensure quality learning at pre-primary level. Though pre-primary section is integrated in schools of the State, but no teachers have so far been appointed to facilitate pre-primary initiatives in these schools. A state policy is required to engage/appoint teachers/caregivers for pre-primary section in govt schools. These teachers must have adequate knowledge on child psychology.

2. **Curriculum for Pre-primary learners**

Curriculum plays a centre place in teaching-learning process. Theme based curriculum developed by SCERT, Assam in the year 2000-2001 is adopted by teachers while giving instruction to the children in pre-primary classes. This curriculum need to be revised in the context of ECCE policy and the New Education Policy, 2020 so that children are given need based support for improved learning.

3. **Infrastructure facilities for pre-schools**

Unless adequate and child-friendly infrastructure is set up in schools, it is difficult to make pre-primary classes interesting and useful for children. Running water facility, separate toilets for pre-schoolers, play ground, dining facility, reading room, BALA activity etc., are some important infrastructural facilities that have to be taken care while developing infrastructure in schools. School development plan should incorporate such elements looking at the need of pre-primary classes.

4. **Adequate play materials & equipments for children**

Playing of games & sports helps pre-school children to grow physically and socially. Besides, motor skill development at this stage is crucial. The pre-primary school should have adequate play materials and outdoor play facilities, to be extensively used by the learners under the guidance of teachers/caregivers.

5. **Learning beyond classroom**

Bringing children outside the classroom to discuss various topics helps them to broaden knowledge. A separate period in the class routine may be provisioned to give children outside exposure and scope of learning beyond classroom.

6. **Innovative practices in teaching-learning process**

Teachers should be encouraged to adopt innovative and need based approach while facilitating the learning of children at pre-school stage. Training on child psychology should be a part of training calendar for teachers entrusted/appointed for pre-schoolers. Special focus has to be given for designing activities to address the gap emerged for pre-schoolers during covid-19 pandemic.

7. **Print rich classroom**

It is good that schools are having various teaching-learning materials like chart, toys, puzzles, letter card etc., used in classroom. However, classroom should have adequate print-rich materials, which facilitates children for self learning and evaluation.

8. **Learning with fun**

Study had revealed that teachers have adopted some means to make classroom interesting and learning with fun. Teachers are to be encouraged to build on these activities and maintain diary to reflect upon for improved teaching-learning process.

9. **Use of ICT**

Use of digital media/online platform by children is a new concept especially for majority of children in govt schools. Children are, therefore, to be made aware of and skilled to use these media ethically and optimally. Teachers should take a relook while selecting and using ICT in classrooms. It is suggested that blended mode of teaching-learning process may be appropriate to support learners in the present context.

10. **Special drive to address learning gap**

It is evident that learning gap has emerged among children due to Covid-19 pandemic. Children especially pre-schoolers are disturbed both mentally and physically since they have to contain within four walls during school closure period. Lack of school readiness will certainly affect the learning of children at higher stages. It will be pertinent to take a special

drive by the concerned authority to cover up the learning gap of pre-schoolars, who are admitted in the primary schools in the next academic year. Remedial measures may be one of the options to address such learning gap of children.

11. **Convergent approach to reaching the unreached**

Social Welfare Department and Private Agencies play an important role in pre-school education apart from Education Department. A major portion of children of 3-6 years are nurtured in Anganwadis and Day care Centre of Private agencies, where education is also taken care of. Therefore, a convergent approach would be more convenient to reach all the target children at pre-school stage with adequate educational facilities and support in the line of recommendation of New Education Policy, 2020. Health & PHE Departments may also be involved while ensuring good health and hygiene among the children through sufficient facilities.

12. **Strengthening parent-teachers meet**

The role of parents for educational support to learners has to be looked from newer perspective in the emergent context of Covid-19 pandemic. The new normal has redefined the role of stakeholders in numerous ways. There should be strong rapport between teacher and parents to provide educational & health support to the learners at this crucial stage. Effect of covid-19 pandemic on mental wellbeing of children could be arrested to a greater extent provided parents and teachers join hands with focus and attention to the issues and meet in regular intervals.

13. **Linking findings of the study with Policy**

The findings of the study have a strong message for policy formulation related to effect of Covid-19 pandemic on mental well being of pre-primary children. There is a need to undertake indepth researches on every aspect on this subject to formulate better policy and interventions in this regard. Studies with improved design and expanded coverage along with case studies should be undertaken for achieving the desired results.

14. **Need of a holistic approach**

Effect of Covid-19 pandemic on mental wellbeing of pre-primary children is a complex subject since multiple stakeholders are involved in the entire system. From policy perspective to implementation, a holistic approach is needed to cover all the areas. Identification of areas of concern

and feedback from stakeholders especially grassroot level persons would be more useful to design a better policy in this regard.

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An Assessment Based Study on Body Mass Index as a Component of Health Related Physical Fitness of Primary School Children of Lower Assam.

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Abstract

Background: *The study aimed to assess the BMI as a component of Health related physical fitness status in children in the age group of 6-10 years of both Private and Government schools. The study also compared the BMI of the sample with the WHO norms and the group average.*

Methods: *A study was conducted in India covering 1000 children of class I to V in the age group of 6-10 years. BMI grades were computed as per WHO 2006 standards (underweight- 25.00 and obese- >30.00). Results were analyzed using descriptive Statistics, 2 way ANOVA and t-Test.*

Results: *The data shows that children in the age group of 6-10 years of children studying in Government schools are relatively healthy, in comparison to children studying in Private schools.*

Conclusions: *Average BMI of the sample was on par with national standard of WHO. BMI was thus found to be an effective tool for predicting the well-being of school children.*

Keywords: *BMI grades, Children, Age, Gender, Health status*

Introduction

Body Mass Index (BMI) is the ratio of one's weight to height squared. It is the most widely used sensitive, specific, reliable screening tool to understand individuals who are potentially at risk for weight related health issues. It can be used only to assess obesity but not to diagnose obesity.

The physical immobility and deteriorating physical fitness at an alarming rate among children and adolescents are emerging as a global issue in the recent times (WHO, 2019). Body Mass Index (BMI) is an easy index of the link between body mass and height, which is generally used to detect overweight and obesity. It is widely used to classify overweight

and obesity (Haq., et.al. 2013). According to the Center for Disease Control & Prevention (CDC), BMI is a person's weight in kilograms divided by the square of height in meters. BMI is an inexpensive and easy screening method for weight category-underweight, healthy weight, overweight and obesity. Body composition is the way of measuring fitness. Body Mass Index (BMI) is the value of weight over the height of the body and it is widely used to monitor for weights which are further away from the average – normally for individuals who are very overweight (BMI > 25), and also for individuals who are underweight (BMI < 18.5). The assumptions of the BMI guidelines are that BMI is closely related to body fatness, subsequent poor health, and increased mortality (Gallagher et al. 2000). According to the Center for Disease Control & Prevention (CDC), BMI is a person's weight in kilograms divided by the square of height in meters. BMI is an inexpensive and easy screening method for weight category-underweight, healthy weight, overweight and obesity. Body composition is the way of measuring fitness. Body composition is the amount of Lean Body Mass (LBM) in proportion to body fat (ACSM, 1991). BMI gives a reasonable measurement of body fat indirectly in the healthy children population and studies related to it shows that BMI directly connected to body fat and future health risks (Adab. et al 2018). Body Mass Index (BMI) is a reasonably inexpensive method to assess body fat and is derived from a formula based on height and weight in children over 2 years of age (Gurnani, et al 2015). Body fat % is very important component of Health Related Physical Fitness. People whose body fat percentage is optimal tend to be healthier. Hence, more attention must be paid on leading a healthy lifestyle among children and adolescents (Erdmann and McMillan,. (2011). Body Mass Index is referred as body weight of individual divided by the square of one's height. The formula is commonly used in the field of medicine to produce a unit of measure of kg/m2. Body mass index can be precisely and correctly calculated by using the formula which is BMI= Mass (Kg)/height in m2 (Corbin and Lindsey 2000). The World Health Organisation (WHO) confirms that the body mass index (BMI) is a consistent and convenient method of evaluation of the link between an adult's body mass and height (Frank. 2015). Adopting BMI is a widely suitable measurement for determining the health, physical fitness and activity level of a given population which does not engage in regular high-intensity physical activity (Smith et 2013).

Body Mass Index (BMI) is considered a marker of health across the world and is extensively used to measure and assess the state of malnutrition, overweight and obesity (Zhang et al., 2022).

The Objectives of the Study

1. To carry out an assessment study on BMI of primary school children.
2. To find out the health related physical fitness level of primary school children of Lower Assam Districts through BMI.

Statement of the Problem

The purpose of the study was to assess the BMI of primary school children of Lower Assam.

Hypothesis of the Study

In this study, the following hypothesis was put forth:

1. It was predicted that there would be a significant difference in BMI between the Private school children and Government school children.

Delimitation of the Study

1. The study was conducted by randomly selecting 1000 school children as subjects of the study of Lower Assam districts comprising of Bongaigaon, Chirang, Baksa and Kokrajhar.
2. The study was delimited to BMI out of the five major components of the health related physical fitness.

Method and Data analysis

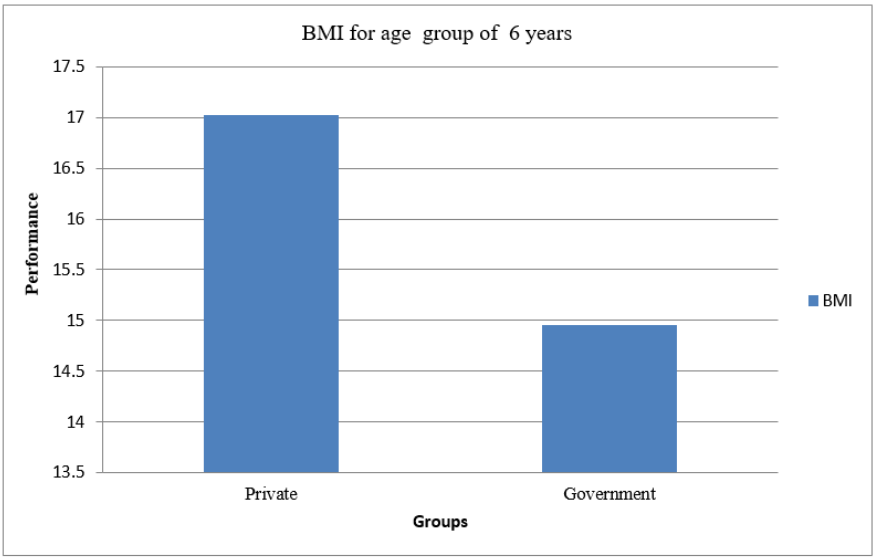
Descriptive statistics of components of Health related physical fitness:

The table No 1 represents the age wise Mean, Median, Standard Deviation, Minimum and Maximum of age group of 6 years children of Government vis-à-vis Private schools in BMI:

Table 1

Group	N	Mean	Median	±SD	Minimum	Maximum
Private schools	100	17.028	17.4	1.6759	11.1	19.2
Government schools	100	14.962	15.65	2.0891	10.8	18.2

It appears from the Table1 that the mean BMI of 6 years old children of Private schools and Government schools are 17.028 (±1.6759) and 14.962 (±2.0891) respectively.

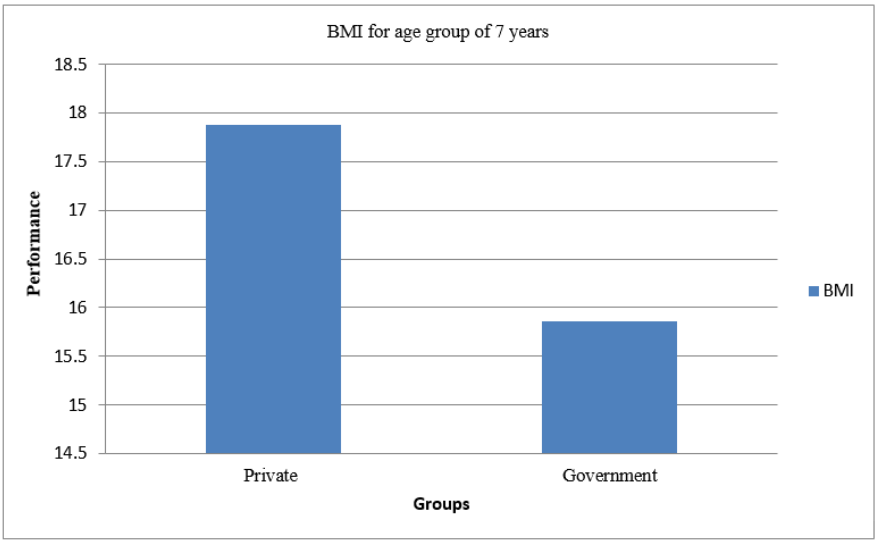


The table No 2 depicts the age wise Mean, Median, Standard Deviation, Minimum and Maximum of age group of 7 years children of Government vis-à-vis Private schools in BMI:

Table 2

Group	N	Mean	Median	±SD	Minimum	Maximum
Private schools	100	17.876	18	1.1003	13.3	19.8
Government schools	100	15.855	15.7	1.0640	13.4	18.3

As presented in the above Table 2, it shows that the mean BMI of 7 years old children of Private schools and Government schools are 17.876 (±1.1003) and 15.855 (±1.0640) respectively.

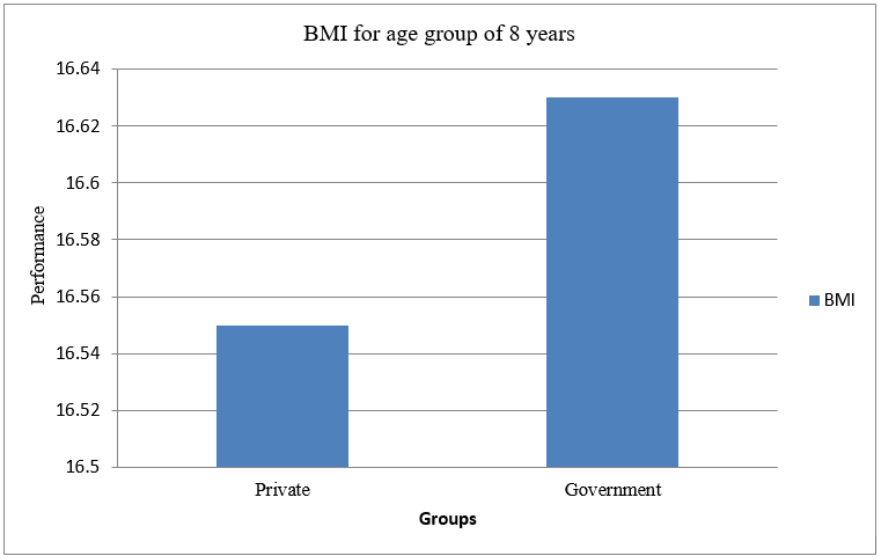


The table No 3 depicts the age wise Mean, Median, Standard Deviation, Minimum and Maximum of age group of 8 years children of Government vis-à-vis Private schools in BMI:

Table 3

Group	N	Mean	Median	±SD	Minimum	Maximum
Private schools	100	16.546	16.45	1.0884	14.3	20
Government schools	100	16.637	16.8	1.1871	13.8	19.2

As shown in the above Table 3, it denotes that the mean BMI of 8 years old children of Private schools and Government schools are 16.546 (±1.0884) and 16.637 (±1.1871) respectively.

