ISSN 2347-5676

Journal of Research in Education

(A Peer Reviewed and Refereed Bi-annual Journal)

St. Xavier's College Of Education
(Autonomous)

P.O.-Digha Ghat, Patna-800 011(Bihar)

Vol. 6 No. 2

DECEMBER 2018

Journal of Research in Education

(A Peer Reviewed and Refereed Bi-annual Journal)

Vol.6 No.2 **December 2018**

St. Xavier's College of Education(Autonomous)

Digha Ghat, Patna-800011
Bihar (India)

JOURNAL OF RESEARCH IN EDUCATION

EDITORIAL BOARD

Published by:

ST. XAVIER'S COLLEGE OF EDUCATION (AUTONOMOUS)
DIGHA GHAT, P.O., PATNA - 800 011 (BIHAR)
Phone No.: 0612-2260253 ♦ Fax No .: 0612-2260253
E-mail : sxcepatna@gmail.com ♦ Website : www.sxcepatna.edu.in

ISSN 2347-5676

Printed by :
Lovely Printers, Digha Ghat Patna-800011,Opp. Canara Bank (✆ : 9939711961, 8987089791)

Editorial

Dear Readers,

The development of a research article can be helpful for the promotion of scientific thinking and the advancement of effective writing skills, allowing authors to participate in broader scientific discussions beyond their scope of practice or discipline. However, in order for the full impact of research to be achieved and to have any effect on the wider research and scientific community, it must be published in an accessible outlet. This publication can reach to a wider set of audience either teachers or researchers in the respective fields. Our Journal tries to bring together quality research articles for its readers to help them in developing awareness in different emerging research areas. The current issue has seven papers in total. Emotional Intelligence is a psychological aspect which is in very much discussion in today's world. In school we are talking about planning strategies to develop EI of the students. A paper on emotional intelligence of tribal students and its relationship with their academic performance has been put forward in this issue. English Language teaching and the problems related to it have been discussed in a research topic. Conflicts are inevitable in an adolescent life and the need is there for its successful resolution. An article related to adolescents' conflict resolution skills and its relation to the students' mathematical skills is also there in this issue. Use of ICT in teaching and learning has become an important part of teaching and learning today and, a paper here tries to do a needful assessment in this area. Classroom is the reflection of society we live in and socio-scientific issue based instruction promotes this aspect. The detailed understanding on this method has been presented in another paper. Recently there have been numerous innovative methods of teaching which are being discussed and have been found to be very much effective for the educational development of the students. An article on Blended learning explores the possible benefits of this method for the students. Teachers have a diverse role to play in the 21st century and have to evolve themselves in their changing roles as leaders, motivators and organizers to suit to the students' demands in the age of globalization. An article deals with this topic. Overall this issue is a collection or bunch of quality papers so as to enlighten the readers with a great learning experience. We hope you will very much relish and appreciate the papers in this issue.

Wishing You all a Great Year Ahead.
With Warm Regards

Editorial Board

Vol. 6 No. 2 **December, 2018**

CONTENTS & AUTHORS

EMOTIONAL INTELLIGENCE AND ACADEMIC ACHIEVEMENT OF TRIBAL STUDENTS IN SECONDARY SCHOOLS OF KHUNTI DISTRICT, JHARKHAND.

John Gracious Minz
Dr. Nimisha Srivastava

Abstract

A person's life is full of various types of emotions. Emotions are very important and an inseparable part of a person's life. Emotions generate a lot of energy which may be constructive or destructive to life. In order to channelize this energy for the positive, constructive and all-round development of the person, he or she needs a special kind of intelligence known as emotional intelligence. Emotional intelligence is the ability to recognize, assess, and control one's emotions, as well as the emotions of others, and even groups. Possessing emotional intelligence gives students the ability to make common-sense decisions, take intelligent calculated risks, and navigate difficult social situations. It also allows students to handle the added pressures of setting and achieving goals in an academic setting. This paper aims to study the level of emotional intelligence and academic achievement of tribal students in secondary schools , and to find out whether there is any significant difference in the mean score of these variables in terms of gender, class, religion and type of school and to find out the significant relationship between emotional intelligence and academic achievement of the students. The investigators have used survey method for the study and took randomly a sample of 200 secondary school tribal male and female students of three different schools of Khunti District, Jharkhand. The sample consisted of students belonging to Christian and Sarna religions, in government and private schools. The investigators adopted and used the tool on Emotional Intelligence developed by Thomas Alexander (2004). For the academic achievement of the students, the obtained marks of half yearly exam (2017-18) are taken from the school records. For Analysis of data statistical techniques used were: Mean, , Standard Deviation and 't'- test and Correlation. The findings reveal that there is no significant difference between male and female, class IX and X, Christian and Sarna tribal students in their emotional intelligence and academic achievement. But there is significant difference between Government and Private School Students in their

emotional intelligence and academic achievement as Private School students have significantly higher mean score than the government school students. There is a significant positive correlation between emotional intelligence and academic achievement of the tribal students.

Key words: Emotional intelligence, academic achievement, secondary school students.

INTRODUCTION AND RATIONALE

Education is a process of human enlightenment and empowerment for the achievement of a better and higher quality of life. Without this, life of human being does not operate. It teaches the lesson of humanity and is very necessary for every human being. Education does not mean to get specific skill and get employment. We say that anybody who gets education has developed from every angle. It means if we have got an education, we have developed in every field. Education can not only get in the childhood. But it is regular and continuous process. A human being gets education from his own experiences, even if there is no teacher for providing him formal education there will be education. When other person shares his experiences, at that time, a human being gets education. Education inspires good thoughts in human being. It is the education which carries human being in the way of success. With education, human being learns to use brain for taking any decision. Educated person contributes his knowledge for the development of society. With education, human being raises weak and uneducated persons. Education is a process which draws out the best in the child with the aims of producing well balanced personalities, culturally refined, emotionally stable, ethically sound, mentally alert, morally upright, physically strong, socially effective, spiritually upright, vocationally self-sufficient and internationally liberal. Without a teacher it is impossible to achieve these objectives of education. In other wards Education is a continuous and creative process. Its aim is to develop the capacities, talent in human nature and to coordinate their expression for the enrichment and progress of society, by equipping children with spiritual, moral and material knowledge. As education is the most important means for development, one can aspire to achieve good personality, higher status, position and

emolument through education.

A person's life is full of various types of emotions. Emotions are very important and an inseparable part of a person's life. Emotions generate a lot of energy which may be destructive to life. In order to channelize this energy for the positive, constructive and all-round development of the person, he or she needs a special kind of intelligence known as emotional intelligence. It helps an individual know and manage his or her own emotions, and others' emotions as well. It helps in making and managing cordial relationships with everybody in the society. It makes the life of an individual tension-free, happy, successful and prosperous. As a whole, emotional intelligence makes a person an honorable, respectable and a wonderful member of the human-society.

Tribal students, generally, come from the poor-rural socio-economic background with an acute poverty, lack of self-esteem, self-concept, self-confidence, awareness, aspiration and willingness to study. There are also lack of educational facilities and good study environment. Their rural socio-economic background affects their emotional intelligence, academic performance and achievement which in turn badly affects their future lives as well. In this study, therefore, the investigators make an attempt to find out the level of emotional intelligence of Tribal students in secondary schools of Khunti District, Jharkhand and its relationship in their academic achievement and whether it affects their academic performance specifically and their school-life in general. And this study may bring forth both positive and negative aspects and some serious issues and burning problems concerning their schooling, into light. So that, it may act as a help to the educational authorities to bring about an improvement in the education of the tribal students in the concerned region.

Emotional intelligence is the “something” in each of us that is a bit intangible. It affects how we manage behavior, navigate social complexities, and make personal decisions that achieve positive results. Emotional intelligence is made up of four core skills that pair up under two primary competencies: personal competence and social competence.

Personal competence is made up of our self-awareness and self-management skills, which focus more on our individually than on our interactions with other people. Personal competence is our ability to stay aware of our emotions and manage our behavior and tendencies.

Social competence is made up of our social awareness and relationship management skills; social competence is our ability to understand other people's moods, behavior, and motives in order to improve the quality of our relationships.

Emotional Intelligence can be categorized into two broad competencies with their domains or dimensions as given below :

a. Intrapersonal Competence or Personal Competence
   (i) Self-Awareness, and
   (ii) Self- Management.

b. Interpersonal competence or Social Competence
   (i) Social Awareness, and
   (ii) Relationship Management

OBJECTIVES

1. To find out whether there is any significant difference between tribal boys and girls of secondary schools in their personal competence, social competence and over all emotional intelligence with personal competence and social competence.
2. To find out whether there is any significant difference between tribal boys and girls of secondary schools in their academic achievement.
3 To find out whether there is any significant difference between Class IX and X tribal students in their personal competence, social competence and over all emotional intelligence with personal competence and social competence.
4. To find out whether there is any significant difference between Class IX and X tribal students in their academic achievement.
5. To find out whether there is any significant difference between Christian and Sarna tribal students in their personal competence, social competence and over all emotional

intelligence with personal competence and social competence.

6. To find out whether there is any significant difference between Christian and Sarna tribal students in their academic achievement.
7. To find out whether there is any significant difference among tribal students of government and private Secondary schools in their personal competence, social competence and over all emotional intelligence with personal competence and social competence.
8. To find out whether there is any significant difference among tribal students of government and Private Secondary schools in their academic achievement.
9. To find out whether there is any significant relationship between emotional intelligence and academic achievement of Secondary schools tribal (i) boys (ii) girls (iii) students (boys and girls).

NULL HYPOTHESES OF THE STUDY

1. There is no significant difference between tribal boys and girls of secondary schools in their personal competence, social competence and over all emotional intelligence with personal competence and social competence.
2. There is no significant difference between tribal boys and girls of secondary schools in their academic achievement.
3. There is no significant difference between IX and X Grades tribal students in their personal competence, social competence and over all emotional intelligence with personal competence and social competence.
4. There is no significant difference between IX and X Grades tribal students in their academic achievement.
5. There is no significant difference between Christian and Sarna tribal students of secondary schools in their personal competence, social competence and over all emotional intelligence with personal competence and social competence.

6. There is no significant difference between Christian and Sarna tribal students of secondary schools in their academic achievement.
7. There is no significant difference among tribal students of government and private secondary schools in their personal competence, social competence and over all emotional intelligence with personal competence and social competence.
8. There no significant difference among tribal students of government and private secondary schools in their academic achievement.
9. There is no significant relationship between emotional intelligence and academic achievement of Secondary schools tribal (i) boys (ii) girls (iii) students (boys and girls).

DELIMITATIONS OF THE STUDY.

The study is limited to only 200 samples of IX and X standard tribal students. The study is restricted only to emotional intelligence and academic achievement.

METHODOLOGY

The problem selected for the present study is concerned with survey type, the investigators have adopted the 'Survey Method' to investigate Emotional Intelligence and Academic Achievement.

POPULATION

The population of the present study consists of the Secondary schools of Khunti District, Jharkhand.

SAMPLE

The samples of the study consists of 200 tribal students in 3 high schools of Khunti District of Jharkhand State, from three high schools. 62 cases from Rajkiye High School, Jate, 76 from Loyala High School, Khunti, 62 from Ursuline Girls High School, Khunti. One of these schools is government, two are Private high schools. Random sampling method is used as the sampling technique for students and purposive sampling technique for the selection of school.

TABLE No. 01
Distribution of the Sample

Variables	Categories	Numbers
Gender	Boys	99
	Girls	101
Class	IX	113
	X	87
Religion	Christian	126
	Sarna	74
Type of School	Government	62
	Private	138

TOOLS USED

i. The tool on Emotional Intelligence designed and developed by Thomas Alexander (2004).

ii. Source for Academic Achievement ; the school record.

The investigators have collected the half-yearly examination (2017-18) marks of the students from the school records.

STATISTICAL TECHNIQUES USED

Mean , Standard Deviation, 't'-test and Pearson's Product Moment Correlation.

DATA ANALYSIS AND RESULT

In the present study, general information data as well as data from the two different categories of respondents have been collected. The collected data were analyzed through SPSS and Microsoft Excel. Data is processed and analyzed by the investigators under the following headings:

(i) Personal Competency.

(ii) Social Competency.

(iii) Emotional Intelligence.

(iv) Academic Achievement .

(v) Relationship between Emotional Intelligence and Academic Achievement.

Null Hypothesis 1

There is no significant difference between tribal boys and girls of secondary school in their personal competence, social competence and over all emotional intelligence with personal competence and social competence.

TABLE NO. 02
Tribal Boys' and Girls' Personal Competence, Social Competence and Emotional Intelligence

Categories	Boys (No.=99)		Girls (No.=101)		Calculated 't' ratio	Remarks at 5 % Level
	Mean	SD	Mean	SD		
Personal Competence	65.72	7.419	65.39	7.538	.313	N S
Social Competence	80.89	8.715	81.40	11.218	.357	NS
Emotional Intelligence	146.61	15.043	146.78	17.583	.076	N S

(At 5 % level of significance the table value of 't' is 1.96)

It is inferred from the table no. 02 that the calculated t- value of personal competence is (.313), social competence is (.357), emotional intelligence is (.076) which are less than the table value of t- ratio (1.96) at 0.05 level of significance. Therefore, the null hypothesis is accepted. So there is no significant difference between tribal boys and girls in their personal competence, social competence and emotional intelligence, This finding is shown in figure no. 01.

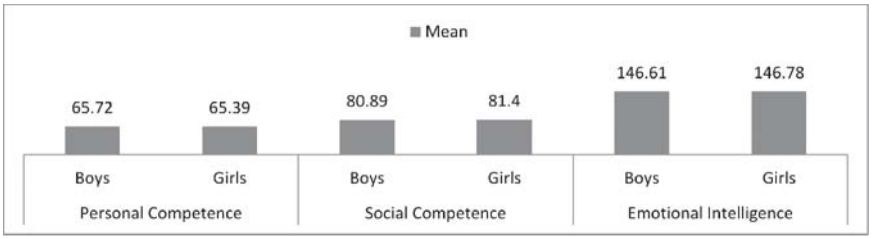

Figure No. 1: Tribal Boys' and Girls' Personal Competence, Social Competence and Emotional Intelligence

Null Hypothesis 2

There is no significant difference between tribal boys and girls of secondary schools in their academic achievement.

TABLE NO. 03
Tribal Boys' and Girls' Academic Achievement.

Categories	Boys (No.=99)		Girls (No.=101)		Calculated 't' ratio	Remarks at 5 % Level
	Mean	SD	Mean	SD		
Academic Achievement	209.22	47.679	214.06	67.516	.584	NS

(At 5 % level of significance the table value of 't' is 1.96)

It is inferred from the table no.03 that the calculated t- value is (.584) is less than the table value of t- ratio (1.96) at 0.05 level of significance. Therefore, the null hypothesis is accepted . So there is no significant difference between academic achievement of tribal boys and girls. This finding is shown in figure no. 02

Figure No. 2 : Tribal Boys' and Girls' Academic Achievement

Null Hypothesis 3

There is no significant difference between Class IX and X tribal students of secondary school in their personal competence, social competence and over all emotional intelligence with personal competence and social competence.

TABLE NO. 04

Class IX And X Tribal Students' Personal Competence, Social Competence and Emotional Intelligence

Categories	Class IX (No.=113)		Class X (No.=87)		Calculated 't' ratio	Remarks at 5 % Level
	Mean	SD	Mean	SD		
Personal Competence	64.98	7.456	66.29	7.449	1.228	NS
Social Competence	80.55	10.073	81.92	9.991	.958	NS
Emotional Intelligence	145.53	16.274	148.21	16.382	1.150	NS

(At 5 % level of significance the table value of 't' is 1.96)

It is inferred from the table no.04. that the calculated t- value of personal competence is (1.228), social competence is (.958), emotional intelligence is (1.150) which are less than the table value of t- ratio (1.96) at 0.05 level of significance. Therefore, the null hypothesis is accepted. So there is no significant difference between class IX and X tribal students in their personal competence, social competence and emotional intelligence. This finding is shown in figure no.03.

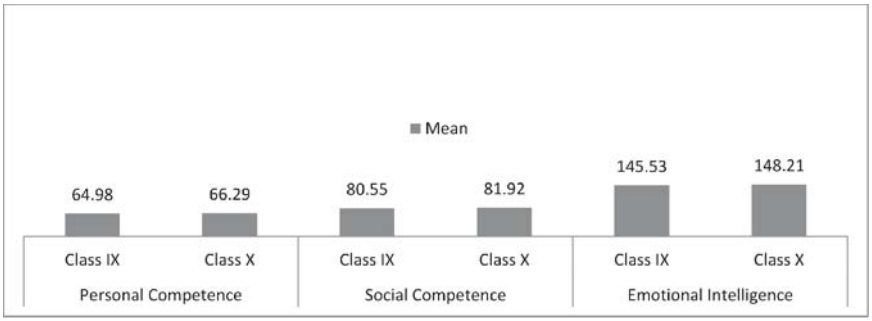

Figure No.03 : Class IX and X Tribal Students' Personal Competence, Social Competence and Emotional Intelligence

Null Hypothesis 4

There is no significant difference between class IX and X tribal students of secondary school in their academic achievement.

TABLE NO. 05
Class IX And X Tribal Students' Academic Achievement

Categories	Class IX (No.=113)		Class X (No.=87)		Calculated 't' ratio	Remarks at 5 % Level
	Mean	SD	Mean	SD		
Academic Achievement	206.74	64.969	218.06	48.314	1.360	NS

(At 5 % level of significance the table value of 't' is 1.96)

It is inferred from the table no.05 that the calculated t-value is (1.360) is less than the table value of t-ratio (1.96) at 0.05 level of significance. Therefore, the null hypothesis is accepted. So there is no significant difference between academic achievement of class IX and X tribal students of secondary school .This finding is shown in figure no.0 4.

