ISSN 2347-5676

Journal of Research in Education

(A Peer Reviewed and Refereed Bi-annual Journal)

St. Xavier's College of Education
P.O.-Digha Ghat, Patna-800 011(Bihar)

Vol. 4 No. 2

DECEMBER 2016

ISSN 2347-5676

Journal of Research in Education

(A Peer Reviewed and Refereed Bi-annual Journal)

Vol. 4 No. 2 December, 2016

St. Xavier's College of Education

Digha Ghat, Patna- 800011

Bihar (India)

JOURNAL OF RESEARCH IN EDUCATION

St. Xavier's College of Education, Patna

(Accredited with 'A' Grade III Cycle by NAAC)
Digha Ghat,Patna - 800011

Published by:

ST. XAVIER'S COLLEGE OF EDUCATION
DIGHA GHAT, 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
Price Rs.160/-

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

Editorial

Dear Readers,

Becoming an experienced researcher and writer in any field or discipline takes a great deal of practice. There are few individuals for whom this process comes naturally. It must be remembered; even the most seasoned academicians have had to learn how to write a research paper at some point in their career. Therefore, with diligence, organization, practice, a willingness to learn (and to make mistakes!), and, perhaps most important of all, patience, an individual will find that he can achieve great things through his research and writing.

A research paper is the culmination and final product of an involved process of research, critical thinking, source evaluation, organization, and composition. It is, perhaps, helpful to think of the research paper as a living thing, which grows and changes as the writer explores, interprets, and evaluates sources related to a specific topic. Irrespective of a research paper being argumentative or analytical it involves tedious research while selecting the topic, identifying the audience and finally where to begin. Before submitting it to the editorial board for recommendations for publication a paper involves processes of outlining, drafting, revising, editing and finally proof reading. The research paper serves not only to further the field in which it is written, but also to provide the readers with an exceptional opportunity to increase their knowledge in that field.

The present issue of the journal has got eleven different papers from various areas. These papers cover major areas like inclusiveness in education, students' regularity and punctuality, scientific attitude as well as socioscientific aspects of science learning, cooperative learning, mathematics anxiety etc.. The vocational choices of students and healing the intellectually disabled child through aromatherapy are also the generous contributions of the authors in their respective papers. The collection also has a paper each on environmental concerns of Rabindranath Tagore, students' creativity as well as one on economics of education.

We hope the readers will have a pleasant and fruitful experience while going though the present issue. We also wish them a prosperous 2017.

With regards

Editorial Board.

CONTENTS & AUTHORS

SOCIOSCIENTIFIC ISSUEBASED INSTRUCTION IN SCIENCE EDUCATION: AN APPROACH TO PROMOTE SCIENTIFIC LITERACY

Ms. Shilpi Kumari *

Prof. B.N.Panda **

Abstract

'Scientific literacy' has been documented as the major focus of school science education in India but it is trivially emphasized in the schools. Moreover, the term has not been comprehensively operationalised on the part of the practitioners, what it exactly refers to and what should it include in the present scientific, technological and societal context. The current article elaborates the ideas of scientific literacy for educated citizenship and its various dimensions. It highlights socioscientific issue based instruction as a probable solution strategy for promoting scientific literacy in our school science education.

Key Words: *Scientific literacy (SL), Socioscientific Issues (SSIs), Socioscientific Issue Based Instruction (SIBI)*

Introduction

Scientific Literacy (SL) is an essential requirement for successful living in the modern world of science and technology which impacts life and living conditions in innumerable ways in moment. SL is seen as a right of every person and a requirement for responsible members of society, one that helps average people to make better decisions and enrich their lives. Thomas and Durant (1987) identified a range of arguments for promoting SL. It enriched the cultural health of the nation and intellectual life in general, and enhancement of

* *Asst. Professor, SOE, MGAHV, Wardha*

** *Prof. & Head, DE, RIE (NCERT), Bhubaneswer*

democracy. It promotes more effective decision-making by encouraging people to exercise their democratic right wisely. Increased SL would be of major benefit to science itself, including increased numbers of 'recruits', greater support for scientific research and more realistic public expectations of science. A scientifically literate population, with a rational view of the world, a predisposition to think critically and the capacity to appraise scientific evidence, is much more likely to challenge the priorities of scientific research and the direction of technological innovation (Hodson, 1994). The citizens would be better positioned to evaluate and respond appropriately to scientific and pseudoscientific arguments used by advertisers, commercial organizations and politicians, and better equipped to make important decisions that affect their health, security and economic well-being. The increased level of SL would help to make collective decision at a larger scale in order to solve few of the world's environmental crises (ozone depletion; global warming; land, air and water pollution; deforestation; desertification; and so on) (Hodson,2003).

Development of SL is an important obligation of Science Education. National Focus Group (NFG) Position Paper on Teaching of Science, 2005 (Pg. 11-12) has documented that while deciding on gradation of science curriculum, it must be borne in mind that a majority of students learning science as a compulsory subject upto class X are not going to train as professional scientists or technologists in their later careers, yet they need to become scientifically literate, since several of the social, political and ethical issues posed by contemporary society increasingly revolve around science and technology. Consequently, the science curriculum upto class X should be oriented more towards developing awareness among the learners about the interface of science, technology and society and sensitizing them especially to the issues of environment and health.

UNESCO has mooted the goal of Scientific and Technological Literacy (STL) for all. Every citizen needs to be aware of trends in science, cope with technology in everyday life, and be able to take considered positions on science-related issues of social importance

(e.g. the height of a dam, the location of a nuclear power plant). Clearly school science up to Class X has to be rethought radically if STL for all is seen as the primary aim. The media has also emphasized in the similar viewpoints-

"*Though the current curriculum and the textbook for science and technology of class VIII has inbuilt scope for promotion of scientific literacy among school children to certain extent but the greater aim of scientific literacy seems to receive a back seat in the classrooms which largely focus on examination based achievement scores. If we look at the evolution of school science in India, we see a clear trend of including more and more content — overwhelmingly in the form of factual information — in the syllabus. Thus the factual information that dominates the syllabi is not supported by any kind of activity, which can make it plausible or even comprehensible. It emphasizes mainly on the products of science and not its process and enterprise. Students, therefore have no option but to memorize the facts. The consequence of this is that students find science not only difficult but also boring"* (Mukherjee, 2007).

NFG Position paper on Science Teaching, 2005 has emphasized on activity based science teaching as a paradigm for science education (pg.18) but in many cases teachers present science particularly biology in a more traditional manner thus the learners find themselves unable to relate the biological concepts and processes learnt in the classroom with their day to day life problems. The conventional instruction does not duly emphasize this aspect of Science learning and as such growth of SL among students is seriously hampered. Hence, there is a need to implement an alternative effective instructional approach to strengthen SL on the contemporary socioscientific issues (SSIs) influencing life and living conditions. Socioscientific issue based instruction (SIBI) has emerged as an effective instructional approach to promote SL among learners which frame science content around SSIs i.e. the issues at the interface of science, technology and society and incorporate a variety of activities (Sadler & Zadler, 2004; Forbes & Davis, 2009;

Nuangchalerm, 2009).

Scientific Literacy (SL)

In the present context the prime goal of science education has shifted from knowledge of scientific concepts to understanding of the situations where scientific principles and concepts are applied. There are many aspects to SL, however, widespread consensus exists that the ability to use scientific concepts to solve new problems should be included in any definition of scientific literacy (American Association for the Advancement of Science, 1989).

Norris and Phillips (2003) provided a comprehensive review of SL, as given from seventeen different research groups and major organizations. They found that the term SL has been used as: knowledge of substantive content of science and ability to distinguish science from non-science, understanding science and its applications, knowledge of what counts as science, independence in learning science, ability to think scientifically, ability to use scientific knowledge in problem solving, knowledge needed for intelligent participation in science-based social issues, understanding the nature of science including relationships with culture, appreciation and comfort with science including its wonder and curiosity, knowledge of the risks and benefits of science and ability to think critically about science and deal with the scientific enterprise.

Roberts (2007) outlined two visions of SL. Vision I related to science itself, particularly the products and processes of the scientific enterprise. Vision II related to the types of science students may encounter in the future. Aikenhead (2006) describes scientific literacy as the ability to make decision on SSIs as well as everyday issues. International standardized tests such as Programme for International Student Assessment (PISA), and Trends in International Mathematics and Science Study (TIMSS) utilized the idea that SL involves the use of scientific knowledge to identify questions and draw evidence-based conclusions in order to understand and help make decisions about the natural world and the

changes made to it through human activity. (Organisation for Economic Co-operation and Development, 2003).

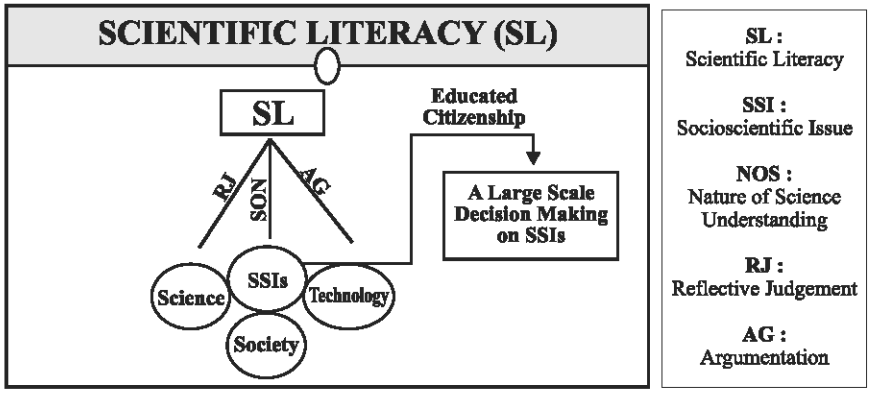


Fig: 1.1

Thus, SL is the ability to have working knowledge of science and its role in the society. It will foster all the students as responsible citizens being aware and sensitive towards the real world problems informed by science. It can be studied under following components:

1. **Nature of science Understanding(** Learners' understanding of *tentativeness of scientific knowledge, nature of observation, scientific methods, hypotheses, laws and theories, the role of imagination, validation of scientific knowledge and objectivity and subjectivity in science)*
2. **Reflective Judgment** on socioscientific issues (critical thinking about socioscientific issues, utilizing multiple lines of evidences and making connections among various evidences while elaborating the issue or arriving at a conclusion on the issue)
3. **Argumentation Skills** on Socio scientific issues (takes a definite stand, give supportive arguments, show evidence in support of own stand)

Nature of Science (NOS)

Becoming scientifically literate involves having a contemporary view of the NOS, which deviates from the belief that science is

completely unattached and objective, to placing science within societal contexts. It emphasizes on education through science rather than science through education. A model of the NOS education is proposed, having its foundations based on activity theory rather than logical positivism (Holbrook & Rannikmae, 2007). McComas, Clough, and Almazroa (1998) gave a comprehensive list of statements summarizing the NOS under three categories -scientific epistemology, scientific process, and history and sociology of science. An understanding of the processes and NOS is a requirement for effective teaching, effective learning and for responsible participation in the society. All those involved in science teaching and learning must be able to do science. The attitude and world view of the scientists must be brought into the classroom. To achieve this basic understanding of the philosophies of science is necessary. With a basic science content background and the ability to carry out the process of science, science can be taught as a concept oriented, problem solving and critically thinking activity which will promote science literacy among students (Matson & Parsons, 2002). Researches show that students often have misconceptions about science as the classroom teaching overemphasizes what we know rather than how we know it. Hence, students see science as a boring enterprise the tedious accumulation of facts about the world, lacking imagination or creativity. Hence, there is a need to enhance students' understanding of the NOS so that they can see how science is connected to the real world. In this contemporary view of SL, all students must learn to think scientifically and understand the importance of science in their everyday lives (Kuhn, 1993). Thus, it can be concluded that NOS understanding provides the background needed for future citizens to provide input regarding scientific decisions, as scientists, citizens, or politicians.