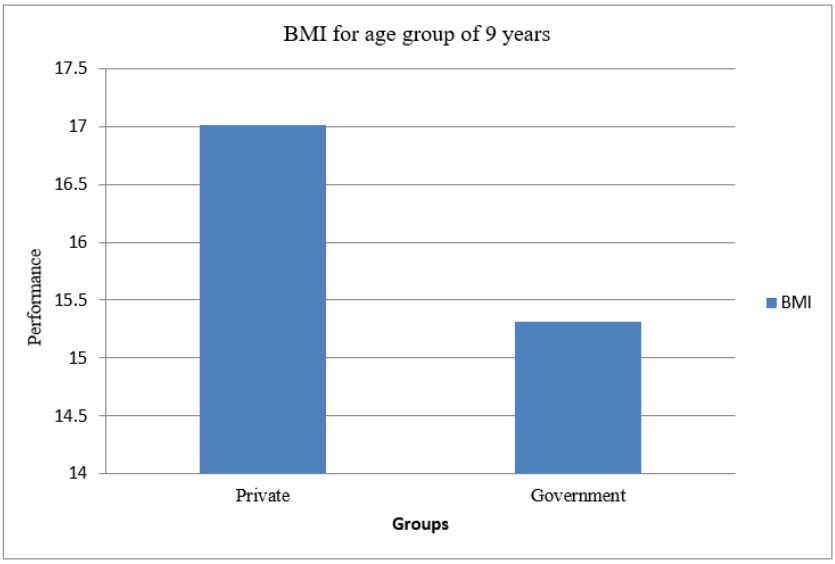


The table No 4 depicts the age wise Mean, Median, Standard Deviation, Minimum and Maximum of age group of 9 years children of Government vis-à-vis Private schools in BMI:

Table 4

Group	N	Mean	Median	±SD	Minimum	Maximum
Private schools	100	17.005	17	1.7598	13	23.6
Government schools	100	15.312	14.9	1.2701	13.5	18.5

As listed in the above Table 16, it shows that the mean BMI of 9 years old children of Private schools and Government schools are 17.005 (±1.7598) and 15.312 (±1.2701) respectively.

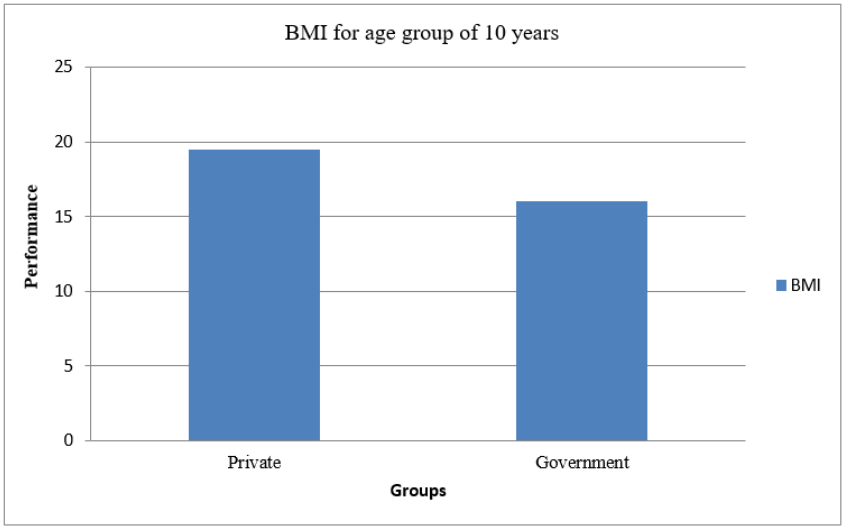


The table No 5 depicts the age wise Mean, Median, Standard Deviation, Minimum and Maximum of age group of 10 years children of Government vis-à-vis Private schools in BMI:

Table 5

Group	N	Mean	Median	±SD	Minimum	Maximum
Private schools	100	19.499	18.9	3.0481	14.3	27.7
Government schools	100	16.022	15.6	1.3093	13.9	19

From the above Table 5, it reveals that the mean BMI of 10 years old children of Private schools and Government schools are 19.499 (±3.0481) and 16.022 (±1.3093) respectively.



Age wise comparison between the children of Government and Private Schools in BMI by using ANOVA Two Way:

Age: 6 years

A two way ANOVA was analyzed for the BMI of children of Government schools and Private schools of 6 years old children with Between Groups and Within Groups.

Table No : 6

		Sum of Squares	Df	Mean Square	F	P-value
BMI	**Between Groups**	106.7089	1	106.7089	59.503	1.0003E-13
	Within Groups	710.1572	396	1.79332626		
	Total	816.8661	397			
	Significance at 0.05level, F (1, 396)=3.86 (0.05)					

The table no 6 revealed that there was a significant difference in BMI (F=59.50) among children of 6 years as calculated F value is more than the tabulated F value (3.86) at 0.05 level of significance.

Age: 7 years

Table No: 7

		Sum of Squares	Df	Mean Square	F	P-value
BMI	**Between Groups**	102.111	1	102.111	174.3306	3.0783
	Within Groups	234.9499	396	3E-33		
	Total	337.0609	397	0.585732		
	Significance at 0.05 level, F (1, 396)=3.86 (0.05)					

The table no 7 revealed that there was a significant difference in BMI (F=174.33) among children of 7 years as calculated F value is more than the tabulated F value (3.86) at 0.05 level of significance.

Age: 8 years

Table No: 8

		Sum of Squares	Df	Mean Square	F	P-value
BMI	**Between Groups**	0.207025	1	0.207025	0.319217	0.572398
	Within Groups	256.8215	396	0.648539		
	Total	257.028525	397			

The table no 8 showed that there was a significant difference in BMI (F=0.319217) among children of 8 years as calculated F value is more than the tabulated F value (3.86) at 0.05 level of significance.

Age: 9 years

Table No: 9

		Sum of Squares	Df	Mean Square	F	P-value
BMI	**Between Groups**	71.65623	1	71.65623	60.85153	3.865048
	Within Groups	466.3131	396	1.177558		
	Total	537.96933	397			

The table no 9 showed that there was a significant difference in BMI (F=60.85153) among children of 9 years as calculated F value is more than the tabulated F value (3.86) at 0.05 level of significance.

Age: 10 years

Table No: 10

		Sum of Squares	Df	Mean Square	F	P-value
BMI	**Between Groups**	302.2382	1	302.2382	109.8482	7.55499E-23
	Within Groups	1089.562	396	2.751418		
	Total	1391.8002	397			

The table no 10 showed that there was a significant difference in BMI (F=109.8482) among children of 10 years as calculated F value is more than the tabulated F value (3.86) at 0.05 level of significance.

Table No: 11- Comparison of Mean and Standard Deviation of BMI of children of 6 years age group of Private and Government schools

Group	N	Mean	SD	't' value
Private schools	100	17.03	1.68	7.7
Government schools	100	14.96	2.08	

Table No: 11 revealed the Mean and SD values with regard to BMI of children of 6 years old of Private and Government schools with Mean and SD values were 17.03 ± 1.68 and 14.96 ± 2.08. The 't' value 7.7 was found statistically significant.

Table No : 12- Comparison of Mean and Standard Deviation of BMI of children of 7 years age group of Private and Government schools

Group	N	Mean	SD	't' value
Private schools	100	17.88	1.1	13.2
Government schools	100	15.85	1.06	

Table No : 12 revealed the Mean and SD values with regard to BMI of children of 7 years old of Private and Government schools with Mean and SD values were 17.88 ± 1.10 and 15.85 ± 1.06. The 't' value 13.20 was found statistically significant.

Table No: 13- Comparison of Mean and Standard Deviation of BMI of children of 8 years age group of Private and Government schools

Group	N	Mean	SD	't' value
Private schools	100	16.55	1.09	0.57
Government schools	100	16.64	1.19	

Table No : 13 revealed the Mean and SD values with regard to BMI of children of 8 years old of Private and Government schools with Mean and SD values were 16.55 ± 1.09 and 16.64 ± 1.19. The 't' value 0.57 was found statistically significant.

Table No: 14- Comparison of Mean and Standard Deviation of BMI of children of 9 years age group of Private and Government schools

Group	N	Mean	SD	't' value
Private schools	100	17.01	1.76	7.8
Government schools	100	15.31	1.27	

Table No : 14 revealed the Mean and SD values with regard to BMI of children of 9 years old of Private and Government schools with Mean and SD values were 17.01 ± 1.76 and 15.31 ± 1.27. The 't' value 7.80 was found statistically significant.

Table No : 15- Comparison of Mean and Standard Deviation of BMI of children of 10 years age group of Private and Government schools

Group	N	Mean	SD	't' value
Private schools	100	19.5	3.05	10.48
Government schools	100	16.02	1.31	

Table No : 15 revealed the Mean and SD values with regard to BMI of children of 10 years old of Private and Government schools with Mean and SD values were 19.50 ± 3.05 and 16.02 ± 1.31. The 't' value 10.48 was found statistically significant.

Conclusion: This study throws light on several findings which are valuable and important for understanding the factors related to child health. Prevalence of overweight in the initial years of childhood needs to be accounted for, in terms of nutritional and physical activity intervention. A follow up study on BMI would facilitate preventive health and fitness level in children.

Limitations: The children were screened only through physical examination and not through any clinical investigation. An intensive check-up and activity in daily routine need to be done and incorporated in

the case of children of Private schools. BMI as a screening tool is only an indicator and not a conclusive report of the health status.

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Secondary Science Education and Teaching Effectiveness: A Comparative Analysis

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Abstract

The study was conducted to find out the perception of secondary school science teachers of Darrang and Udalguri about the effectiveness of science teaching and compared themselves district-wise. The study tried to find out the actual qualities of science teachers as well as to give awareness among the teachers about their knowledge gap. The sample of the present study comprises 198 nos. of Science Teachers of 105. of secondary schools from Darrang District and 114. of science teachers of 65 of secondary schools from Udalguri were selected by random sampling method. For the study, the descriptive survey method was used and the teacher effectiveness scale (Kulsum, 2006) along with self-prepared questionnaires was used as the tool for data collection. Analysis of the hypothesis was done by using graphical representation, mean, standard deviation, t-test etc., and found that the teacher effectiveness of science teachers of Darrang and Udalguri districts were significantly different. At the same time, the beliefs of science teachers' of both districts on effective science teaching were more or less similar to each other.

Keywords: *Teaching effectiveness, Secondary science teacher, Effective science teaching,*

I. Introduction

Without science and technology, this modern age cannot be imagined. The new knowledge domain has been created through a continuous thirst for knowing nature. The process of human progress and development has brought comfort to daily life by using science. Side by side it has also disturbed the environment which threatens human society, its development and conservation. According to M.K. Gandhi, true education is that which draws out and motivates the spiritual, intellectual and physical capacities of children. There are three factors involved in the vision of true science education here: the object of learning (science), the learners (child), and the

environment i.e. physical, biological and social (life) in which the learner is embedded. Good science education can be regarded by people who one true to science. Using psychology, one establishes a bridge between science and education. Science education has grown in marvellous importance among students in India, and most students are taking up fields related to science after Class 12. There are a variety of science courses in India that are dealt with by most universities and institutions. The scope of science in today's world cannot be underestimated by anyone. science education nurtures students' curiosity about the world and develops scientific thinking. Students will identify the nature of science and grow scientific knowledge and science process skills through the inquiry process to help them evaluate the effects of scientific and technological development. The goal of Science education is to increase people's understanding of science and the creation of knowledge as well as to promote responsible citizenship and scientific literacy.

Educating the pupils through the teaching of science should be the ultimate purpose of the science teacher that they have to keep in mind. Diverse pupils have various types of natural skills and abilities such as an innate talent for improvisation and manipulative skill, constructing gadgets or a natural tendency to invent things. For the development of pupils' natural abilities, the science teacher should encourage and provide opportunities to them. Formulating learning experiences in terms of the needs of the pupils and cooperation with them is an intelligent activity. The students always love experimenting and learning by doing things. The science teacher has a wonderful advantage over others which helps them to learn. Science is no doubt, full of concepts, facts and principles and teaching is not just giving out information about them. The teacher must be able to create situations for the pupils where they have to think, do and reason out by motivating and presenting things interestingly. Learning results from the active involvement of the learner, hence each pupil must be involved in the learning process. The science teacher must do well in making science a part of their life activity. To inspire good teaching, all science teachers need a thorough understanding of the basic principles. The National Council of Educational Research and Training has set up the National Focus Group on Teaching of Science and attempted to report a range of issues related to science curriculum and problems in its implementation. However, it has focused mainly on the three issues. The teaching-learning process should be based on situational factors, availability of resources, infrastructural facilities, curriculum, teaching-learning process and examination pattern are the different components of a

Teaching-Learning system. The main contributors to education are teachers. In every generation, they pass on knowledge and values. Teachers play vital roles in developing and touching one's life. They may be considered our nation builders. For a comprehensive and progressive society teachers are one of the main pillars. In building up the future of children, they had a long-lasting impact on them. They prepare children for working life by moulding them with knowledge and values and to become good citizens of the nation. The behaviour like love and affection of a good teacher for his students affects them in almost every way like manners, styles and actions. It specifies by which means a teacher becomes a role model to his or her students.

It is essential to have knowledge, understanding and ideals for the teachers to attain quality education. Classrooms are important to protect children while in school, books to read, pens to write and chairs to sit on, but the goal of having quality education will never be attained without motivating children to sit on their chairs while attending, teaching them to read their books and encourage them to write with their pen. A good teacher's attention should be on his students. A teacher normally follows a syllabus and a textbook. Effective teaching is based on criteria for effectiveness. These criteria refer to the objectives of teaching in specific and of education in general.

II. Rationale of the Study

In the school curriculum, science occupies a key position and has a reflective effect on technological development along with the welfare of human life. Therefore for providing effective science education, a continuous effort is delivered to the new generation across the nations. The ultimate duty of a science teacher is effective science teaching which is teaching and guiding students scientifically to be successful science teachers at the secondary level in education. The study will find out the perception of secondary school science teachers about the effectiveness of science teaching and will compare themselves to the district. This study will help to find out the actual qualities of science teachers as well as it will give awareness among the teachers about their knowledge gap.

From past studies, it was observed that in the context of Darrang and Udalguri districts, very little attention was devoted to studies related to effective science teaching to improve the quality of education in secondary education. Therefore a comparative analysis was done among these two selected districts.

III. **Statement of the Problem**

The focus of this study is "Secondary Science Education and Teaching Effectiveness: A Comparative Analysis".

IV. **Objectives of the Research**

1) To find out the difference in the effectiveness of secondary school science teachers of Darrang and Udalguri District.
2) To study the science teachers' beliefs reflect on the involvement of effective science teaching.

V. **Hypotheses**

1) There is no significant difference in teacher effectiveness between science teachers of the Darrang and Udalguri districts.
2) There is no significant difference between the teachers of Darrang and Udalguri in the involvement of effective science teaching.

VI. **Research Question**

Q.No. 1) Is there any difference in the teacher effectiveness of secondary school science teachers of Darrang and Udalguri Districts?
Q.No. 2) To what extent do the science teachers' beliefs reflect effective science teaching in secondary schools?

VII. **Area of the Study**

Secondary schools of Darrang and Udaguri districts of Assam.

VIII. **Review of Related Literature**

Information acceleration in the present period is an accepted fact. In the area of Research, a review of related literature is a significant feature. Thus related literature review is a significant pre-requisite to authentic planning and any research work implemented. Much research has been conducted during the last two decades on science teaching and secondary science teacher effectiveness. To find out the gap in earlier research associated with the present area and to study the numerous studies related to the current problem, a review of related literature was done. The researcher reviewed lots of literature between the years 1970 to 2019.