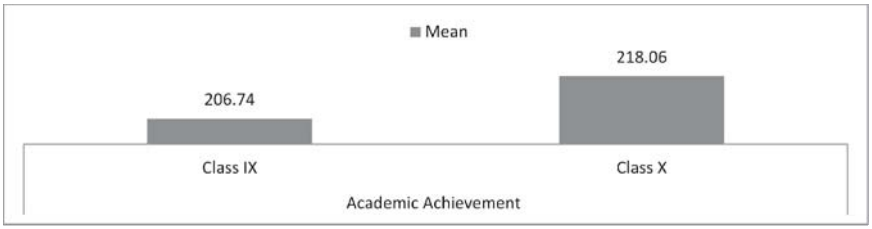

Figure No. 4.: Class IX and X Tribal Students' Academic Achievement

Null Hypothesis 5

There is no significant difference between Christian and Sarna tribal students of secondary school in their personal competence, social competence and over all emotional intelligence with personal competence and social competence.

TABLE NO. 06

Christian and Sarna Tribal Students' Personal Competence, Social Competence and Emotional Intelligence

Categories	Christian (No.=126)		Sarna (No.=74)		Calculated 't' ratio	Remarks at 5 % Level
	Mean	SD	Mean	SD		
Personal Competence	64.90	7.465	66.66	7.375	1.622	. NS
Social Competence	80.17	10.455	82.80	9.108	1.794	NS
Emotional Intelligence	145.07	16.802	149.46	15.218	1.845	NS

(At 5 % level of significance the table value of 't' is 1.96)

It is inferred from the table no. 06 that the calculated t- value of personal competence is (1.622), social competence is (1.794), emotional intelligence is (1.845) which are less than the table value of t- ratio (1.96) at 0.05 level of significance. Therefore, the null

hypothesis is accepted. So there is no significant difference between Christian and Sarna tribal students in their personal competence, social competence and emotional intelligence. This finding is shown in figure no.05

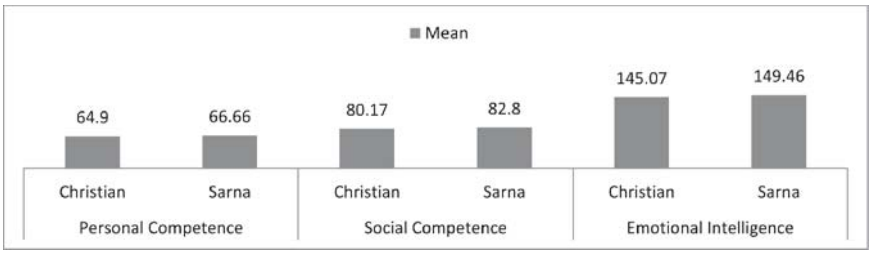

Figure No. 5 : Christian and Sarna Tribal Students' Personal Competence, Social Competence and Emotional Intelligence

Null Hypothesis 6

There is no significant difference between Christian and Sarna tribal students of secondary school in their academic achievement.

TABLE NO. 07

Christian And Sarna Tribal Students' Academic Achievement

Categories	Christian (No.=126)		Sarna (No.=74)		Calculated 't' ratio	Remarks at 5 % Level
	Mean	SD	Mean	SD		
Academic Achievement	207.51	59.342	218.74	56.584	1.315	NS

(At 5 % level of significance the table value of 't' is 1.96)

It is inferred from the table no.07 that the calculated t- value is (1.315) less than the table value of t- ratio (1.96) at 0.05 level of significance. Therefore, the null hypothesis is accepted .So there is no significant difference between academic achievement of Christian and Sarna tribal students. This finding is shown in figure no. 06

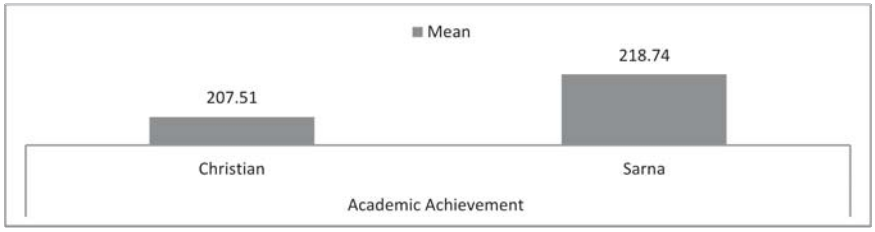

Figure No. 06 : Christian and Sarna Tribal Students' Academic Achievement

Null Hypothesis 7

There is no significant difference between tribal students of government and private secondary school in their personal competence, social competence and over all emotional intelligence with personal competence and social competence.

TABLE NO. 8

Government and Private Secondary School Tribal Students' Personal Competence, Social Competence and Emotional Intelligence

Categories	Government (No.=62)		Private (No.=138)		Calculated 't' ratio	Remarks at 5 % Level
	Mean	SD	Mean	SD		
Personal Competence	63.52	8.560	66.46	6.749	2.621	S
Social Competence	76.95	10.542	83.03	9.234	4.117	S
Emotional Intelligence	140.47	18.035	149.49	14.741	3.729	S

(At 1% level of significance the table value of 't' is 2.58)

It is inferred from the table no.08 that the calculated t- value of personal competence is (2.621), social competence is (4.117), emotional intelligence is (3.729) which are more than the table

value of t- ratio (2.58) at 0.01 level of significance. The mean scores of Private School Students (M = 66.46, 83.03, 149.49) are better than the mean scores of Government School Students (M = 63.52, 76.95, 104.47). Therefore, the null hypothesis is rejected. So there is a significant difference between Government and Private secondary school tribal students in their personal competence, social competence and emotional intelligence. This finding is shown in figure no.07

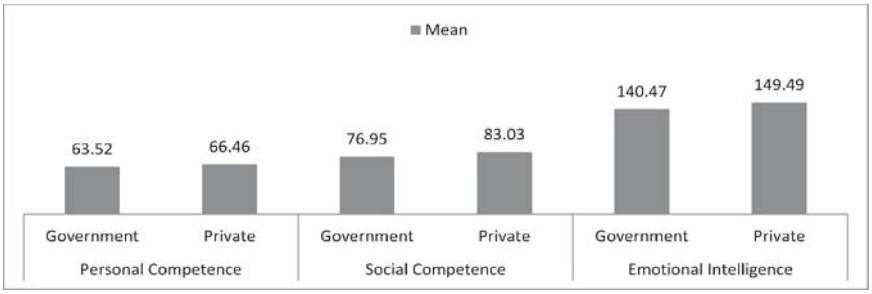

Figure No. 07 : Government and Private Secondary School Tribal Students' Personal Competence, Social Competence and Emotional Intelligence

Null Hypothesis 8

There is no significant difference between tribal students of government and private secondary schools in their academic achievement.

TABLE NO. 9

Government And Private Secondary School Tribal Students' Academic Achievement.

Categories	Government (No.=62)		Private (No.=138)		Calculated 't' ratio	Remarks at 5 % Level
	Mean	SD	Mean	SD		
Academic Achievement	172.81	53.857	229.12	51.770	7.027	S

(At 1 % level of significance the table value of 't' is 2.58)

It is inferred from the table no.09 that the calculated t- value is (7.027) more than the table value of t- ratio (2.58) at 0.01 level of significance. The mean score of Private School Students (M = 229.12) is better than the mean score of Government School students ((M = 172.81). Therefore, the null hypothesis is rejected. So there is significant difference between Government and Private secondary school tribal students in their academic achievement. This finding is shown in figure no. 08.

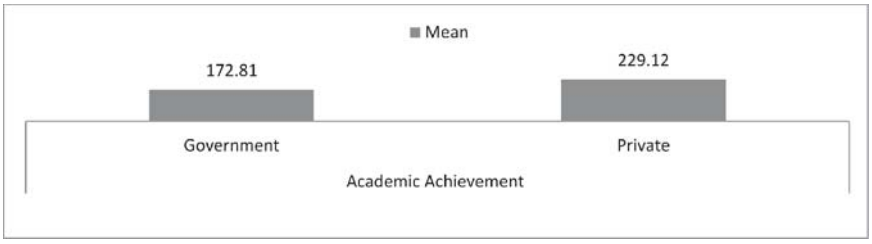

Figure No.0 8 : Government and Private Secondary School Tribal Students' Academic Achievement

Null Hypothesis 9

There is no significant relationship between emotional intelligence and academic achievement of Secondary school tribal (i) boys (ii) girls (iii) students (boys and girls).

TABLE NO. 10

Correlation Table of Emotional Intelligence And Academic Achievement of Secondary School Tribal Students

Category	Emotional Intelligence		Academic Achievement		ΣEI&AA	Number	Correlation	Remark
	Σx	Σx^2	Σy	Σy^2	Σxy			
Boys	14514	2150016	20713	4556401	3105265	99	-0.100	NS
Girls	14825	2206963	21620	5083804	3288828	101	0.326	S
Boys & Girls	29339	4356979	42333	9640205	6241737	200	0.167	S

(At 5% level of significance at 198 df, the table value of r is.139)

It is inferred from the table no.10 that the calculated r value of emotional intelligence and academic achievement of boys is (-0.100), r value of emotional intelligence and academic achievement of girls is (0.326), r value of emotional intelligence and academic achievement of both boys and girls is (0.167). The boys' calculated r value is less than the table value of r (.139) at 0.05 level of significance. So there is no significant relation between emotional intelligence and academic achievement of boys. But the calculated r values of girls' and both boys & girls' are more than the table value of r (.139) at 0.05 level of significance. Therefore the null hypothesis is rejected. So there is significant positive correlation between emotional intelligence and academic achievement of Secondary school tribal girls as well as students.

FINDINGS

1. There is no significant difference between tribal boys and girls of secondary school in their personal competence, social competence, emotional intelligence.
2. There is no significant difference between tribal boys and girls of secondary school in their academic achievement.
3. There is no significant difference between IX and X standard tribal students of secondary school in their personal competence, social competence and emotional intelligence.
4. There is no significant difference between IX and X standard tribal students of secondary school in their academic achievement.
5. There is no significant difference between Christian and Sarna tribal students of secondary school in their personal competence, social competence and emotional intelligence.
6. There is no significant difference between Christian and Sarna tribal students of secondary school in their academic achievement.
7. There is a significant difference between Government and Private secondary schools' tribal students in their personal competence, social competence and emotional intelligence.
8. There is a significant difference between Government and

Private secondary schools' tribal students in their academic achievement.

9. There is no significant relationship between emotional intelligence and academic achievement of tribal boys but there is a significant relationship between emotional intelligence and academic achievement of tribal girls as well as students.

DISCUSSION AND CONCLUSION

The 't' test result reveals that there is a significant difference between government and private school tribal students of secondary school in their personal competence, social competence and emotional intelligence The private school students have higher level of personal competence (M=66.46), social competence (M=83.03) and emotional intelligence (M=149.49), than government school students ((M= 63.52,76.95,140.47). This could be due to the fact that they have high level of aspiration, self-esteem, self-confidence and self awareness about their own emotions and those of others, and skills to manage relationships.

The possible reason could be that they come from families which have moral and spiritual values where they grow emotionally well and have the clear objectives of life, well guided by parents. Privete schools are equipped with better study and teaching facilities run by the Christian Missionaries, NGOs and Trusts, where they get a lot of exposures, experiences besides their hard labour. The teachers in these schools are well paid and they are given the opportunities for in-service training. They are made committed to their teaching work. They are given frequent workshops to gain many soft skills. They are emotionally and academically better-off in dealing with the tribal students. The tribal students learn their qualities while receiving educational experiences from them. The schools are well-managed, well-equipped and disciplined. Besides classroom experiences, the experiences of various co-curricular activities and opportunities are made available for the tribal students.

The 't' test result shows that there is a significant difference between government and private school tribal students in their academic achievement. Private school tribal students have higher level of

academic achievement (M=229.12) than Government school (M=172.81). This is because of the fact that in private school students have better access to computers, library and other center of knowledge. The teachers in the private schools are more committed and regular in teaching and they receive frequent in service training through seminar, workshops and talk by guest speakers. Private schools are well managed, well equipped and disciplined and good facilities are provided for teaching learning. Good study environment, lot of co curricular activities are done for all round development.

Though tribal people are coming up in different fields of life, yet they are still socially backward, economically poor, politically exploited, discriminated against, oppressed and suppressed; and educationally illiterate in India, specially in Chhotanagpur. Jharkhand is only a part of Chhotanagpur. The typical nature of the tribals here is that those who are educationally and economically well-off, do not at all bother about the less fortunate ones. However, with the passage of time, education is becoming popular here due to the selfless and hard labour of the Christian missionaries, efforts of the government and the equal educational opportunities provided to all.

In the present study titled "*Emotional Intelligence and Academic Achievement of Tribal Students in secondary Schools of Khunti District, Jharkhand*", the investigator has made an attempt to investigate the level of personal competence, social competence, emotional Intelligence and academic achievement of tribal students in Secondary schools and its relationship in their academic achievement. The study has revealed the average level of emotional intelligence and academic achievement of the tribal students which can be improved. Although there is difference in the mean scores of Christian and Sarna Tribal Students in their personal competency , social competency, emotional intelligence and academic achievement but it is not enough to reject the hypothesis.

RECOMMENDATIONS

The recommendations which came into the mind of the investigators for the teachers, students, administrators and policy

makers are as follows .

1. In order to improve the personal competence, social competence, emotional intelligence of the students, sharing about life, group activities, picnics, tours, seminars, group discussions, cultural programs like dance, singing, dramas, sports and games should be regularly arranged.

2. In order to improve the academic achievement of the students, a good study environment, library, encouragement to study hard, coaching and tuition of difficult subjects, well-trained teachers, hostel facilities, opportunities for elocution contest and competitions in speech, poetry, mathematics and all other subjects should be provided.

It is hoped that the policy makers and the administrators will use these suggestion to enhance emotional intelligence and academic achievement of tribal students in secondary schools.

References

Aggarwal , J. C.(2010). *Landmarks In The History Of Modern Indian Education*, Vikaah Publishing House Pvt.Ltd . Noida 201301. (UP)

Best, and Khan (2095). *Research in Education.* New Delhi, Percentile Hall of India Pvt Ltd.

Best, J.W & Khan, J.V. et al (2017). *Research in Education*, Pearson India Education Services Pvt. Ltd..Noida-201301. (UP).

Chaube, S.P. & Chaube, A.(2011). *Essentials of general psychology*, Neelkamal Publications Pvt. Ltd. Hydrabad. 500095.

Chaube, S.P. (2011).*Developmental Psychology,* Neelkamal publications Pvt Ltd. Hydrabad-500095.

Dehal, P.S. & Kumar, V.(2016). *Contemporary India and Education*, Vijay Rakkeja, R. Lall Book Depot, Meerut-250001. (UP).

Kamath, V. A. (1998). *Tribal Education in India(Empowering perspectives, Shifting paradigms),* Joshi Printers & Binders. Ranchi 834001.

Mangal, S. K. (2015), *Advanced Educational Psychology*, Prentice Hall of India Pvt. Ltd., New Delhi, Second Edition.

Mohanti, N. (2013).*Tribal Education Issues and Approaches*, SSDN Publishers & Distributers,New Delhi,110002

Opie ,C. (2004). *Doing Educational Research: A Guide to First-Time Researchers*, Vistar Publications, Mathura Road, New Delhi, 110044.

Rao, M.S.(2013). *Sage Advice for Students & Educators: Stay Inspired!,* Book Enclave, Jaypur India, 302003.

Sarma,M.K.(2014). *Philosophical And Sociological Foundations Of Education*. Neelkamal Publications Pvt. Ltd. Hydrabad. 500095.

•••

ERROR ANALYSIS IN HOMOPHONIC SOUNDS: A STUDY OF SECONDARY LEVEL STUDENTS IN BILASPUR

Satabdi Sarkar

Abstract

English is considered as second language or foreign language to the Indian students. So for understanding English language, learning is the important factor because this language is acquired intentionally by learning and through continuous practice. In present scenario it is seen that students face problem in pronunciation of English words and because of this sometimes they commit silly mistakes while writing. There are several words which have same spelling or different spelling but same pronunciation and difference in meaning, so sometime students are not able to differentiate between those words, may be because of lack of vocabulary and wrong pronunciation. Words which are pronounced in the same way but different in spelling and meaning are known as homophones. The present study aim at diagnosing and analysig the errors made by secondary level students while writing homophonic sounds and to find out the causes of errors. For the purpose of investigation one self-made questionnaire tool is prepared for the students for testing their knowledge about homophones and another set of questionnaire tool is prepaired for both students and teachers to find out the root cause of errors in homophones. The sample comprised of 216 students of class IXth studying in CBSE affiliated schools in Bilaspur. The findings of the study revealed that errors occur by the students due to i) the lack of comprehending the meaning or due to the lack of lexical knowledge about homophones ii) Lack of vocabulary or maybe they are not aware of the denotation of those homophone words as they are not in the habit of reading books or using dictionary iii) Wrong pronunciation, lack of morphological knowledge leads to error in writing as they hesitate to speak in English. iv) most of the students don't have the habit of reading books and using dictionary and as a result they don't have enough vocabulary power.

