

Evaluation of Leadership Qualities of the Heads of Schools and Students' Mathematics Achievements in Secondary Schools

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Abstract: This paper describes the relationship between leadership quality of heads of schools and students' mathematics achievements in secondary schools. The secondary schools situated in Karbi Anglong district of Assam state of Indian Republic constitute the population of the study. A total of 48 secondary school situated at different educational blocks of the district are chosen as sample for collection of data for the study. A wide variant of school environments and academic achievements in mathematics were revealed in the study. A total of 80 mathematics teachers working in the selected schools participated in the study. All the teachers have at least two academic years of experience with the same head of the school. A research instrument is designed by the investigator to collect data related to leadership quality of the heads of the institutions. The data related to achievements in mathematics were collected from school records of HSLC examinations, annual examinations from class IX to X and test examinations in class X. Collected data are analysed with statistical tools. The study reveals that there exist a strong relationship between school heads leadership qualities and students' academic performances in the subject mathematics in secondary level. Heads' attitude towards mathematics directly affects the achievements of students in mathematics.

Key Words: Leadership Qualities, Heads of Schools, Mathematics Achievements, Karbi Anglong.

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I. INTRODUCTION

School administration is a vital component of our education system. Each secondary school is headed by a Headmaster or Principal. The Head of a school is completely responsible for planning and management of the school. The ways of use of available resources and the steps to mobilise the school resources are to be decided by the head of the school. Researchers in different countries are doing many works to find out the relationship between the leadership quality of the heads of educational institutions and the academic achievements of the institutions in the subject mathematics. Leithwood, K and Jantzi, D (2000) found that the quality of school heads are significantly related to the academic achievements of the students. One of the major challenges tackled by the administrator of a school is to involve the teachers, parents and other related association towards the academic achievements for younger generation of the society. Darling Hammond L and Mac Laughlin M (1995) suggested that the head of institutions must build learning communities within their schools and engage the entire school community for achieving a compelled vision for their schools. In 2005 the works of Marzano, Waters and Mc Nulty demonstrated that there exists a highly positive relationship between behaviours of school heads and students achievement. The heads of institutions face different types of issues everyday. For good environment of school for teaching and learning and better performances of students, the head of schools must cultivate some innovative proposals and teaching methodology. Positive school climate is an important factor for higher academic performance of schools. According to Akin (1993), to be a successful administrator he or she must first understand schools climate and must know how to change a negative school climate to positive school climate. Fuller (1991) stated that "The role of the principal has become dramatically more complex, over loaded and unclear over the past decade". Academic achievement of the school students require improved instructional leadership. According to Hoy and Miskel (2001), "The principal of a healthy school provides dynamic leadership that is both task oriented and relations oriented. Such behaviour is supportive of teachers and yet **provides directions** and maintains high standards of performance". In the 21st

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century educational system principals are not only institutional leaders or master teachers , but also becoming transformational leaders. According to Ubben and Hughes “ although the principal must address certain managerial tasks to ensure an efficient school, the task of the principal must be kept focused on activities which pave the way for high student achievement”. According to Kroze , the activities of a school head should be centred on students’ academic achievements. Fullan (1991) found in his research work “ schools operated by principals who were perceived by the teachers to be strong instructional leaders exhibited significantly greater gain scores in achievements in reading and mathematics than did schools operated by average and weak instructional leader”.

II. OBJECTIVE OF THE STUDY

There are two leading objectives of the study. Firstly, to examine the leadership qualities of the heads of secondary schools of Karbi Anglong district of Assam. Secondly, try to find out the relationship between school heads leadership qualities and students’ academic achievements in mathematics.

III. RESEARCH QUESTIONS

In this present study the researcher is trying to find the answers of the following questions.

Q₁: What are the perceptions of teachers on the Leadership Qualities of their School Heads.

Q₂: Is there exist any relationship between Leadership Qualities of Heads of Schools and academic achievements of the students in mathematics.

IV. RESEARCH METHODOLOGY

The secondary and higher secondary schools situated in Karbi Anglong district of Assam constitute the population of the present study. Due to difficult geographical and time constraints it is not possible to visit each and every school of the district. The researcher has taken a sample of 48 schools situated at different educational blocks of the district for collection of data for the study. A total of 80 mathematics teachers working in the selected schools participated in the study. All the teachers have at least two academic years of experience with the same head of the school.