Some literature has been reviewed for the study and the findings are given below:

A) REVIEWS RELATED TO SCIENCE AND SCIENCE EDUCATION

1. **Abdul Sameer Khan (2019)** studied on how to integrate quality and values in the science teaching-learning process. It was revealed in the findings that the platform was effective in improving the features of the science teaching process and emerging values in students. Due to the training program, the academic success of the students was found to be improved. From the study it was found that in our teaching-learning process of science, the significance of such methods is to be accepted.
2. **Bahunlang Tron (2018)** studied science education in secondary schools in Meghalaya. It was found that traditional methods like the demonstration method and lecture method are used by a maximum number of teachers to teach science. The common method accepted by science teachers was reading from the textbook and explaining followed by the lecture demonstration method. The laboratory method and activity method were not used for teaching science by all the teachers. It was also found that the condition of classrooms and libraries in schools negatively affected science education in schools.
3. **Ranjan Kumar Sahu (2016)** studied science teaching in secondary schools in Odisha. The study was done to find out the accommodations available for teaching science in secondary schools, problems faced by science teachers and capability of science teachers in teaching science, and the judgement of teachers about the science textbook and syllabus. At the beginning of the academic year, most of the students and teachers in rural areas were not getting textbooks. Hence due to such many problems, teachers were not using any innovative teaching methods in their classes for teaching science.
4. **Van., et.al. (2014)** researched science teacher knowledge. He found that a variety of origins are in teacher knowledge, which includes proper schooling in the past along with teacher education and initial disciplinary training, or continued professional training (cf. Calderhead, 1996), as well as hands-on experiences, occurring in day-to-day teaching preparation. In this sense, teacher knowledge is matching to theoretical or academic knowledge.
5. **Brígido., et.al. (2013)** studied prospective primary teachers' self-efficacy and emotions in science teaching. It was studied, considering especially the link of that construct with the emotions they assume to expertise as a future science teacher, differentiating between the content of the 'natural sciences (biology and geology) of the 'hard sciences (physics and

chemistry) that they are teaching. The findings showed them to frequently have negative emotions towards the hard sciences and positive ones towards the natural sciences. Whereas their beliefs regarding their self-efficacy area unit considerably associated with their emotions regarding their upcoming teaching of the hard sciences, high self-efficacy was fewer negative emotions towards physics and chemistry and considerably correlative with a lot of positive emotions.

6. **Shadreck., & Isaac., (2012)** conducted a study on Science teacher quality and effectiveness: Gweru Urban Junior Secondary School students' points of view. Findings revealed that teachers can stimulate and improve teaching effectiveness by adopting a positive student approach, being sympathetic to students' learning difficulties, recognizing the individual student, being someone the students can believe in, and being able to organize and teach in a motivating and flexible way by using good teaching methods. Science teachers' ability is to plan and structure the content and the use of practical exploratory science in the classroom. The findings also indicated that teachers who are both passionate about the subject taught and passionate about their students are valued by the students. Teachers who teach science in a way that is both interesting and relevant to the student are favourites among secondary school science students.
7. **Wallace, & Loughran, (2012)** conducted a study on science teacher learning. In the study, it was said that teacher learning is the nature of struggles to develop the teaching and learning of science. It was provided in a chapter about the critical review of the literature on how and what science teachers learn. The researcher argued for a method of teachers' learning that integrates the individual and focuses on research by teachers. On building teachers' knowledge about teaching, for preparation, and identifying the complicated connection between students' learning and teachers' learning. Such learning takes place by uniting out-of-school activities, multiple learning contexts, and theory and practical-based learning experiences with continuing support for teachers to integrate ideas into their classroom transactions and to learn from their students.
8. **Olatoye, & Aanu, (2011)** conducted a study on senior secondary school science teachers' perception of using students to evaluate teaching effectiveness. Students are very adjacent to their teachers and are also in a noble position to evaluate some teachers' activities. Hence the study required teachers' views or opinions about involving students in the rating of their effectiveness in teaching. Findings show that most teachers are in favour of using students to assess their teaching effectiveness. The

difference between female and male teachers' opinions was insignificant regarding the use of students to evaluate teaching effectiveness. Student evaluation of teaching effectiveness may be the part of annual performance appraisal. Students' scores of teacher effectiveness should be matched with scores from other teacher evaluation scales and some criterion measures to determine the validity of the scores obtained from student ratings.

9. **Tobin, et al. (1988)** conducted a study on alternative perspectives of effective science teaching. From the study it was found that there are several suggestions for teachers and science teacher education; but, it was predicted that none is additional vital than a necessity for more investigation to grasp. However teachers hypothesize by teaching and learning and the way various conceptualizations affect the follow and improvement of science teaching. 10. Evans, T. P. (1970) wrote in his book Flanders System of Interaction Analysis and Science Teacher Effectiveness about the Flanders system of interaction analysis. Which was used to decide whether a teacher is direct or indirect in his method to control and motivate in the classroom. The system defines, instead of assesses, teacher behaviours in any subject at any level, in which they occur. It does not include student-student interaction and nonverbal behaviours. A review of ten studies where the system was used in science classes delivers evidence that the Flanders system is useful for identifying some features of science teacher effectiveness. However, due to some limitations of the Flanders system, inconsistent and unreliable results, the research design and insufficient descriptions of the design in several studies, no strong relationship between teacher effectiveness and teaching style can be shown.

B) REVIEWS RELATED TO TEACHER EFFECTIVENESS

1. **Lalchhandami and Lalnunfeli. (2019)** study on the effectiveness of secondary school teachers in Mizoram. 186 secondary school teachers were selected as the sample of the study. The tool used for the study was constructed by Dr. (Mrs.) Umme Kulsum. The findings revealed that the majority of the teachers fall under the Most Effective Level in their teaching while the average score of the teachers falls under the Moderately Effective Level. This indicates that Mizoram state has a moderately effective group of teachers at the secondary level.
2. **Elizabeth U. A., & Samsom, C, U, (2018)** studied the teachers' perception of their head teachers' role effectiveness. The findings revealed that there was no significant perception of the head teachers' role effectiveness.

However, there is a significant difference in perception between private and public teachers. Private teachers have a positive perception of their teachers' role effectiveness. It was winded up that the head teachers should be more exposed to more re-training exercises to enable them to do their job effectively.

3. **Roy and Halder (2018)** conducted a study on Teacher Effectiveness: A Self-Report Study on Secondary School Teachers. To search the variances in teaching effectiveness of the secondary school teachers in regards to their locality of the schools, gender and designation are the objectives of this study. It was revealed that teachers are the same in their policies of teaching aspect and social aspect of teaching effectiveness in the case of the locality of the schools and gender. But the teachers are significantly different in the professional aspect, personal aspect, teaching effectiveness and intellectual aspect of teaching effectiveness, due to their locality of schools and gender. Regarding designation, there are significant differences in all aspects of teaching effectiveness including teaching effectiveness.
4. **Swargiary and Baglari (2018)** studied Teacher Effectiveness at the Primary Level. The study reveals that 40% of the Lower Primary school teachers are above-average effective teachers and 36% of them are moderately effective teachers as well. There are positive and high connections among several areas of Teacher Effectiveness. More coordination between preparation and planning for teaching with that of classroom management in the classroom has to maintain the teachers for additional effectiveness. The finding is supported by statistical analysis of Chi-square and found that there exist significant differences in Teacher Effectiveness based on teaching experiences.
5. **Biswas (2017)** studied the teacher effectiveness of secondary school teachers with gender, locality and academic stream. To assess the teacher effectiveness of higher secondary and secondary school teachers is the purpose of the study. Standard deviation, mean and t-test were used for data analysis. It was found from the study there was no significant difference in teacher effectiveness between female school teachers and male school teachers. The study exposes that among the school teachers, there is a significant difference in academic streams (arts and science), class handled (secondary and higher secondary), locality and teacher effectiveness.
6. **Kumari . (2017)** studied the teacher effectiveness of secondary school teachers with teaching capability and spiritual intelligence. It was

found that government teachers were found higher concerning teacher effectiveness along with its four dimensions i.e. planning and preparation, classroom management, teacher characteristics and interpersonal relations than their private counterparts. Private secondary school teachers were found more effective in subject matter as compared to government secondary school teachers. Male teachers were found higher in teacher effectiveness along with its two dimensions i.e. subject matter and interpersonal relations than their counterparts. Rural secondary school teachers were found higher in terms of subject matter dimensions of teacher effectiveness than their urban counterparts. Urban secondary school teachers were found higher in terms of planning and preparation, classroom management and interpersonal relations dimensions of teacher effectiveness than their rural counterparts.

7. **Chauhan (2016)** studied teacher effectiveness with locality, gender and academic stream. The study was done to assess the teacher effectiveness of senior secondary and secondary school teachers by using the survey method of research. 96 secondary and senior secondary teachers were randomly selected for sample from Patiala and Fatehgarh Sahib Districts of Punjab. The data were collected by using the "Teacher Effectiveness Scale" developed and standardized by Dr. (Mrs. Umme Kulsum). It is found that there is a similarity in the teacher effectiveness of female teachers and male teachers. A significant difference in teacher effectiveness is found between teachers regarding locality, class handled and academic streams.
8. **Das and Barman (2016)** studied teachers in the District of Purba Medinipur, West Bengal. The findings of the study were that there is a significant difference in Teaching Effectiveness among the teachers of secondary school regarding their level based on school location. Again there is no significant difference in Teaching Effectiveness among the teachers of secondary school teachers regarding their level based on qualification, gender, training status and stream.
9. **Wairimu, (2016)** studied the teachers' perception of classroom observation and checking of pupils' exercise books by head teachers on the performance of duty in primary schools in Nakuru North district, Kenya. The findings of the study were head teachers make classroom observations and hold a meeting to discuss problems faced and the way forward. Most of the head teachers countersigned and helped the teachers to prepare professional documents, and checked pupils' books to make out the amount of work and comments made on them. Teachers

also agreed that instructional supervision helps to improve teaching and learning, head teachers do carry out instructional supervision in their schools, a factor they recognized positively. The study revealed that school heads are making efforts to accept collaborative and democratic approaches to supervision.

10. **Yaspal Singh Deswal (2016)** has done a study on the teaching effectiveness of senior secondary school teachers with socio-demographic variables. 100 teachers were selected as a sample and the Kulsum Teacher Effectiveness scale (TES) prepared by Dr. (Mrs.) Umme Kulsum was used to measure their teaching effectiveness. It was found that there was no significant difference between female and male teachers concerning teaching efficiency. There was a significant difference between private and government, urban and rural senior secondary school teachers regarding teaching efficacy.
11. **Aina, et. al (2015)** conducted a study on Teachers' Effectiveness and its Influence on Students' Learning. The findings of the study were that Teachers' effectiveness could be determined through qualitative research methods which are very important for student learning. The perception of the study was that the hallmark of teachers' effectiveness is the professional focus. The essential components of professional focus are good professional development, lack of distraction, punctuality, and interpersonal relationships which make a teacher effective.
12. **Meena Arora (2015)** conducted research on teacher effectiveness between male and female teachers at the secondary level in Punjab. 200 teachers from secondary schools in the Moga & Ludhiana districts were selected as samples by using a random sampling technique. The Teacher Effectiveness Scale by Promod Kumar 1974 was used as a tool for the study. The statistical techniques i.e. mean, S.D. and t-test were used for the analysis of data. From the study, it was found that the difference in teacher effectiveness occurs among government & private, male and female and urban and rural teachers of Punjab were not significant at the secondary level.
13. **Sarla Rani and Poornima Devi (2015)** studied the teacher effectiveness of senior secondary teachers with gender, type of school and teaching experience. To select the sample of the study, the descriptive survey method has been used. The research found that (i) the difference between both gents and ladies' school teachers concerning teacher effectiveness was not significant (ii) The difference between private school teachers and government school teachers on teacher effectiveness was significant

(iii) The difference among teacher having teaching skill above 10 years and the teachers having below 10 years on teacher effectiveness was significant.

14. **Umender Malik (2015)** conducted a study on the teacher effectiveness of secondary school teachers with their sense of humour. It was found that a difference in sense of humour and teaching effectiveness between female and male school teachers was significant. The difference in teaching effectiveness between the sense of humour and secondary school teachers was significant.
15. **Kumar, (2014)** studied the teaching effectiveness of higher secondary school teachers with their self-concept and modification. In the study, it was established that the self-concept of higher secondary school teachers was positively correlated with their adjustment as well as teaching effectiveness. However, the common variance between these two sets of attributes of higher secondary school teachers was low. The higher secondary school teachers differed in teaching effectiveness based on gender and job nature. At the same time, they differed in teaching effectiveness based on teaching experience and types of institutions. The permanent, more experienced and govt. higher secondary teachers were more effective in comparison to other groups. The male, female permanent, with more years of teaching experience, teachers from Govt. teachers had high self-concept, were well adjusted, and more effective than teachers from Govt. aided and self-financed and temporary, less experienced, higher secondary schools.

IX. Method of the Study:

The method adopted for the study was the descriptive survey method.

X. Population and Sample:

As far as the study population is concerned, there are 320 secondary schools in the Darrang district and 225 secondary schools in the Udalguri district having Govt., provincialized, recognized, junior college and private schools. In Darrang District the population of Science teacher in Govt., Provincialized and Recognized is approximately 300. Among them, the sample of the study comprised only 198. science teachers from 105 nos. of Govt., Provincialized and Recognized Secondary schools of Darrang district. Again in Udalguri District, population of science teacher in Govt., Provincialized and Recognized is approximately 120. Among them, the sample of the study comprised only 114. of science teachers from 65 nos.

of Govt., Provincialized and Recognized Secondary schools from Udalguri District. The sample selection was done by random sampling method.

XI. Tool

To substantiate the available information, a standardized tool on teacher effectiveness (Kulsum, 2006) and self-made questionnaires were used as tools for collecting data. In the teacher effective scale, there were 60 items for the teacher. Again in the self-made questionnaire, there were 14 items of highly involved, moderately involved and less involved in percentage.

XII. Mode of Data Analysis

The data analysis and hypothesis testing were done by employing descriptive statistics such as Mean and Standard Deviation, and inferential statistics such as the Test of significant difference between two group Means (t-test), frequency percentage and Graphical Representation etc.

XIII. Result and Interpretation

Objective 1

To find out the difference in the effectiveness of secondary school science teachers of Darrang and Udalguri District

The teacher effectiveness between Darrang and Udalguri district secondary school science teachers was compared. For this, the Mean and Standard Deviations of the two scores of teachers from Darrang and Udalguri were calculated. The mean differences were tested by applying the "t" test and the details are presented in Table 1.1.

Table 1.1 Significant Table of Secondary School Science Teachers of Darrang and Udalguri District

District	Number of teachers	Mean	SD	't' Value	Significance Level
Darrang	194	366.89	55.69	2.63	Significant
Udalguri	114	349.47	56.34		

The difference in the effectiveness of secondary school teachers based

on the district is shown in Table 1.1. A significant difference has been found in the teacher effectiveness of Darrang and Udalguri district secondary school science teacher. Thus the hypothesis that "There will be no significant difference between science teachers of Darrang and Udalguri district" is rejected.

Discussion

Hypothesis 1: There is no significant difference in teacher effectiveness between science teachers of the Darrang and Udalguri districts

The hypothesis is rejected which means the effectiveness of secondary school science teachers in the Darrang district was different from the Udalguri district. Both the districts are different by various factors like topography, language, culture, economics, transport educational development etc. There may be lots of factors which may affect the effectiveness of secondary school teachers.