Key Words: English Language, English Teaching, Homophonic Sounds

INTRODUCTION

India is a country with diverse cultures, languages and communities and where several hundred mother tongues are used. English is one and only common language that is used and accepted by people from different backgrounds to exchange their ideas and thoughts. Today English is one of the important languages in Indian education system. English is an international language as well. Without knowledge of English language we are not able to establish any kind of relationship with other nations because English is the only language through which we communicate with other nations. The government of India along with the state Governments has introduced the English language from the grass root level for generating the awareness of the importance of English language at the national as well as international level. Bruner and Kennedy (1966) have described language as an 'Invitation to form a concept'. Language plays the principal directive factor in instigating, controlling and organizing behaviour. Olson (1970) studied pervasive effects of language upon memory. It was found that it facilitates recall through the use of labelling or rehearsal because of its effects on attention through syntactic as well as semantic factors. He viewed that language is a necessary prerequisite for the original development of culture.

The National Curriculum Frame Work (2005) states – "Language also provides a bank of memories and symbols inherited from one's fellow speakers and created in one's own life time". At the secondary level language occupies a pivotal place in curriculum. Language speaking is essentially a skill. The four basic skills of English language are Listening, Speaking, Reading and Writing. These skills help an individual to comprehend and use the language for effective communication. Sometimes students consider English as the most difficult subject and there are several factors behind this notion like lack of vocabulary power, fear of speaking English due to less vocabulary, students only receive knowledge from the teacher and they are not trying to explore the knowledge by themselves, no proper knowledge of rules and regulations of English language as it is the second language for Indian natives. Homophone is one of the most confusing things in English language.

Homophones are two or more words that are pronounced in the same way but differ in spellings as well as meaning. Example: Root and Route are homophonic words and the meanings of both words are "origin" or "source" and "the way" respectively. Both these words are pronounced in the same way /ru:t/. Homophones mainly occur in English as there are several ways to spell the same sound.

Example: The sound of /n/ can be spelled with the letter "N" like Night /nait/ and the letter combination "KN" like Knight /nait/, resulting in the homophones Night and Knight. The meaning of both the words Night and Knight is the time of darkness and a soldier in the past who had a high social rank respectively.

Similarly the vowel diphthong /ei/ can be pronounced with the word Rain /rein/ as well as Reign /rein/ which resulted into homophones Rain and Reign. Both the words have different spellings as well as different meanings. The meaning of rain is downfall and reign means royal authority. Because of lack of lexical knowledge, students confuse with homophones and thus misinterpret them.

Effective communication means not only using technological and difficult words but using correct words is necessary for successfully conveying the information to the receiver and get back proper feedback. Specially in case of writing we have to take care of spellings so that the receiver understands what the sender wants to convey because incorrect choice of words change the meaning of the sentence and convey some different message to the receiver. It has become evident that misuse of homophones is concern issue because homophones are pronounced in same way like where and were. Both words have same pronunciation but differ in meaning so students are confused and because of this confusion they misinterpret. There are numerous advantages of using homophones as discussed below:

(1) If we are not using proper homophones in the particular context, it may change the whole meaning of the sentence

and so proper knowledge of homophones is very important.

(2) Using 'night' instead of 'knight', 'wood' instead of would, 'advise' instead of 'advice', 'way' instead of weigh etc may change the meaning of the sentence and ruin the beauty of our writing. Above words are exactly the same in pronunciation but there is a huge difference in spelling as well as meaning. Therefore, it is essential to understand homophones for an effective writing.

(3) If an individual doesn't understand the proper usage of words, the written communication will be screwed up completely. Phonetics and homophones are the basics of communication. Until and unless an individual has the knowledge of phonetics and homophones and the proper usage of homophones, his/her written communication is not meaningful and effective to other people.

(4) It's important for children to recognize homophones because learning them helps children to grasp the context of sentence that have words having same pronunciation but different meaning. Writing right word is very important so that the sender don't convey the wrong information.

Example: The tornado destroyed the whole city. The alternative homophone of the word 'Whole' is 'Hole'. If the student writes 'hole' instead of 'whole', the sentence doesn't have any meaning because the meaning of 'hole' is "a hollow place in the ground" and the meaning of 'whole' is "complete" or "full".

(5) Knowing homophones increase the vocabulary power of the students as well as gain confidence among them to write as well as speak in English.

If the students have knowledge of vocabulary or reading habit of English books or newspapers, they become competent in understanding the difference among homophones because they differentiate the meanings of homophones.

In present scenario it is seen that students are not pronouncing properly and sometimes they are doing silly mistakes while writing.

There are several words which have same spellings or different spellings but same pronunciation and those words have different meanings and so sometimes students are not able to differentiate between those words because of not knowing the meaning of words or wrong pronunciation or unawareness. They also do some silly mistakes while speaking as well as writing. For example: rose and rose: one 'rose' meaning flower and another 'rose' is the past tense of rise. Sometimes, students are not able to pronounce in a correct way and not able to distinguish between the homophonic words which create problem in their writing in terms of spelling error as well as understanding the meaning of those words. One of the long standing issues in research on visual word recognition concerns the role of phonology.

RATIONALE

English is the second language or foreign language for the Indian students. So for understanding English language, learning is the important factor because this language is not acquired unintentionally. In Indian context, students face lots of problem in speaking, reading and writing English language because of interference of mother tongue. Fatima (2011) identified that the learners sociolinguistic background plays a pivot role in determining their language quality and learning efficiency. Mukaromah (2012) demonstrated that students sometimes commit spelling errors because of the interference of language 1 as well as incorrect pronunciation of words. It is seen that sometimes students seem English as the toughest subject and develop fear to speak or write because they don't have so much vocabulary power and their environment doesn't support them to bloom as well. Therefore, besides mother tongue or regional language students have to be encouraged to listen, speak, read and write in English language, so that they become competent in English language and they are not afraid to speak or write in English. Sometimes, these fears are the reason of dropout of the students. For acquiring the English language ability each and every factor is important like understanding the rules and regulations of grammar, phonetics, sounds, writing skills, meaning of words etc.

National Policy on Education (1986) emphasises on Three Language Formula where English language is compulsory subject in each & every school irrespective of any board at Secondary level. In India, English language is used as official language. So, knowing this language is very important. It is become evident that besides the rules of grammar, most of the time students are unaware about the spelling as well as the meaning of the words. Bancha (2013) noticed that the main cause of spelling errors of students is due to the lack of morphological knowledge, limited knowledge of orthography or spelling. Kumar (2013) stated that students commit spelling errors due to several reasons like learners' inability to discriminate between sounds, wrong pronunciation, grapheme phoneme mismatch, homophonous similar words and syllables, flawed deviation, incomprehensible spelling errors, incorrect word boundary etc. It is evident that besides the rules of grammar, most of the time students are unaware of the spelling as well as the meaning of words. The words which seem alike, they often get confused with those words and misinterpret. Homophones create ambiguity among the students as both the words have same pronunciation but spelling is different. While hearing homophones students sometimes misinterpret between two words and cause errors in writing homophones. Error analysis helps to identify cause of errors and types of errors. In this study the researcher tried to analyse the errors in writing homophones so that we can find out the root cause of errors specially in homophones which create great confusion among students most of the time.

OBJECTIVES

1. To diagnose the errors made by secondary level students while writing homophonic sounds.
2. To analyze the errors made by secondary level students while writing homophonic sounds.
3. To find out the causes of error in homophonic sounds

METHODOLOGY

The methodology of the present study is given below:

POPULATION

The population of the present study comprised of all the secondary level CBSE Board students of Bilaspur. The total number of population consists of all the students of class IXth of CBSE Board schools of Chhattisgarh state.

SAMPLE

For the present study, five schools from Bilaspur, Chhattisgarh were selected. The students are from class IXth. Total sample of the study was 216 (two hundred and sixteen) from five schools, out of 216 students, 87 are girls and rest 129 are boys.

TOOLS

The researcher developed the self made tools for this study. Two types of tools were mainly used.

a) One Questionnaire tool is for students to test their knowledge about homophones.

b) Another Questionnaire tool is for both students and teachers to find out the root cause of errors in homophones.

DATA ANALYSIS

The collected answer sheets and tests were evaluated. Data are analysed according to the dimension as there are five dimensions in this study like identification of homophones, Identification of homophones with suitable meanings, writing alternative homophones, Frame sentence with homophones, rewrite the passage by substituting correct homophones. Boys and girls scores were analyzed and interpreted through percentage. Students' responses were also analyzed and interpreted item wise to show in which items, students have mostly committed error. As the study was qualitative in nature, the data were analyzed by using content analysis, frequency counting, and percentage analysis.

FINDINGS

Findings Related to Identification of Correct Homophones

In this test, students have to select a correct homophone which is

suitable with the given sentence. Through this test, the researcher tries to identify the lexical knowledge of homophones of the students. 84.26% of boys and 83.1% of girls made correct response in identifying the correct homophones whereas, 15.74% of boys and 16.9% of girls made incorrect response in identifying homophones. The average correct response was 83.68% and average incorrect response was 16.32%. Maximum students were able to identify correct homophones. Errors committed by the students were due to the lack of comprehending the meaning or due to the lack of lexical knowledge about homophones as well.

Findings Related to Identification of Homophones with suitable meanings in terms of puzzle

Among 129 boys and 87 girls, 88.32% of boys and 87.03% of girls made correct response in identifying homophones which are suitable according to the meaning given in the test, whereas 11.07% of boys and 13% of girls made incorrect response in identifying correct homophones with suitable meaning. The average correct response was 87.67% and average incorrect response was 12.3%. It shows that maximum students were able to make correct response or able to identify correct homophones. The responses may be incorrect due to the lack of comprehending the meaning or maybe they are not aware the denotation of those homophone words as they were not habituated to reading books, using dictionary.

Findings Related to Writing Alternative Homophones

Out of 129 boys and 87 girls, 58.14% of boys and 41.86% of girls were able to write correct alternative homophones whereas, 66.20% of boys and 33.80% of girls were not able to write correct alternative homophones. The average correct response was 62.17% and average incorrect response was 37.83%. Maximum students were able to write alternative homophones of the given word. The ratio of the correct response of the girls was higher than the boys. Though many students identify the correct alternative homophone they committed error in writing spelling because they don't have the lexical skill and syntactic ability. Wrong pronunciation, lack of morphological knowledge leads to error in writing as they were hesitating to speak in English. Even in the school environment many

students were using their mother tongue instead of English language.

Findings Related to Frame Sentences with Homophones

Out of 129 boys and 87 girls, 48.84% of boys and 51.16% of girls made correct response whereas, 56.9% of boys and 43.1% of girls were not able to frame the sentence with homophones. The average correct response of the students was 52.87% and average incorrect response was 47.13%. It shows that number of correct response of the girls was more than boys. Ratio of incorrect response is higher in this item compared to other items. The responses may be incorrect due to several reasons like not knowing the alternative homophone of the given word, they were not able to frame the sentence. Some students find out the alternative homophone of the given word but they were not able to frame the sentence because they don't have the semantic knowledge as well as syntactic knowledge as they were afraid of speaking English.

Findings Related to Rewrite the Passage by Substituting Correct Homophones

Among 129 boys and 87 girls, 53.98% of boys and 46.02% of girls made correct response in substituting the homophones given in the test whereas, 52.04% of boys and 47.96% of girls were not able to make correct response. The average correct response of the students was 53.01% and average incorrect response was 46.99%. In this dimension the incorrect response of the girls were higher than the boys. The responses were incorrect due to lack of lexical knowledge. As most of the students don't have the habit of reading books and using dictionary; they are not able to find out the incorrect homophone words from the paragraph.

Findings Related to Students Attitude towards English Language

- 86.82% of boys and 90.8% of girls love to read books. Out of 86.82% of boys, 35.66% of boys love to read Hindi books, 49.61% and 1.55% of boys love to read English and other language books respectively. Out of 90.8% of girls, 18.39% and 71.26% of girls loves to read Hindi and English books respectively. 1.15% of girls love to read other language books. 13.18% of boys and 9.19% of girls are not fond of

reading books.

- 34.11% of boys regularly used dictionary and 62.02% of boys often used dictionary. Among these boys, 17.83% and 76.74% of boys used Hindi-English dictionary and English-Hindi dictionary respectively. 2% of boys used other language dictionary. 35.63% of girls regularly used dictionary and 58.62% of girls often used dictionary. Among these girls, 8.05% and 87.36% of girls used Hindi-English dictionary and English-Hindi dictionary respectively. 3.88% of boys and 5.75% of girls never used dictionary.
- 72.1% of boys used Hindi language at home and 1.55% of boys used English language at home. 26.36% of boys used mother tongue at home. 80.46% of girls used Hindi language at home and 19.54% of girls used mother tongue at home. None of the girls used English language at home.
- 56.69% of boys and 15.5% of boys talk in English and Hindi language at school respectively.1.55% of boys and 23.26% of boys used mother tongue and bi-lingual at school respectively. 80.46% of girls and 9.19% of girls talk in English and Hindi language at school respectively.1.15% and 9.19% of girls used mother tongue and bi-lingual at school respectively.
- 87.59% of boys love to watch movies. Out of 87.59% of boys 48.06% and 39.54% of boys love to watch Hollywood and Bollywood movies respectively. 93.1% of girls love to watch movies. Out of 93.1% of girls, 24.14% and 71.26% of girls love to watch Hollywood and Bollywood movies respectively.
- Out of 48.06% of boys who love to watch Hollywood movies, 14.73% of boys are listening Hindi track and 33.33% of boys are listening English track. 31.78% of boys are using subtitle and 16.28% of boys are not using subtitle. Out of 24.14% of girls, 11.49% and 14.94% of girls are listening Hindi and English track respectively. 21.84% of girls are using subtitle and 4.59% of girls are not using subtitle. 12.40% of boys and 6.89% of girls are not fond of watching movies.

- There are several reasons for the errors in homophones which occurred can be analyzed from above interpretation. As many of the students don't read English books, nor speak in English regularly at school or at home, not fond of watching Hollywood movies; they are not able to grow interest towards English language. Because of all these reasons, not able to comprehend the meaning, lack of lexical ability, semantic ability, incorrect pronunciation etc gradually they develop fear among them and leads to error in writing.

Findings Related to Teachers Response towards Error Committed by Students

- The problems that students face while speaking are pronunciation, grammar, sentence formation, lexical ability etc.
- While evaluating the English paper, teachers mostly found the errors like grammatical mistakes and spelling mistakes.
- Remedies were provided to improve students' speaking and vocabulary power, like by arranging special speaking classes, conversation, suggesting for reading newspaper, magazines, etc.

Conclusion

English as an important language in present era for communication and make a relationship with other countries. Written communication is important because sometimes face to face interaction is not possible. While giving written communication message should be clear and there should not be any ambiguity which creates confusion in the readers' mind. So in the field of school education, teachers should take care of written skill of the students besides other skills. From this study, it is found that students mostly committed errors in identifying the alternative homophones and framing the sentence by using homophones. Sometimes homophones create ambiguity among the students as both the words have same pronunciation. They misinterpret while writing homophones. Sometimes students memorize the word without

knowing the meaning and they are not able to use that word appropriately while speaking or writing. For effective communication, knowledge of vocabulary is of utmost importants. And for increasing the lexical ability, they should have the habit of using the dictionary, reading English books or magazines, and trying to talk in English at home and school and with peer groups as well.

REFERENCES

Bancha, W (2013). What causes spelling errors of Thai students. *Arcels10,*107-112. Retrieved fromhttp://researcg.ncl.ac.uk/Arcels/volume_10/banchavol10.pdf

Best,JW., Kahn, JV. (2006). *Research in Education* (10th ed,). London, UK, Pearson.Retrieved from http://mhrd.gov.in

Conway, B.T (2011). *Analysis of third and fifth-grade spelling errors on the test of writing spelling* (Doctoral Dissertation, Texas A & M University, Texas, USA).Retrieved from http://oaktrust.library.tamu.ed

Davis, DF (2013). ***Priming consequences of Homophone Confusion*** (Doctoral Dissertation, Virginia Polytechnic Institute and State University, Blacksburg, Virginia). Retrieved from http://hdl.handle.net/10919/19366

Fatima, P (2013). *A linguistic study of spelling mistakes in the writing of class V to VII, students of Urdu medium schools in Aligarh* (Doctoral Dissertation, Aligarh Muslim University, U.P, India).Retrieved from http://shodhganga.inflibnet.ac.in

Franck, J., Bowers, J., Fraunfelder, U&Vigliocco, G (2010). Orthographic influences on agreement: A case for modality-specific form effects on grammatical encoding. *Journal of Language and Cognitive Processes*18(1), 61-79, doi: https://doi.org/10.1080/01690960143000452

Garret, HE. (2008). *Statistics in Psychology and education*(6th ed.) Delhi, Surjeet Publications.