Reflective Judgment

Reflective judgment, which has parallels to higher order thinking, is an epistemological construct designed to examine how people conceptualize and acquire knowledge. It helps to better foster a key component of SL: critical thinking about problems in science. SL

entails the capacity required to identify questions pertaining to real world problems informed by science and to get evidence based answers to these questions. These questions require higher levels of reflective judgment, as they involve multiple lines of evidence, rather than the typical objective, fact-based science questions.

Argumentation

SL involves the ability to think critically regarding scientific issues. The development of critical thinking skills largely depends upon the use of argumentation within the science curriculum (Shakirova, 2007; Waghid, 2005). As science advances through intellectual discourse inclusion of argument should be a part of each science class. The argumentative process is utilized in the scientific domain regarding the analysis of data, as well as in society regarding the outcome of science-based issues. The growing emphasis on science as a way of knowing has shifted the focus of science education towards i) how evidence is used in science for the construction of explanations i.e. on the arguments that form the links between data and the theories that science has constructed ii) the development of criteria used in science to selection of evidence and construction of explanations. Suppe (1998) considered argumentation a critically important epistemic task of science education as it co-ordinates evidence and theory to support or refute explanatory conclusion, model or prediction. Infact, developing, evaluating and revising scientific arguments represent essential elements of contemporary science education.

Socioscientific Issue based Instruction (SIBI)

SIBI combines the use of SSIs with course content to engage students in their learning and supplies both motivation and ownership of learning to the learner. SSIs are controversial, socially relevant real world problems that are informed by science and often include an ethical component. These are personally meaningful and engaging students in dialogue, discussion, debate or argument, require the use of evidence-based reflective judgement, and provide a context for

understanding scientific information (Latourelle, 2010; Zeidler & Nicols, 2009). There are following important aspects related to SIBI:

1. SIBI an effective instructional approach to promote SL among learners which frame science content around SSIs
2. SSIs- controversial, socially relevant real world problems informed by science and often including an ethical component
3. Providing a context for understanding scientific information (situated Learning)
4. A process oriented approach engaging students in dialogue, discussion and debate or argument, role play etc.
5. Requiring the use of evidence-based reflective judgment and argumentation on the issue to explore the controversy around the issue
6. Similar in its teaching approach to case based and problem based teaching but in this approach the students will not be able to solve the issue but they will develop a position based upon their investigation as they explore the controversy around the issue
7. SIBI dependent on three strands- i) categories of reasonable disagreement ii) communicative virtues to engage in reasonable disagreement iii) modes of thought and experience which can best illuminate those disagreements (Levinsion, 2006). 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 the 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). 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.

8. Consisting of three stages- contextualization, decontextualization and recontextualization (Aligean, 2012). Starting with the real world problem, identifying the issues and the available disciplines involved (contextualization), integrating these disciplines (NOS I) with scientific concepts of the discipline to be taught (NOS II) (decontextualization) and after developing the conceptual understanding, applying it to address the problem (recontextualization). These stages are illusrated in the following figure.

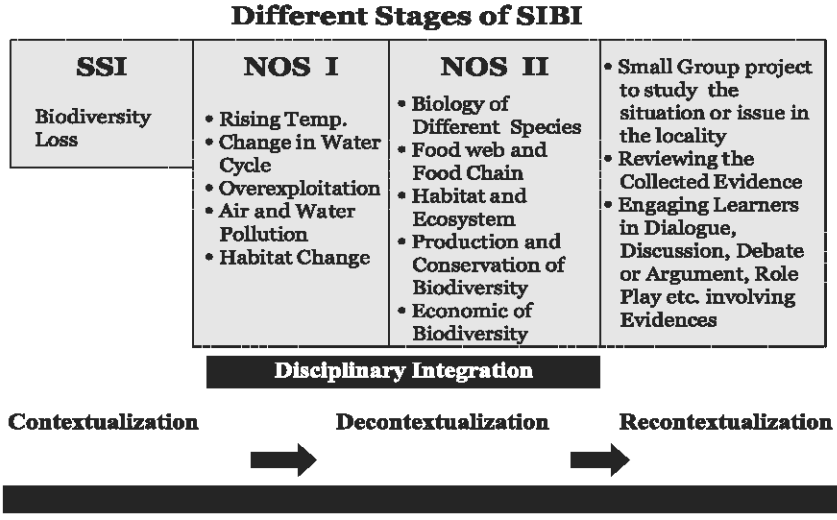


Fig: 1.2

There are three main characteristics of the SSI movement- their open-endedness, their controversial nature, and the inclusion of moral or ethical reasoning (Zeidler & Sadler, 2008; Zeidler, Sadler, Simmons & Howes, 2005). These components allow students to think critically on assigned issues, and discuss the topics with others who believe differently.

The use of SSIs directly relates to the Vision II concept of SL- the interactions between science and society propounded by Roberts (2007). SSIs serve as tools to conceptualize the goal of science education as science for all by providing students with opportunity for argument or dialogue on these issues based on some evidences as well as reflective judgment taking into account its ethical, legal and social considerations. 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 the 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).

While dealing with SSIs students are involved in the use of nature of science concepts –the empiricism, tentativeness and social embeddedness of science as discussed in a number of fora. Sadler, Chambers and Zeidler (2004) examined high school students' use of NOS science concepts when dealing with a SSI, global warming. The researchers examined the above three aspects of science during student interviews regarding the issue. One major result from the study was that forty percent of students were not able to identify and describe data. This finding has tremendous impact for both the use of a SSI based curriculum, which is heavily based on evidence and argumentation, as well as SL in general.

The reflective judgment model and SSI movement are in many ways analogous as both utilize ill-structured problems, focus on evidence and the analysis of positions, and examine problems with moral or ethical components. SSI based instruction allows the student to become more sophisticated in reasoning, judgment, and debate through the use of increasingly complex sociomoral issues (Berkowitz, Oser & Althof, 1987; King & Kitchener, 1994). While the bulk of the research (King & Kitchener, 1994) on high school students'reflective judgment indicated that they consistently exhibit pre-reflective thinking (n =172, 11 samples, 5 studies, M = 3.2), and that scores did not increase throughout high school, research has provided evidence that high school students can develop more advanced stages of reflective thought following a year-long SSI curriculum in an anatomy and physiology course (Zeidler, Sadler, Applebaum & Callahan, 2009).

It seems that SSI develops argumentation skills as it incorporates use of classroom debates and social negotiation of issue. It provides the multi-faceted approach to science necessary for students to examine the scientific enterprise through the multiple lenses characteristic of contemporary society.

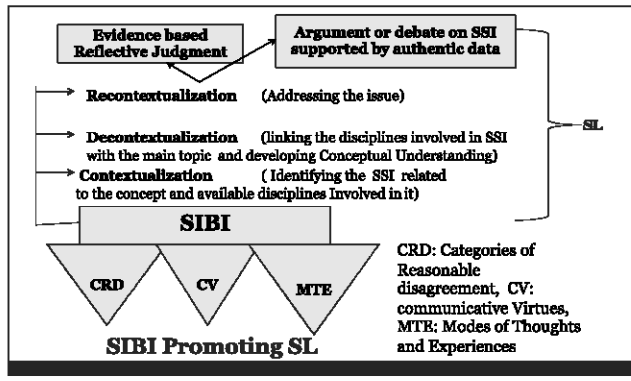


Fig: 1.3

A close perusal of the above figure shows that epistemologically SIBI is based on three strands namely- categories of reasonable disagreement, communicative virtues and Modes of thoughts and experiences. SIBI consists of three stages namely- contextualization, decontextualisation and recontextualisation. In recontextualisation stage evidence based reflective judgment and argumentations supported by authentic data are made on the concerned SSI which in turn promots scientific literacy among learners.

Conclusion

Scientific literacy for educated citizenship is being considered as the prime goal of science education to make informed and large scale decision making on the issues of science and technology which directly influence our sustainability. Socioscientific issue based instruction could be an effective solution for development of scientific literacy among our learners. It would provide ample opportunity for developing understanding of how to learn or do science, the nature of scientific knowledge and scientific processes. It could create platform for suitable learning activities including critical thinking and reflection on multiple facets (scientific, social, ethical, economic and political) of socioscientific issues and support their point of view on the issues with evidence based argumentation. Hence, socioscientific issues could be incorporated in the existing science curriculum to improve scientific literacy of all sorts of school students irrespective of their future career choices.

REFERENCES

Aikenhead, G.S. (2006) *Science Education for Everyday Life: Evidence Based Practices*. NewTeacher College Press, New York.

Berkowitz, M.W., Oser, F. & Althof, W. (1987) The development of sociomoral discourse. In W.M. Kurtines & Gewirtz, J.L. (Eds.) *Moral development through social interaction*. John Wiley, New York.

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

Forbes, C. & Davis, E.A. (2009) Exploring preservice elementary teachers' critique and adaptation of science curriculum materials with respect to scientific issues. *Journal of Social Sciences 5,* 3, 239-243, September.

Hodson, D. (1994) Seeking directions for change: The personalisation and politicisation of science education. *Curriculum Studies 2*, 71-98.

Hodson, D. (2003) Time for action: science education for an alternative future. *International Journal of Science Education 25*, 6, 645-670, June.

Holbrook, J.& Rannikmae, M.(2007) The nature of science education for enhancing scientific literacy. *International Journal of Science Education 29,* 11, 1347-1362, September.

King, P.M. & Kitchener, K.S. (1994). *Developing Reflective Judgment: Understanding and Promoting Intellectual Growth and Critical Thinking in Adolescents and Adults*. Jossey-Bass, San Francisco.

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, April.

Kuhn, D. (1993). Science as argument: Implications for teaching and learning scientific thinking. *Science Education 77,* 3, 319-337, June.

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

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

Matson, J.O. & Parsons, S. (2002) The nature of science: Achieving Scientific Literacy by Doing Science. In McComas W.F. (Ed.) *The nature of science in science education: Rationale and Strategies.* 5, 223-230. Springer, Dordrechet.

McComas, W.F., Clough, M.P., & Almazroa, H. (1998) The role and character of the nature of science in science education. In W.F. McComas (Ed.) *The nature of science in science education: Rationales and strategies*. The Netherlands: Kluwer Academic Publishers, Dordrecht.

Mukherjee, A. (2007, August 16). Science education in india. *The Hindu.* Retrieved from http://www.thehindu.com/todays-paper/tp-opinion/article1892821.ece.

National Focus Group Position paper on Science Teaching (2005), NCERT, New Delhi.

Norris, S.P. & Phillips, L.M. (2003). How literacy in its fundamental sense is central to scientific literacy. *Science Education 87*, 2, 224-240, March.