Objective 2
To study the science teachers' beliefs reflect on the involvement of effective science teaching

For science teachers, it is very important to use science in their daily lives. They must remove science fear from the students and grow scientific attitude among students, especially girls. Again the POCSO Law is very important to know for the adults and teenage students who can be informed and given proper knowledge about the law by the science teacher. Sometimes it was seen that the teacher was hesitant to discuss the sex-related chapters with the students freely, but it was not the role of a science teacher. He or she should have a full concept of sex-related chapters and should discuss them with the students freely. Again teachers should inspire, support and empower students with the improvement of abilities to grow creativity, interest, scientific inquiry etc. The involvement of teachers in these areas can be in the following tables and graphical representations of the data.

Table 2.1 Science Teachers' Beliefs Reflect On The Involvement Of Effective Science Teaching In The Darrang District

Sl. No.	Area	Fully involved (in %)	Moderately involved (in %)	Less involved (in %)
1	Teach science related to daily activities	38.8	54.6	6.6
2	Personally use science	47	43.8	9.2
3	Try to remove science fear from students	48.8	54.7	5.9
4	Try to grow scientific attitude among students	44	47.3	8.7
5	Encourage female students to study science	45.3	52.8	7.5
6	Success in motivating students to select the science stream	33.4	61.2	5.4
7	Giving information about POCSO to students	38	35.3	26.7
8	Empowering students to apply science to know their health	56.9	32.2	10.9
9	Feel free to discuss sex-related chapters	41.3	37.7	21
10	Inspiring students to improve their understanding of science facts and principles	44	38	18
11	Supporting students to improve abilities and processes of science inquiries	46	40	14
12	Empowering students to raise a spirit of creativity and scientific inquiry which grow interested in science.	38	47	15
13	Preparing students for professions in science	38	35.3	26.7
14	Facilitating students to apply science to recognize their environment	44	47	9

Table 2.2 Science Teachers' Beliefs Reflect On The Involvement Of Effective Science Teaching In The Udalguri District

Sl. No.	Area	Fully involved (in %)	Moderately involved (in %)	Less involved (in %)
1	Teach science related to daily activities	33.2	52.2	17.5
2	Personally use science	45	48	7
3	Try to remove science fear from students	40.3	47.4	12.3
4	Try to grow scientific attitude among students	48	44.6	7.4
5	Encourage female students to study science	41.3	49.8	8.9
6	Success in motivating students to select the science stream	29.9	59.9	20.2
7	Giving information about POCSO to students	21.1	24.2	54.7
8	Empowering students to apply science to know their health	38	50.8	11.2
9	Feel free to discuss sex-related chapters	29.6	48.4	22
10	Inspiring students to improve their understanding of science facts and principles	38	32	30
11	Supporting students to improve abilities and processes of science inquiries	42.5	48	9.5
12	Empowering students to raise a spirit of creativity and scientific inquiry which grow interested in science.	34	45	21
13	Preparing students for professions in science	44	35.5	10.5
14	Facilitating students to apply science to recognize their environment	47	33	20

Table 2.3 Graphical representation of the above data of Darrang and Udalguri are given below:

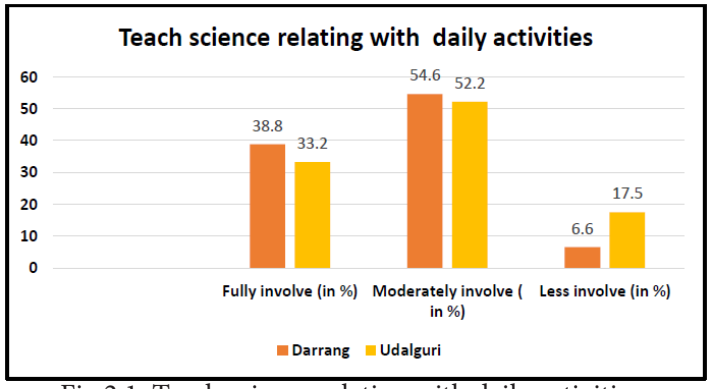

Fig 2.1: Teach science relating with daily activities

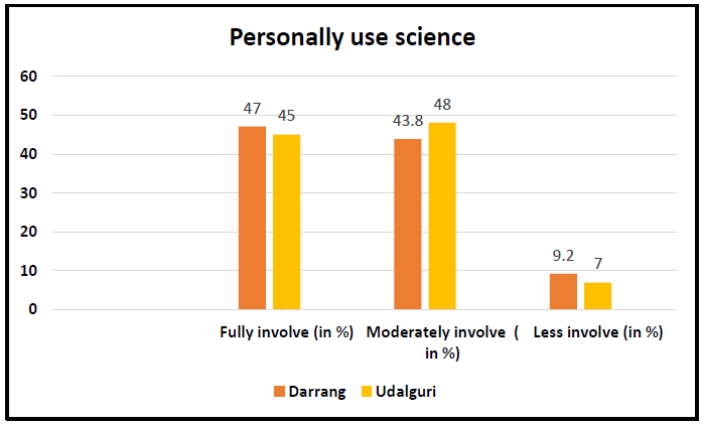

Fig 2.2: Personally use science

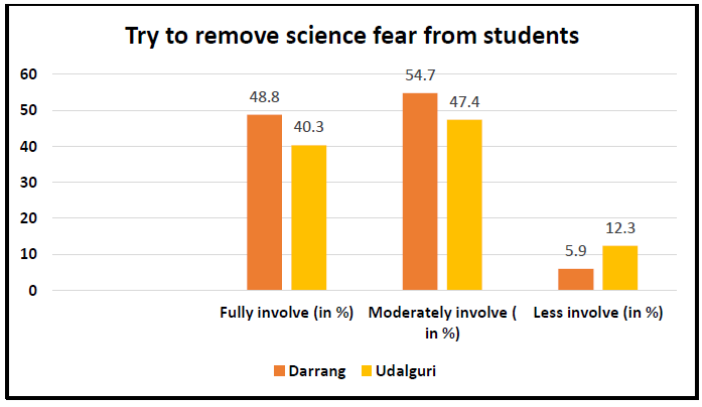

Fig 2.3: Try to remove science fear from students

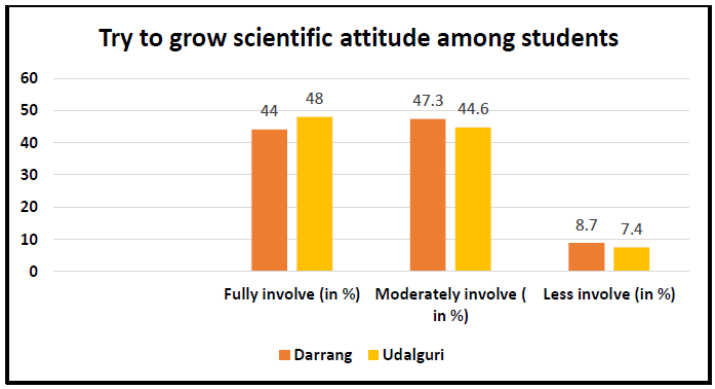

Fig. 2.4: Try to grow scientific attitude among students

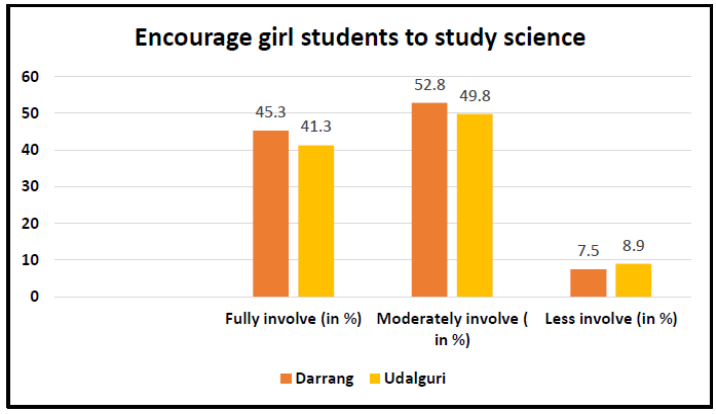

Fig. 2.5: Enourage girl students to study science

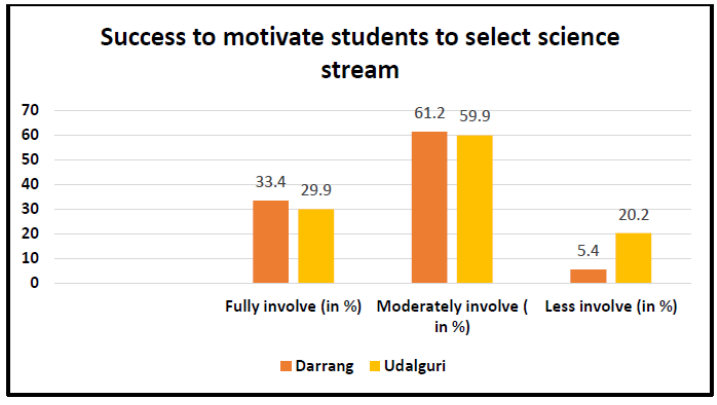

Fig. 2.6: Success to motivate students to select science stream

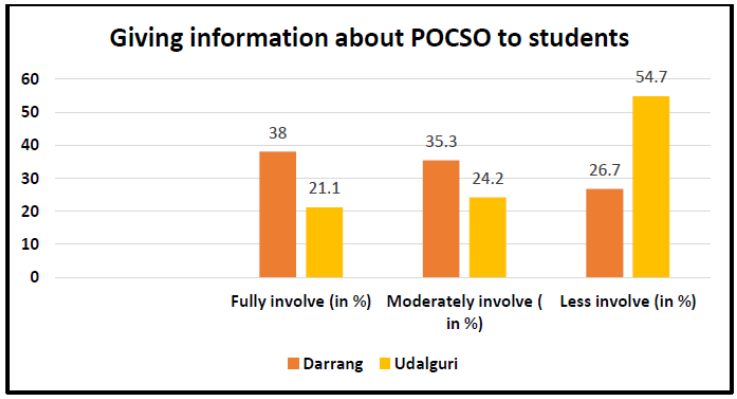

Fig. 2.7: Giving information about POCSO to students

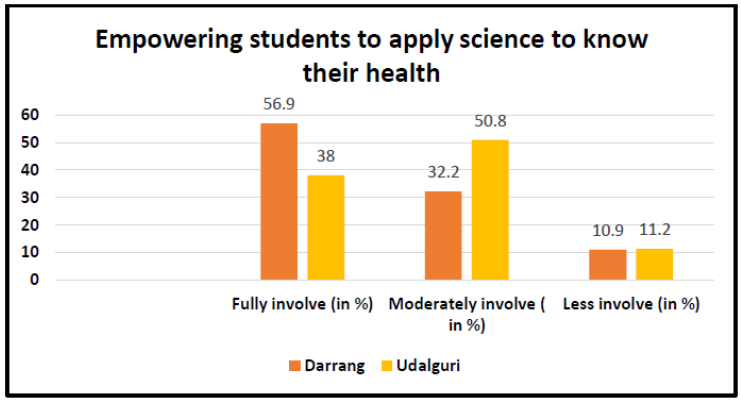

Fig. 2.8: Empowering students to apply science to know their health

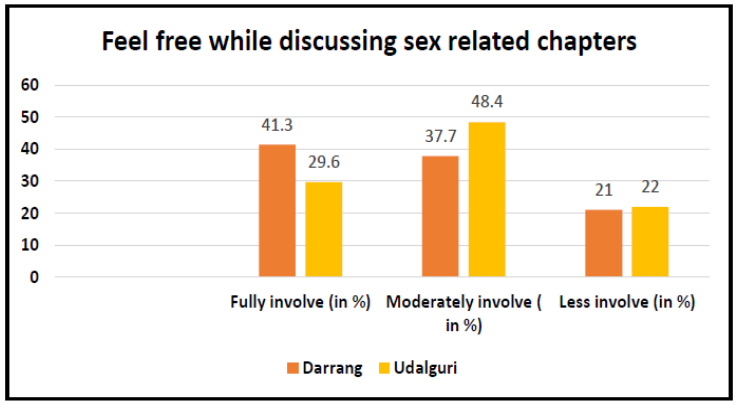

Fig. 2.9: Feel free while discussing sex related chapters

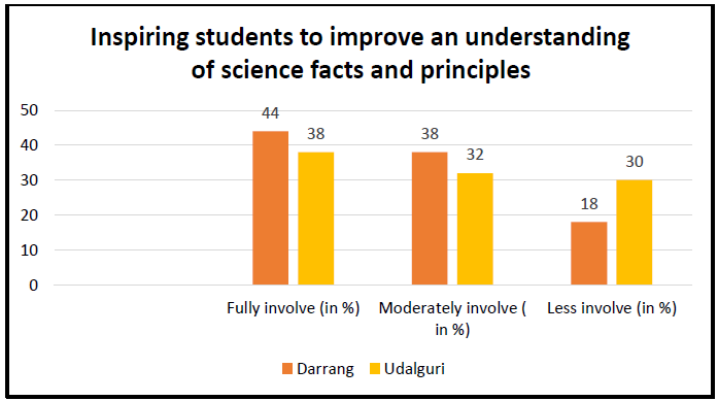

Fig. 2.10: Inspiring students to improve an understanding of science facts and principles

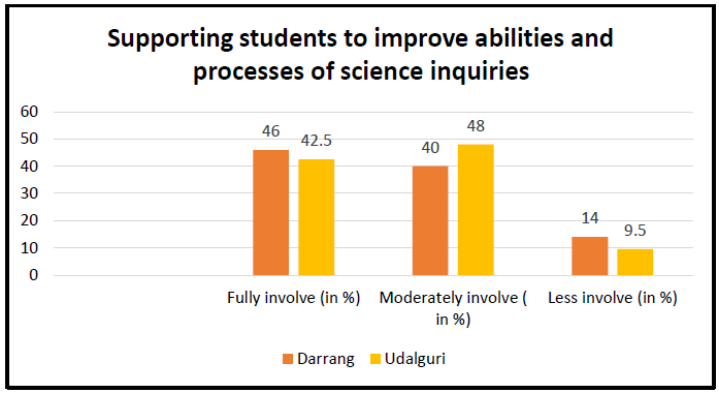

Fig. 2.11: Supporting students to improve abilities and processes of science inquiries

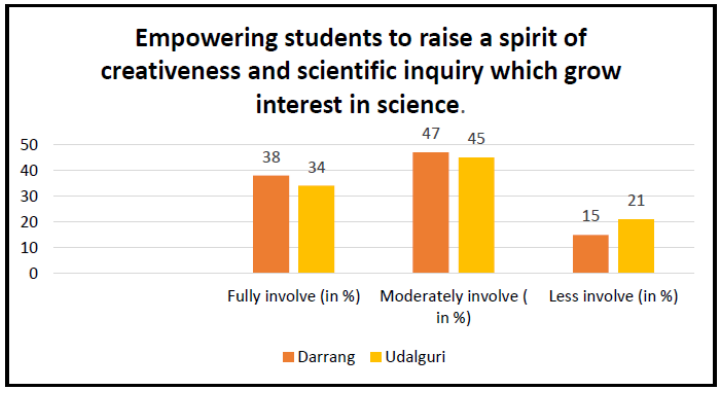

Fig. 2.12: Empowering students to raise a spirit of creativeness and scientific inquiry which grows an interest in science