Gupta. SC. (2001).*Fundamentals of Statistics*. Bombay, Himalaya Publication House

Hino, Y., Kusunose, Y., Lupker, SJ & Jared D (2013). The Processing

Advantage and Disadvantage for Homophones in Lexical Decision Tasks. *PubMed* 39(2), 529-551. doi: 10.1037a0029122

Kumar, M (2013). Orthographic errors at the undergraduate level in Bihar. *ResearchGate*1(2), 185-191. Retrieved from*https://www.reserachgate.net/publication/28548075*

Mukaromah, S (2012). *An error analysis in spelling English words produces by the seventh grade students of husnulkhotimahislamic boarding school as seen from their dictation test* (Doctoral Dissertation, SyekhNurjati State Islamic Institute of Cirebon, Cirebon, Indonesia). Retrieved from http://repository.syekhnurjati.ac.id

Pahuja, NP. (1995). *Teaching of English*, New Delhi: Anmol Publication Pvt. Ltd.*Pet therapy* (2014). Retrieved from https://www.ukwssays.com

Pexman PM, Lupker S J & Jared, D (2001).Homophone effects in lexical decision. *PubMed*27(1), 139-156. Retrieved from https://www.ncbi.n/m.nih.gov

Sakaguchi, K (2013). *Joint English Spelling Error correction and POS tagging for language learners writing*. (Master's Dissertation, Nara Institute of Science and Technology, Ikoma, Japan). Retrieved from https://library.naist.jp

Sari, I (2015). Common errors in Students' spelling on the required words for the Seventh Graders. *Journal of Education and Learning 1,* 35-43. Retrieved from https://www.ukessays .com

Tsai, LH.,Meng, LF., & Hung, LY(2011). Coincidence of homophone spelling errors attention problems in school children: A Survey Study. *PubMed* 32(1), 75-80. Doi:https://doi.org/ 10.1016/j.ridd.2010.08.014

White KK, Abrams L, Zoller SM & Gibson SM (2008). Why did I right that? Factors that influence the production of homophone substitution errors. *PubMed* 61(7), 977-985. doi: 10.1080/17470210801943978

White, KK.,Abrams, L., White, CB &Hagler, HL (2010). Syntactic constraints in the retrieval of homophone orthography. *PubMed* 36(1): 160-169, doi:10.1037/a0017676

White, K.K.,Abrams, L. &Zoller., S.M. (2013). Perception-Production asymmetries in homophone spelling: The unique influence of aging. *PubMed 68(5), 681-690. doi:10.1093/geronb/gbs099*

National Curriculum Framework. (2005). National Council of Educational Research and Training. Retrieved from http://www.ncert.nic.in

National Policy on Education. (1986). Ministry of Human Resource and Development.

•••

MATHEMATICS ACHIEVEMENT AND CONFLICT RESOLUTION SKILLS OF SECONDARY SCHOOL ADOLESCENTS: A CORRELATIONAL STUDY

Dr. Vikramjit Singh
Mr. Amitabh Srivastava

Abstract

The initial inspiration for this study started with the reading from the NCF-2005 which conveys that the main goal of mathematics education in schools is the mathematisation of the child's thinking. Mathematics education tends to develop among its student: formal problem solving, use of heuristics, estimation and approximation, optimisation, use of patterns, visualisation, representation, reasoning and proof, making connections, mathematical communication.

Adolescence is the period of great stress and strain. Adolescent students face various types of conflicts and stressful situation. Conflicts are inevitable for the adolescent but the key is the constructive resolution of them.

Mathematics as a subject from its nature seems to judge a greater conflict resolver in a student having good mathematics knowledge and understanding. The study thus here tries to find out this interrelationship between the two variables namely "achievement in mathematics" and "conflict resolution skill". The sample of this study has been adolescents of class IX and XII of a school comprising of 143 students in total. The tool developed by the investigator on conflict resolution skills has been administered on the students and for achievement data their last terminal examination score in mathematics were collected.

The analysis of the collected data revealed that there is an overall positive correlation between the two variables under the study. It was also found out although there was significant higher correlation between the two variables for some identified dimensions of conflict resolution skills but overall correlation value is not high enough to be called significant. Finally the paper concludes with a discussion on the findings and the follow up studies.

Key Words: Mathematics Achievement, Adolescents, Conflict, Adolescents' Conflict, Conflict Resolution Skills

INTRODUCTION

Mathematics as it goes is an essential curricular input to the school going children. Secondary school children passing through the early grades which cover the beginning foundations of math are exposed to higher level of mathematics which includes algebra, geometry and analysis, trigonometry, etc. Mathematics is an essential subject for the youth for its immense application in their daily life. The main goal of mathematics in school is the mathematisation of the child's thought processes NCF(2005). In the words of David Wheeler, it is "more useful to know how to mathematise than to know a lot of mathematics". Learning math improves the child's *problem solving skills*. Even as a very young elementary school student they develop the ability to solve problems by learning to calculate simple arithmetic problems, such as one plus one. Every new math level they tackle requires them to expand the ability to dissect a problem and solve each individual part. They can apply this to their life as they get older. Even in relationship building, problems often need to be broken down into sections to get to the core problem and solution. Not every child wants to be a mathematician. However, all children can benefit from strong math skills. The problem solving processes used in mathematics classes develop logic skills. The trial and error required to solve math problems is useful in science and statistics. Taking the time to work through math problems and arrive at the correct answer teaches your child persistence and perseverance. Outside of school, activities children engage in such as crafts, tinkering with electronics or cooking, all indirectly relate to the problem solving abilities learned in math class.

Mathematics is a subject that deals with logic, decision-making, deductions, assumptions, precision, clarity of thought and the ability to solve problems in a calculative manner by following a series of steps. This is an important subject not only from the point of view of getting an academic qualification at school or college, but is also a subject that prepares us for the future as well, irrespective of

which walk of life we choose to be a part of. There are different branches of mathematics that have a wide range of practical applications, such as algebra, geometry, trigonometry, calculus and the basic commercial applications of mathematics such as statistics, computing and concepts like addition, subtraction, multiplication, division, percentages, ratios and proportions, fractions, profit and loss, calculation of simple interest, etc. Lynn(2011) .

Adolescence is the period of great stress and strain. Adolescent students face various types of conflicts and stressful situations .There are various classifications of adolescent conflict based upon the findings of different educationists and researchers. The various problems related to teen years can be related to their education, health, empowerment, employment, drug abuse, leisure time activities, etc. In this study the conflicts of adolescents are kept under four broad categories, i.e. arising within the individual *(intrapersonal),* with the student and their friend*(interpersonal),* or within his/her friend circle*(intra group)* or with some other member(s) of the society*(intergroup).* The adolescent at this time deal with immense pressure and pass through severe conflicting situations related to their education, career choices, and problem with friends, family, and other members of society. Teenage is the year of great stress and strain and it is always worthy to come out of these stress and strain for an effective future life. Thus there is always a need for the adolescent to develop skills by which they can fight with the conflict they are confronted with. Conflicts are inevitable for the adolescent but the key is the constructive resolution of them. The adolescent must be skilled enough so that they can take responsibility for making healthier choices, resisting negative pressures and avoiding risk behaviour. Effective acquisition of these skills can influence the way adolescents cope up with stress and face the challenges present in their lives. There is an unending list of key skills important to overcome the conflicts faced by the adolescents. However, they may be categorised into certain specific dimensions such as self focussed resolution skills and support seeking resolution skills, etc. within which we may further include self awareness, critical thinking and analysis, effective decision making and mediation, facilitation, etc. These skills can be

used for resolving conflicts of all types such as intra-personal or interpersonal and intra-group or intergroup conflicts etc among the adolescents.

Mathematics as a subject from its nature seems to be a greater conflict resolver in a student having good mathematics knowledge and understanding. Various studies have also shown that good mathematician has better logical reasoning, visualisation and perception ability which are essentials for being able to resolve any conflict constructively. The study thus here tries to find out this interrelationship between the two variables namely "achievement in mathematics" and "conflict resolution skill". The study conducted by Chen, Xinyin; Rubin, Kenneth H.; Li, Dan(1997) finds out relationship between academic achievement and social adjustment. Information on academic achievement and indexes of social adjustment, including social competence, aggression, social inhibition, leadership, and peer acceptance, was collected from multiple sources. It was found that academic achievement predicted children's social competence and peer acceptance. In turn, children's social functioning and adjustment, including social competence, aggression-disruption, leadership, and peer acceptance, uniquely contributed to academic achievement. These results generally supported the "reciprocal effects" model concerning the relations between academic achievement and social adjustment (S. P. Hinshaw, 1992). (PsycINFO Database Record (c) 2012 APA, all rights reserved). Xin Ma and Nand Kishor(1997) conducted a meta-analysis integrated 143 primary studies on the relationship of attitude toward self and social factors with achievement in mathematics. Attitude was decomposed into self-concept about mathematics, perception of family support, and perception of mathematics as a male domain. Major findings included: (a) self-concept, family support, and mathematics as a male domain were all related to achievement; (b) the three relationships did not show significant gender differences; (c) the three relationships consistently decreased from the junior high grades to the senior high grades; (d) the relationship between self-concept and achievement varied as a function of ethnicity, whereas the relationship between family support and achievement was consistent across ethnic

background; (e) the three relationships all varied across sample selection; (f) the relationship between self-concept and achievement varied with sample size, whereas the relationships of family support and mathematics as a male domain with achievement were sample-size invariant; (g) the relationship between self-concept and achievement increased over time, whereas the relationships of family support and mathematics as a male domain with achievement remained almost unchanged over time; and (h) there were no statistically significant interaction effects among gender, grade, and ethnicity for any of the three relationships.

These studies have immensely motivated the researcher to take over this study.

OBJECTIVES OF THE STUDY

The objectives of the present study were as follows:

1. To study the relationship of mathematics achievement and conflict resolution skills among the adolescent students.
2. To study the relationship of mathematics achievement and conflict resolution skills among the adolescent students of different classes.
3. To study the relationship of mathematics achievement and different dimensions of conflict resolution skills among the adolescent students.

HYPOTHESES OF THE STUDY

The following hypotheses were formulated for the study in the light of the aforesaid objectives.

1. Adolescent students will have positive correlation between mathematics achievement and conflict resolution skills.
2. Adolescent students of different classes (IX/X) will have positive correlation between mathematics achievement and conflict resolution skills.
3. Adolescent students will have positive correlation between mathematics achievement and different dimensions of conflict resolution skills.

METHODOLOGY

Design

The present study is a correlational study which examines the relationship between mathematics achievement and conflict resolution skills of adolescent students. The study has tried to establish whether and to what degree, relationships exist between the two variables.

Sample

The subjects for the study were the students of class IX and class XII of Atreyee DAV Public School, Balurgaht, W.B. Both the sections of class IX i.e. section A and B were taken for the study. Similiarly for class XII both the streams i.e. science and commerce students were taken for the study. The details of the sample of the present study is given in Table 1 below.

Table 1: Details of the Sample

DETAILS OF SAMPLE Name of the School	Name of the Class with section/stream	Number of students studied
Atreyee DAV Public School, Balurghat, West Bengal	IX-A	37
	IX-B	38
	XII-Science	36
	XII-Commerce	32
	Total	**143**

Tools

The tools that was used in the study was **CONFLICT RESOLUTION SCALE FOR ADOLESCENTS (CRSA)**. The researcher has used a conflict resolution skills scale for measuring adolescent skills in dealing with the upcoming conflict. This test was a Likert-type scale developed by the researcher himself with the help of experts. This conflict resolution skill scale was based upon items in the form of responses, activities or actions an adolescent will take when confronted with a conflicting situation to make him/ her come out of the situation or to make him feel better. These conflict resolution skills are divided here in five dimensions, namely Self Focussed Resolution Skills **(SFRS),** Conflict Resolution

Restructuring Skills **(CRRS),** Conflict Withdrawal and Distraction Skills **(CWDS),** Group Conflict Resolution Skills **(GCRS),** Support Seeking Resolution Skills **(SSRS).**

Procedure

The adolescents in this study were administered to the CRSA and for gathering data for the mathematics achievement their last terminal exams marks in mathematics were collected for the analysis of the data.

ANALYSIS AND INTERPRETATION OF DATA

ANALYSIS OF CORRELATION IN MATHEMATICS ACHIEVEMENT AND CONFLICT RESOLUTION SKILLS AMONG ADOLESCENTS

Testing Hypothesis-1

- Adolescent students will have positive correlation between mathematics achievement and conflict resolution skills

To test the above hypothesis Spearman Rank Order Correlation was found out for all the students and the results can be summarised in the following Table 2

Table 2 : Analysis results on Hypothesis 1 Test

Spearman Rank order Correlation-Ungrouped Data	
Statistic	Value
Correlation (Not corrected)	0.4207
Correlation (Corrected)	0.4187

The above value of correlation 0.418 is positive and hypothesis is accepted. Hence it can be said that mathematics achievement and conflict resolution skills are moderately correlated and the correlation is significant.

ANALYSIS OF CLASS WISE RELATIONSHIP OF MATHEMATICS ACHIEVEMENT AND CONFLICT RESOLUTION SKILLS AMONG THE ADOLESCENT STUDENTS

Testing Hypothesis-2

- Adolescent students will of different classes (IX/X) have positive correlation between mathematics achievement and conflict resolution skills.

To test the above hypothesis Spearman Rank Order Correlation was found out for all the students of class IX and XII separately and the results can be summarised in the following Table 3.

Table 3 : Analysis results on Hypothesis 2 Test

Analysis results for Class IX	Spearman Rank order Correlation-Ungrouped Data	
	Statistic	Value
	Correlation (Not corrected)	0.3750
	Correlation (Corrected)	0.3734
Analysis results for Class XII	Spearman Rank order Correlation-Ungrouped Data	
	Statistic	Value
	Correlation (Not corrected)	0.6524
	Correlation (Corrected)	0.6421

The analysis above reveals that where class IX students' mathematics achievement is moderately correlated to their conflict resolution skills, class XII students' mathematics achievement is highly correlated to their conflict resolution skills. Thus the hypothesis can be rejected.

RELATIONSHIP OF MATHEMATICS ACHIEVEMENT AND DIFFERENT DIMENSIONS OF CONFLICT RESOLUTION SKILLS AMONG THE ADOLESCENT STUDENTS

Testing Hypothesis-3

- Adolescent students will have positive correlation between mathematics achievement and different dimensions of conflict resolution skills.

To test the above hypothesis Spearman Rank Order Correlation was found out for all the students and for the different dimensions of conflict resolution skills the results can be summarised in the following Table 4.

Table 4 : Analysis results on Hypothesis 3 Test

DIMENSIONS OF CRSA	ANALYSIS RESULTS	
Self Focussed Resolution Skills **(SFRS)**	Spearman Rank order Correlation-Ungrouped Data	
	Statistic	Value
	Correlation (Not corrected)	0.7671
	Correlation (Corrected)	0.7661
Conflict Resolution Restructuring Skills **(CRRS)**	Spearman Rank order Correlation-Ungrouped Data	
	Statistic	Value
	Correlation (Not corrected)	0.7956
	Correlation (Corrected)	0.7945
Conflict Withdrawal and Distraction Skills **(CWDS)**	Spearman Rank order Correlation-Ungrouped Data	
	Statistic	Value
	Correlation (Not corrected)	0.4236
	Correlation (Corrected)	0.4210
Group Conflict Resolution Skills **(GCRS)**	Spearman Rank order Correlation-Ungrouped Data	
	Statistic	Value
	Correlation (Not corrected)	0.4790
	Correlation (Corrected)	0.4771
Support Seeking Resolution Skills **(SSRS)**	Spearman Rank order Correlation-Ungrouped Data	
	Statistic	Value
	Correlation (Not corrected)	0.4993
	Correlation (Corrected)	0.4976

The above table reveals that all the dimensions of conflict resolution skills are positively correlated to mathematics achievement .If the observation is done minutely it can be observed that although for the CWDS, GCRS and SSRS dimension of conflict resolution skills scale, it is moderately correlated to mathematics achievement for the SFRS and CRRS dimension of conflict it is highly correlated to mathematics achievement and thus hypothesis is accepted.

Findings and Discussion

The above analysis shows that as hypothesized in this experiment the analysis results follows. The first outcome on the study suggests that the overall conflict resolution is positively correlated to the achievement in mathematics and the correlation is very moderate which is quite in accordance with the assumed hypothesis. However it is also revealed that the correlation in the early adolescents (IX) is much less than the correlation in the later stage of adolescents (XII) which is very high. These changes may be attributed to the development of higher mathematical skills in the higher classes among the adolescents. As students moves to higher classes they are

expose to higher and complex areas of mathematics which helps them to develop more reasoning, vizualisation, abstract thinking and logical thinking abilities. These ability are essential inputs for resolving a conflict. Further it can also be seen that for dimension wise analysis the correlation for all the involved dimensions of CRSA is positive. The higher positive value of correlation in Self Focussed Resolution Strategies (SFRS) and Conflict Resolution Restructuring Skills (CRRS) can be attributed to its more problem oriented and logical reasoning nature which is the natural characteristics of a better mathematics student. The remaining three dimensions again reflects the overall trend with its positive correlation to the mathematical ability.

Conclusion

Adolescence is often described, as an exciting transitory phase in the human life cycle but is perhaps the most challenging stage as well. This is a time when adolescents evolve into adults with newly discovered independence and renewed responsibilities. They are constantly in search of their own new identity. They tend to question and appreciate the values of the adult world and try to assert their identity. During adolescence they develop skills that will help them to grow into caring and responsible adults. Adolescence period is a phase of students' life when he is at the secondary stage. It is at this stage that Mathematics comes to the student as an academic discipline. Mathematics is a subject which is very much problem oriented and teaches the ways to resolve those problems. At the secondary stage, the student begins to perceive the structure of mathematics. Mathematical terminology is highly stylised, self conscious and rigorous. The findings of this study indicates that at the secondary stage, a special emphasis on experimentation and exploration may be worthwhile. Mathematics laboratories are a recent phenomenon, which hopefully will expand considerably in future. Activities in practical mathematics help students immensely in visualisation which will further help in resolving their own conflicts.

As we already know that the main goal of mathematics education in schools should be the mathematisation of the child's thinking. Clarity of thought and pursuing assumptions to logical conclusions

is central to the mathematical enterprise. There are many ways of thinking, and the kind of thinking one learns in mathematics is an ability to handle abstractions, and an approach to problem solving. Mathematics as a subject thus seems to develop skills among the adolescents to become an effective adult and a responsible citizen. It is the task of the school administration as well as the teacher to integrate some conflict resolving lessons into the mathematics class so as to make them better individual. Mathematics has lots of scope to help students' to understand themselves better and to socialise in a better way, it is the teacher and parents who have to make them realise how it can be useful to their daily life. The teacher has to take many action plans based on their own designed action research on how to implement mathematics models in resolving the adolescents' conflict.