Nuangchalerm, P. (2009). Development of socioscientific issue based teaching for preservice science teachers. Journal of Social Sciences 5, 3, 239-243, September.

Organisation for Economic Co-operation and Development (2003). The PISA 2003 assessment framework: Mathematics, reading, science and problem solving knowledge and skills. Eric Reproduction Service No. ED 480801.

Roberts, D.A. (2007) Scientific literacy / science literacy. In S.K. Abell and N.G. Lederman (Eds.) *Handbook of research on science education*. Lawrence Erlbaum Associates, Mahwah, NJ.

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

Rice, S. and Burbules, N.C. (1992) Communicative Virtues and Educational Relations. In Alexander H.A. (Ed.) *Philosophy of Education*. 34-44, Philosophy of Education Society, Urbana, IL.

Rutherford, F.J. (1989) (Director). *A Project 2061 report on Science Literacy for All Americans*. American Association for the Advancement of Science, Washington, DC.

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, May.

Sadler, T.D., Chambers, F.W., & Zeidler, D.L. (2004) Student conceptualizations of the nature of science in response to a socioscientific issue. *International Journal of Science Education 26*, 4, 387-409, March.

Sadler, T. D. & Zeidler, D.L. (2004) Negotiating gene therapy controversies. *The American Biology Teacher 66*, 6, 428-433, August.

Shakirova, D.M. (2007) Technology for the shaping of college students' and upper-grade students' critical thinking. *Russian Education and Society 49*, 9, 42-52, september.

Suppe, F. (1998) The structure of a scientific paper. *Philosophy of*

Science 65, 3, 381-405, September.

Thomas, G. & Durant, J. (1987) Why should we promote the public understanding of science? In M. Shortland (Ed) *Scientific Literacy Papers*. 1-14. Oxford University Department for External Studies, Oxford.

Waghid, Y. (2005) Action as an educational virtue: toward a different understanding of democratic citizenship education. *Educational Theory 55*, 3, 323-342, August.

Zeidler, D. L. & B. H. Nicols (2009) Socio-scientific issues: Theory and practice. *Journal of Elementary Science Education 21*, 2, 49-58, August.

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

Zeidler, D.L. & Sadler, T.D. (2008) Social and ethical issues in science education: A prelude to action. *Science & Education 17*, 8, 67-78, January.

Zeidler, D. L., Sadler, T.D., Applebaum, S. & Callahan, B.E. (2009) Advancing reflective judgment through socioscientific issues. *Journal of Research in Science Teaching 46*, 1, 74-101, January.

●

A STUDY OF COLLEGE STUDENTS' PERFORMANCE IN RELATION TO REGULARITY

Dr. Sushil Bilung *

Abstract

It is rightly said that 'Repetition is the Mother of Learning.' That is why almost all Indian Universities demand minimum of 75% of class attendance from each and every student. They do encourage all their students to have high per cent age of attendance so that the aims and objectives of higher education is realized concretely in the life of each student. It is through regular class attendance a student grows in understanding and knowledge of his/her subject well. Regularity plays a vital role in the development of a student. A student is nothing else than the total sum of his time and energy. When a student utilizes his/her time and energy in one particular area repeatedly s/he does excel in that area. This research aims at finding out the relationship between motivational orientations and regularity/irregularity in determining the academic achievement. Data pertaining to student's performance (result) in the examinations (internal & external) is collected from the Controller of the Examination Office of St. Xavier's College of Management and Technology, Patna, of the academic year 2014-15 and then secondly, the attendance of the students from the Attendance Registers is collected from the College office independently by the researcher within a stipulated period. The findings revealed that the group of regular students has greater achievement than the group of irregular students in their academic performance it is also concluded that the group of regular students has greater achievement than the group of moderate students in their academic performance finally it is also found that the group of moderate students has greater achievement than the group of irregular students in their academic performance.

Key Words: *Regularity, Classroom Achievement.*

* *St. Xavier's College, Patna-11*

1.0 INTRODUCTION

Higher Education comprises a community of people of superior intellect, engaged in critically examining all aspects of human life and activity, working towards the preservation, transmission and generation of knowledge. It also can be said a community of teachers and students who work together with the goal of learning and expanding the horizons of human knowledge and growth. The Higher Educational system must make itself responsible for equipping students adequately with civic as well as vocational efficiency and qualities of character that go with it so that they are able to play with this part worthily and competently in the improvement of national life. Therefore,

1. The college students are to be fostered with the spirit of free enquiry and Nationalism and promote independent and critical thinking.
2. They are to be provided facilities for the pursuit and generation and application of new knowledge and search of truth.
3. They are to be encouraged towards professionalism in all aspects of life so that they become assets for the Nation.
4. They are formed true agents of human values and preservation of cultures and traditions.

It is sad to note that today a large number of Indian Universities have failed to meet their duties and responsibilities. They have become the centers of producing unemployable graduates and post-graduates. In the era of 'knowledge explosion', Universities have to redefine their mode of functioning in generating, preserving and transmitting the knowledge and information. Jawaharlal Nehru rightly has said, "all is well with a nation, if its Universities are in good shape and functional."

1.1 IMPORTANCE OF REGULARITY AND PUNCTUALITY IN HIGHER STUDIES

It is rightly said that 'Repetition is the Mother of Learning.' That is why almost all Indian Universities demand minimum of 75% of class attendance from each and every student. They do encourage all their students to have high per cent age of attendance so that the aims and objectives of higher education is realized concretely in the life of each student. It is through regular class attendance a student grows in understanding and knowledge of his/her subject well.

Regularity plays a vital role in the development of a student. A student is nothing else than the total sum of his time and energy. When a student utilizes his/her time and energy in one particular area repeatedly s/he does excel in that area. All regularity is in time. To be regular means to repeat an act, or thought, in time intervals. Actually, our habit is the repeated action. When one action is done repeatedly by us consciously or unconsciously, that action becomes our habit.

Time is past, time is future, time is the present and we are in either of these times. Regularity is good if it liberates us from our limitations and makes us feel greater and greater. Regularity is a burden if it limits us and makes us feel miserable. The regularity that comes not from looking at the clock, but arises from somewhere deep down in our being, is something precious and valuable. It is force from within. It may be a push from our heart. It may be called an intrinsic motivation. Such type of a person does not follow the clock but the clock follows him.

When a person's mind is composed, surrendered, and free-flowing with this power or push, it flows harmoniously in a cosmic rhythm. Yes, it a mind one with nature. One with the source, and one with nature. Now there is a sweet symphony, a mellifluous music in the nature and in the inner being of a human person. The bees, the birds know when to wake up. The baby knows when to leave the womb. The seasons know when to come and when to go. None of them need a clock! Students are to be driven from such inner force. This inner force is the energy of self-actualization. Every person is restless for

self-actualization; the degree or level of restlessness may be different person to person.

No person can reasonably expect success in life and God-realization if he does not possess these two qualifications, says Swami Sivananda. Perfect discipline can only be maintained by regularity and punctuality. There cannot be any success without discipline. Let us learn our lessons from nature. Mark how the seasons rotate regularly! Mark how the sun rises and sets, how the monsoon comes, how the flowers blossom, how the fruits and vegetables crop up, how the revolution of the moon and the earth take place, how the days and nights, weeks and months and years roll on! Nature is your Guru and guide. The five elements are your preceptor and teacher. Open your eyes and receive instructions and follow. Regularity and punctuality and discipline go hand in hand. They are inseparable.

There are individual differences in the achievement of the students. Study skill of the student, Study habit of the student, Intelligence of the student, Reinforcement, Attitude towards studies, Aptitude towards studies, Teaching methodology, Teaching behavior, Proper motivation, Health of the learners, and mental health. Here the investigator takes the regularity as an important factor and tries to elaborate it.

A student who is highly motivated has a high degree of feeling responsible for his/her own life. S/he becomes more autonomous in participating in learning tasks, as marked by effort, persistence, interest, enjoyment, enthusiasm and especially emotional tone (e.g., willing, pressured, or anxious). In fact student ownership and responsibility are keys to academic success or achievement. Such student enjoys his/her student life responsibly and becomes a regular student which has a direct effect on his/her performance or achievement. A motivated student is energetic, self-directed and who is sustained in action. And action is the reflection of human motivation which emerges in his/her mind (Wellborn, 1991).

This research aims at finding out the relationship between motivational orientations and regularity/irregularity in determining the academic achievement. In other words, lack of motivation is directly related to irregularity which results in poorer academic

adjustment.

2. A. RESEARCH QUESTION

Does regularity affects the academic performance of the College Students?

B. OBJECTIVE OF THE STUDY

To find out the effect of regularity on the academic performance of College Students.

3. HYPOTHESES

1. The group of regular students has greater achievement than the group of irregular students in their academic performance.
2. The group of regular students has greater achievement than the group of moderate students in their academic performance.
3. The group of moderate students has greater achievement than the group of irregular students in their academic performance.

4. DELIMITATION (SCOPE) OF THE STUDY

The scope of study will be limited to 2nd year of B.Com. Professional under Graduate students (95) of the year 2014 of St. Xavier's College of Management & Technology, Patna.

5. METHOD OF RESEARCH

The Survey method of research is used. In order to obtain empirically dependable answers to the research question, and to test the formulated hypotheses, the performance (result) of two internal semester end examinations and two external semester end examinations (University Exam.) of the first and second year students of B.Com. Professional are evaluated which is correlated to their regularity.

6. POPULATION

The population of the study is 132 students of B. Com. Professional of St. Xavier's College of Management and Technology, Patna, of the academic year 2014-15.

7. SAMPLE

The sample of the study is consisted of 42 students (21 male & 21 female) adequately representing the batch. Among 21 male, 7 regular, 7 moderate and 7 irregular male students is taken and so also

similar pattern is adopted for female students 7 each for regular, moderate and irregular female students.

8. TOOL

The following tools are used:-

1.1.1. College attendance Register of B.Com.Professional for knowing their regularity, moderate and irregularity

1.1.2. Student's Mark Sheet of the Semester end External Examination (University Exam.)

1.1.3. Student's Mark Sheet of the Semester end Internal Examination

9.PROCEDURE OF EXPERIMENTATION AND DATA COLLECTION

Firstly, data pertaining to student's performance (result) in the examinations (internal & external) is collected from the Controller of the Examination Office of the College and then secondly, the attendance of the students from the Attendance Registers is collected from the College office independently by the researcher within a stipulated period.

10. PROCEDURE OF DATA ANALYSIS

As said above the data to be obtained from the College Offices which is analysed with the help of both quantitative and qualitative techniques. Statistical treatment (Mean, S.D., t- test) is employed with the help of MS EXCEL.

11. ANALYSIS AND INTERPRETATION

A stratified sample of size 42 was taken from amongst the 132 students of B.COM. (Professional) course. Students were divided into three categories based on their attendance habits as Regular (above 80% attendance), Moderate (between 60% and 80% attendance), and Irregular (less than 60% attendance). These categories of students were further sub-classified as Male and Female.

Correlations were calculated between the attendance percentages and the overall cumulative grade point averages (CGPAs) secured

by the students at the end of the semester. Table -1 shows the data as given in the next pages with its figure -

Table-1: Student's PerformanceComparison belonging to different groups in terms of their attendance.