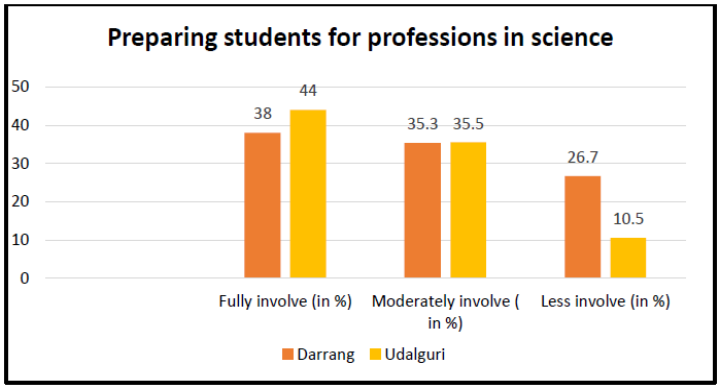

Fig. 2.13: Preparing students for professions in science

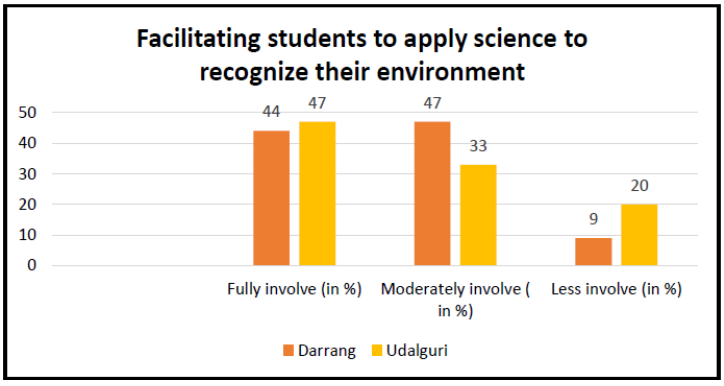

Fig. 2.14: Facilitating studnets to apply science to recognize their environment

Discussion

Hypothesis 2: There is no significant difference between the teachers of Darrang and Udalguri in the involvement of effective science teaching

The graph and tables revealed that the science teachers of Darrang and Udalguri were more involved in all the areas. According to their beliefs that reflect on effective science teaching it was found that at least 25% to 50% of teachers were fully involved, 30% to 60% were moderately involved and 5% to 50% were less involved in different areas. There was more or less similar involvement in every area by the science teachers of the Darrang and Udalguri districts. It shows that there was no significant difference between the teachers of the Darrang and Udalguri districts in the involvement of effective science teaching.

XIV. Conclusion

Science teachers can improve teaching effectiveness by organizing interesting and flexible teaching methods and being aware of the govt. rules and acts related to children, students, teenagers etc. Effective science teaching can bring about improvement in students' scientific attitude, empowerment in scientific creativity, growing interest towards science and scientific inquiry, and application of science in day-to-day life. Enhancement in student's achievement in science, attitude towards science and science process skills are found to be interrelated by effective science teaching. The science teacher's effectiveness depends upon the teacher's experiences, quality, qualifications, teacher's scientific knowledge, pedagogical skills about teaching learning strategies etc. The findings of the study reveal that the teacher effectiveness of science teachers of the Darrang and Udalguri districts were significantly different. It may be because of language differences among teachers of both districts. Udalguri district is under BTAD where the Bodo language is commonly used by the people and in Darrang, the Assamese language is commonly used. In Udalguri all the science teachers don't know the Bodo language properly which affects the classroom transaction. At the same time the beliefs of science teachers' of both the district on effective science teaching were more or less similar to each other.

XV. Suggestions for the Study

- The education department also has some responsibilities to make teaching learning process meaningful. The department should monitor the schools through frequent visits to check the learners' progress. The teachers should be evaluated by the experts and the needed training should be given to the ineffective teachers. The department should provide fully equipped teaching learning materials and teaching aids which would help teachers to make their science teaching more effective. The secondary schools should be equipped with science labs.
- The government is responsible for some reasons, for not providing effective Science teachers in secondary schools
- The teachers may try to acquaint themselves with novel strategies of teaching as it is an important factor in the teaching-learning process which eventually induces the teacher's effectiveness.
- This study will help the teachers to enhance the teacher effectiveness by making them aware of effective science teaching.
- Teachers can improve the academic achievements of students by

teaching in particular science subjects by raising awareness of scientific temperament.

- Teachers can use a particular method of science in their teaching/ classroom transactions associated with a particular content.
- Administrators may organize various programmes like refresher courses, orientation courses, seminars etc., to improve the teacher's effectiveness.
- It is the professional training e.g. B.Ed or M.Ed. which enables the teachers to be efficient and effective and, therefore it should be made mandatory for all secondary school teachers, especially science teachers.

XVI. Recommendations for Further Research

Based on the findings of the study and the limitations faced during the research process, some recommendations for further research are offered. Similar studies can be conducted at higher levels of learning and other areas of education.

- Future research can be conducted on a larger sample of the population to understand the phenomenon from a wider perspective.
- A study can be planned to explore other correlates of teaching effectiveness such as self-concept, emotional intelligence, job satisfaction etc., of secondary school teachers.
- The present study collected data from a particular given time from the teachers, future researchers need to consider the gradual change in the level of teacher effectiveness over a longer period in the same organization.
- The data collection tool to identify coping strategies used by the teachers was in the form of a rating scale. In future research, data may be collected through structured interviews to gather more deep and more authentic information from the respondents.
- Teacher characteristics proved as a significant component that may affect teacher effectiveness. The present study does not focus on some personality traits like aptitude, motivation, interest and attitude of teachers towards teaching. Future research should consider these factors to study the effectiveness of teachers.
- Future research should consider some environmental variables like infrastructure facilities, availability of resources, school management, locality, affiliation etc., while selecting a sample for the study.
- A comparative study can also be conducted in future to study teacher effectiveness, among private aided and government school teachers in two different states.

- The academic achievement of students may be considered a useful measure to study teacher effectiveness. Thus, further research should focus on establishing a relationship between teacher effectiveness and the academic achievement of students.

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Homework Diary Writing Practice: Impact on Student Academic Performance

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Abstract

The research is aimed to investigate the effect of homework diary writing on student academic performance. Participants are 358 students of secondary classes (class IX and class X) in the age group (14-17 years) from two government school in district Hisar, Haryana, India. Population under study consists of 124 students of School 1 with homework diary writing practice and 234 students from School 2 without homework diary writing practice. School 1 and School 2 are considered as experimental group and reference group, respectively. Score in Student Assessment Test (SAT) is taken as comparison tool for the study and pre-diary writing practice and post-diary writing practice SAT score of experimental group and reference group students is compared. The quantitative result shows that writing homework diary has a positive effect on student academic achievement. The current findings will be beneficial for students, teachers, teacher-trainers and stakeholders.

Keywords: *Impact, Homework Diary Writing Practice, Academic Performance.*

Introduction

Homework is an essential component of teaching-learning process that connects learning at school with home. Homework is defined as "tasks assigned to students by school teachers that are meant to be carried out during non-school hours" (Cooper, 1989). Teachers assign homework to know the understanding of the lesson, to make students practice, to increase their skill proficiency, to fulfill the need for extra practice required to absorb a concept and to practice its application field (Prommin Songsirisak, 2018). Assigning homework is a beneficial practice as it acts as a diagnostic tool that helps teacher to check the understanding and monitor the student progress. With the help of homework, learners learn outside the school and a healthy habit of self-study is inculcated. Students learn self-discipline as they manage to deal with distractions that are a quality direly required for good academic

performance. It helps students to develop good study habits of goal setting, planning, follow-up and time management (Bempechat, 2004; Ramdass, 2011). Simultaneously, homework develops a positive attitude toward school and teachers with a sense of personal responsibility as well as enhances student-teacher personal relation with regard to discussion on homework (Zach Howe 2019). Students' performance at school level is characterized by their academic achievement that is further estimated by their score in tests. These tests may be standardized or may be random that comes under the category of formative assessment. Evaluated academic performance of the individual student can easily be compared with that of others.

Effect of homework on student academic achievement is a topic of great interest for various research groups. Many educationists believe that homework is a necessary component of education and critical in enhancing the academic skills of students, while some researchers highlight its negative aspects too. Research shows that homework should be appropriately assigned for students as excess of homework make students lose their interest in learning and may lead to physical and emotional fatigue in turn. Paudel *et al.* (2012) explored about such issues related with student methodology and psychology behind homework completion and reported various responses to questions related with student attitude towards homework and their homework completion techniques. Matthew Deets (2015) interpreted that among high school physics students, the students with high learning aptitude show a slight increase in test scores as they completed their homework whereas low aptitude students showed a slight negative correlation between the percentage of amount of homework completed by them and their exam scores. Ruben Fernandez-Alonso (2017) analyzed how homework assignment strategies in schools affect students' academic performance as well as the differences in students' time spent on homework by using questionnaire tool. The author reported that the relationship between academic results and homework time is negative at the individual level but positive at the school level. The correlation coefficient between the volume of homework and difference in time spent by students was 0.69 and the regression gradient indicated that in type 1 schools, (which assigned 60 min of homework per day), there was a standard deviation of 25 min time spent by students on homework, whereas in type 2 schools (which assign 120 min of homework per day), the standard deviation was over 50 min. Particularly for mathematics subject, in type 1 schools, the difference in achievement between fast and slow learners was approximately 5% of a standard deviation, while in type 2 schools, the difference was to be 12%. Studies

show that homework depending on its amount and feasibility may have positive as well as negative effects. Chaya Heba (2021) reviewed the effects of homework on student academic achievement in descriptive manner and found that homework cast multidimensional effects the student depending on its nature and it is difficult to focus one aspect like academic achievement without involving simultaneous psychological effects like lacking sleep deprivation, boredom and social isolation. The author realized that by shifting to a new model in assigning homework, the teacher can significantly affect the student engagement at home and academic achievement. It is observed by many research groups that homework checking and commenting is also an essential component that needs attention. Recently, Fahmi Latif et al (2022) reported the secondary school academic performance in relation to homework. The research group showed that teachers' input on students' homework has direct impact on student learning aptitude that in turn affects their marks obtained. It includes details regarding pointing out the errors and mistakes in the students' written assignment and giving feedback in a positive manner that may motivate students for learning and performing better .

During the present course of investigation, efforts are made to find the effect of homework diary writing on student academic performance using statistical analysis. The sample under study consists of 358 students of secondary classes (class IX and class X) in the age group (14-17 years) from two government schools of district Hisar, Haryana, India. School 1 with homework diary writing practice is selected as experiment group and School 2 without homework diary writing practice is chosen as reference group. Mean Student Assessment Test (SAT) score of class IX and class X students of School 1 and School 2 is compared using independent t-test. The correlation coefficient is estimated using paired sample t-test. The comparison of pre-diary writing and post-diary writing practice SAT score indicates that there is a positive correlation between homework diary writing and student academic score. The current findings are of great importance for students, teachers, teacher-trainers and policy makers.

Problem Statement

The purpose of the study is to investigate the impact of homework diary writing on student academic achievement of secondary grade (class IX and class X) students. It is observed that most of the time, teachers at government schools in Haryana give homework to students but not get it written in homework dairy properly and countersign it. Due to this, majority

of students do not take concern for homework and even forget to complete their homework. The present research work is carried out to find the impact of homework diary writing on student academic performance at government schools of district Hisar, Haryana, India. In School 1, an experiment of homework diary writing is carried out for a period of 40 days after their SAT examination in the month of September-2022. The homework diary of students is checked by researcher after a regular period of time. School 2 with no homework diary writing practice is selected as reference group. Class-wise results of the experiment group are compared with reference group. Further, the pre-diary writing and post-diary writing SAT score of schools under study are analyzed and a correlation is established between the two variables.

Research Objectives

The main objective of the study is:

To find out impact of homework diary writing practice on student academic performance for secondary level (class IX and class X) of government school.

Research Questions

The research question is formulated as:

Q1. What is the impact of homework diary writing practice on student academic performance?

Hypotheses

H1: There is no significant difference between the academic performance of the control group and experimental group of class IX students.

H2: There is no significant difference between the academic performance of the control group and experimental group of class X students.

Delimitation of the study

Only secondary level (class IX and class X) of government schools of district Hisar, Haryana is chosen for the study.

Methodology

Research Design

Herein, quasi-experimental approach with non-equivalent group design is employed. Two government schools of district Hisar within the

20 km periphery of the district headquarter are chosen as the experimental group and reference group. Homework diary writing practice is the independent variable and student academic performance is the dependent variable. Teacher competency is the intervening variable that is assumed to be equivalent for two groups under study. Impact of homework diary writing on student academic performance is studied quantitatively through analysis of mean SAT score in different subjects for individual students.

Participants

For the current research, sample under consideration is from two government schools depicted as School 1 (experiment group) and School 2 (reference group) of district Hisar, Haryana, India. Total 358 student of secondary level (124 from class IX and 234 from class X) from School 1 and School 2, all in age group of 14-17 years are under study.

Research Tools and Data Collection

For quantitative measurements, score in Student Assessment Test (SAT) before dairy writing practice (September-2022) and after homework diary writing practice (November-2022) is considered. The mean SAT score of all the subjects including Hindi, English, and Mathematics, Social Studies, Vocational subject and Science is taken as comparison tool. Using statistical methods, mean (M), standard deviation (SD), Pearsons correlation coefficient(r) and t-value are calculated.

Results and Discussion

H1: There is no significant difference between the academic performance of the control group and experimental group of class IX students.

A t-test that is a statistical technique is employed to compute the difference between means of SAT score. An independent sample t-test (IBM, SPSS) is conducted to compare the SAT score of IX class students of School 1 and School 2. Table 1 and Table 2 shows group statistics including mean (M), standard deviation (SD) and standard error mean for class IX students of School 1 and School 2. Results of Levene's Test indicates the equality of variance to be assumed. There is significant difference ($t(155)=5.030$, $p<0.001$) in the SAT scores with mean score for School 1 ($M=5.03097$, $SD=3.66602$) higher than School 2 ($M=2.7840$, $SD=1.91941$). The magnitude of the differences in the means (mean difference=2.25564) with 95%

confidence interval 1.36974 to 3.14154 is significant. Hence, hypothesis H1 gets rejected.

Table 1. Group Statistics for Class IX

	ID	N	Mean	Std. Deviation	Std. Error Mean
Change	School 1	63	5.0397	3.66602	0.46188
	School 2	94	2.7840	1.91941	0.19797

Table 2. Independent Samples Test for Class IX

Levene's Test for Equality of Variances				t-test for Equality of Means						
						Significance				95% confidence interval the difference	
		F	Sig.	t	df	one –sided p	two-sided p	Mean Difference	Std. Error Difference	Lower	Upper
Change	Equal variance assumed	2.925	0.089	5.030	155	0.001	0.001	2.25564	0.44847	1.36974	3.14154
	Equal variance not assumed			4.489	84.962	0.001	.001	2.25564	0.50252	1.25650	3.25478

Effect sizes are "a quantitative reflection of the magnitude of some phenomenon that is used for the purpose of addressing a question of interest (Kelly and Preacher, 2012). Cohen's d is the value for the standardized mean difference between SAT score of School 1 and School 2. According to Cohen (1988) "rule of thumb" ds =0.819> 0.8 represents "large" effect size as mean of two school scores differ by 0.819 (Table 3.) . Here dsrepresnts proportion of standard deviation. Moreover, Hedge's Correction g_s =0.483 and Glass's delta Δs=0.812 confirms the significant difference among results and hence hypothesis H1 is again rejected.