References

Cawelti, G.(1993).*Current school practices: Trends and Issues.* New Jersey,Columbia: Prentice Hall publication.

Chen, Xinyin; Rubin, Kenneth H.; Li, Dan.(1997). Relation between academic achievement and social adjustment: Evidence from Chinese children. *Developmental Psychology*, Vol 33(3), May 1997, 518-525.

Cobb, P., Confrey, J., diSeva, A., Lehrer, R., and Schauble, L.(2003).Design experiments in educational research, *Educational Research, 32(1), pp.9-13.*

Cohen, R.(1995). School mathematics and its learning implications. *Adolescent Education,4(3),pp.43-49.*

Dewey, J. (1913). *Interest and Effort in Education*, Boston, New York and Chicago: Houghton Mifflin Company.

Hill, K.T. (1972). Anxiety in the evaluative context. In W.W. Hartup(Ed.), *The Young Child,2, pp.225-263*. Washington, DC: National Association for Education of young Children.

Indian Education Commission. (1964). New Delhi, Ministry of Education and Youth Service.

Johnson,D.W., Johnson,R.T.(1996). Conflict resolution and peer mediation programs in elementary and secondary schools:

A review of the research. Review of Educational Research. Sage publication.

Kemp,S.V.(1998).Mathematics learning in elementary schools. *Journal of Social Science,54(2),pp.56-60.*

Laursen, B(1994). Interpersonal conflict during adolescence. *Psychological Bulletin.*

Lynn,D.(2011). The Importance of Children Learning Mathematics

Ma,X. & Kishore,N(1997). Assessing the Relationship between Attitude toward Mathematics and Achievement in Mathematics: A Meta-Analysis. *Journal for Research in Mathematics Education.* Vol. 28, No. 1 (Jan., 1997), pp. 26-47.

Meece, L.J., Wigfield A., and Eccles S.J. (1990). Predictors of maths anxiety and its influence on young adolescents course enrolment intention and performance in mathematics, *Journal of Educational Psychology, 82(1), pp.66-70.*

MHRD.(1986). "National Policy on Education" , New Delhi.

NCERT.2005. *"National Curriculum Framework-2005",* New Delhi.

NCERT (2005). Position paper:National focus group On Education for peace . New Delhi.Offer, O. and Offer, J. B. (1975), *From Teenage to Young Manhood. A Psychological Study,* Basic Books, New York.

NCERT (2010).Ways to Peace: A resource book for teachers. Department of educational psychology and foundation of education. NCERT.New Delhi.

NCERT(2006). Training Course on Peace Education for Teachers. New Delhi

Schiefile, U. and Csikszentmihalyi, M. (1995). Motivation and ability factor in mathematics experience and achievement, *Journal for Research in Mathematics Educational, 26(2),pp. 163-181.*

Skemp, R. (1971). *The Psychology of Learning Mathematics*, Hilllsade, NJ: American Financing.

Smetana JG. Adolescents' and parents' reasoning about actual family conflict. *Child Development.* 1989; 60:1052–1067.

Sprague, J.R., Sugai, G., and Walker, H. (1998). Anti-social Behaviour in Schools. In T.S. Watson and F.M. Gresham (Eds.), *Handbook of Child Behaviour Therapy* (pp. 451–474). New York: Plenum.

United Nations Educational, Scientific and Cultural Organization.(2001) . Learning the Way of Peace: A Teachers' Guide to Peace Education. New Delhi,UNESCO.

•••

ATTITUDE OF PROSPECTIVE TEACHERS TOWARDS THE USE OF ICT FOR TEACHING AND LEARNING

Ankita Kumari
Abhilasha Kumari
Sushil Kumar Singh

Abstract

ICT stands for "Information and Communication Technology". The flexibility, high speed and huge storage capacity of ICT is redefining the traditional process of teaching. It can provide the access to information sources, enable communications, create interacting learning environment and promote change in methods of teaching. The framework raises important questions of how prospective teachers use technological devices in their teaching learning process in order to understand the concept in a better way. The explosion of digital technology has created a revolution in educational instruction. The use of ICT in education lends itself to student centered learning. The growing use of ICT as an instructional medium is changing and will change many of the strategies employed by teachers, resulting in constructive learning. It also encourages teachers to integrate technology into the instruction in the 21st century. The aim of the present study was to appraise the attitude of B.Ed. students towards the use of ICT in teaching and learning . The sample of the present study consisted of 88 prospective teachers of St. Xavier's College of Education, Digha Ghat, Patna. Descriptive analysis were used to analyze the data obtained through survey. It is found that 23% prospective teachers SXCE have shown positive, 59% average and 18% have lower attitude towards the use of ICT in the teaching learning process.

Key Words: Attitude, Prospective Teacher, ICT

INTRODUCTION

Teachers are the greatest asset of any educational system. They stand in the interface of transmission of knowledge, skills and values. The education system is the main source of human resource development and teachers are considered as the backbone of this educational system. Its focus is on the acquisition of knowledge,

self-learning and transferable skills in communication, entrepreneurship, management and technology that are the characteristics of the learning society of today. 21st Century is the age of information and technology (IT). Huge flow of information is emerging in all fields throughout the world. Now information and technology is popularly used in educational field for making teaching-learning process successful and interesting for both students and teacher. Students are the future pillars of society and they must be able to solve different challenges by improving their technical skills, not only with all the problems, but also to overcome the problem and do their job. Attitude of prospective teachers is important in the present education system because without the knowledge of ICT a teacher can't be a perfect teacher. His own interest is important for the future of students. In the present scenario internet is used very commonly. With the help of internet one can get the desired information in seconds. Therefore, it is time when every teacher must be aware of the Information communication technology. Teachers must have the knowledge, positive attitude and skills to use new digital tools to help all students to achieve high academic standard.

According to UNESCO (2002) "ICT is a scientific, technological and engineering discipline and a management technique used in handling information, its application and association with social, economic and cultural matters". Growth of ICT has brought in rapid changes in various fields. It has also made entry into school education because of its appropriateness, applicability and versatility in use for classroom teaching. The National Policy on Education (NPE) 1986, as modified in 1992, stressed the need to employ educational technology to improve the quality of education. The policy statement led to two major centrally sponsored schemes, namely, Educational Technology (ET) and Computer Literacy and Studies in Schools paving the way for a more comprehensive centrally sponsored scheme – Information and Communication Technology at Schools in 2004.

Education is the driving force of economic and social development in any country (Cholin, 2005; Mehta and Kalra, 2006). Considering this, it is necessary to find ways to make education of good quality, accessible and affordable to all, using the latest

technology available. ICT is new technique in education to tackle all the problems that were existed in the conventional teaching-learning process. It has become the driving force of change in the new world. Now-a-days ICT is transforming schools and classrooms into a new look by bringing in new curriculum based on real world problems, projects, providing tools for enhancing learning, providing teachers and students more facilities and opportunities for feedback. Teachers must know the use of ICT in their subject areas to help the learners for learning more effectively. So, the knowledge of ICT is very much essential for both prospective teachers as well as in-service teachers. This will help teachers to know integrated technology with classroom teaching. The education systems around the world are highly motivated to implement the innovations of Information and Communication Technology (ICT) to improve the knowledge and skills of the learners. ICT refers to the technologies which are being used for collecting, storing, editing and passing on information to the learners in various forms (SER, 1997).

Knowledge of ICT is required for pre-service teacher during their training programme, because this integrated technological knowledge helps a prospective teacher to know the world of technology in a better way by which it can be applied in future for the betterment of the students. The two most important skills to include to 21st-century life skills list are information skills and technology adoption skills. In order to prepare our children for this new world dominated by technology we need to change the way we educate them. ICT in schools will not guarantee their effective use. Regardless of the quantity and quality of technology placed in classrooms, the key to how those tools are used is the teacher; therefore teachers must have the competence and right attitude towards technology (Kadel, 2005).

So the role of a teacher becomes very important in leveraging the ICT efficiently in the teaching learning process. Today, the teachers must understand and embrace ICT to create better learning environments for the wireless generation of students. Pedagogical content knowledge (PCK) as the knowledge required by teachers to transform content so that it is accessible to learners. The concept of PCK has been extended to interchange with knowledge of

technology (ICT) in technological pedagogical content knowledge (TPCK). TPCK is the knowledge that enables teachers to solve the problems of practice by planning appropriate combinations of pedagogy and ICT to support learners working with content in a specific context. The prospective teachers should have greater attitude and access to Information and Communication Technology to move from "learning to use ICT" to "using ICT to learn". Research shows that the success of technology use in the educational settings largely depends on teacher's attitudes toward technology use (Albirini, 2006, Baylor & Ritchie, 2002). Sharma *et al.*, (2015) revealed that there were no significant difference in the results regarding the gender, subject, qualification and marital status.

The success of every initiative to employ technology in an educational programme depends strongly upon the support and attitudes of teachers involved. ICT has made teaching-learning process more relevant for the learner and connected the same to real life. In the past two decades, there has been a concerted push for ICT integration in education (Haydn, T. A and R. Barton, R., 2007). Achieving a meaningful use of computer technology in the field of education can be influenced by many factors. One of these factors is teachers' attitudes towards the use of technology in teaching and learning process. .Dixit and Kaur (2015) investigated in their study, the attitude of teacher trainees towards ICT teaching and revealed that the factors like locality and gender of teacher-trainees influenced the attitude towards information and communication technology teaching. Suganthi (2013) Yusuf (2011) found no significant difference between male and female student-teachers attitudes and use of ICT. Researches show that the success of technology use in the educational settings largely depends on teachers' attitudes towards use of technology.(Albirini, 2006, Baylor & Ritchie, 2002). Teachers' attitudes are considered as a major predictor of the use of new technologies in the educational settings (Albirini, 2006). Thus, their attitudes toward computer can play an important role in the acceptance and actual use of computers.

SIGNIFICANCE OF THE STUDY:

The scenario of the classroom is changing and in this context, ICT is being considered as the backbone of the education system in the modern days**.** Knowledge of ICT and use of ICT skills in teaching

and learning have become vital for today's teacher educator. Teachers must know the use of ICT in their subject areas to help the learners for learning more effectively. In order to integrate it in schools, the first need is to study and assess the teacher educators' attitude who are going to teach the students. Teachers must know the use of ICT in their subject areas to help the learners for learning more effectively. So, the knowledge of ICT is very much essential for both prospective teachers as well as in-service teachers. This will help teachers to know integrated technology with classroom teaching. It is the need of the hour to examine and assess the attitude of teacher educators towards Information and Communication Technology (ICT). As this was the case, the present study is proposed.

OBJECTIVES:

1. To know the level of attitude towards ICT of prospective teachers.
2. To find the significant difference in the mean score of attitude of prospective teachers towards ICT on the basis of gender.
3. To find the significant difference in the mean score of attitude of prospective teachers towards ICT on the basis of habitation.
4. To find the significant difference in the mean score of attitude of prospective teachers towards ICT on the basis of marital status.
5. To find the significant difference in the mean score of attitude of prospective teachers towards ICT on the basis of their educational stream.

HYPOTHESIS:

Ho1- There will be no significant difference in the mean score of attitude of prospective teachers towards ICT on the basis of gender.

Ho 2- There will be no significant difference in the mean score of attitude of prospective teachers towards ICT in teaching on the basis of habitation.

Ho 3- There will be no significant difference in the mean score of attitude of prospective teachers towards ICT on the basis of marital status.

Ho 4- There will be no significant difference in the mean score of attitude of prospective teachers towards ICT on the basis of educational stream..

METHODOLOGY

- **POPULATION –** Prospective teachers of Patna.
- **SAMPLE –** 88 prospective teachers of St. Xavier's College of Education, Patna was selected on the basis of purposive sampling.
- **METHOD -** Survey method was used.
- **TOOL -** A standardized tool on Achievement test in computer literacy by Dr. T. Pradeep Kumar.

DELIMITATIONS:

- The present study is limited to St. Xavier's College of Education, Patna only.
- The study was conducted on 88 prospective teachers only.

DATA ANALYSIS:

Objective-1-To know the level of attitude towards ICT of prospective teachers.

Table : Level of attitude towards ICT

Higher attitude (in percentage)	Average attitude (in percentage)	Lower attitude (in percentage)
23	59	18

From the above table, we can see that there were 23 % prospective teachers had higher attitude, 59% prospective teachers had average attitude and 18% prospective teachers had lower attitude towards the use of ICT in teaching and learning.

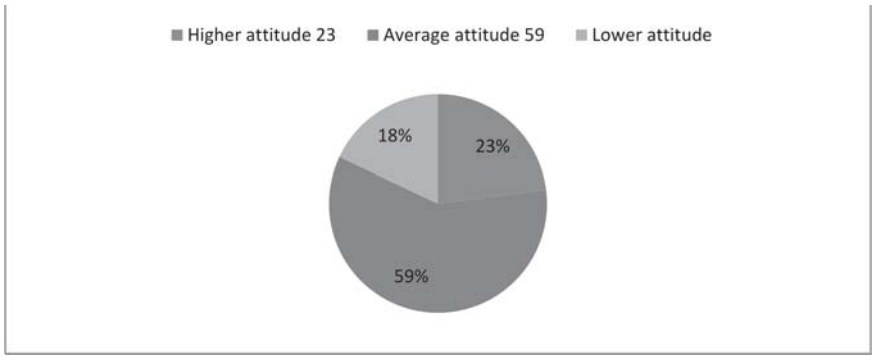

Figure 1: Level of Attitude towards ICT

Ho 1- There will be no significant difference in the mean score of attitude of prospective teachers towards ICT on the basis of gender.

Comparison of attitude of prospective teachers attitude towards the use of ICT on the basis of gender has been done through t-test and has been presented in table-2.

Table 2 : Test of significance on gender differences

Variable	N	Mean	SD	t-value
Male	14	87.64	4.87	0.838
Female	73	86.37	5.27	

Table 2 reveals that the calculated t-value is 0.838 which is less than 1.98 at 0.05 level of significance. Hence, there will be no significant difference in the mean score of attitude of prospective teachers towards ICT on the basis of gender. The graphical representation of the findings has been shown in Fig 2 below.

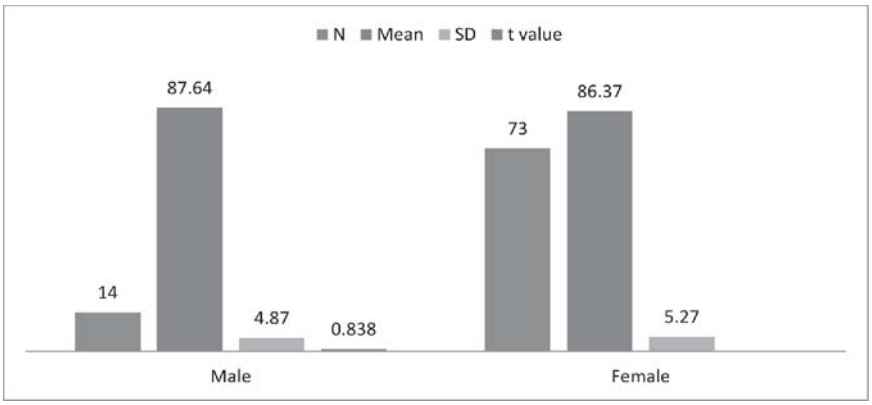

Figure 2 :Test of significance on gender differences

Ho 2- There will be no significant difference in the mean score of attitude of prospective teachers towards ICT in teaching on the basis of marital status.

For testing the above hypothesis t-test has been performed and the results have been summarized as follows in Table-03

Table 3: Attitude of prospective teachers towards the use if ICT on the basis of marital status.

Variable	N	Mean	SD	t-value
Married	25	86.08	5.91	0.542
Unmarried	62	86.76	54.94	

Table 3 reveals that the calculated t-value is 0.542 which is less than 1.98 at 0.05 level of significance. Hence, there will be no significant difference in the mean score of attitude of prospective teachers towards ICT on the basis of marital status. The graphical representation of findings can be seen in figure 3 also.

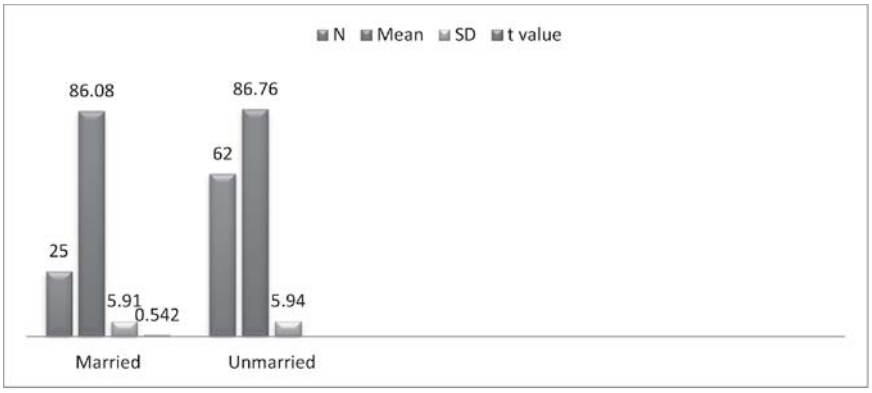

Figure 3 :Attitude of prospective teachers towards the use if ICT on the basis of marital status.

Ho 3- There will be no significant difference in the mean score of attitude of prospective teachers towards ICT on the basis of habitation.

The t-test results for the above hypothesis testing is given in table-04 .