	REGULAR STUDENTS		MODERATE STUDENTS		IRREGULAR STUDENTS	
S.No.	Attendance	CGPA	Attendance	CGPA	Attendance	CGPA
1	8	97.84	6.45	76.98	5.1	59.5
2	7.82	93.88	6.86	70.86	5.5	59.35
3	7.55	92.81	6	69.06	4.1	50.15
4	7.55	91.37	6.86	68.35	4.98	45.25
5	7.73	88.49	5.86	67.63	5.09	46.4
6	7.5	88.85	6.41	66.19	3.01	40.1
7	7.86	85.25	6.36	64.39	2.1	35
8	7.32	94.96	7.27	79.14	4.73	56.12
9	7.41	96.04	7.05	76.62	4.86	53.24
10	6.86	90.29	6.64	75.95	4.86	35.61
11	7.68	84.89	6.25	75.9	4.64	57.91
12	7.32	84.89	6.36	71.58	4	55.6
13	6.45	82.37	6.59	68.35	3.58	45.15
14	7.45	82.01	5.1	68.1	3.02	40.99

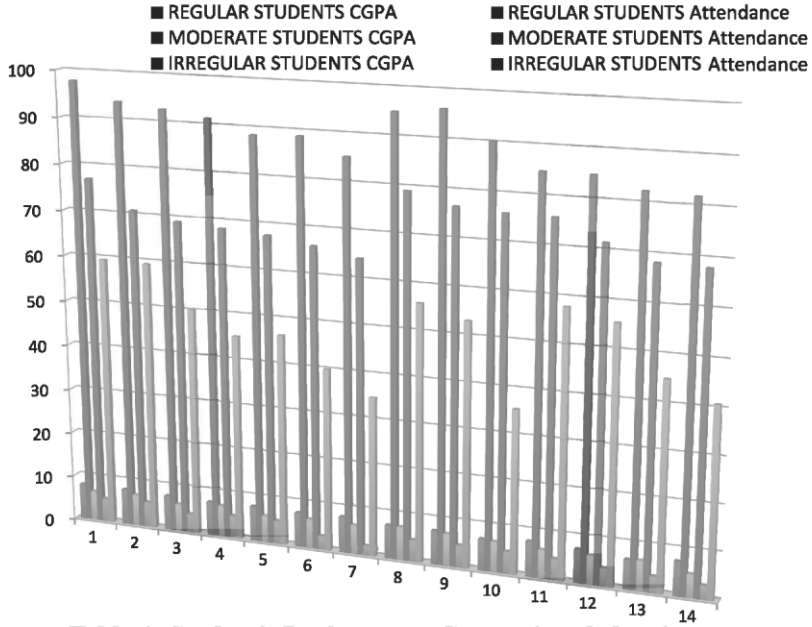


Table-1: Student's Performance Comparison belonging to different groups in terms of their attendance.

Hypothesis -1

The group of regular students has greater achievement than the group of irregular students in their academic performance.

Null Hypothesis -1

There is no significant difference between the group of regular students and the group of irregular students in their academic performance.

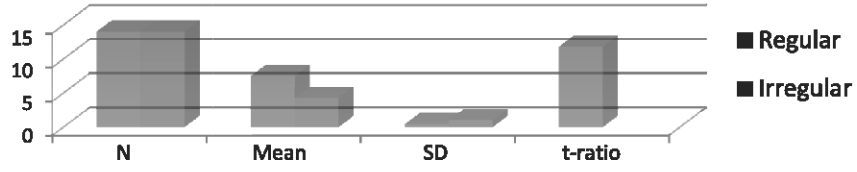
Table- 2

Attendance	N	Mean	S.D.	t-ratio	Remarks
Regular	14	7.46	0.41	11.17	Significant at 0.01 level
Irregular	14	4.26	0.99		

Critical Value of 't' at 1% level of significance = 2.78

It is inferred from the above table that the calculated value of 't' is more than the critical value of 't' of 1% level of significance. Hence, the null hypothesis is rejected; that is there is significance difference between regular and irregular college students in terms to academic performance. Since the mean value of regular students is (7.46) more than the mean value of irregular students (4.26), the regular students are better than irregular students.

Figure-1



Hypothesis -2

The group of regular students has greater achievement than the group of moderate students in their academic performance.

Null Hypothesis -2

There is no significant difference between the group of regular students and the group of moderate students in their academic performance.

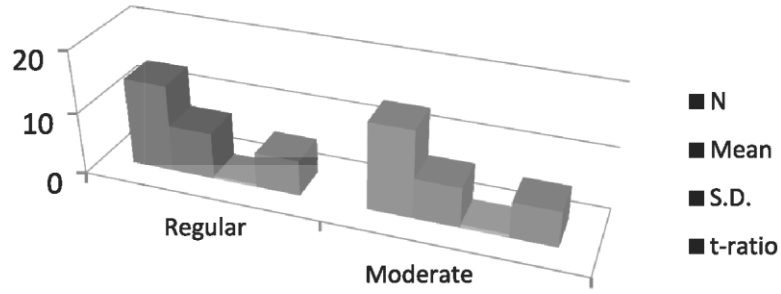
Table-4

Attendance	N	Mean	S.D.	t-ratio	Remarks
Regular	14	7.46	0.41		Significant at
Moderate	14	6.43	0.54	5.68	0.01 level

Critical Value of 't' at 1% level of significance = 2.78

It is inferred from the above table that the calculated value of 't' is more than the critical value of 't' of 1% level of significance. Hence, the null hypothesis is rejected; that is there is significance difference between regular and moderate college students in terms of academic performance. Since the mean value of regular students is (7.46) more than the mean value of moderate students (6.43), the regular students are better than moderate students.

Figure-2



Hypothesis -3

The group of moderate students has greater achievement than the group of irregular students in their academic performance.

Null Hypothesis -3

There is no significant difference between the group of moderate students and the group of irregular students in their academic performance.

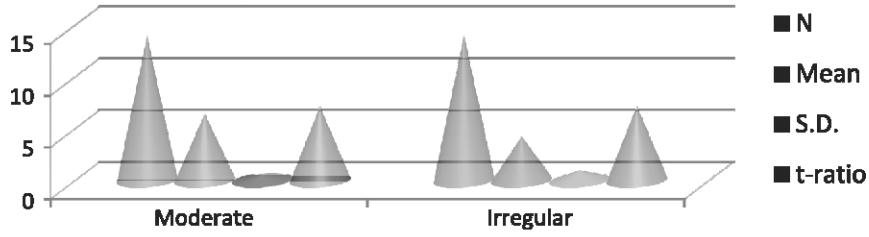
Table-5

Attendance	N	Mean	S.D.	t-ratio	Remarks
Moderate	14	6.46	0.54		Significant at
Irregular	14	4.26	0.99	7.19	0.01 level

Critical Value of 't' at 1% level of significance = 2.78

It is inferred from the above table that the calculated value of 't' is more than the critical value of 't' of 1% level of significance. Hence, the null hypothesis is rejected; that is there is significance difference between moderate and irregular college students in terms of academic performance. Since the mean value of moderate students is (6.43) more than the mean value of moderate students (4.26), the moderate students are better than irregular students.

Figure-3



12. SUMMARY AND CONCLUSION

It is rightly said in hindi, *'Dar ke aage jeet hai'* and *'jo dar gaya samjho mar gaya'* ('there is victory beyond fear' and 'one who feared understand that he is dead') 'Success in life is for those who hope and try and not for those who fear and fail. The timid always play safe and never venture. It is not an indiscreet, impulsive plunge, but a calculated moderate attempt to improve performance. Achievement motivated persons choose a risk that is a compromise between the very easy and the very difficult. Such a task of moderate difficulty offers the best chance of achievement.

An achievement-motivated individual is likely to exhibit self-assurance, positive outlook, pragmatism, hope and faith in a bright future while an individual lacking in achievement-motivation would exhibit all-round pessimism, distrust and despair.

Motivational factors are important in directing individual behavior consciously and make him strive to perform certain types of activity in order to achieve a definite goal. Every one aims at reaching

a definite goal or excellence in performance and in doing so, he sets a desire for distinction which has an inner structure known as 'Level of Aspiration.' Level of Aspiration is an individual's expectation or ambition. It refers to the estimate of one's future in a given task. A great deal of individual variation is found with regard to goal-setting behavior, persons with an equal amount of ability may also differ significantly in their goal-setting behavior. One may set it very high while the other very low; still others may set near to their performance level. Thus in choosing a life goal and in doing daily activities, people differ largely in their expectations and aspirations. Today our college students seem to be scattered due to the influence so many factors but a student has a will, will find his/her ways and means for greater achievement in life through education. Therefore, attitude and motivation play a much greater role than other means. It is rightly pointed out Components of Aspiration for Higher Education as i) Attitude: It means an overt interest pursuing specific course of actions, in response to particular situation. Attitude has five components as; Emotion, Target, Direction, Intensity and Consistency. ii) It refers to something which prompts, compels, and energizes an individual to act or behave in a particular manner at a particular time for attaining some specific goal or purpose.

Therefore, it is very important to have proper attitude towards regularity in attendance because regularity does affect the academic performance of the College Students very much as we have found out. The hypothesis of the study as below are tested and found true -

1. The group of regular students has greater achievement than the group of irregular students in their academic performance.
2. The group of regular students has greater achievement than the group of moderate students in their academic performance.
3. The group of moderate students has greater achievement than the group of irregular students in their academic performance.

12.1. Major findings of the study

1. There is a significant difference in the mean score of achievement between regular and irregular students. The group of regular students has greater achievement than the group of irregular students in their academic performance.
2. There is a significant difference in the mean score of achievement between regular and moderate students. The group of regular students has higher achievement than the group of moderate students in their academic performance.
3. There is a significant difference in the mean score of achievement between moderate and irregular students. The group of moderate students has greater achievement than the group of irregular students in their academic performance.

12.2. Discussion, Implications and conclusions of the study

The study shows that Correlation between attendance academic performances is very significant. Those who have high percentage of attendance is indeed necessary to follow the subject with a reasonable degree of understanding and so they perform better. For this attitude and motivation play a very significant role.

Actually motivation is the very heart of the learning process. Adequate motivation not only sets in motion the activity, which results in learning, but also sustains and directs it. It has been stated, "Motivation arouses interest. Interest is the mother of attention and attention is the mother of learning. Thus to secure learning pupils must catch the mother, grandmother and great grandmother." Motivation is an indispensable technique for learning. It energizes and accelerates the behavior of learner. Desirable changes in learner's behavior are only possible when a learner is properly motivated. No learning is possible without motivation.. Thus achievement motivation comes into picture when an individual knows that this performance will be evaluated, that the consequence of this action will be either a success or failure and that good performance will produce a feeling of pride in accomplishment.

With motivation being a key factor in learning success, teacher skills in *motivating* learners should be seen as central to

teaching effectiveness (Galloway *et al.*, 1998). A theory of student motivation will have to include many concepts and their interrelationships. Any theory based on a single concept, whether that concept is reinforcement, self-worth, optimal motivation, or something else, will be insufficient to deal with the complexity of classroom activities which includes a sense of autonomy, the type of the classroom goal structure and the influences of the teacher and the peer group with self-concept beliefs etc..