Table 3. Independent Samples Effect Sizes for Class IX

		Standarizer	Point Estimate	95% confidence Interval	
				Lower	Upper
Change	Cohen's d	2.75434	0.819	0.486	1.150
	Hedge's Correction	2.76775	0.815	0.483	1.144
	Glass's delta	1.91941	1.175	0.812	1.534

H2: There is no significant difference between the academic performance of the control group and experimental group of class X students.

An independent sample t-test is conducted to compare the SAT score of X class students of School 1 and School 2 and respective results are tabulated in Table 4. and Table 5. There is significant difference (t(199)=15.005, p= 0.001) in the SAT scores with mean score for School 1 (M=5.4749, SD= 1.52825) is higher than School 2 (M=2.1703, SD= 1.39361). The magnitude of the differences in the means (mean difference=3.30457) with 95% confidence interval 2.87028 to 3.73886 is significant. Hence, hypothesis H2 is nullified. Cohen's d is the value for the standardized mean difference between SAT score of School 1 and School 2. According to Cohen (1988) "rule of thumb" d_s =2.302> >0.8 represents "large" effect size as mean of two school scores differ by 2.302 (Table 6.). Here ds represents proportion of standard deviation. Moreover, Hedge's Correction g_s =2.239 and Glass's delta Δs =2.371 confirms the significant difference among results. It is evident from the research results that, with homework diary, there is significant increment in student academic achievement. Writing homework diary enhances the results of students that are essential for any school academic performance.

Table 4. Group Statistics for Class X

	ID	N	Mean	Std. Deviation	Std. Error Mean
Change	School 1	61	5.4749	1.52825	0.19567
	School 2	140	2.1703	1.39361	0.11778

Table 5. Independent Samples Test for Class IX

Levene's Test for Equality of Variances				t-test for Equality of Means						
						Significance				95% confidence interval the difference	
		F	Sig.	t	df	one –sided p	two-sided p	Mean Difference	Std. Error Difference	Lower	Upper
Change	Equal variance assumed	0.104	0.747	15.005	199	0.001	0.001	3.30457	0.22023	2.87028	3.73886
	Equal variance not assumed			14.469	105.384	0.001	.001	3.30457	0.22839	2.85174	3.75739

Table 6. Independent Samples Effect Sizes for Class X

		Standarizer	Point Estimate	95% confidence Interval	
				Lower	Upper
Change	Cohen's d	1.43553	2.302	1.924	2.676
	Hedge's Correction	1.44097	2.293	1.917	2.666
	Glass's delta	1.39361	2.371	1.959	2.779

Correlation between homework diary writing and student mean score

A paired sample t-test is conducted to evaluate the correlation between homework diary writing and student mean score. The statistical results of the comparative analysis of SAT score pre-diary writing and post-diary writing for the class IX, School 1 is shown in Table 7. The results shows that there is a significant increase in the mean SAT score of students of class IX of School 1, before (M=7.64, Variance=4.98) to after (M=12.59, Variance= 14.52), t(58)=-10.105, p<0.001(two-tailed). The Pearson Correlation Coefficient(r) 0.314 indicates positive correlation between homework diary writing and student marks with average improvement of 65% in result.

Table 7. t-test: Paired Two Sample for Means of SAT score of Class IX, School 1 pre-diary writing (September-2022) and post-diary writing practice (November-2022)

t-Test: Paired Two Sample for Means	**IX School 1**	
	September 2022	November 2022
	4.333333333	*12.16666667*
Mean	7.644067796	12.59322034
Variance	4.986309985	14.52324826
Observations	59	59
Pearson Correlation	0.314768187	
Hypothesized Mean Difference	0	
df	58	
t Stat	-10.10516218	
P(T<=t) one-tail	1.05175E-14	
t Critical one-tail	1.671552762	
P(T<=t) two-tail	2.1035E-14	
t Critical two-tail	2.001717484	

Table 8. displays the statistical results of the comparative analysis of SAT score of the class X, School 1 with paired -sample t-test. The results confirm that there is a significant increase in the mean SAT score of students of class X of School 1, pre- diary writing (M=9.03, Variance=5.98) to post-diary writing (M=14.47, Variance= 6.16), t(59)=-27.960, $p<0.001$(two-tailed). The magnitude of Pearson Correlation coefficient (r=0.813) indicates positive correlation between homework diary writing and student marks with average improvement of 60% in result.

Table 8. t-test: Paired Two Sample for Means of SAT score for Class X, School 1 pre-diary writing (September-2022) and post-diary writing practice (November-2022)

t-Test: Paired Two Sample for Means	Class 10 School 1	
	September 2022	November 2022
	10	18
Mean	9.038333333	14.47111111
Variance	5.989061205	6.16364281
Observations	60	60
Pearson Correlation	0.813686347	
Hypothesized Mean Difference	0	
df	59	
t Stat	-27.96024199	
P(T<=t) one-tail	4.90892E-36	
t Critical one-tail	1.671093032	
P(T<=t) two-tail	9.81784E-36	
t Critical two-tail	2.000995378	

Table 9. t-test: Paired Two Sample for Means of SAT score for Class IX, School 2 of the month September-2022 and November-2022

t-Test: Paired Two Sample for Means	Class 9 School 2	
	September 2022	November 2022
	2.75	9.166666667
Mean	6.839426523	9.584408602
Variance	6.268313919	9.227740377
Observations	93	93
Pearson Correlation	0.783443826	
Hypothesized Mean Difference	0	
df	92	
t Stat	-13.9922259	
P(T<=t) one-tail	8.2532E-25	
t Critical one-tail	1.661585397	

P(T<=t) two-tail	1.65064E-24
t Critical two-tail	1.986086317

The above results indicate that there is strong impact of homework diary writing practice on student academic achievement. Table 9 and Table 10 shows the results of t-test: paired two sample for means of SAT score for Class IX and class X respectively of School 2 for the month September-2022 and November-2022. Since for reference group, there is no diary writing practice, there seems to be increase in mean score for class IX, September-2022 (M=6.83, Variance=9.58) to November-2022 (M=6.26, Variance= 9.22), t(92)=-13.992, p<0.001(two-tailed), and for class X, September-2022 (M=7.90, Variance=10.08) to November-2022 (M=3.97, Variance= 4.01), t(138)=-18.324, p<0.001(two-tailed). Figure 1 and Figure 2 shows mean SAT score for class IX and class X, respectively for the School 1 and School 2 under study. Though there is a slight improvement in result of School 2, (40% for class IX and 27% for class X), the average improvement in result is much larger for School 1 that reconfirms the positive impact of homework diary writing on student academic performance.

Table 10. t-test: Paired Two Sample for Means of SAT score for Class X, School 2 of the month September-2022 and November-2022

t-Test: Paired Two Sample for Means		**Class 10 School 2**
	September 2022	November 2022
	8.4	10.16666667
Mean	7.909172662	10.0823741
Variance	3.979867447	4.015421779
Observations	139	139
Pearson Correlation	0.755483984	
Hypothesized Mean Difference	0	
df	138	
t Stat	-18.32441021	
P(T<=t) one-tail	4.36805E-39	
t Critical one-tail	1.655970382	
P(T<=t) two-tail	8.7361E-39	
t Critical two-tail	1.977303542	

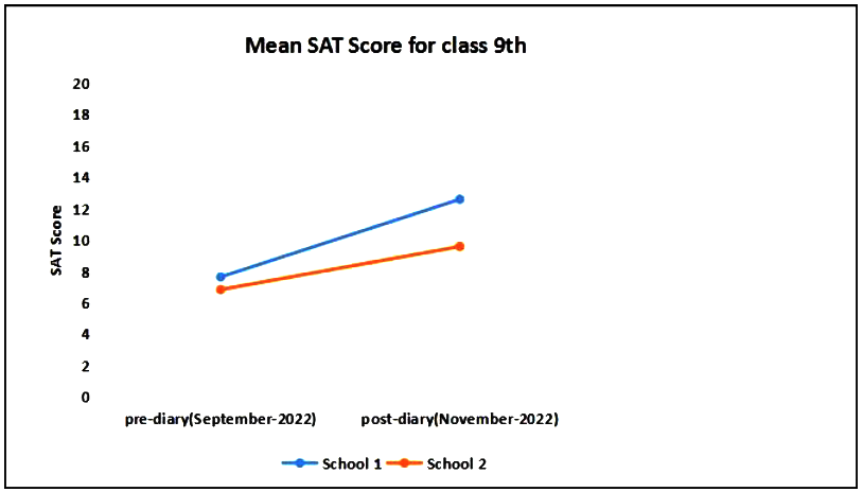

Figure 1. Pre-diary and post-diary writing practice mean SAT Score for class IX, for School 1 and School 2

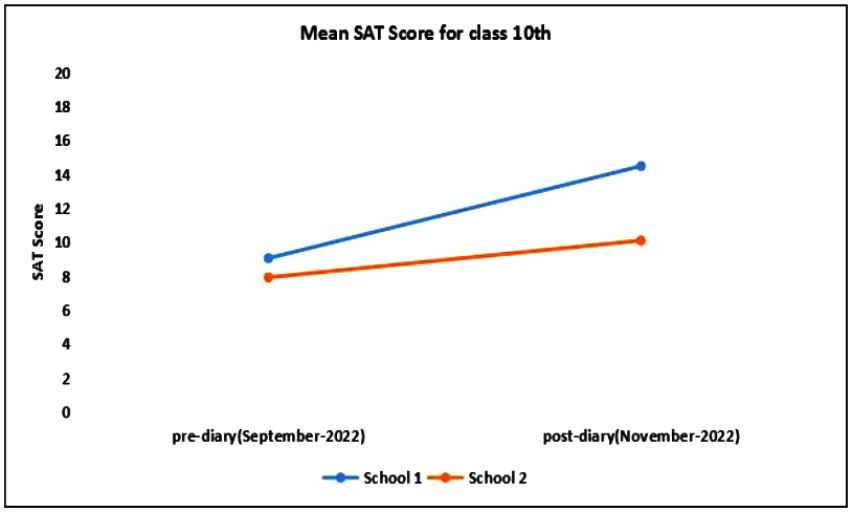

Figure 2. Pre-diary and post-diary writing practice mean SAT Score for class X, for School 1 and School 2

Research Findings

1. There is significant difference ($t(155)=5.030$, $p<0.001$) in the SAT scores with mean score for class IX of School 1 ($M=5.03097$, $SD= 3.66602$) higher than School 2 ($M=2.7840$, $SD= 1.91941$).
2. There is significant difference ($t(199)=15.005$, $p= 0.001$) in the SAT scores with mean score for class X of School 1 ($M=5.4749$, $SD= 1.52825$)

is higher than School 2 (M=2.1703, SD= 1.39361).

3. Large average improvement in SAT score of experiment group as compared to that of reference group establishes that homework diary writing strongly influences the student academic achievement.

Conclusion and Recommendations

Herein, academic achievement is analyzed through comparative study of SAT score of students. The statistical analysis shows that student academic score increases by including homework diary writing as there is a rise in student mean SAT score pre-diary writing and post-diary writing practice. The research findings indicate that implication of homework diary writing is an effective technique and student performance can be greatly improved through this. It is recommended that homework format should be changed. It should be in small chunks rather than in bulk. There is also a need of teacher-training for allotting homework in which there is proper purpose, design and format of homework. Students sometimes find it boring to write and learn, there may be some innovation in homework as giving some project work by dividing class in groups. It is also recommended that homework may be given in the form of drawing mind-maps, charts, pictures, and portfolios of any lesson so that students may be able to conceptualize the content. While allotting homework, students may be involved in home work assigning. There may be some thinking work. Overall homework should not be a burden to students. Lengthy homework may cause mental stress as well as lack of time for play and other outdoor activities for students and should be avoided.

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School Leadership for Large Scale Reforms Effects on Students, Teachers and their Classroom Practices in District Srinagar J & K: An Empirical Study

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Abstract

We have undertaken a sample survey on School Leadership for Large Scale Reforms Effects on Students, Teachers and their Classroom practices in District Srinagar. In sampling we have selected 8 Govt. Higher & 8 Govt. High Schools in district Srinagar. For acquiring of primary data we have involved head of Institution, to know how well they are equipped with leadership skills to lead the institution. Similarly Lecturers/Teachers & Students were engaged to know how well their HOI are capable and have leadership qualities in presiding the educational institution. Data from schools is obtained through questionnaire. The collected data is then presented in the form of pie charts. Finally, analysis of data is carried out to find whether School Leadership for Large Scale Reforms Effects on Students, Teachers and their Classroom practices.

Keywords: *School leadership for large scale reforms, pie charts, chi-squares, p-value, Proportional allocation, SCERT Jammu and Kashmir, SLA Jammu and Kashmir.*

1. Introduction

Dominance of education, knowledge and emergence of human resource development or human capital were the most significant developments of last half of the 20th century. These are likely to dominate the debates on growth theories in 21st century. It is true that education will not cure all problems of a society but without it no solution of problem is possible. It is the key to economic efficiency, social stability, intellectual flexibility and overall productivity of labour force. It yields both direct and indirect benefits. Besides these benefits, budget allocation for Union territory of J & K by Ministry of Education through Directorate of Samagra Shiksha in human capital generate positive externalities. Similarly it is synergistic, leading to greater utilization and greater impact of expenditure in other areas such as health, nutrition, sanitation and environment.

2. Need and Background

The destiny of nation is being shaped in its classroom. How have we shaped our classroom, which has to shape this classroom? The schools are in public domain, as never before, the change in the social matrix in J & K especially in Srinagar has increased the aspirations and expectations of society. There is realization that schools must change.

The Head of a School is the prime mover of leading changes and enabling transformation. The school head as transformative agent are occupying the centre stage in all reforms of government. He is playing a key role and is answerable to all that happens inside the school. He can convert ordinary schools into 'centres of excellence'; demands a shift in the role of school heads from mere execution of administrative and managerial responsibilities to initiating proactive practices for school transformation.

Need

The school leadership operates within diverse & dynamic education context. The roles of schools heads continued to evolve in response to new challenges including armed cum political conflicts and Covid 19 pandemic. The school leadership plays an important role in modernizing education systems in order to meet the challenges in educational sector. The research study on school Leadership in J & K is even more important for the schools working under difficult circumstances with limited resources and political uncertainty coupled with increased expectations from parents and community. It becomes important as the State has to provide free and

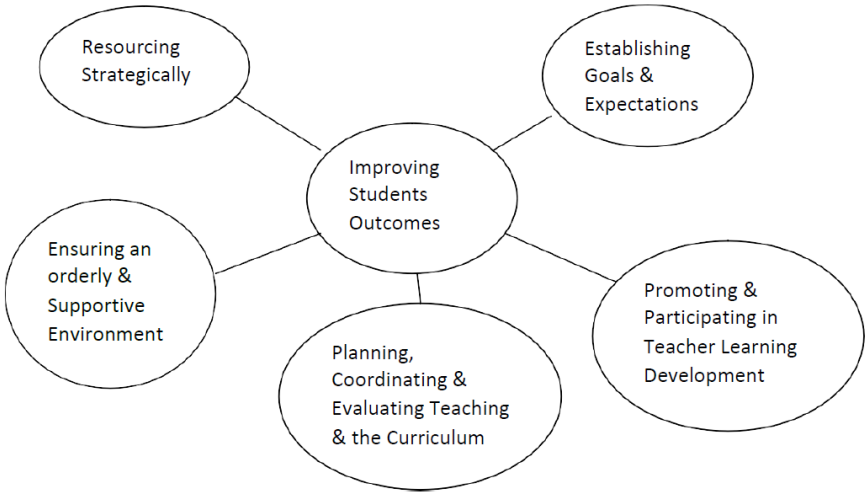


Fig. 1

compulsory education to all children of the age of six to fourteen years in such manner as the State may, by law, determine. (86th Amendment, Article 21A, The Constitution of India, December 2002 and the Right of Children to Free and Compulsory Education Act 2009).