Table 4 : Attitude of prospective teachers towards the use of ICT on the basis of habitation

Variable	N	Mean	SD	t-value
Rural	14	86.07	3.86	0.372
Urban	73	86.66	5.14	

Table 4 reveals that the calculated t-value is 0.0654 which is less than 1.98 at 0.05 level of significance. Hence, there will be no significant difference in the mean score of attitude of prospective teachers towards ICT on the basis of habitation. The graphical presentation of the findings is shown under figure 4.

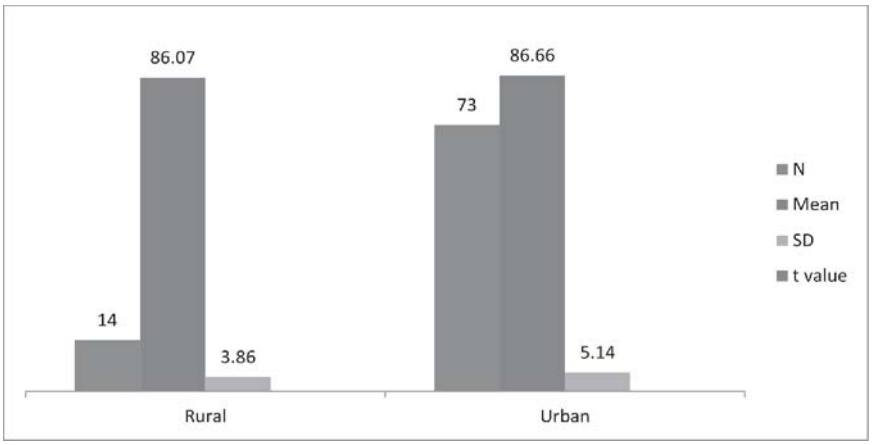

Figure 4 : Attitude of prospective teachers towards the use of ICT on the basis of habitation

Ho 4- There will be no significant difference in the mean score of attitude of prospective teachers towards ICT on the basis of stream.

The testing of above hypothesis is done through F-test and the findings are shown under table-05.

Table 5 : Attitude of prospective teachers towards the use of ICT on the basis of stream

Mean	Sum of squares	df	Mean squares	F	Sig.
Between groups	34.657	2	17.329	0.635	0.532
Among groups	2290.607	84	27.269		
TOTAL	2325.264	86			

Table 5 reveals that the calculated value of F is 0.635 which is less than at 0.05 level of significance. Hence, there will be no significant difference in the mean score of attitude of prospective teachers towards ICT on the basis of stream.

FINDINGS :

1. There is no significant difference in the mean score of attitude of prospective teachers towards the use of ICT on the basis of gender.

2. There is no significant difference in the mean score of attitude of prospective teachers towards the use of ICT on the basis of marital status.
3. There is no significant difference in the mean score of attitude of prospective teachers towards the use of ICT on the basis of habitation.
4. There is no significant difference in the mean score of attitude of prospective teachers towards the use of ICT on the basis of stream.

INTERPRETATION AND DISCUSSION:

1. There is no significant difference between the attitude urban and rural prospective teachers towards the use of ICT in teaching and learning. The urban and rural, perspective teachers had same attitude towards the use of ICT in teaching and learning. This may he due to the facilities(ICT) provided to them in their college. They are good and both have quite equal motivation for using ICT. This is also found true in accordance with the study of Raj and Kaur (2017), Behera,S. etal.(2016) as well as Dixit and Kaur (2015).
2. There is no significant difference between the attitude of male and female prospective teachers towards the use of ICT in teaching and learning. This may he because of the mental setup and availability of ICT gadgets at home and awareness towards information and communication technology is quite same for both the group of learners. This is also supported by the study of Raj and Kaur (2017), Behera,S.etal.(2016) ,Gupta,M.M.(2015), Suganthi (2013) and Yusuf(2011).
3. There is no significant difference between the attitude of married and unmarried prospective teachers towards the use of ICT in teaching and learning. The cause of this is the ICT rich environment which they are getting even after their marriage in equal or as par to those being get by the unmarried perspective teachers. This is also supported by Sharma etal.(2015).

4. There is no significant difference on the basis of streams of perspective teachers towards the use of ICT in teaching and learning. This may be due to their awareness towards ICT and the techno friendly environment they are getting in their institution. Gupta,M.M.(2015) as well as Agarwal and Ahuja (2013) has also supported this with their result.

CONCLUSION:

Teaching occupies an honorable position in the society. ICT helps the teacher to update the new knowledge, skills to use the new digital tools and resources. By using the knowledge of ICT, prospective teachers will become effective teachers. ICT is one of the major factors for producing the rapid changes in our society. It can change the nature of education and roles of students and teacher in teaching learning process. In the present study, the investigators found that there is no significant difference in the mean score of attitude of prospective teachers towards the use of ICT on the basis of gender, marital status and habitation and educational stream.

REFERENCES:

Raj,M. and Kour, K.P. (May 2017). Attitude of Teacher Trainees towards learning through Powerpoint: A case study. *MIER Journal of Educational Studies, Trends & Practices.* Vol.7.No.1. PP.95-106.

Behera et al. (Nov 2016). Attitude of B.Ed Student Teacher towards E learning. *International Journal of Computer Science Engineering.* Vol.5,No.6. ISSN- 23197323

Arthi,S.(Oct.2016). A Study of Attitude Towards ICT Among B.Ed Student Teachers in Namakkal District.*International Journal Of Multidisciplinary Research And Development* Vol3. Issue8.ISSN(Online): 2349-4182

Fanai,L.and Chhangle, R.(Aug.2016). A Study of the attitude of the secondary school teachers towards ICT in reference to teaching experience and professional qualification. IJESC. Vol.6. Issue 8.

Philomina,M.J.and Amutha,S.(Aug 2016). Information And Communication Technology Awareness among Teacher

Educators. *International Journal of Information and Education Technology.Vol6.No.8*

Kumar,P.M.P.M. and Madhumalathi, M.N.(mar2016), A study on ICT awareness among teacher educators: with focus on education. *International Journal of informative and futuristic research.* Vol3, Issue-8. ISSN 2347-2697. PP 2781-2785.

Magesh,G.(2016).A Review Paper: Student Attitude Towards Computer Science.*Computer Engineeering and Intelligent System.*Vol7.No.2.

Gupta,M.M.(Mar2015).Attitude of Perspective Teachers Towards the Use of ICT in Teacher Education.*International Journal of Scientific Research and Engineering Technology.*ISSN: 2278-0882

Agarwal,D. and Ahuja,S. (July 2013). Attitude of Student Teacher towards the use of ICT and its impact on their Academic Achievement. *Indian Journal of Applied Research.*Vol.3. Issue:7. ISSN:2249-555X

Victor,S.R.(2013).Teacher Trainees Attitude towards Information and Communication Technology.*Journal of Education and Practice.*Vol4.No.19.ISSN:2222-1735.

Kaur,S.(2012).Attitude of Students towards Use of ICT in Higher Education.*IIJST.*Vol3.Issue4.ISSN: 0976-8491

Yusuf,M.O.and Balogun,M.R.(2011).Student Teacher's Competence and Attitude towards ICT:ACase Study in a Nigerian University.*Contemprory Educational Technology.*Vol.2. Issue1.PP.18-36

•••

SOCIO-SCIENTIFIC ISSUE BASED INSTRUCTION: AN INNOVATIVE APPROACH OF CURRICULUM TRANSACTION IN SCIENCE

Dr. Saradindu Bera

Abstract

Growing emphasis on situated learning in science and shift in prime vision of scientific literacy from development of scientific attitude to development of citizenship has created the need of incorporation of socio-scientific issues for transaction of science curriculum. The present paper attempted to conceptualize the need of socio-scientific issue based instruction in science education as well as the epistemological framework and expertise required for such teaching. It explained the controversial nature and its social relevance which make these issues an effective tool for situated learning and developing scientific literacy for citizenship. It also depicted that how Socio-scientific issue based instruction does help learners exploring the controversy around the issue logically and developing deep insight into the scientific concepts involved through recognition of the category of reasonable disagreements among learners and the necessary dispositions and modes of experiences for these disagreements during discussion on the part of the teacher.

Key Words: Socio-Scientific Issues, Situated Learning, Scientific Literacy for Citizenship,Socio-Scientific Issue based Instruction

Introduction

I here is a budding impetus in teaching science on teaching scientific content in relation to socially relevant life situations (Gilbert, 2006) and socio-scientific issues provide a useful means to situated learning. These issues offer perspectives and frames what is relevant to learn as well as the context or situation in relation to which scientific concepts and principles are defined meaningfully (Sadler, 2009). Socio-scientific issues based instruction combines the use of controversial socially relevant real world issues with course content to engage students in their learning and supplies both motivation and ownership of learning to the learner. Socio-scientific issues

involve the deliberate use of scientific topics that require students to engage in dialogue, discussion and debate. They are usually controversial in nature but have added element of moral reasoning or the evaluation of ethical concerns in the process of arriving at decisions regarding possible resolutions of those issues. The intent is that such issues are personally meaningful and engaging students, require the use of evidence-based reasoning, and provide a context for understanding scientific information. (Latourelle, 2010; Zeidler & Nicols, 2009).

Characteristics of Socio-Scientific Issues

Socio-scientific issues have procedural and conceptual connections to the sciences and are viewed socially significant (Sadler, 2004). These are controversial, socially relevant real world problems that are informed by science and often include an ethical component. These are usually value laden and the juxtaposition of science and ethics can be uncomfortable for scientists, teachers and students who define science in terms of objectivity (Sadler et al., 2006). Bridges (1986) has suggested that controversial issues are those reasonable disagreements that incorporate moral and social values but it would be problematic to decide to what extent there was a value laden element in any disagreement. Some basic characteristics of socio-scientific issues are-

- Are they socially relevant
- Controversial, having no fixed or universally held point of view (Crick, 1998)
- Are they real rather than fabricated
- Data supported or evidence based (Latourelle, 2009; Zeidler & Nicols, 2009)
- Informed by science and ethical, legal and social components involved
- Illustrating the nature and process of sciences
- Constituted of questions which are philosophical as well as empirical in nature- socially constructed existing at the intersection of differing human interests, values and motivations (Robottom, 2012).

- Reasonable disagreement among authentic groups in the society

Socio-Scientific Issues as Contexts for Situated Learning

Socio-scientific issues provide social contexts which inform both the selection and the situational framing of the content to be taught, because the authentic context supports the specification of a concept's meaning and coherence of concepts within a larger whole (Herrington & Herrington, 2006, Van Oers, 1998). These issues generally belong to social practices incorporating scientific principles and concepts and have ethical, legal and social aspects for the professional participants as well as clients involved for making reasonable decisions on them (Gearon, 2003). Thus, these provide personally meaningful context giving relevance to what is learned and in doing so to promote students' motivation (Sadler, 2009).

Socio-Scientific Issues as Tools for Realizing the Goal of Science Education as Science for All or Scientific Literacy for Citizenship

In the present context the goal of science education has shifted from development of scientific temper or scientific competency to understanding of the situations where scientific principles and concepts are applied. Socio-scientific issues serve as tools to conceptualize the goal of science education for all by providing students with opportunity for argument or dialogue on these issues based on some evidences as well as moral reasoning. As a result, in any practice or issue of individual as well as social concern employing scientific concepts decision can be made at a larger scale involving people from different sectors of society that such practices should be carried on or discontinued. Thus, these issues prepare the students who will be the immediate practitioners or clients in these practices for a kind of moral citizenship analyzing ethical, social and legal consequences of their decision making process in these situations (Kolsto, 2001; Levinson, 2006; Sadler, 2004).

Socio-Scientific Issues Based Teaching Approach

Socio-scientific issue based instruction is similar in its teaching approach to case based and problem based teaching in that they both

frame science content within a social context or a story but in this approach the students will not be able to solve the issue but they will develop a position based on their investigation as they explore the controversy around the issue whereas in case based or problem based learning the students are asked to find an answer or solution of the problem under consideration (Klosterman & Sadler; 2010). In socio-scientific issue based teaching approach the learners collaborate with a group that represents authentic groups in society. They acquire conceptual understanding and apply it in making and evaluating personal, societal and global decisions on these issues. This approach also incorporates evidence based learning as the learners require explaining phenomena backed by some evidence and thus help in authentic assessments of students' learning (Wilmes & Howarth, 2009). They start with the real world problem and identify the issues and the available disciplines involved (contextualization) then these disciplines are integrated with scientific concepts of the discipline to be taught (de-contextualization) and after developing the conceptual understanding, it is applied to address the problem (re-contextualization).

Epistemological Framework for Teaching Socio-Scientific Issues

Levinson (2006) proposed an epistemological framework for socio-scientific issue based instruction dependent on three strands - i) categories of reasonable disagreement ii) the dispositions necessary to engage in reasonable disagreement iii) the modes of thought and experience which can best illuminate those disagreements. The reasonable disagreement involves an account of the sources or causes of disagreement between reasonable persons (Rawls, 1993) and the categories of disagreement between authentic groups in society on socio-scientific issues is informed by nature, availability, adequacy and relevance of evidences involved (Levinson, 2006). These categories reflect whether people are attached to the same or different values; differences in priorities about the same values or differences in interpretations about an issue (Bridge, 1986). Communicative virtues are those dispositions necessary to attempt dialogue across differences among learners. These are a cluster of intellectual and affective dispositions that together promote open, inclusive and undistorted communication (Rice & Burbles, 1992).

Hence, based on the context of discussion communicative virtues should be involved. There are two ways of structuring experiences to explicate reasonable disagreement. First is logico-scientific mode which is linked to the role of evidence. It deals in general causes and their empirical establishments through some evidences or tests. The other is narrative mode which provides a means of interpretations allowing people to relate and listen to tell of experiences not yet known, understood or imagined by other parties. Thus, while dealing with controversial socio-scientific issues in order to arrive at a collective decision appropriate criteria should be established, learners should work collaboratively keeping in consideration evidences available as well as their limitations and listening and relating to what each other has to say.

Expertise Required For Teaching Science in the Context of Socio-Scientific Issues

The expertise required for socio-scientific issue based instruction can be grouped into subject matter expertise, pedagogical expertise, interpersonal expertise and moral expertise.

Subject Matter Expertise

From a situated learning perspective subject matter expertise not only deals with subject content but also the authentic practices involving socio-scientific issues. These comprise of knowledge of relevant parts of the curriculum as well as the current practices which have conceptual and procedural relationship with these scientific contents. Many studies have stressed context based expertise for teaching science concepts in the context of socio-scientific issues (Levinson, 2006; Levinson & Turner, 2001; Zeidler et al., 2005). The context bound knowledge demands for several extracurricular scientific concepts to align the science curriculum with developments in the authentic practices (Boerwinkel, Verhoelff & Waarlo, 2008) which help students understanding the characteristics of socio-scientific issues as uncertain, complex, moral and based on probability which in turn contribute to understand successful decision making in these issues (Van der Zande et al., 2011). The content transcending topics dealing with science dimension of socio-scientific issues like science as a social process, limitations of science and values in science and critical attitude also

provide knowledge base for teaching science in the context of socio-scientific issues by offering knowledge about science i.e. the situations and practices where scientific principles are used (Kolsto, 2001). The content transcending topics along with extracurricular concepts provide an overview of ethical, legal and social aspects of socio-scientific issues which in turn stressed the importance of students' ability in moral reasoning and consequently of teachers' knowledge of moral reasoning (Van der Zande et al., 2011). Thus, the subject matter expertise for socio-scientific issue based instruction encompasses knowledge of relevant curricular concepts, extracurricular concepts, content transcending topics, characteristics of socio-scientific issues and its legal, ethical and social aspects as well as students' ability in moral reasoning.

Pedagogical Content Knowledge Expertise

Lewis & Kattmann (2004) stressed on a process-oriented approach starting from the context of a visible phenomenon for situated learning. Rational dialogue and argumentation seem to be an effective teaching-learning activity to bring in learners' different perspectives in the controversial socio-scientific issues and to strengthen learners' moral reasoning on these issues (Levinson, 2006; Van der Zande et al., 2012). With respect to problem or case based learning approach of socio-scientific issue based learning the students should be stimulated to construct their own conceptual understanding of a given problem or socio-scientific issue and students' self regulation of their learning processes (Boersma et al., 2007; Van der Zande et al., 2012). Narrative methods should be used for starting the lesson to stimulate learners change their perspective and provoke their moral empathy towards the clients and future children who would be the victim of the practices involving socio-scientific issues (Van der Zande et al., 2012). During dialogue and argumentation on scientific issues the teacher should seek to recognize the category of disagreement based on the role of evidence and social dimensions and the necessary pre-supposed dispositions for reasonable disagreement to create congenial environment for discussion as well as the mode of thought involved (Levinson, 2006) so that the learner can explore the phenomenon in a systematic and logical manner.

Interpersonal Expertise

A good interrelationship between teacher and students is a pre-condition for socio-scientific issue based instruction. Based on the model for interpersonal teacher behavior tolerant/ authoritative profile is best suited for maintaining a structure that supports an environment appropriate for rational argumentation on socio-scientific issues. Tolerant authoritative teachers support student responsibility and freedom. They use a variety of methods to which students respond well. There is very little need to enforce rules. They frequently organise their lessons around small group work. While the classroom environment resembles the authoritative class but there exists closer relationships with students. This environment stimulates learners for moral reflection (Van der Zande et al., 2012).

Moral Expertise

During discussion or dialogue the teachers should not try to impose their own values on students rather the students should be promoted to explore their own values. They should take the stance of value development and value communication by choosing a role of absent leader or committed instructor (Van der Zande et al., 2012).