A process-oriented framework can offer a solid theoretical background to devising *motivational strategies* because of its comprehensiveness: following through the motivational process from the initial arousal of the motivation to the completion and evaluation of the motivated action allows researchers to integrate various lines of research in a unified construct, with a special emphasis placed on executive motives that energise the implementation of various learning tasks. Taking this approach, the author has drawn up a taxonomy of motivational strategies (DoÈ rnyei, in press) that contains the following main classes:

* *Creating the basic motivational conditions* (appropriate teacher behaviours and a good relationship with the students; a pleasant and supportive classroom atmosphere; a cohesive learner group with appropriate group norms).

* *Generating initial motivation* (enhancing the learners' subject-matter-related values and attitudes; increasing the learners' `goal-orientedness ' ; increasing the learners' expectancy of success; making the curriculum relevant for the learners; creating realistic learner beliefs).

* *Maintaining and protecting motivation* (setting `proximal subgoals' ; presenting and administering tasks in a motivating way; increasing the quality of the learning experience; increasing the learners' self-confidence; allowing learners to maintain a positive self and social image; creating learner autonomy; promoting selfmotivating learner strategies).

* *Rounding off the learning experience: Encouraging positive self-evaluation* (promoting attributions to effort rather than to ability; providing motivational feedback; increasing learner satisfaction, and

the issue of rewards, grades and punishment).

Formulating action control/self-motivating strategies: Besides providing a comprehensive framework to guide practical work on devising motivational strategies, a process-oriented approach has a further, somewhat related feature that makes it beneficial for promoting effective, self-regulated learning: its emphasis on *action control mechanisms*. These mechanisms, as conceptualised originally by Kuhl (1985), can be seen as a subclass of *self-regulatory strategies* concerning the learners' self-motivating function. As its name also implies, a central component of Heckhausen and Kuhl' s Action Control Theory is `action control' , which has been explained by Kuhl (1986, p. 424) as follows: We know from everyday experience that we do not always carry out our intentions. Choice of a goal and persistence in striving for it do not guarantee that goal-related intentions will be actually performed. In many cases, a certain amount of effort is needed to enact an intention. It takes effort to maintain an intention, to shield it from the press resulting from competing action tendencies, and to strengthen it if necessary until it has been carried into effect. I assume that this kind of selfregulatory effort is required not only for enacting `difficult' intentions (e.g., to quit smoking) but also for enacting seemingly easy intentions (e.g., to make a phone call). Since `effort' is a phenomenal summary term that probably refers to a variety of mechanisms, our task is to investigate the specific mechanisms that mediate the Kuhl (1985, 1987) proposed a taxonomy of six main types of action control strategies and, being the first of its kind, this taxonomy has been influential in shaping subsequent research into the self-regulatory mechanisms related to self-motivation. Adapting this conceptualisation to educational contexts, Corno and Kanfer (1993, pp. 311± 313) distinguish four large classes of `volitional control strategies' :

1. *Metacognitive control strategies*: intentionally ignoring attractive alternatives or irrelevant aspects and adopting a `let's not ruminate and procrastinate any longer but get down to doing it' attitude (e.g., `Think of first steps to take and get started right away' or `Set contingencies for performance that can be carried out mentally, such as self-reward; self-imposed penance').

2. *Emotion control strategies*: managing emotional states that might disrupt or inhibit action (e.g., `Generate useful diversions' or `Recall your strengths and your available resources; remember, you've done this kind of thing before').
3. *Motivation control strategies*: enhancing the motivational basis of intentions to pursue a goal (e.g., `Add a twist to make this project more interesting' or `Escalate goals by prioritising and imagining their value').
4. *Environmental control strategies*: manipulating aspects of the individual' s environment in a way that the resulting socio-environmental pressure or control makes the abandoning of the intention more difficult or by creating safeguards against undesirable environmental temptations (e.g., `Move away from noise and distraction' or `Make a social commitment of doing something, e.g., preparing all your home assignments or not being late').

13. Suggestions to the Educationists and Policy Makers

Attendance is only a means to achieve educational goals but our focus should be more higher and concrete aims. Therefore, for the formation of a sound attitude and skills in each and every student the following things are recommended –

Inculcate the spirit of

1. Self-respect and self esteem: Students should have a sense of their own worth and pride in their own particular social, cultural, and family background
2. Respect for others: Students should have a sense of the worth of others, particularly of those with social, cultural, and family background different from their own.
3. Ecological concern: Students should have a sense of respect for the natural environment and our overall place in the web of life. They should also have a sense of responsibility for both the local and global environment.
4. Open-mindedness: Students should be willing to approach different sources of information, people and events with a critical but open mind.
5. Vision: Students should be open to and value various dreams

and visions of what a better world would might look like, not only in their own community but also in other communities, and in the world as a whole.

6. Commitment to Justice: Students should value genuinely democratic principles and processes and be ready to work for a more just and peaceful world at local, national, and international levels.

And so they should have –

1. Critical thinking: Students should be able to approach issues with an open and critical mind and be willing to change their opinions in the face of new evidence and rational argument. They should be able to recognize and challenge bias, indoctrination, and propaganda.
2. Co-operation: Students should be able to appreciate the value of co-operating on shared tasks and be able to work co-operatively with other individuals and groups in order to achieve a common goal.
3. Empathy: Students should be able to imagine sensitively the viewpoints and feelings of other people, particularly those belonging to groups, cultures, and nations other than their own.
4. Assertiveness: Students should be able to communicate clearly and assertively with others, that is not in an aggressive way, which denies the rights of others, or in a non-assertive manner which denies their own rights.
5. Conflict resolutions: Students should be able to analyse different conflicts in an objective and systematic way and be able to suggest a range of solutions to them; where appropriate they should be able to implement solutions themselves.

14. Suggestions for further research

1. A comparative study could be conducted between regular female and male students in relation to their academic achievement.
2. A comparative study could be conducted between regular

female and male students on the basis of their attitude and motivation in relation to their academic achievement.

3. The study may be conducted at the high School level of Govt. Schools
4. A similar study may be conducted on Rural College Students
5. Correlation studies related to academic achievement, study habits, self-concept and other variables can be undertaken.

Bibliography

Books

Shah, B.V. & Shah, K.B. (2006) *Sociology of Education*, Rawat Publication, New Delhi – 02.

Hart, C. (2005), *Doing Your Masters Dissertation*, Vistaar Publication, New Delhi –17.

Sharma, Ram Nath & Sharma, Rajendra K. (2002), *Problem of Education in India*, Atlantic Publishers and Distributors, New Delhi-27.

Perumalil, T. (2015) Proceedings of the International Conference on Holistic Development and Education for Peace, St. Xavier's College of Education, Patna-11, p.8-9.

Joshi, Kireet (1985), *A Philosophy of Education for the Contemporary Youth*, Indian Council of Philosophical Research, New Delhi-67.

Arroyo, Millan (2002), *Education and Learning*, Gujarat Sahitya Prakashan, Anand – 01.

Deci, E. I., (1975), *Intrinsic motivation*, New York: Plenum.

Deci, E. I., & Ryan, R. M. (1985), *Intrinsic motivation and self-determination in human behavior*, New York: Plenum Press.

Dweck, C. S. (1999), *Self-theories: Their role in motivation, personality and development*, Philadelphia: Psychology Press.

Dweck, C. S., & Molden, D. C, (2995), Self-theories: Their impact on competence motivation and acquisition. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 12-140), New York: Guilford.

Elliot, A. J., & Dweck, C. S., (Eds.), (2005), *Handbook of competence and motivation*, New York: Guilford.

Ford, M. E.)1992), *Motivating Humans: Goals, emotions, and personal agency beliefs*, Newbury Park, CA: Sage.

Frese, M., & Sabini, J. (1965), *Goal-directed behavior: The concept of action in psychology*, Hillsadle, NJ: Erlbaum.

Furrer, C., Skinner, E., & Kindermann, T. (2007), *How the motivationally "rich" get "richer": Reciprocal effects of student engagement in the classroom on changes in teacher support over the school year*: Unpublished manuscript, Portland State Univerity.

Harter, S. (1978), *Effectance motivation reconsidered: Toward a developmental model. Human Development,* 21, 36-64.

Heckhausen, H. (1991), *Motivation and action* (P. K. Leppmann, Trans.), Berlin: Springer.

Jackson, A. & Davis, G. (2000), *Turning points: Educating adolescents for the 21st century*. New York: Teachers College Press.

Lepper, M. R. & Cordova, D. I. (1992), A desire to be taught: Instructional consequences of intrinsic motivation, *Motivation and Emotion*, 16, 187-208.

Murphy, P. K., & Alexander, P. A. (2000), A motivated exploration of motivation terminology, *Contemporary Educational Psychology*, 25, 3-53.

Pintrich, P. R. (2000), An achievement goal theory perspective on issues in motivation terminology, theory, and research, *Contemporary Education Psychology*, 25, 92-104.

Pintrich, P. R., & Schunk, D. H. (2003), *Motivation in education: Theory, research, and application* (2nd ed.), Englewood Cliffs, NJ: Merrill-Prentice Hall.

Pintrich, P. R., & Zusho, A. (2000), The development of academic self-regulation: The role of cognitive and motivational factors. In A. Wigfield & J. S. Ecceles (Eds.), *Development of achievement motivation* (pp. 250-284), San Diego: Academic Press.

Reeve, J. (2005), *Understanding motivation and emotion* (4th ed.), Hoboken, NJ: Wiley.

Ryan, A. M. (2000), Peer groups as a context for the socialization of adolescents' motivation, engagement, and achievement in school, *Educational Psychologist*, 35, 101-111.

Roeser, R., Strobel, K. R., & Qulhuis, G. (2002), Studying early adolescents'

academic motivation, social-emotional functioning, and engagement in learning: variable and person-centered approaches, *Anxiety, Stress, and Coping*, 15, 345-368.

Ryan, R. M, & Deci, E. I., (2000), Intrinsic and extrinsic motivations: Classic definitions and new directions, *Contemporary Educational Psychology*, 25, 54-67.

Schunk, D. H., & Pajares, F. (2005), Competence perceptions and academic functioning. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 85-104), New York: Gulford.

Schunk, D. H., & Zimmerman, B. J. (Eds.), (1994) *Self-regulation of learning and performance*, Hillsdale, NJ: Erlbaum.

Schutz, P.A., & Decuir, J. T., (2002), Inquiry on emotions in education, *Educational Psychologist*, 37, 125-134.

Skinner, E. A., Kindermann, T. A., & Furrer, C., (in press), A motivational perspective on engagement and disaffection: Conceptualization and assessment of children's behavioral and emotional participation in academic activities in the classroom, *Educational and Psychological Measurement.*

Weiner, B. (1976), *An attributional theory of motivation and emotion*, New York: Springer.

Journals

Chakrbarti, M. (2014), *'Quality in Higher Education'*, Journal of Research in Education, Vol.2, No.1, St. Xavier's College of Education, Patna-11, pp 5-10.

Blumenfeld, P.C. (1992), Classroom learning and motivation: Clarifying an expanding goal theory, *Journal of Educational Psychology*, 84, 272-281.

Connell, J.P. (1990), Context, self, and action: A motivational analysis of self-system processes across the life-span. In D. Cicchetti & Beeghly (Eds.), *The self in transition: From infancy to childhood* (pp. 61-97), Chicago: University of Chicago Press.