The linking of leadership dimensions with students outcomes, (Robinson et. al 2008)

3. Literature Review

The influential leadership models have been established within the past century. The Trait Approach that persisted up to late 1940s asserted that leadership capacity of an individual is innate. The Behavioral Approach became central from late 1940s to late 1960s promoting that leadership effectiveness has to do with the behavior of the leader. The Contingency Approach became famous in late 1960s to the early 1980s, signifying that leadership effectiveness is contingent on the situation. "Recent approaches to leadership spotlight vision and charisma. Afterwards, Burns presented the concepts of transformational and transactional leadership. The present day Shared leadership is a leadership style that broadly distributes leadership responsibility, such that people within a team and organization lead each other.

The leader is expected to go beyond administration, management to provide leadership by fostering an environment to change, in order to become a leader, you have to achieve a few goals as illustrated in the model proposed by Boles & Devenport (1975).

Goal-I: Maintaining a school
Goal-II: Providing learning opportunities
Group-III: Innovations
Group-IV: Satisfying needs

The above goals demonstrates, while managing, monitoring, administering your school.

The seven key roles of and accompanying responsible of school leader, can be understood from figure 2.

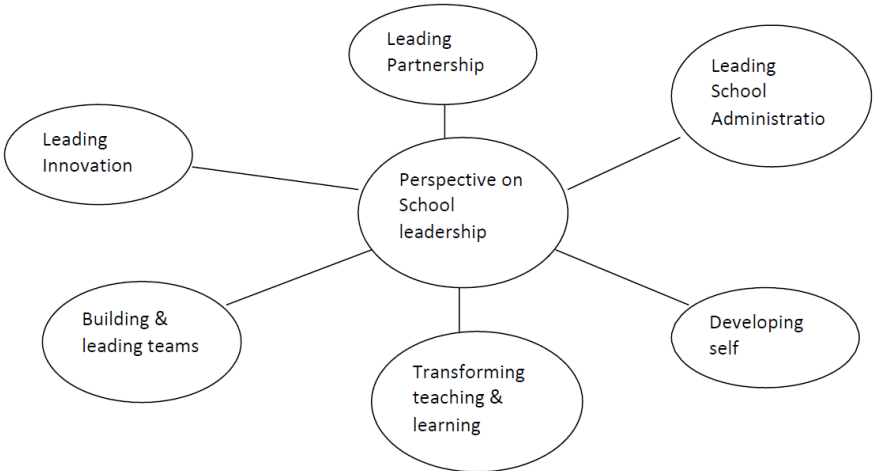


Fig. 2

4. **Types of Educational Leadership**

1. Transformational leadership
2. Servant Leadership
3. Responsible leadership
4. Distributed Leadership

Styles of Leadership

There are four types of leadership styles that were chosen based on the leadership spectrum:-

1. Transformational Leadership
2. Situational Leadership:
3. Democratic Leadership:
4. Authoritarian Leadership

5. **Models of Leadership in the Field of Education**

1. Murphy's Model: The four dimensions of the leadership were:

a) Developing mission and goals
b) Managing the educational production function
c) Promotion of academic learning climate
d) Development of supportive work environment.

2. Weber's Model: Weber (1996) described five important dimensions of a principal in his model. Those were:

a) Defining the school‟s mission
b) Managing curriculum and instruction

c) Promoting a positive learning climate
d) Observing and improving instruction
e) Assessing the instructional program

3. Michelle's Model: Michelle's model (2003) included three dimensions of leadership in the field of education. Those were:
a) Defining and communicating shared goals
b) Monitoring and providing feedback on the teaching learning process
c) Promoting school-wide primary responsibilities development

4. Lineburg's Model: Lineburg's model (2010) described five important dimensions of a principal in his model. Those were:
a) Communicating goals
b) Supervising instruction
c) Promoting professional development
d) Providing resources
e) Providing incentives

6. Research Questions

1. What are the existing leadership behaviour, that developing schools haS as a learning organization?
2. What are the prominent leadership challenges faced by the heads in Kashmir Valley like ageing school leaders (nearing retirement), unclear and varying recruitment procedures for heads, lack of sufficient preparation & training?
3. What are the reasons for low attractiveness to school leader profession, lack of professional development, heavy workload?
4. What are the reasons for gender imbalance of school leader, especially in urban areas?
5. What are the significant changes in nature of work of school leaders as per NEP 2020 recommendations?
6. What are the increasing areas of responsibility in crisis times (political or pandemic, administrative failures)?

7. Statement of the Problem

The present study entitled "School Leadership for Large Scale Reforms Effects on Students, Teachers and their Classroom Practices in District Srinagar J & K: An Empirical Study" focuses on how immensely leadership at large reforms take repercussions on students, teachers in public

high and higher secondary schools.

8. **Objectives of the Study**

- To investigate and analyze the school leadership practices in public schools of District Srinagar.
- To examine the school leadership like initiatives taken by successful schools in terms of environment, infrastructure, teacher retention & its challenges.
- To identify & document the needs of school leaders.
- To suggest policy conclusion based on present study.

9. **Methodology Sample Description**

In the National Educational Scenario, J&K UT is subsumed as educationally backward in reference to the established indices namely literacy rate, teacher pupil ratio, dropout rate and the absorption pattern of the educated persons. The Education Department with broaden objectives of Universalization of Elementary Education, Extension of School facilities within every school, development of infrastructure and providing incentive structure to improve enrolment and retention in implementing various schemes through the following sectors. The organogram of department of education is State level Administrative Structure with two regional directorates, Samagra Shiksha (SSA/RMSA & Teacher Education), Cluster Level (If CRC is there, the block Level Information), Tribal Welfare Department.

E. Data Analysis (in brief descriptive statistics used etc.) Schools by Management in J & K.

Table 1

S. NO.	GOVT.	AIDED	PRIVATE	OTHER	TOTAL
O1	24080	29	5552	47	29708

Table 2

STATISTICAL INFORMATION (NO. OF GOVT.INSTITUTIONS IN KASHMIR DIVISION)				
5710	3894	805	378	64
PRIMARY	MIDDLE	SECONDARY	SENIOR SECONDARY	KGBVs

Table 3- Enrolment at Secondary/Sr. Secondary Level in Government Schools

S. NO.	SCHOOL CATEGORY	NO.	ENROLLMENT
01	Secondary	72	21007
02	Sr. Secondary	34	19952

Table 4- PUPIL TEACHER RATIO

SCHOOL TYPE	ENROLMENT	NO. OF TEACHERS	PTR
Elementary and Secondary	35384	4137	8.55
Secondary	19952	498	40.06

Table 5- SUMMARY DISTRICT SRINAGAR MANAGEMENT WISE NUMBER OF SCHOOLS

MANAGEMENT	PRIMARY	MIDDLE	HIGH	HIGHER SECONDARY	TOTAL
Department of education	235	213	72	34	554
Private	60	155	185	36	436
Private-Unrecognised	7	1	0	0	8
Kendraya-Vidyalaya	0	0	0	2	2
Total	302	369	257	72	1000

The Kashmir division of UT of J & K have 11720 educational institutes, which includes 6104 primary schools, 4278 upper primary schools, 822 high schools, 366 higher secondary schools, 12 D.I.E.T"s, one divisional campus of SCERT, 64 KGBVs and 73 mobile schools. The major initiatives taken for the year 2018-19 were establishment of 54 kindergartens, Zonal/Block & EBB in J & K.

Table 6- Human Resource in School Education Department

Broad categories of posts	Sanctioned	In-position	Vacancy
A) Teaching Staff			
Elementary			
General line teacher	52215	47454	4761
Teacher Grade II, Teacher grade III, ReTs / RReTs	--	35406*	
Sub total (Elementary)	**52215**	**82860**	
Secondary			
Masters	13055	12791	264
10+2 lecturers	10354	7618	2736
Sub total (Secondary)	**23409**	**20409**	**3000**
Total (Elementary + Secondary) A	**75624**	**103269**	**7761**
B) Non Teaching Staff			
Non Teaching	21050	14589	6461
Sub total	**96674**	**117858**	**14222**

The 35406 Teacher Grade II, Teacher Grade III, ReTs & RReTs are those initially engaged as ReTs and upgraded against vacancies of General Line Teachers/ No-teaching staff and also against supernumerary posts.

The data required for the analyses has been collected from the principals, students, teachers to identify the core financial competencies like planning, management & disbursement of funds. The selection was made by stratified random sampling method. The 16 high & senior secondary schools were chosen out of 72 secondary & 34 HSS in district Srinagar. The sample of 08 Government high & 08 higher secondary schools were selected from the district Srinagar. A schedule/questionnaire was developed as per Fielders Least Preferred Scale & Capability Maturity Model to meet the objectives after taking pilot survey. A primary survey was conducted through personal investigation method/enumerators questionnaire method followed by electronic questionnaire.

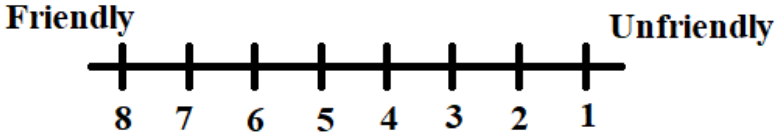
The school leaders will be evaluated by Knowledge, Skills and Attitude Framework.

Table 7

S. No.	Knowledge	Skills	Attitudes
1	School Leadership	Vision Building	Taking Initiative
2	Pedagogical Content Knowledge	Collaboration	Positive Outlook
3	Academic Supervision	Communication	Being Proactive
4	Team Learning	Academic Supervision	Belief that every child can learn
5	School Development Plan	Supporting transformation of teaching learning process	Belief that every child progress in his/her learning gap
6	ICT Initiatives in Education	Planning & reviewing	Belief that every child can develop his/her KSA

Fiedlers Leader's Trait

In order to assess the attitudes of the leader, Fiedler developed the 'Least Preferred Co-worker' (LPC) scale in which the leaders are asked about the person with whom they least like to work. The scale is a questionnaire consisting of 16 items used to reflect a leader's underlying disposition toward others. The items in the LPC scale are pleasant / unpleasant, friendly / unfriendly, rejecting / accepting, unenthusiastic / enthusiastic, tense / relaxed, cold / warm, helpful / frustrating, cooperative / uncooperative, supportive / hostile, quarrelsome / harmonious, efficient / inefficient, gloomy / cheerful, distant / close, boring / interesting, self- assured / hesitant, open / guarded. Each item in the scale is given a single ranking of between one and eight points, with eight points indicating the most favorable rating.



Situational factor

According to Fiedler, a leader‟s behavior is dependent upon the favorability of the leadership situation. Three factors work together to determine how favorable a situation is to a leader. These are:

Leader-member relations - The degree to which the leader is trusted and liked by the group members, and the willingness of the group members to follow the leader‟s guidance.

Task structure - The degree to which the group's task has been described as structured or unstructured, has been clearly defined and the extent to which it can be carried out by detailed instructions.

Position power - The power of the leader by virtue of the organizational position and the degree to which the leader can exercise authority on group members in order to comply with and accept his direction and leadership.

With the help of these three variables, eight combinations of group-task situations were constructed by Fiedler. These combinations were used to identify the style of the leader.

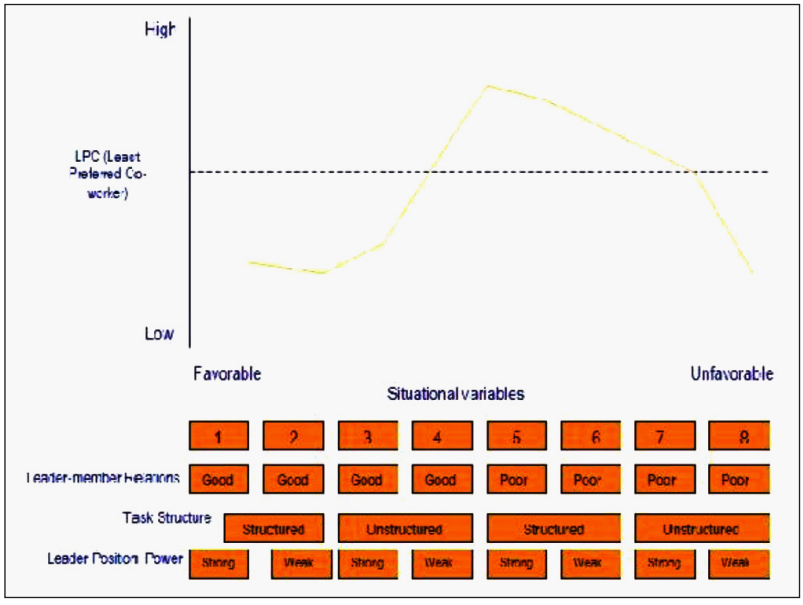


Figure 1: Correlation between leader's LPC scores and group effectiveness

The total sampled schools were 16, from each school we took two lecturers, two teachers, two non teaching staff & also two students from each class to evaluate the effectiveness & impact of leadership practices on teaching & learning process. The rating scale & questionnaire were developed as per Fielders model core competencies. The separate questionnaire has been devised for each group.

10. Results/Findings

The 40% school heads are male, while the remaining 60% were female. The 86.7% respondents were 50-59, & 13.3% were 40-49 age group. This indicates the ageing problem in school education department. The 73.3% school leaders have designated responsibility of their own schools, while 26.7% remarks were they have responsibilities other than their own school, including few educational zones.

The 73.3% school leaders have completed masters degree with B.Ed while 20% remarks were bachelors with B.Ed.

The 46.7% school leaders had 3-5 years experience as principal in the present institute despite an average age of 55 years, 20% remarks were 1-2 years as principal, & 13.3% remarks were 6-10 years as principal.

The 46.7% of teachers & students strongly agreed that principal has led by doing rather than simply by telling.

School leadership has become a priority in education policy agendas across OECD and partner countries because it plays a key role in improving classroom practice, school policies and connections between individual schools and the outside world.

It contributes to improved student learning

There is increasing evidence that within each individual school, school leaders can contribute to improved student learning by shaping the conditions and climate in which teaching and learning occur. A large body of research on school effectiveness and improvement from a wide range of countries and school contexts has consistently highlighted the pivotal role of school leadership in making schools more effective (Sheerness and Bosker, 1997; Teddlie and Reynolds, 2000; Townsend, 2007).

An important finding emerging from the research is that the relationship between school leadership and student learning is mostly indirect. As school leaders work mainly outside the classroom, their impact on student learning is largely mediated through other people, events and organizational factors such as teachers, classroom practices and school climate (Hallinger

and Heck, 1998). The finding that the relationship between leadership and student learning is mediated through such factors underscores the powerful role of the school leader in helping to create the conditions for effective teaching and learning. School leaders influence the motivations, capacities and working conditions of teachers who in turn shape classroom practice and student learning.

Moving a step further, the research on school leadership effects has revealed a number of leadership roles and responsibilities that are particularly conducive to enhancing student learning. Findings of the research on leadership effects have recently been consolidated in a number of reviews and meta-analyses. These show that certain leadership practices are associated with measurable improvements in student learning (Hallinger and Heck, 1998; Marzano et al., 2005; Robinson, 2007; Waters et al., 2003). This report identifies four major domains of responsibility as key tasks for school leadership to improve teaching and learning within their schools: supporting and developing teacher quality, defining goals and measuring progress, strategic resource management and collaboration with external partners.