Conclusion

Due to its ability to illustrate nature and processes of science and its social relevance socio-scientific issues are used to provide meaningful context to transact scientific concepts effectively. Besides providing context for situational learning, its controversial nature facilitate learners for moral reasoning on these issues and thus prepare them for decision making in the practices involving these issues as future practitioners or clients. Because of the support provided by socio-scientific issues for situational learning and scientific literacy for citizenship socio-scientific issue based instruction is being incorporated as an innovative approach for transaction of curriculum in science education. This approach involves collaboration among learners in small groups and representing authentic groups in society having different perspectives on socio-scientific issues. Like problem based or case based learning, it frames science content within a social context but instead of reaching a final answer to the problem, the students

develop a position to make a logical decision on the problem or issue.

Teaching science situated in the context of socio-scientific issues demands certain expertise on the art of science teacher. Subject matter expertise comprise of knowledge of subject content, extracurricular concepts to align the science curriculum with developments in the authentic practices, content transcending topics, characteristics of socio-scientific issues and students' ability of moral reasoning. Regarding pedagogical content knowledge expertise the teacher should adopt an evidence based process oriented approach where the learners have self regulation of their learning process. The methods like dialogue, argumentation, discussion, role lay are considered to be the most appropriate for socio-scientific issue based teaching. For creating conducive environment for discussion the teacher should adopt an authoritative/ tolerant interpersonal behaviour. Regarding moral expertise, the learners should be allowed for moral reflection on legal, social and ethical aspects of socio-scientific issues through value development and value communication.

Moreover, to ensure effective discussion on socio-scientific issues categories of reasonable disagreements among the groups of learners, necessary communicative virtues for discussion and the modes of thought and experiences revealing these disagreements should be recognized at the earliest.

References

Boersma, K.T., Graft van, M., Harteveld, A., E., Knecht-van Eekelen de, A., Mazzereeuw, M. and Van der Zande, P. (2007). *A learning line for biology for 4 to 18 based on a concept-context approach*. Utrecht; CVBO.

Boerwinkel, D.J., Verhoeff, R. and Waarlo, A. J. (2008). *A framework for rethinking science curricula in the genomics-era*. International Workshop on Rethinking Science Curriculum in the Genomics Era, Utrecht, the Netherlands.

Bridges, D. (1986). Dealing with controversy in the curriculum. A philosohical perspective. In J. Wellington (Ed.), *Controversial*

issues in the curriculum. Oxford,UK: Basil Blackwell.

Crick, B. (1998). *Education for citizenship and the teaching of democracy in schools*. London: Qualifications and Curriculum Authority.

Gearon, L. (2003). *Learnng to teach citizenship in the secondary school*. London: Routledge Falmer.

Gilbert, J.K. (2006). On the nature of "Context" in chemical education. *International Journal of Science Education*, *28* (9), 957-976.

Herrington, A. and Herrington, J. (Eds.). (2006).What is an authentic learning environment? *Authentic learning environments in higher education*. Hersley: Information Science publishing.

Kolsto, S. D. (2001). Scientific literacy for citizenship: Tools for dealing with the science dimension of controversial socio-scientific issues. *Science Education*, *85* (3), 291-310.

Klosterman, M. L. and Sadler, T.D. (2010). Multi-level Assessment of Scientific Content Knowledge Gains Associated with Socioscientific Issues-based Instruction. *International Journal of Science Education*, 32 (8), 1017-1043.

Latourelle, S. M. (2010). Using socio-scientific issues based instruction retrieved from http://www.serc.carlston.edu/s/library/issues/index.html on 02.12.12.

Levinson, R. and Turner, S. (2001). *Valuable lessons. Engaging with the social context of science in school*. London: Institute of Education, University of London.

Levinson, R. (2006). Towards a theoretical framework for teaching controversial socio-scientific issues. *International Journal of Science Education*, *28* (10), 1201-1224.

Rawls, J. (1993). *Political liberalism*. New York: Columbia University press.

Rice, S. and Burbles, N. (1992). Communicative virtues and educational relations. *Philosophy of Education*, *35* (2), 34-44.

Robottom, I. (2012). Socio-scientific issues in education: Innovative practices and contending epistemologies. *Research in Science Education*, *42* (1), 95-107.

Sadler, T.D. (2004). Informal reasoning regarding socio-scientific issues: A Critical Review of Research. *Journal of Research in Science Teaching*, *41* (5), 513-536.

Sadler T.D., A. Amirshokoohi, M. Kazemour and K.M. Allspaw (2006). Socioscience and ethics in science classroom: Teacher perspectives and strategies. *Journal of Research in Science Teaching*, *43* (4), 353-376.

Sadler, T.D. (2009). Situated Learning in Science Education: Socio-scientific issues as contexts for ractice. *Studies in Science Education*, *45* (1), 1-42.

Van Oers, B. (1998). From context to contextualizing. *Learning and Instruction*, *8* (6). 473-488.

Van der Zande, P., Waarlo, A. J., Brekelmans, M., Akkerman, S.F., and Vermunt, J.D. (2011). A knowledge base for teaching biology situated in the context of genetic testing. *International Journal of Science Education, 33* (15), 2037-2067.

Van der Zande, P., Akkerman, S.F., Brekelmans, M., Waarlo, A.J. and Vermunt, J.D. (2012). Expertise for teaching biology in the context of genetic testing. *International Journal of Science Education*, *34* (11), 1741-1767.

Wilmes, S. and Howarth, J. (2009). Using issues-based science in the classroom. *The Science Teacher 76*(7), 24-29.

Zeidler, D.L., Sadler, T.D., Simmons, M.L. and Howes, E.V. (2005). Beyond STS: A research-based framework for socio-scientific issues education. *Science Education, 89* (3), 357-377.

Zeidler, D. L. and B. H. Nicols. (2009). Socio-scientific issues: Theory and practice. *Journal of Elementary Science Education*, *21*(2), 19-58.

•••

EFFECT OF BLENDED LEARNING ON ACHIEVEMENT AND ATTITUDE OF PROSPECTIVE TEACHERS TOWARDS EDUCATIONAL PSYCHOLOGY

Pratibha Kumari
Rupa Gupta
Dr. Vikramjit Singh

Abstract

Blended learning (b-learning) is considered as the dominant instructional model in education. This paper investigates the effectiveness and uses of a blended learning in educational psychology. It is aimed at determining the significant predictors of blended learning effectiveness taking as independent variables and achievement and attitude as dependent variables. The study was an experimental one. The specific design used was a Quasi experimental design i.e., Pre-test-Post-test non equivalent group design for studying the effect of blended learning on the achievement and attitude of prospective teachers towards educational psychology. The experimentation results were used as a measure for performance as an outcome. We administered both groups (experimental and control) of prospective teachers with pre-test on achievement and attitude towards educational psychology in the beginning and then after giving treatment to both the groups we again administered post-test on achievement in educational psychology as well as a test on attitude of prospective teachers towards educational psychology. Statistical hypotheses were tested and statistical analysis results showed that there is significant effect in positive direction of blended learning on achievement and attitude of prospective teachers towards Educational Psychology. According to the stakeholders' views, learning through blended learning led students to think, inquire and explore the subject matter, share their opinions, discuss and appraise others' opinions. Also, it was revealed that students gained different perspectives and were able to think deeply and critically.

Key words: *Blended Learning, ICT, Prospective teachers, Educational Psychology*

Introduction

Blended learning is a pedagogical approach where more than one delivery mode is used to optimize learning outcomes (Singh & Reed,

2001). It is a coherent teaching approach that openly integrates the strengths of face-to-face and online learning (Garrison & Vaughan, 2008). Thus, the mix of traditional teaching with online teaching and interactive forms of classroom training will increase and support student engagement and persistence in class (Throne, 2003). According to McKeachie and Svinicki (2006), blended learning results in positive cognitive outcomes for a wide range of students, including adult learners. Blended learning is an innovative concept that embraces the advantages of both traditional teaching in the classroom and ICT supported learning including both offline learning and online learning. It has scope for collaborative learning; constructivist learning and computer assisted learning (CAI). Blended learning needs rigourous efforts, right attitude, handsome budget and highly motivated teachers and students for its successful implementation. As it incorporates diverse modes so it is complex and organizing it is a difficult task. The educational system at present is in a transition stage. To meet the challenges of expansion and for catering individuals' need it is trying to adopt new technologies and exploring new paths to reach the goal of quality educational opportunities for all, at the same time due to various factors like deficient budgets, lack of facilities, advantages of face to face interactions, it is not completely ready to leave the traditional modes of knowledge transfer. Blended learning is advantageous for students. It provides more scope for communication. Communication cycle is completed in blended learning which is not possible if we follow only traditional approach. Students become more techno savvy and they gain enhanced digital fluency. Also it strengthens professionalism as they develop qualities like self-motivation, self-responsibility, discipline. In our country due to large population the formal school system is not able to provide equal educational opportunities to all, so blended learning will be a good option as it will make the area of educational opportunities wider and education will be able to reach to more children. The technological and scientific development continuously demands the education system to match their pace and correlate with them so that students are able to cope up with the fast changing market. Technology and scientific field are most dynamic and changing at great pace incorporating new innovations so that content transmitted to students have to be revised accordingly. Blended

learning provides varieties of experiences to the students, make them active and they remain in the focus of teaching-learning process due to increased involvement and bearing the responsibility of their learning themselves make students more disciplined. The study here is a try to discover the effect of blended learning in the government and attitude toward educational psychology and the prospective teacher.

Objective

To study the effect of blended learning on the achievement towards educational psychology of prospective teachers.

To study the effect of blended learning on the attitude towards educational psychology of prospective teachers.

Hypotheses

Null hypothesis:1

There is no significant difference between the mean scores in achievement in educational psychology of prospective teachers learning through blended learning and learning through traditional method.

Null hypothesis:2

There is no significant difference between the mean scores of attitude towards educational psychology of prospective teachers learning through blended learning and learning through traditional method.

Methodology

Design

The study was an experimental one. The specific design used was a Quasi experimental design i.e., Pre-test-Post-test non equivalent group design for studying the effect of blended learning on the achievement and attitude of prospective teachers towards

educational psychology. The design of the study has been shown in the following table 1:

Table 1: Design of the study

Random assignment of group	Pre-test	Treatment	Post-test
Experimental group (Intact classroom section-A)	Achievement and Attitude test towards educational psychology	Learning through Blended learning	Achievement and Attitude test towards educational psychology
Control group (Intact classroom section-B)	Achievement and Attitude test towards educational psychology	Learning through traditional method	Achievement and Attitude test towards educational psychology

Population

The population of this study comprised of students studying in B.Ed. colleges of Patna.

Sample

The subject of the study were 100 B.Ed. first year students of St. Xavier's College of Education, Digha, Patna of 2017-2019 batch, strength in class was 100. These students were further divided into two groups of 50 students. One group was experimental and other was control group. Finally as the part of the study 50 prospective teachers in experimental group whereas 48 prospective teachers in control group were taken for study.

Tools

Instructional tool: Blended learning based lesson plan in educational psychology developed by the investigator.

Achievement test on Educational Psychology (ATEP) was developed and validated by the investigator.

Attitude Inventory on Educational Psychology (AIEP) (likert scale) was developed and validated by the investigator.

Procedure of experimentation

In the beginning both the groups (experimental and control) of prospective teachers were administered with pre-test on achievement and attitude towards educational psychology. Then experimental group was taught on one topic of educational

psychology through blended learning method in 4 sessions (periods) and control group was taught the same topic for the same time period by conventional method of teaching. Close observation was kept on students during the classes. After the treatment period spread over two weeks both the groups were again administered with post-test on achievement in educational psychology as well as attitude of prospective teachers towards educational psychology.

Analysis of data

The data collected through the administration of the two tests were analysed through applying required statistical methods, i.e. mean, S.D. and t-test.

Findings

For testing the hypothesis-1 t-test had been done. The mean, standard deviation and t value of the gain scores in achievement in the groups has been shown in the following table:

Table 2: t-test result for hypothesis 1

Groups	N	M	SD	df	t
Experimental	50	6.64	3.14.	96	11.674
Control	48	1.19	0.790		

t value is significant at 0.01 level

It can be seen in table that the number of prospective teachers in experimental and control group was 50 and 48 respectively. Mean of the experimental group was 6.64 and S.D. was 3.141 and the mean of the control group was 1.19 and S.D. was 0.790 . The calculated t value was significant at 0.01 level (table value at 0.01 level is 2.73 for 96 df) so the null hypothesis was rejected. Hence it was concluded that there were significant effect of blended learning on the achievement of the prospective teachers in educational psychology than the control group. This outcome can also be seen below:

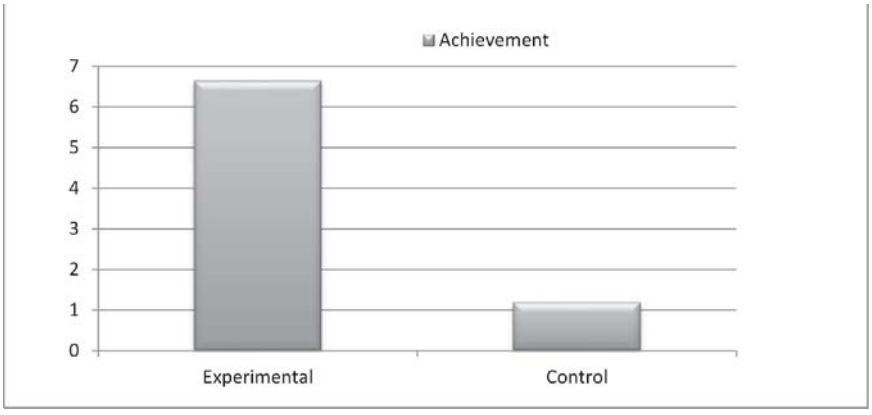

Fig 1: Mean Gain scores in Achievement in Psychology of experimental and control group

For testing the hypothesis-2 t-test has been done. The mean, standard deviation and t value of the gain scores in attitude towards educational psychology in the groups has been shown below in table3.

Table 3: t-test result for hypothesis 2

Groups	N	M	SD	df	T
Experimental	50	20.30	9.355	96	12.843
Control	48	1.04	6.848		

t value is significant at 0.01 level

It is clearly seen in above table that the number of students in experimental and control group is 50 and 48 respectively. Mean of the experimental group was 6.64 and SD was 9.355 and in the control group mean was 1.04 and SD was 6.848. The calculated t value 12.843 was much higher than the table value (at 0.01level is 2.73 for 96 df) .

Since t value is significant at 0.01 level, so the null hypothesis was rejected. Hence, there were significant effect of blended learning on the attitude towards educational psychology among prospective teachers. i.e. this outcome can also be seen below:

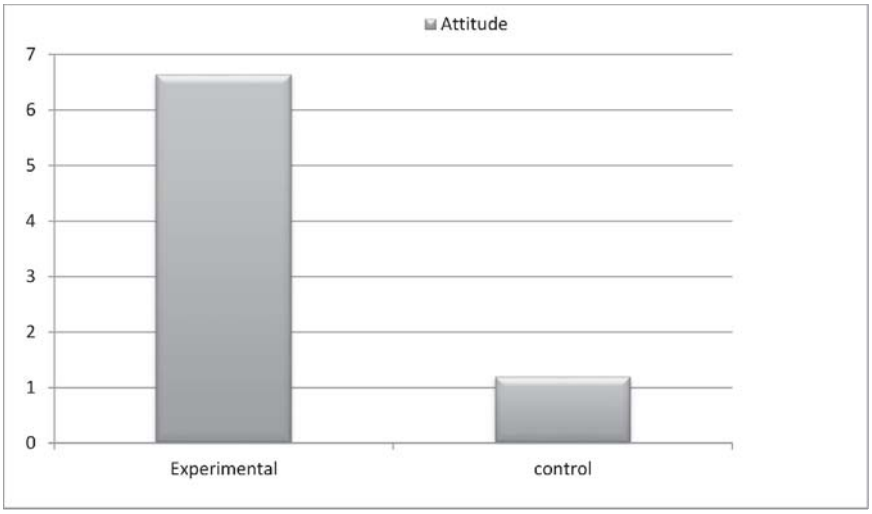

Fig 2: Mean scores in Attitude towards Psychology of experimental and control group

Finding on Hypotheses

There is significant effect of blended learning on the achievement in educational psychology of prospective teachers.

There is significant effect of blended learning on the attitude towards educational psychology of prospective teachers.

Conclusion

Through the study it has been found that there is significant effect in positive direction of blended learning on achievement and attitude of prospective teachers towards educational psychology. Blended learning strategy can be considered as one of the new initiatives of pedagogical approaches for integrating ICT in B.Ed. curriculum. In teaching learning process it was found that the students are actively participating in solving the problems. Blended learning provides the opportunities of learning through ICT, online or offline mode so teachers and students get more time in the classroom for creative and cooperative exercise.

It provides the opportunity to the students to express the views of students. Students who are very shy in nature may also participate

in group activities through blended learning and remove their hesitation. Students get face to face interaction as well as they interact in virtual space. Students get ample of time to interact with other students pursuing the same course. Student get full experience in using new technology-the present century is the century of ICT. Today all professionals demand expertise in ICT so blended learning help to make teachers to use ICT their teaching learning process. ICT mediated learning provide students indirect interactions with their course content in a versatile and diverse intersecting way. College campus provides many opportunities for this interaction. Group discussion and exchange of ideas provides students interaction with teachers also well-designed strategies give students to undergo discussion and exchange of ideas. This helps to develops confidence in students. Student can get attach to other experts and enhance his knowledge. Blended learning provides students to gain advantage of the experts of the course content they are studying as they can easily watch the different lectures by renowned experts from different fields available on You Tube. Thus there is a need to use blended learning process in teacher education program as well as try to study its implications for school teaching too.