Connell, J.P. & Wellborn, J.G. (1991), Competence, autonomy and relatedness: A motivational analysis of self-system processes. In M. Gunnar & I. A. Sroufe (Eds.), *Minnesola Symposium on Child Psychology: Vol. 23, Self processes in development* (pp. 43-77), Chicago: University of Chicago Prss.

Covington, M. V., & Dray, E. (2002), The developmental course of achievement

motivation: A need-based approach. In A. Wigfield & J. S. Eccles (Eds.), *Development of achievement motivation* (pp. 33-56). San Diego: Academic Press.

Deci, E. I., (1992), On the nature and function of motivational theories, *Psychological Science, 3*, 167-171.

Deci, E. I., & Ryan, R. M. (2000), The "What" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*, 227-268).

Eccles, J. S., Wigfield, A., & Schiefele, U. (1998), Motivation to succeed. In W. Damon (Series Ed.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3, Social, emotional, and personality development* (5th ed., pp. 1017-1095), New York: Wiley.

Meece, J. I., Anderman, E. M., & Anderman, I. H. (2006), Classroom goal structures, student motivation, and academic achievement, *Annual Review of Psychology* (Vol. 57, pp, 487-504), Chippewa Falls, WI: Annual Review.

Patrick, B. C., Skinner, E. A., & Connell, J. P. (1993), What motivates children's behavior and emotion? The joint effects of perceived control and autonomy in the academic domain, *Journal of Personality and Social Psychology,* 65(4), 781-791.

Ryan, A. M., & Patrick, H. (2000), The classroom social environment and changes in adolescents' motivation and engagement during middle school, *American Educational Research* Journal, 38, 437-460.

Skinner, E. A. & Belmont, M. J. (1993), Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year, *Journal of Education Psychology,* 85, 571-581.

Urdan, T. C., (Ed.), (1999), The role of context: Advances in motivation and achievement (Vol. 11). Greenwich, CT: JAI.

Weiner, B. (1985), An attributional theory of achievement motivation and emotion, *Psychological Review*, 92, 548-573.

White, R. W. (1959), Motivation reconsidered: The concept of competence, *Psychological Review*, 66, 297-333.

Wigfield, A., & Eccles, J. S., (2002), Expectancy-value theory of motivation. *Contemporary Educational Psychology,* 25, 68-81.

Wigfield, A., Eccles, J. S., Schiefele, U., Roeser, R., & Davis-Kean, P. (2006), Development of achievement motivation. In W. Damon (Ser. Ed.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology 6th Ed. Vol.3. Social, emotional, and personality development* (pp. 933-1002), New York: Wiley.

Wolters, C. A. (2003), Regulation of motivation: Evluating an underemphasized aspect of self-regulated learning. *Educational Psychology*, 38, 189-206.

Psychological Review, Vol 98(2), Apr 1991, 224-253.

Journal of Personality and Social Psychology, Vol 44(2), Feb 1983, 419-427.

EDUTRACKS, Feb. 15, Vol. 14-No.6

Dissertations/Thesis

Wellborn, J. G. (1991), *Engaged and disaffected action: The conceptualization and measurement of motivation in the academic domain*, Unpublished doctoral dissertation, University of Rochester, New York.

Mani, Sakthi S. (2010), *Mental Health among Rural High School Students,* Unpublished dissertation for the Master of Education, **Tamilnadu Teachers Education University, Chennai 600005.**

Website

http://psycnet.apa.org/journals/cou/38/1/30/ accessed on 15/11/2015

http://dx.doi.org/10.1037/0033-295X.98.2.224

http://psycnet.apa.org/journals/rev/98/2/224/ accessed on 15/11/2015

EFFECT OF COOPERATIVE LEARNING ON ACHIEVEMENT AND INTEREST IN SOCIAL SCIENCE AMONG CLASS IX STUDENTS

Dr. Vikramjit Singh *

Kanchan Choudhary **

Abstract

The objective of the study was to study the effectiveness of cooperative learning on the achievement and interest in Social science among Secondary school students. The methodology used was an experimental study. The specific design used here is true experimental design i.e., Pre-test- Post-test equivalent group design with the self-constructed and validated tools. The tools were Social science Interest Inventory, Social science Achievement test, and Instructional tools based on Group Grid cooperative learning. These tools were administered to 70 selected Class IX Secondary school students studying in Patna, Bihar, India. They were divided into two uniform groups of 35 each through one-to-one matching of the subjects on Standardized Intelligence Test by Nathan Hasalbaeur and thus two groups were formed, Experimental Group and the Control Group. The experimental group was taught selected topics in social science through cooperative strategies and control group was taught the same topics in conventional method . The pre-test and post test were administered on both the groups. The data collected were analyzed by employing t-test and Pearson's Product Moment Correlation. The findings of the study revealed that there is significant effect of Cooperative learning on the interest and achievement in Social science among Secondary school students.It was also concluded that there was no sex related differences on

* *Asst. Prof. St. Xavier's College of Edu, Digha, Patna -11*

** *Faculty of Edu, Patna Training College*

effectiveness of cooperative learning on the interest and achievement in Social science among Secondary school students.

Keywords *: Cooperative learning, Teaching of Social Science Interest in Social Science*

INTRODUCTION AND RATIONALE

Social Science is a compulsory subject up to secondary stage of school education. It is an integral component of general education because it helps the learners in understanding the environment in its totality and developing a broader perspective and an empirical, reasonable and humane outlook. This is of crucial importance because it helps them grow into well-informed and responsible citizens with necessary attributes and skills for being able to participate and contribute effectively in the process of development and nation-building. The social sciences curriculum draws its content mainly from social science, history, civics and economics. Some elements of sociology and commerce are also included. Together they provide a comprehensive view of society-over space and time, and in relation to each other. Each subject's distinct methods of enquiry help the learners study society from different angles and form a holistic view.

The absence of related instructional materials in secondary schools, lack of trained social studies teachers and other similar problems serves as barriers to the achievement of numerous objectives in social studies. In view of this situation, the teaching and learning of social studies tends to be ineffective. In the schools, non-specialist teachers are employed to teach social studies and they apply the methods of teaching traditional subjects like History, Social science, Economic, Government and Civics. This kind of arrangement is obviously bad. It is like spreading seeds on a sandy soil. When this happens the seed will not germinate but rot away. In the same way, if this situation is allowed to continue the essential points or aims about social studies will be lost.((Education in development Initiative, 2013)

Some the major challenges of teaching social science in secondary schools are low interest level of students towards the subject,

pressure of syllabus completion, old traditional one way teacher –centric teaching learning method , lack of teacher preparedness, and providing less situations of direct learning experiences.

Cooperative learning is a successful teaching strategy in which small teams, each with students of different levels of ability, use a variety of learning activities to improve their understanding of a subject. Each member of a team is responsible not only for learning what is taught but also for helping teammates learn, thus creating an atmosphere of achievement. (Balkcom,2014)

Documented results include improved academic achievement, improved behavior and attendance, increased self-confidence and motivation, and increased liking of school and classmates. Cooperative learning is also relatively easy to implement and is inexpensive. (Balkcom,2014)

Cooperative learning has recently gained attention all round the world. It is a situation in which two or more people learn or attempt to learn something together. Unlike individual learning, people engaged in cooperative learning capitalize on one another's resources and skills (asking one another for information, evaluating one another's ideas, monitoring one another's work, etc.).More specifically, cooperative learning is based on the model that knowledge can be created within a population where members actively interact by sharing experiences and take on asymmetry roles. Put differently, cooperative learning refers to methodologies and environments in which learners engage in a common task where each individual depends on and is accountable to each other. These include both face-to-face conversations and computer discussions (online forums, chat rooms, etc.).Methods for examining cooperative learning processes include conversation analysis and statistical discourse analysis.

According to James A. Duplass (2006), the following are the most commonly found characteristics of cooperative learning:

- Teacher supervision—the teacher should always monitor group activity to ensure that students are not veering too far off task. The teacher should also be available to answer student questions and guide discussion if necessary.
- Heterogeneous groups—the teacher creates groups of diverse

ability levels and backgrounds.

- Positive interdependence—by setting group goals and working towards a reward or final learning outcome.
- Face-to-face interaction—students are encouraged to use verbal and nonverbal communication to solve problems and explain learning material.
- Individual accountability—students are accountable for their tasks and for assisting the whole group meets learning goals. This accountability is enforced through student roles.
- Social skills—the teacher needs to establish rules so that all students are respectful, speak in a manner appropriate to the classroom setting, and utilize their time wisely during group interaction.
- Group processing—students engage in reflection on how the group functioned during activity.
- Evaluation—all activities should include both individual and group assessment.

Today conventional techniques of teaching are not giving satisfactory results. These methods, give no place to experimental work as a result of which power of observation found in the students get stagnate. As through these methods, students get ready made information from the teacher, thus they are not inspired to indulge themselves in independent thinking and self- exploration processes and thus objective of getting the all round development of the students cannot be achieved in any way through the conventional methods. Generally it is seen that half of the students present in the classroom do not pay any kind of attention on the information provided by the teacher. Thus, lecture delivered by the teacher prove to be mere wastage of time and energy and no benefits get accrue to students through this method.

The cooperative learning classroom is characterized by authentic learning tasks, limited direct instruction from teachers, and self-initiated individual learning activities. Many techniques can be used to get students involved, including experiential learning,

collaborative learning, problem-solving exercises, writing tasks, speaking activities, class discussion, case-study methods, simulations, role-playing, peer teaching, fieldwork, independent study, library assignments, computer-aided instruction, and homework depending upon the particular situation and upon what is being taught to what level of student.

This paper aimed at presenting the main benefits of cooperative learning in the field of learning social science. It is through understanding the benefits, that we can truly use this learning style to our benefit. Taking all this consideration the present study has been entitled as:

EFFECT OF COOPERATIVE LEARNING ON ACHIEVEMENT AND INTEREST IN SOCIAL SCIENCE AMONG CLASS IX STUDENTS

Objectives

1. To study the effectiveness of cooperative learning on the achievement in Social science among class IX students.

2. To study the effectiveness of cooperative learning on the interest in Social science among class IX students.

3. To examine the sex related differences on effectiveness of cooperative learning on the achievement in Social science among class IX students.

4. To examine the sex related differences on effectiveness of cooperative learning on the interest in Social science among class IX students.

Hypotheses

$H_{0.1}$: There is no significant effect of cooperative learning on the achievement in Social science among class IX students.

$H_{0.2}$: There is no significant effect of cooperative learning on the interest in Social science among class IX students.

$H_{0.3}$: There is no sex related differences on effectiveness of cooperative learning on the achievement in Social science among class IX students.

$H_{0.4}$: There is no sex related differences on effectiveness of cooperative learning on the interest in Social science among class IX students.

Methodology

Design

The study is an experimental study. The specific design used here was a true experimental design i.e., Pre-test- Post-test equivalent group design for studying the effect of cooperative learning on the achievement and interest in Social science. The design of this study has been shown in the following Table.1.

Table: 1 - Design of the Study

Random assignment of groups	Matching of one to one subject	Pre-test	Treatment	Post-Test
Experimental Group	Intelligence Test	Interest and achievement Test in Social Science	Learning through Cooperative Learning Method	Interest and Achievement Test in Social Science
Control Group	Intelligence Test	Interest and achievement Test in Social Science	Learning through Conventional method	Interest and Achievement Test in Social Science

Sample

The subjects of the study were Secondary school Class IX students of Holy Mission School, Khagaul, Patna consisting of 70 students.