It bridges educational policy and practice

School leadership also plays a major role in education reform. Much has been written about top-down versus bottom-up strategies for school improvement and there is widespread agreement that the two need to be combined and synchronized (Fullan, 2001; Hopkins, 2008; Moos and Huber, 2007). While higher levels of the educational system can provide policy directions for schools, their success often depends on the motivations and actions of leaders at the school level.

For centrally initiated reforms to become meaningful to all school-level stakeholders, they need to be associated with internal school improvement activities in a coherent way (Stoll et al., 2002). Successful implementation and institutionalization of reform requires leadership at the school level to promote adaptations of school processes and systems, as well as cultures, attitudes and behaviours.

Therefore, unless school leaders feel a sense of ownership of reform and agree with its purposes it is unlikely that they will engage their staff and students in externally defined reform objectives. School reform is more likely to be successful if school leaders are actively involved in policy development and formulation. Continuous dialogue and consultation between policy makers and those who lead schools at the front line are thus

essential for successful large scale reform.

The Summary of Results of Capability Maturity Model are

Competency	Novice %age	Practitioner %age	Proficient %age	Expert %age
Data Driven Instruction	0.00	1.79	37.50	60.71
Developing Learning Culture	0.00	0.00	66.07	23.11
Managing Communication	0.00	1.79	35.71	62.50
Developing Influence	0.00	0.00	69.64	30.36
Coaching & Feedback	28.57	28.57	12.50	30.36
Building Collaboration	0.00	12.50	73.21	14.29
Curriculum & Instruction	0.00	0.00	39.29	60.71
Self Awareness	0.00	5.36	55.36	30.36
Self Management	0.00	8.93	62.50	28.57
Managing Resources & System	0.00	8.93	62.50	28.57
Managing Program & Project	0.00	5.36	62.50	30.36
Managing Financial Resources	0.00	8.93	37.50	60.71

Source: Primary Study 2022

The study observed that Principals/HMs are good at self management, curriculum & instruction and data driven instruction. In other competencies, the Principals/HMs fall in the Practitioner or Proficient level and ultimately they need to reach at Expert level, but we can start up by pushing them to the next level i.e., Proficient level and then to Expert level. It will be ideal to focus on 3-4 competencies rather than focusing on all competencies. The planning around strengthening the overall understanding around Developing Learning Culture, Developing Influence, Managing Resources & System and Managing Financial Resources. They need immediate attention first as is clearly visible from the data.

So a detailed capacity building roadmap can be suggested based on depth analysis of responses on different situations in each competency.

Phase 1	**Phase 2**	**Phase 3**
Developing Learning Culture	Building Collaboration	Data Driven Instruction
Developing Influence	Managing Communication	Coaching & Feedback
Managing Financial Resources	Self Awareness	Self Management
Managing Resources & System	Managing Program & Project	Curriculum & Instruction

- More and exclusive training programmes should be conducted to advance the leadership effectiveness of the school principals/headmasters.
- The study findings insisted that the school principals should practice effective leadership qualities for the promotion of the school and members of the school.
- The study revealed that the school principals with more than five years of experience showed higher level of leadership effectiveness. This calls for having induction training programmes to the new principals with less than five years of experience.
- The pre-service teacher education curriculum must provide sufficient practices to develop good leadership qualities and styles among the student-teachers.

Any amelioration at school leadership level has compelling effects on leadership quality of teachers classroom practices and students achievement.

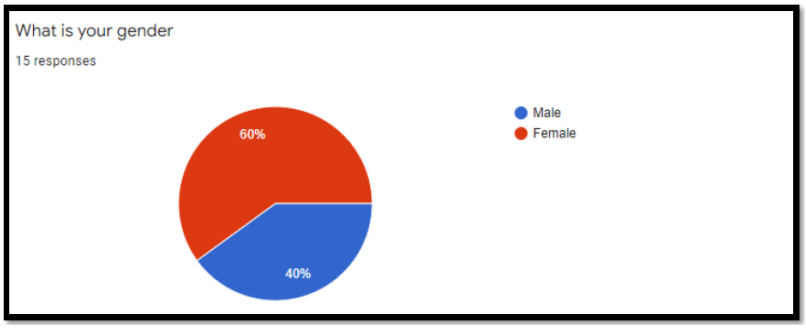
The sample size of 114 students were interviewed on different

parameters. The 58.8% principal/headmaster have leadership skills to deal with student concerns related to studies were only 36.8% are very active in guidance & counselling of students. The 45% principal/headmaster visit classes and lead pedagogical supervision role & guide teachers and provide feedback to teachers & lecturers. The students have rated different skill set on the scale of 1-5. On the key component of financial management and school leadership only 41% and 66.6 % principals & headmasters are rated to 5.

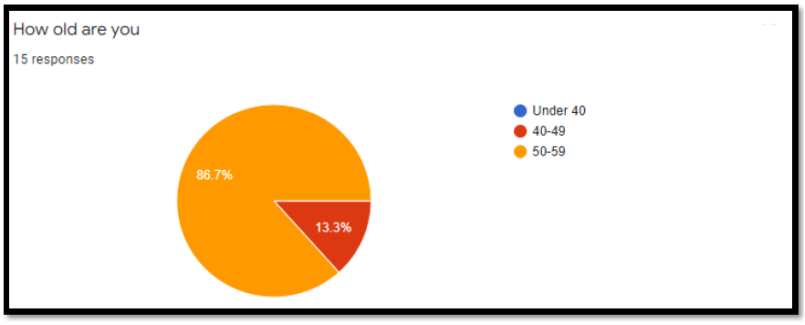
Therefore lack of school leadership skill set have negative impact on students perception and learning. As reported only 43% of principals & headmasters are active in supervising special educational programmes like audio visual, ICT integration, communication skills etc.

11. Presentation of Data

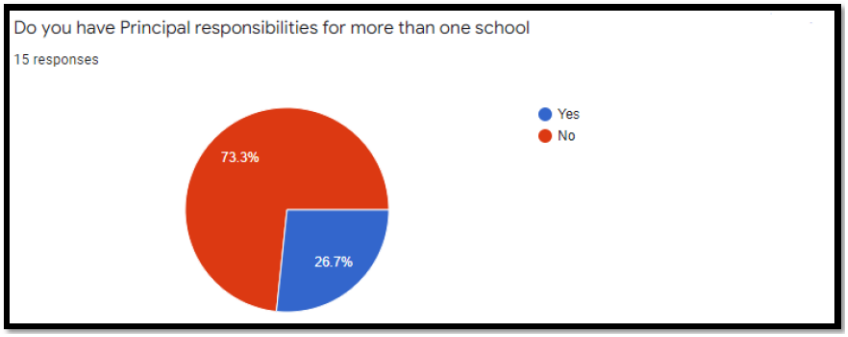
In sampling we have selected 8 Govt. higher & 8 high schools in district Srinagar. For acquiring of primary data we have involved head of institutions, to know how well they are equipped with leadership skills to lead the institution. Similarly Lecturers/Teachers & Students were engaged to know how well their HOI are capable and have leadership qualities in presiding the educational institution.



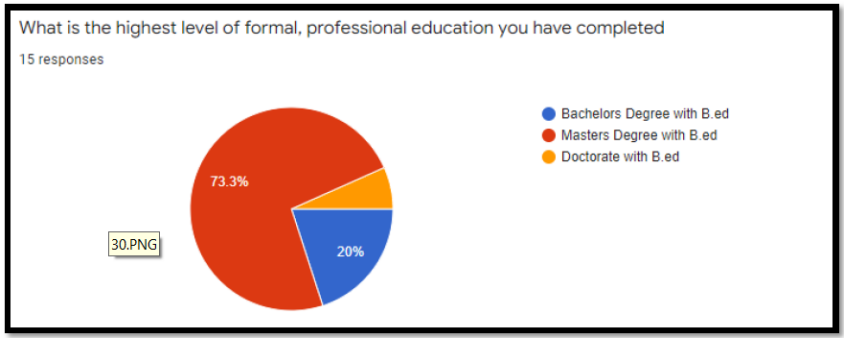
Description: 40% Respondents were male & 60% were female.



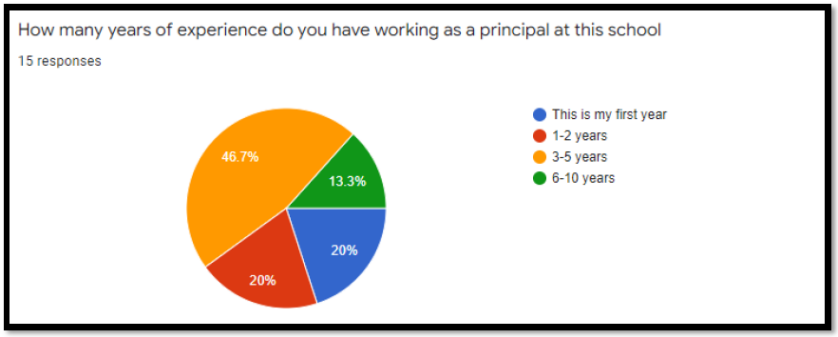
Description: 86.7% respondents were 50-59, & 13.3% were 40-49 age group.



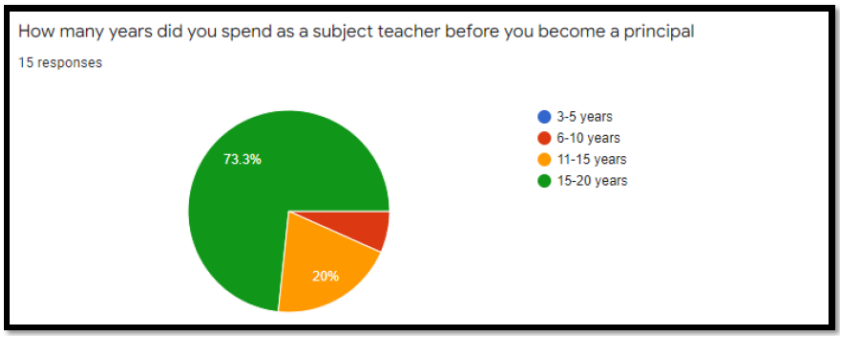
Description: 73.3% respondents remarks were they don‟t have principal responsibilities for more than one school, & 26.7% remarks were they have responsibilities other than their own school.



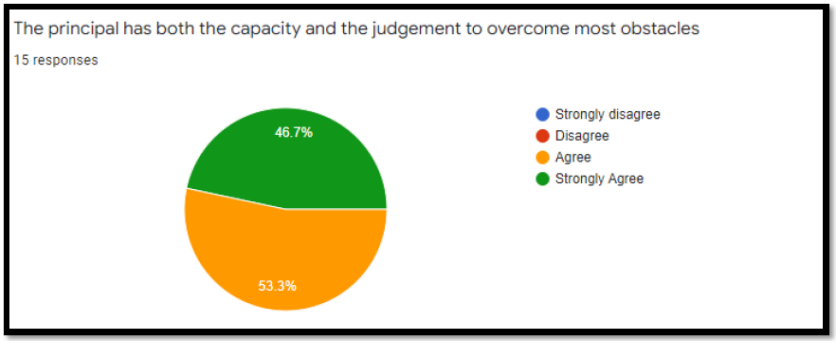
Description: 73.3% respondents remarks were masters degree with B.Ed & 20% remarks were bachelors with B.Ed.



Description: 46.7% respondents remarks were 3-5 years experience as principal in the present institute, 20% remarks were 1-2 years as principal, & 13.3% remarks were 6-10 years as principal.



Description: 73.3% respondents remarks were 15-20 years & 20% remarks were 11-15 years spent as subject teacher before becoming a principal.



Description: 53.3% respondents agree & 53.3% strongly agree with principal's capacity & the judgment to overcome most obstacles.

Descriptive Statistics on School Leadership and Students

The sample size of 114 students were interviewed on different parameters. The 58.8% principal/headmaster have leadership skills to deal with student concerns related to studies were only 36.8% are very active in guidance & counseling of students. The 45% principal/headmaster visit classes and lead pedagogical supervision role & guide teachers and provide feedback to teachers & lecturers. The students have rated different skill set on the scale of 1-5. On the key component of financial management and school leadership only 41% and 66.6 % principals & headmasters are rated to 5. Therefore lack of school leadership skill set have negative impact on students perception and learning. As reported only 43% of principals &

headmasters are active in supervising special educational programmes like audio visual, ICT integration, communication skills etc.

12. Conclusion

The problem of dismal performance in schools is attributed to lack of competencies of stakeholders, especially head of institution. This requires capacity building of school heads, not through conventional models of training that are one-time but through mechanisms of long-term developmental trajectories which help school heads address real life challenges in schools. To make effective learning & teaching happen for every child, every day in every classroom is the single most important means by which leaders can use their leadership roles to enable all children to learn and achieve at the highest level possible for each and every one of them.

13. Implications of the Study

The need for educational leadership arise with huge massification of educational enrolments and systems. Educational leadership is required for shaping a vision of academic success for all students by decreasing the achievement gap between advantaged and less advantaged students. It is needed for hospitable climate for education by ensuring safety, orderliness and support, engaging parents and community. It is needed for proper coordination, managing data, people and processes, boosting morale of employees, improving instruction / quality of teaching. Academic leadership is meant for developing a perspective on active learning principles. It is making the understanding of Pedagogical-Content Knowledge as School Head with academic supervision in school.

The study aims to develop a roadmap for implementing the 21st century skills among school leaders in Kashmir, like the best instructional experience, fluency with skills and knowledge required for the 21st century learner, Belief in the ability of students and teachers to succeed, problem solver, visionary, strategic planner, excellent organization skills and interpersonal skills, technological expertise, exceptional Personal qualities-ethics, courage, persistence, flexibility, self confidence, humanity, humor etc.

14. SUGGESTIONS FOR FUTURE RESEARCH

1. The research is needed to study the curriculum frameworks on school leadership & its implementation at school level.
2. The school leadership research studies are needed to bridge the gaps

between policy level initiatives and the implementing agencies. It is recommended to devise need based & context specific multiple capacity building programmes for developing different types of leadership competencies.

3. The research work is needed in documenting best practices adopted by school leaders across J & K and India, which can be helpful in implementing the NEP 2020.
4. The school leadership research studies are needed in core areas like developing self of school, system & pedagogical leaders, building & leading teams, transforming teaching learning process through improving learning outcomes, for specific focus areas like socially & economically deprived groups especially leading schools in tribal areas, urban slums, geographically difficult conditions areas of J & K, leading innovation in teaching learning process, leading school administration & governance, leading & building institutional networking & collaboration mechanism, leading teaching and learning in small & multi-grade and multi lingual schools etc.
5. A comparative study can be conducted on various school leadership styles and personality traits sustainable over a period of time and lead a transformation in schools in terms of physical, financial, human resources meant for improving learning in schools as per 21st century.
6. A study can be conducted to explore the leadership and decision making styles of HOIs in critical times like Covid 19, conflict hit areas, diverse social setting.
7. A study can be conducted to know the job satisfaction and leadership qualities of HOIs for making school administrative an attractive profession to attract a merit.
8. A leadership study can be conducted in relation to organizational climate, job satisfaction, and administrative styles in the secondary and higher secondary school principals of various districts in Jammu & Kashmir.
9. A study can be conducted on the role of school head in leading parent-teacher association, alumni association, and involvement of different stakeholders like SMC/SDMC/CAMs etc.
10. To improve the implementation of NEP 2020, the school leadership has to become more effective and requires a thorough understanding & research work on leadership issues/ challenges & existing constraints of its functioning across J & K.

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