References

Blackmore, Margaret (1998) Report of an Educational Psychology Internship at the College of the North Atlantic Including a Research Report on the Peer Tutoring Programme at the College (Internship Report; Dr. Ed Drodge)

Blended Learning: A synthesis of research findings in Victorian education 2006-2011 published by the Ultranet and Digital Learning Branch Department of Education and Early Childhood Development Melbourne March 2012.

Ceylan V.K., Kesici A.E.(2017) Effect of blended learning to academic achievement Journal of Human Science retrieved from https://www.researchgate.net/publication/313683225_Effect_of_blended_learning_to_academic_achievement

GED Academy Blended Learning Teacher Guide

Justice Kintu, M.J., Zhu C. and Kagambe E. (2014). Blended learning effectiveness: the relationship between student characteristics, design features and outcomes International Journal of Educational Technology in Higher Education Retrieved from https://educationaltechnologyjournal.springeropen.com/articles/10.1186/s41239-017-0043-4

Obiedat R., Eddeen N.L. , Harfoushi O., Koury A., AL-Hamarsheh M., and AlAssaf N. (2014) EFFECT OF BLENDED-LEARNING ON ACADEMIC ACHIEVEMENT OF STUDENTS IN THE UNIVERSITY OF JORDAN International Journal of Emerging Technologies in Learning (iJET) retrieved from https://www.researchgate.net/publication/270069625_Effect_of_BlendedLearning_on_Academic_Achievement_of_Students_in_the_University_of_Jordan

Sana, Fenesi and Kim(September 2011) A Case Study of the Introductory Psychology Blended Learning Model at McMaster University. J*ournal of Education and Practice, 2*(3)

Shivam, R. & Singh, S. (2015). Implementation of Blended Learning in Classroom: A review paper International Journal of Scientific and Research Retrieved from https://coi.athabascau.ca/books/book-blended-learning-in-higher-education/

Vaughan N.(2014). Student Engagement and Blended Learning: Making the Assessment Connection. Educational Science.

•••

TEACHER IN A 21ST CENTURY CLASSROOM

Dr. S.P. Behera

Abstract

Teachers are the light bearers for the future generation. There is a massive role of teacher for overall development of students either in the past centuries or in the age of science and technology. In the 21st century the teachers' role in education has become more important. They have to take the lead role for the development of educational status of there students as well as for their holistic development too. This paper here has tried to highlight the role and importance of teachers in the 21st century. It has presented the concept of 21st century teacher and the skills required in him/her. Lastly the paper has presented the idea of the role and responsibility of teacher in the 21st century classroom.

Key Words: 21st Century teacher, teacher in the classroom

Introduction

John Adams describes the teacher as a "Maker of man". He is the torch-bearer of race and guardian of the future of mankind. He is essentially a nation builder. He is the key man for the future of the child and mankind. He plays a important role in shaping and moulding the personality of the child. His/her personal qualities, educational qualifications, professional training and the place that he/she occupies in the school as well as in the community plays a vital role for his success in future course of action as remarked by the Secondary Education Commission (1952-1953). The 21st century needs essential skills for the teacher to work effectively in the class along with having up to date knowledge were underscored such as honest, efficient, diligent, good communicator and a lifelong learner who is willing to go extra mile.

Concept of the 21st Century Classroom:

It means to promote essential learning and innovation skills. In order to prepare the students for a more complex life and work environment a 21st century classroom must promote creativity, critical thinking, communication and collaboration. Presently, we

need at least seven skills for the 21st century classroom. These are:

- Rational thinking and problem solving tactics
- Collaboration across social circles and networks
- Leadership skills and influence
- Adaptability skills
- Efforts and Entrepreneurialism
- Effective interaction and conversational skills
- Examining and Manipulating information skills
- Curiosity and creativity

Delivering 21st Century Skills in Indian Classroom:

The 21st century teacher will be with pedagogy of skills are:

- Teaching and developing thinking skills. It is associated with higher order thinking skills.
- Encouraging collaboration with suitable technologies, effective communications, team skills, inter-disciplinary approach.
- Enabling technologies with collaborative mediums, digital tools.
- Assigning student with clear transparent goals and objectives, self and peer assessment, relevant tasks, timely and appropriate feedback.
- Developing problem solving using the real world problems, in context of learning.
- Teaching using project based learning with incorporating suitable technologies, collaboration, and inter-disciplinary approach.
- Developing the information fluency, media fluency, technological fluency.
- Encouraging reflection with self review and peer review.

Salient Features of a 21st Century Teacher:

The 21st Century teacher, as a communicator:

The 21st Century teacher, as a communicator, must be fluent in tools and technologies that enable communication and collaboration anywhere, anytime. They do not only know how to do communication, they also know how to facilitate, stimulate, control, moderate, and manage communication.

The 21st Century teacher, as a learner, must:

- Be lifelong learners;
- Continue to absorb experiences and knowledge;
- Endeavor to stay current
- Change and learn as the horizons and landscape changes.

The 21st Century teacher, as a visionary, must have rich imagination to:

- See the potential in, grasp, and manipulate the emerging tools and web technologies;
- Look at others' ideas and envisage how they would use these in their class;
- Looks across the disciplines and through the curricula and make links that reinforce and value learning in other areas; and
- Make other fields as leverage to reinforce their own teaching and the learning of their students.

The 21st Century teacher, as a leader:

- Leads by example by championing processes and modeling skills – walks the talk;
- Is an advocator, early adopter – a maverick;
- Set clear goals and objectives crucial to the success of a project.

The 21st Century teacher, as a model, should model:

- The behaviors that they expect from their students –

tolerance, acceptance, a wider view than just their curricula areas, global awareness, and reflection

- Reflective practice by monitoring and evaluating their teaching via blogs, twitter and other media where educators can look both inwards and outwards.

The 21st Century teacher, as a collaborator, must be able to:

- Leverage collaborative tools like Linkedin, Ning, Blogger, Wikispaces, Bebo, MSN, My Space, Slide-share, Pinterest, Instagram and Facebook to enhance and captivate our learners
- Share, contribute, adapt and invest using these collaborative tools.

The 21st Century teacher, as a risk taker, must:

- Have a vision of what s/he wants and what the technology can achieve to be able to identify goals and facilitate learning
- Take risks and sometimes surrender to the students' knowledge and use the strengths of these digital natives to understand and navigate products and have students teach each other.

Characteristics of an effective teacher in the real classroom:

- possesses a good academic qualification,
- has a positive attitude towards teaching profession,
- has a democratic approach to take decisions,
- shows maximum sincerity in shouldering responsibilities,
- is a lifelong learner and continuously remains in touch with latest developments in learning,
- takes the experience of the students as the base for teaching,
- encourages maximum student participation and interaction among students,
- is emotionally adjusted,
- actively participates in all co curricular activities with the

students, and

- keeps contact with parents, visits homes and participates in community activities.

General Perception of the role of a teacher as a leader of group and facilitator of learning:

The modern educators assign a number of roles to be played by the teacher as a leader of group and facilitator of pupils' learning. He initiates, manages, directs, informs, explains, demonstrates, clarifies, receives, feeds back, diagnoses and provides remedial measures. All these functions have unique implications for his role as a leader of group. His leadership is concerned with providing stimulation, encouragement and guidance for facilitating pupils' learning. He may also exercise his leadership in and outside classroom situations. He adopts different appraisal techniques to improve his leadership qualities. The following are some of the functions of a teacher as class-room leader.

The teacher as a question-poser – The teacher asks questions to stimulate the abilities of the children to think creatively. The students get opportunity to speculate, guess and explore ideas. Questioning is an important tool for learning by the students.

Teacher as a Psychological weather maker –

The teacher has to create a democratic climate in the class-room. He has to develop rapport with the learners, has to motivate them and has to bring a psychological weather for communication. He should try to remove the barriers of communication.

Teacher as a model – The teacher acts as a model for the children. His ideas, attitudes towards life and values are sources of inspiration for young learners.

Teacher as a manager – The teacher is the manager of the whole learning situation. If he knows the past and present of a child, he can anticipate the future of the child. He manages and organizes all activities with the cooperation of students. He prepares the stage of action for the learners.

Teacher as a director and controller – The teacher plays the effective role in directing and controlling learning situations. At initial stages some kind of guidance is useful. The teacher's role as director and controller is concerned with manipulating the learning situations to enable the students to face such situations boldly. Problem situations require such role of the teacher.

Teacher as a member of a group of professionals – There is a group of teachers in each school. The classroom teacher as a member of this group has to acquire some experiences, ideas, values, attitudes, skills and knowledge from other teachers. The teachers as a group can have impact on the student community. The Science Teachers' Association has been doing very good work in improving the quality of science teaching as well as science teachers through seminars, workshops, conferences and publications.

Teacher as a community worker – The activities of the teacher are not restricted to only the four walls of the classroom or the compound of the school. He has a lot of works of undertake in the community. The school is a part of the community so also the school members. Their involvement in community activities will enrich the community life and will provide successful leadership for successful accomplishment of plans and programs. The teacher should work as a link between the school and the community.

Teacher as a Counselor – Each teacher during the course of his interaction with students, has to give some counseling, both to the parents and students. The teachers may take home visits as a part of their duties. The effectiveness of counseling depends on the role perception of the teacher.

Thus an effective teacher has to play various roles both in and out the school situation.

How to make his teaching Effective in the Classroom?

- Who is to teach? The teacher is to teach and he must know himself.
- Why to teach? He should never forget even for a moment the

aims of education.

- What to teach? He should not think school to be merely a place for study.
- Where to teach? He should understand the child fully, his interest, aptitude, ability, aim, etc.
- How to teach? He must use proper methods of teaching.
- What to teach? He must have the mastery over the Subject–matter.
- When to teach? He should develop motivation among the students so as to make the lesson effective.

Role of Teacher as a Manager in the Classroom:

I.K. Davies calls the teacher as a manager because he has to organize teaching activities first and then he has to perform these activities in the teaching process. He has described the four (4) major activities which he performs in four steps: Step-I: Planning, Step-II: Organizing, Step-III: Leading and Step-IV: Controlling system is prepared with the help of these steps. These steps include the following activities:

- Analysis of the whole system.
- Task Analysis.
- Entering behaviors the learner.
- Specification of knowledge, skills and attitudes of the students.
- Identifying the students' needs.
- Formulation of learning objectives.
- Organizing learning resources.
- Selecting appropriate teaching strategies.
- Encouraging and motivating students-activities.
- Evaluation of teaching system.
- Learning and teaching system.

- Observing the learning system.
- Modification in teaching learning system.
- Planning for the Criterion test.
- Construction of Criterion test.

Suggestive Measures for the 21st Century Teacher in the Classroom:

- Develop love for children and deal with them sympathetically
- Develop sense of dedication for his profession
- Must work whole heartedly
- Develop his own personality
- Develop a knowledge of psychology
- Should develop sociability
- Must take interest in the society he lives in
- A Creative Person
- Good Communicator
- Innovator
- Planned Organizer
- User of Technology
- Agent of Progressive Social Change
- Good Coordinator
- Teachers may attend in-service teachers training programs and continuous professional development programs. They may realize that it is an essential component of their professional career.
- More programs to improve the quality of the teachers in which their personality development is focused may be introduced.
- Mastery over the subject; ability to adjust and update skills according to changing times; keeping them updated with the

modern technology is the need of time.

- Competency is a combination of three things, namely, knowledge, skills and attitudes. Schools and teachers have to face numerous new changes rising from their internal and external environment. To enable the teachers keep abreast with the newly arising trends more continuous development programs may be introduced.

Conclusion:

The 21st century is the age of Science and Technology, so that every teacher can get adequate information on real classroom learning. As a teacher he or she applies his or her technique procedures, skills, attitude and knowledge for making an effective teaching learning environment in his or her profession as well as these all must be updated for developing their competency, performance and commitment in the areas of their subjects from time to time for the needs of present generation of school going children.

References:

Bharadwaj,A.P.(2005) Assuring Quality in Teacher Education University News. Vol.43.No.18.

Curriculum Framework for Teacher Education, draft-2006, National Council for Teacher Education. New Delhi.

Goel,D.R.(2003). ICT in Education, Changes and Challenges in ICT in Education. M.S.University. Baroda.

Indian Journal of Teacher Education (IJTE).Vol.01, January 2015.

National Council for Teacher Education (NCTE) Regulations 2014.

Partnership for 21st Century Skills.21st Century skills, Education and Competitiveness. Partnership for21st Century Skills, 2008.

Teacher Support. a Referred Journal for Professional Development of Teacher Educators, Vol.4, January 2015.

●●●

LIST OF CONTRIBUTORS

01 Abhilasha Kumari
Assistant Professor, RPS Teachers Training College.

02 Amitabh Srivastava
Principal, DAV Public School, Dudhichua Area,
NCL, Distt. - Singrauli (M.P.)

03 Ankita Kumari
Assistant Professor, RIE (Bhubaneswar)

04 John Gracious Minz
Principal, St. Mary's English Medium School, Singhpur, Ranchi

05 Dr. Nimisha Srivastava
Assistant Professor,
St. Xavier's College of Education (Autonomous), Patna

06 Pratibha Kumari
M.Ed. Scholar (2016-18),
St. Xavier's College of Education(Autonomous), Patna

07 Rupa Gupta
M.Ed. Scholar(2017-19),
St. Xavier's College of Education(Autonomous), Patna

08 Dr. Saradindu Bera
Assistant Teacher,
Kendradangal High Madrasah (H.S.), West Bengal

09 Satabdi Sarkar
Assistant Professor, Balurgahat B.Ed. College, Balurghat

10 Dr. S.P. Behera
Assistant Professor, Nandalal Ghosh B.T.College, West Bengal

11 Sushil Kumar Singh
Assistant Professor,
St. Xavier's College of Education(Autonomous), Patna

12 Dr. Vikramjit Singh
Assistant Professor,
St. Xavier's College of Education(Autonomous), Patna

GUIDELINES FOR SUBMISSION OF MANUSCRIPTS

Authors should carefully read the entire submission guidelines before submitting the manuscript for publication in *Journal of Research in Education* (ISSN 2347-5676). Authors must ensure that manuscripts are free of grammatical, spelling and punctuation errors. These must be thoroughly edited before submission. It is not the responsibility of editors to correct the article grammatically and improve the language of the paper. The manuscripts not prepared according to guidelines may be rejected.

- ❖ Research paper is to be submitted to the Principal (Chief Editor JRE) by post to the address St. Xavier's College of Education(Autonomous), Digha Ghat, Patna-800011, Bihar and in soft copy to jresxcep@gmail.com.

Authors should adopt following guidelines for preparation of the article to be submitted by them:

1. The first page should mention title of the article and author(s) detail. The title of the article should be bold, centered and typed in capital letters in 14 point Times New Roman Font in English or in 16 point Kruti Dev 010 Font in Hindi. The author(s)' Name(s) only should be below the title their designation and association should be in the form of footnotes.
2. All manuscripts must be accompanied by a brief abstract. Abstract including key words must not exceed 150 words. It should be in fully justified and italicized text.
3. **MANUSCRIPT:** It should be typed in 12 Point-Times New Roman Font in English or in 13 Point - Kruti Dev 010 Font in Hindi with a single space and single column with 1" margin on a standard A4 size paper. The text should be fully justified. The research article/paper should preferably not exceed 2400 words or 4-5 pages in all.

3.1. All headings must be bold-faced, aligned left and fully capitalized. The text matter must be in 12 Point-Times New Roman Font in English or in 13 Point - Kruti Dev 010 Font in Hindi and single spaced.

3.2. The sub-heading must be bold typed, fully capitalized and left aligned. The text matter must be in 12 Point-Times New Roman Font in English or in 13 Point - Kruti Dev 010 Font in Hindi and single spaced.

3.3. FIGURES AND TABLES: The titles must be above the table and below the figures and sources of data should be mentioned below the table. Figures and tables should be centered and separately numbered.

3.3 REFERENCES: The authors should list all references alphabetically at end of the paper following strictly the APA guidelines of referencing.

DISCLAIMER

The accountability of the article published in the journal is entirely of the author(s) concerned and not of the publisher/editor. The view expressed in the articles of the journal is those of the contributors, and it does not essentially correspond to the views of the publisher/editor. It is responsibility of the authors to seek copyright clearance for any part of the content of the articles. The papers must not have been published earlier or sent elsewhere for publication and must be the original work of the contributors.

(EDITORIAL BOARD)

ISSN No: 2347-5676

JOURNAL OF RESEARCH IN EDUCATION

ST. XAVIER'S COLLEGE OF EDUCATION (AUTONOMOUS)
DIGHA, PATNA-800011

APPLICATION FOR YEARLY SUBSCRIPTION

INSTITUTION Rs. 500/- **INDIVIDUAL Rs. 300/-**

Mode of Payment (Please Tick)- Cash ( ) Demand Draft ( )

Draft to be drawn in favor of - The Principal, St. Xavier's College of Education (Autonomous), Digha Ghat, Patna and Payable at Patna.

DD No:.....Date:.....

Bank:.....Place:.....

CUT HERE

INDIVIDUAL / INSTITUTION DETAILS

Name (in Block Letters) :.....

Sex:..... Mobile No:.....E-mail:.....

Designation:..... Institution:.....

Tel. Office:.....Fax:.....

Correspondence Address:.....

.....

.....PIN:.....

Full Signature of the Applicant

- Duly filled in Membership Form and DD/Cash Deposit receipt copy to be sent/deposited to The Principal, St. Xavier's College of Education (Autonomous), Digha Ghat, Bihar, Patna-800011.

Printed At : Lovely Printers, Digha Haat, Patna # 9939711961, 8987089791