Table – 1: Profile of schools

| Public Sector | | Private Sector | |
|---------------|-------|----------------|-------|
| 24 | | 24 | |
| Rural | Urban | Rural | Urban |
| 12 | 12 | 12 | 12 |

Table – 2: Profile of respondents (Mathematics Teachers)

| Gender | | Age | | | Experience | | |
|--------|--------|--------|-------|--------|------------|--------|--------|
| Male | Female | < 35 | 35-45 | > 45 | < 5 | 5 – 15 | > 15 |
| 71 | 9 | 17 | 38 | 25 | 21 | 44 | 15 |
| 88.75% | 11.25% | 21.25% | 47.5% | 31.25% | 26.25% | 55% | 18.75% |

V. RESEARCH INSTRUMENT

A research instrument was designed by the investigator to collect the data related to Leadership qualities of the heads of the institutions. The mathematics teachers were requested to complete the research instrument. The questionnaire has eight dimensions and each dimension contains four items. Communication Skills, Comfort, Empathy, Decision Making, Influence, Self Management, Time Management and Commitment were the eight dimensions of the research instrument developed. **Five point Likert Scale method** was used in the research instrument. The five options are Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D) and Strongly Disagree (SD). Weights assigned to each of the five levels are shown in the following table.

Table – 3:

| Level of Response | Scores | |
|-----------------------|----------------|----------------|
| | Positive items | Negative Items |
| Strongly Agree(SA) | 5 | 1 |
| Agree(A) | 4 | 2 |
| Neutral(N) | 3 | 3 |
| Disagree(D) | 2 | 4 |
| Strongly Disagree(SD) | 1 | 5 |

The pilot survey was done for reliability test of the research instrument on ten different schools situated at Diphu Town, which is the head quarter of Karbi Anglong. Twenty Five mathematics teachers working at these schools took part in the reliability test. Cronbach's Alpha reliability score for the research instrument was 0.72 which was acceptable. The collected data for the study were tabulated and analyzed with statistical tools, like mean, standard deviation, t-test. Data related to achievement in mathematics were collected from the offices of the participating schools. Mathematics marks obtained by the students in HSLC Exams, annual exams from class IX to X and test exams in Class X were used for measuring students' achievements in mathematics.

VI. DATA ANALYSIS AND INTERPRETATION

Mean (\bar{x}), standard deviation (σ) and t-test were applied for the interpretation of the collected data.

Table – 4:

| Sl. No. | Statistical Measure | Responses | | | | |
|---------|---------------------|-----------|-------|---------|--------|-------|
| | | Urban | Rural | Private | Public | Total |
| 11 | Mean | 46.5 | 29.4 | 47.75 | 23.25 | 40.25 |
| 22 | S.D. | 16.08 | 13 | 13.49 | 9.87 | 14.63 |

Table – 5: Students' Academic Achievements in mathematics

| Sl. No | Statistical Measure | Urban | Rural | Private | Public | Total |
|--------|---------------------|-------|-------|---------|--------|-------|
| 11 | Passed % | 61.45 | 23.38 | 68.23 | 6.61 | 2.41 |
| 22 | Mean | 17.5 | 7.05 | 13.15 | 7.27 | 2.28 |
| 33 | S.D. | 3.76 | 4.50 | 6.36 | 2.47 | 6.82 |

The Table – 4 shows the perceptions of teachers on the Leadership Qualities of their School Heads. The mean score is 40.25, which indicate that the perceptions of high school teachers in Karbi Anglong district of Assam possess only 44.72% positive attitude towards the leadership qualities of their respective school heads which is not so high. Teachers' perception responses are higher in urban areas ($\bar{x} = 46.5$, $\sigma = 16.08$) than in rural areas ($\bar{x} = 29.4$, $\sigma = 13$). Moreover, teachers of private sector schools have greater positive responses ($\bar{x} = 47.75$, $\sigma = 13.49$) towards their heads' leadership qualities comparing to the teachers serving in public (Govt/ Provincialized) high schools ($\bar{x} = 23.25$, $\sigma = 9.87$).

Table – 5 shows Students' Academic Achievements in mathematics, out of 1240 students studying in 45 secondary schools only 526 passed in the subject in HSLC examination of 2011 examination. The pass percentage is 42.41, mean (\bar{x}) is 12.28, S.D. (σ) is 6.82. Out of 620 Urban students (No. of Schools = 22), 381 passed in mathematics ($\bar{x} = 17.5$, $\sigma = 3.76$, % = 61.45). In rural area from equal number of Schools only 145 students could cleared their mathematics subject ($\bar{x} = 7.05$, $\sigma = 4.50$, % = 23.38). There is a vast difference in pass percentage. On the other hand the students studying in Private sector schools do well in the examination. Out of 620 students selecting from 23 private schools, a total of 423 passed in the subject mathematics ($\bar{x} = 13.15$, $\sigma = 6.36$, % = 68.23). Compare to that only 103 students passed from 22 schools situated in rural areas of Karbi Anglong ($\bar{x} = 7.27$, $\sigma = 2.47$, % = 16.61).

VII. DISCUSSION AND CONCLUSION

In this study the researcher sought to investigate the relationship between Leadership Qualities of heads of schools of Karbi Anglong and academic achievements of students in mathematics. Results from the study show that mean score of heads' leadership qualities is only 40.25 out of maximum score 90, which indicates that heads' have less leadership qualities. Further study may be carried out to find out the reasons of heads' less positive leadership qualities of this ST dominated Region of India.

The present study reveals that there exist a strong relationship between leadership qualities and students' academic achievements in mathematics.

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