These 70 students were divided into two uniform groups of 35 each through one-to-one matching of the subjects on intelligence test. One group is the Experimental Group and the other as the Control Group. This arrangement can be as shown below in Table-2.

GROUPS	Number of Students (Percentage of students)	
	Total 35 (100)	
EXPERIMENTAL	**BOYS**	**GIRLS**
	17(48.6)	**18 (51.4)**
CONTROL	**Total 35 (100)**	
	BOYS	**GIRLS**
	20(57.1)	**15 (42.8)**

Tools

(a) Instructional tools based on cooperative learning.

(b) Social science Interest Inventory, developed and standardized by the researcher.

(c) Social science Achievement test, developed and standardized by the researcher.

(d) Standardized Intelligence Test (Nathan Haselbauer,2006)

Procedure

In the beginning of the study both the groups were administered with pretest on interest in Social science as well as on achievement in Social science. The Experimental Group then learnt some topics of Social science of their syllabus through cooperative learning whereas the same topics were also taught to the Control Group simultaneously through conventional method. The researcher kept close observation on the students during the classes. After the treatment period of 15 days both the groups were again administered with posttest on interest in Social science as well as on achievement in Social science.

Analysis of Data and its Interpretation

The data collected through the administration of the two tests were analyzed through testing of the hypotheses and applying required

statistical methods, i.e. mean, S.D. and t-test.

$H_{0.1}$: There is no significant effect of Cooperative learning on the achievement in Social Science among Secondary school students

For testing $H_{0.1}$, t-test has been done .The mean, standard deviation and t value of the gain score in achievement in Interest between the groups has been shown in the following table 3.

Table No.3. Mean, SD and t value of Gain Score on Achievements in Social Science of Experimental and Control Group

GROUPS	N	M	SD	df	t
EXPERIMENTAL	35	12.22	3.01	34	6.832**
CONTROL	35	8.11	2.69		

**** t value is significant at 0.01 level**

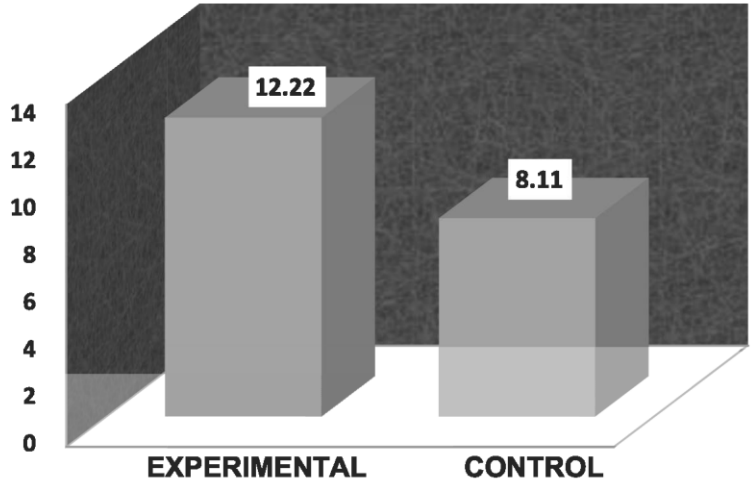


Figure No.1. Mean Gain Score on Achievements in Social Science of Experimental and Control Group

It can be seen in table no. 3. The number of students in experimental and Control group is 35 each. Mean of experimental group is 12.22 and S D is 3.01. In the other hand in the control group Mean is 8.11 and S D is 2.69.

Here degree of freedom is 34 and t value is 6.832. The tabulated t value offer 34 df is 2.73 which clearly shows that t value is significant at 0.01 level, so the null hypothesis is rejected. Hence, there is significant effect of Cooperative learning on the achievement in Social Science among Secondary school students. This outcome can be also seen through Figure No.1.

$H_{0.2}$: There is no significant effect of Cooperative learning on the interest in Social Science among Secondary school students.

For testing the hypothesis t-test has been done .The mean, standard deviation and t value of the gain score in achievement in Interest between the groups has been shown in the following table 4.

Table No. 4

Mean, SD and t value of Gain Score in Interest in Social Science of Experimental and Control Group

GROUPS	N	M	SD	df	t
EXPERIMENTAL	35	4.6	3.12	34	3.781**
CONTROL	35	2.2	2.23		

**** t value is significant at 0.01 level**

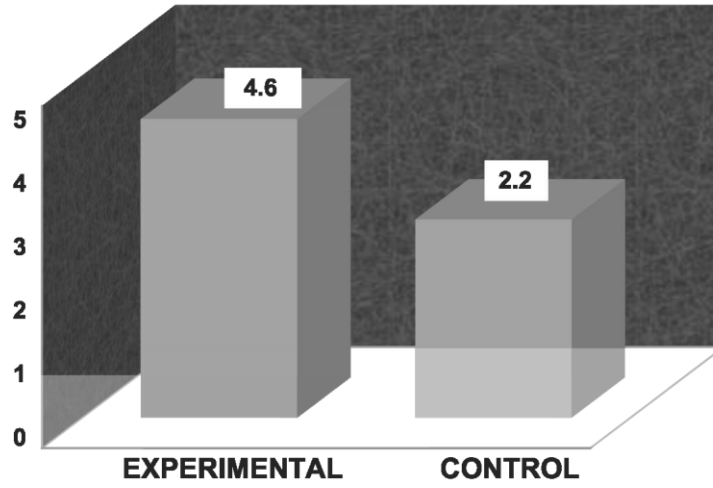


Figure no. 2. Mean Gain Score Comparison in Social Science Interest of Experimental and Control Group

It can be seen in table no. 4, the number of students in experimental and Control group is 35 each. Mean of experimental group is 4.6 and S .D is 3.12. In the other hand in the control group Mean is 2.2 and SD is 2.23. Here degree of freedom is 34 and t value is 3.781. It clearly shows that t value is significant at 0.01 level (Table value at 0.01 level is 2.73 for 34 df) so the null hypothesis is rejected. Hence we conclude there is significant effect of Cooperative learning on the interest in Social Science among secondary school students. This outcome can be also seen through Figure No.2.

$H_{0.3}$ There is no sex related differences on effectiveness of Cooperative learning on the achievement in Social Science among Secondary school students.

For testing the hypothesis t-test has been done and the analysis results are given as follows

Table no. 5. Mean, SD and t value of Gain Score on Achievement between Male and Female of experimental group

SEX	N	M	SD	df	t
FEMALE	18	12.61	3.59	33	0.779
MALE	17	11.82	2.27		

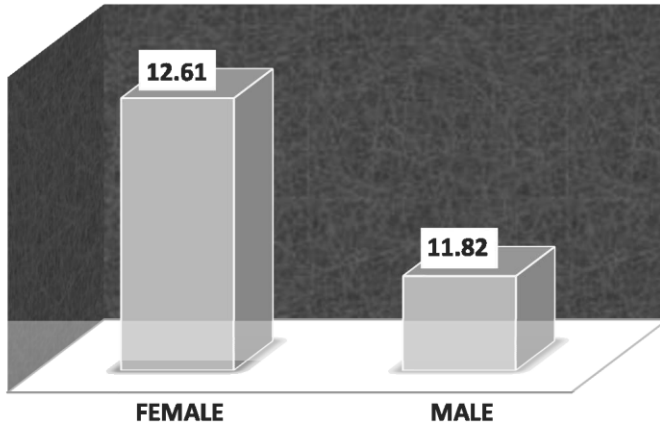


Figure no.3. Mean Gain Score Comparison on Achievement between Male and Female Experimental Group

It can be seen in table no. 5. The number of male and female students in Experimental group is 17 and 18 respectively. Mean of Male is 11.82 and Standard Deviation is 2.27. In the other hand in the Female Mean is 12.61 and Standard Deviation is 3.59. Here degree of freedom is 33 and t value is 0.779. The tabulated t value offer 33 df is 2.03 which clearly shows that t value is not significant at 0.05 level, so the null hypothesis is accepted. Hence we conclude that there is no sex related differences on effectiveness of Cooperative learning on the achievement in Social Science among Secondary school students. This outcome can be also seen through Figure No.3.

$H_{0.4}$: There is no sex related differences on effectiveness of Cooperative learning on the interest in Social Science among Secondary school students.

For testing the hypothesis t-test has been done .The mean, standard deviation and t value of the gain score in achievement in Interest between the groups has been shown in the following table 6.

Table no.6. Mean, SD and t value of Gain Score on Interest in Social Science and Male and Female of Experimental Group

SEX	N	M	SD	df	t
FEMALE	18	5.5	3.88	33	1.847
MALE	17	3.64	1.69		

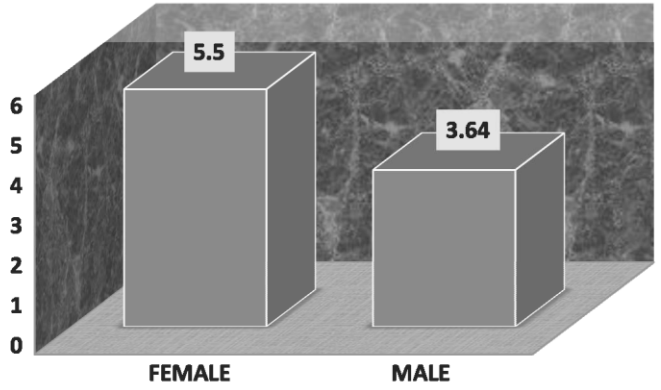


Figure no.4. Mean Gain Score on Interest in Social Science of Male and Female of Experimental Group

It can be seen in table no. 6. The number of male and female students in experimental is 17 and 18 respectively, mean of male is 3.64 and SD is 1.69. In the other hand in the female mean is 5.5 and S D is 3.88. Here degree of freedom is 33 and t value is 1.847. It clearly shows that t value is not significant at 0.05 level, so the null hypothesis is accepted. The tabulated t value offer 33 df is 2.03 which clearly shows that t value is not significant at 0.05 level. Hence we conclude that there is no sex related differences on effectiveness of Cooperative learning on the Interest in Social Science among Secondary school students. This outcome can be also seen through Figure No.4.

In hypothesis testing we conclude that there is positive effect of Cooperative learning in the achievement and interest in Social Science of the students. Whereas there is no sex related differences on effectiveness of Cooperative learning on the interest and achievement in Social Science among Secondary school students.

Discussion and Conclusion

The researcher has studied on the topic Effect of Cooperative learning on Achievement and Interest in Social science among Secondary School students. Through the study the researcher found that there is significant effect of cooperative learning on Interest and Achievement in Social science among Secondary school students. This may be due to effectiveness of this method in teaching learning process. Researcher found that the students are actively participating in solving the problems which provided them opportunity to express their views. There are some limitations which have been seen by the researcher in classroom like certain individuals do not feel comfortable participating in a group setting, even at a distance (i.e. shyness, fear of criticism). This awkwardness may keep some individuals from benefiting from the instruction. Since cooperative learning generally grants the students more control over the flow of information, there is the possibility that the focus of the instruction may veer from its intended course. As with any group activity, some members may contribute while others do not. At a distance this may pose even a greater problem than if all students were in the same room. While applying cooperative learning the teacher should take care on the following aspects like each student should be involved, seats face one another, students assume personal responsibility, students relate well to others, members reflect in order to improve group effectiveness.

REFERENCES

Brooks, J.G., and Brooks, M. G.(1993). In Search of Understanding, The Case for the Constructivist Classroom. Alexandria, Virginia: Association for Supervision and Curriculum

Development.

Driscoll, M. (2005). *Psychology of learning for instruction.* Allyn & Bacon, Boston: MA

Gray, A.(2002). "Constructivist Teaching and Learning." SSTA Research Centre. Downloaded from http://www.ssta.sk.ca /research/instruction/97-07.htm on 20th Aug 2015

Hill, W.F. (2002) *Learning: A survey of psychological interpretation (7th ed)*, Allyn and Bacon, Boston, MA.

Jordan, A., Carlile, O., & Stack, A. (2008). *Approaches to learning: A guide for teachers.* McGraw-Hill, Open University Press: Berkshire.

Ormrod, J.E. (1995). *Human Learning (2nd ed.)*. New Jersey, Prentice Hall.

Ryder, M (2009) *Instructional Design Models*. Downloaded from http://carbon.cudenver.edu/~mryder/itc_data/idmodels.html on 30 March 2015)

IDEAL VIEWS OF RABINDRANATH TAGORE ON ENVIRONMENTAL EDUCATION AT SCHOOL AND ITS SURROUNDINGS

***Dr. Kalpataru Mondal* ***

Professor (Dr) K.C. Sahoo* *

Abstract

Rabindranath Tagore, the great educationist also emphasised on Environmental Education in his ashram Santiniketan. He believes in practical work as well as in Pragmatism. According to Tagore students will learn by seeing, touching and feeling with mixing up the environment surrounding them.

In simplest terms Environmental Education is the education or learning experiences for, of and by the environment wherein the import is preventive, dynamic and as a medium. It is a process of recognising values and clarifying concepts related to environment and its problems in order to develop skills and attitudes necessary to understand the environment.

According to Tagore, Environmental Education should not be confined to the four walls construction situation (Classroom situation) but should go beyond this situation. Tagore strongly believes that school system provides the largest organised base for Environmental Education and action. With children in their plastic age, schools offer an effective instrument for imbibing in them the desirable environmental ethic. Rabindranath also reflects that

* *Asst. Prof. Balurghat B.Ed. College, D.D., W.B.*

** *Dept. of Education, VinayaBhavana, VisvaBharati,*

Environmental Education must become a vehicle for engaging young minds in the excitement of first hand observation of the nature and understanding the patterns and processes in the natural and social worlds in order to take care of the habitant and its surroundings which becomes a major part of Environmental Education in both primary and upper primary stages of school education.

The Best Tagorean thought on Environmental Education practices as reflected in Visva-Bharati University, Santiniketan must act as an exemplar model in arousing pupil's awareness and curiosity about the environment and encourage active participation in resolving environmental problems.

Keywords : *Environmental Education*

Introduction

Environment means the surrounding influences that act upon an organism. It includes water, air and land, the inter-relationship which exist among and between water, air and land and human beings, other living creatures, plants, microorganism and property.

Rabindranath Tagore, the great educationist also strengthen the idea of Environmental Education at school level which was started at his ashram of Santiniketan first. Students will get first hand experience with mixing up condition in environment as well as in a practical situation. Students will learn by seeing, touching and feeling with mixing up the environment surrounding them. From this thought Gurudev Tagore at first started his classes under the trees (Amra Kunja) for burden free and real life education surrounding natural environment. In this way gradually thinking of Rabindranath Tagore related to Environmental Education is now following from Santiniketan ashram to the whole country as well as to the whole world in field of education and also in real life situation.

Environmental Education

In simplest terms Environmental Education is the education or learning experiences for, of and by the environment wherein the import is preventive, dynamic and as a medium. Environmental Education is a process of recognising values and clarifying concepts related to environment and its problems in order to develop skills and attitudes necessary to understand the environment; it also entails practice in decision making and self formulating a code of behaviour about issues conserving environmental quality.

Ideal views of Tagore on Environmental Education at school and its surroundings-

At the school level as the children move up in the educational ladder, they should be introduced to increase knowledge about real-life situations and should be provided with adequate opportunities for environmental action.

According to *Rabindranath Tagore*, children in their plastic age, schools offer an effective instrument for imbibing in them the desirable environmental ethic. The major focus on Environmental Education at school stage is not so much to impart environmental knowledge to the children as much as it is to influence their affective domain of development by creating a proper perspective of the environment and its relationship with human beings.

According to *Tagore's view*, Environmental Education should not be confined to the Classroom situation but should go beyond this situation. Thus the different activities such as gardening, plantation, soil conservation, restriction on use of plastics, water conservation, keeping the surroundings clean and green, conducting the competition relating to environment such as essay competition, drawing competition etc. are following in *Tagore's Santiniketan (Ashram)* in a practical way. There, the students break their fasting

after giving food to the trees, animals and birds. It is actual caring for environment around us which was first started in *ashram* area like *Santiniketan.*

Rabindranath also reflects that Environmental Education must become a vehicle for engaging young minds in the excitement of first hand observation of the nature and understanding the patterns and processes in the natural and social worlds in order to take care of the habitant and its surroundings which becomes a major part of Environmental Education in both primary and upper primary stages of school education.

The best *idea and views of Tagore* on Environmental Education practices as reflected in *Visva-Bharati University, Santiniketan* must act as an exemplar model in arousing pupil's awareness and curiosity about the environment and encourage active participation in resolving environmental problems.

Recent action taken by Visva-Bharati,Santiniketan to protect ashram area of Santiniketan from environmental pollution-

It is also important here that last year 2016 Poush Mela of Santiniketan is reduced with only three days continuation to protect the ashram of Santiniketan and its surrounding area neat and clean following environmental protection act. To keep the environment pollution free from the Poush Mela, Visva-Bharati, Santiniketan strictly followed the order of High Court as not to make the duration of Poush Mela too long for making pollution free as it is heritage side in India and Ashram of Santiniketan founded by Rabindranath Tagore. Thus this Festival of Poush Mela continued from 23/12/2016 to 26/12/2016(4 Days) to keep Ashram area of Santiniketan in safe zone.

Conclusion

Nowadays Environmental issue is very important issue and is well known to the society. School is the prior part of the society as well as a mini society. Thus Environmental Education must need to implement in the school stage with a clear and successful way following the *Santiniketan Ashram of Rabindranath Tagore.*

REFERENCES

Fundamentals of Environmental Studies, *D.K.Sinha and A.D.Mukherjee.*

UGC (2003). Six Months Module Syllabus for Environmental Studies for Under Graduate Courses, UGC, New Delhi, India.

A STUDY OF SCIENTIFIC ATTITUDE OF SECONDARY SCHOOL STUDENTS

Prof. (Dr.) Preeti Sinha *

Ms. Sapna Suman **

Abstract

Science education is crucial for the understanding of our environment and it is an essential tool for technological development in any society. For effective science learning scientific attitude is essential. Developing scientific attitude among students is one of the important aims of science teaching. Hence the present paper aims at studying the scientific attitude of secondary school students. The paper also attempts to compare the scientific attitude of the students on the basis of gender, type of school and locality of school. The sample of the study consists of 130 secondary school students . Survey method has been employed for the study. The findings reveal that there is no significant difference in the scientific attitude of the male and female students of secondary school. However significant difference was found in the scientific attitude of the students with respect to the type and locality of the school. The students studying in private and urban area schools have higher scientific attitude than those studying in government and rural area school respectively.

Keywords : *Science Education, Scientific Attitude, Secondary School Students.*

Introduction

Scientific attitude is a curiosity to know about one's environment; the belief that nothing can happen without a cause and those occurrences that seem strange and mysterious can always be explained by natural

* *Professor, St. Xavier's College of Education, Patna*

** *Asst. Professor, St. Xavier's College of Education, Patna*

causes (Caldwell & Curits, 1943). Scientific attitude is also defined as the possession of the skills and attitudes necessary for the usage of the scientific process and the possession of the knowledge acquired through the process that make a person a scientist (Opong, 1981).

Some characteristics of scientific attitude in an individual are open mindedness, curiosity, judgement based on verified facts, ready to test and verify conclusion, faith in cause and effect relationship, be ready to reconsider his judgement, be free from superstitions and false beliefs, honest in recording, collecting and reporting scientific data, being critical in observations, accepting no conclusions as final or ultimate and more faith in the books written by specialists in their respective fields etc.

Research Review

Pillai (2012) studied the Scientific Attitude of Higher Secondary School students in Virudhunagar district, Tamil Nadu, India. The results revealed that male and female students had no significant difference in respect of their Scientific Attitude. Government and Private school students, Rural and Urban area students showed significant difference in respect of their Scientific Attitude.

Jancirani et.al. (2012) aimed at investigating the scientific attitude of adolescence students in Namakkal district and observing the influence of gender, locality, medium of instruction and type of management. Findings of the study revealed significant difference in scientific attitude of students with respect to gender, locality, medium of instruction and type of management. Result also indicates that the means score the self finance school students are better than government and aided school students in their scientific attitude.

Sekar P. And Mani (2013) aimed to find out the status of science attitude of biology group students of higher secondary stage. The sample consists of six hundred and twenty one XI standard students randomly drawn from Thiruvannamalai District. The findings

indicate the existence of significant difference between rural and urban higher secondary school students in science attitude. Further, the unaided schools have some influence on developing science attitude among the students when compared to the government and aided schools.

Olasehinde and Olatoye (2014) examined scientific attitude, attitude to science and science achievement of senior secondary school students in Katsina State, Nigeria. The results showed that there is a significant positive relationship between scientific attitude and attitude to science ; relationship between scientific attitude and science achievement was positive but not significant; relationship between attitude to science and science achievement was also positive but not significant and that there is no significant difference between male and female students in scientific attitude, attitude to science and science achievement.

Objectives of the Study

1. To find out the level of scientific attitude of the secondary school students.
2. To find out the significant difference in scientific attitude of the students with respect to gender.
3. To find out the significant difference in scientific attitude of the students with respect to the type of school.
4. To find out the significant difference in scientific attitude of the students with respect to the locality of school

Null Hypotheses

1. There is no significant difference in scientific attitude of the students with respect to gender
2. There is no significant difference in scientific attitude of the students with respect to the type of school.
3. There is no significant difference in scientific attitude of the students with respect to the locality of school.

Methodology

In the present study survey method has been used.

Sample – A sample of 130 students studying in class 9th of five schools of Patna district was selected by purposive sampling technique.

Tool – Scientific Attitude Scale (SAS) developed and standardised by Shailja Bhagwat was used in the present study to collect data . The scale consists of twenty-four items (12 favourable and 12 unfavourable to the issue). A personal data sheet was also used to collect data related to gender, type of school, locality of school, gender, parental occupation and education.

Statistical Treatment – Statistical techniques like mean, standard deviation and t-test were used to analyse the data.

Results and Discussion

TABLE-1 Scientific, Attitude of the Student

Sample	N	Mean	S.D.	High	Moderate	Low
Entire Sample	130	82.29	10.85	20	86	24
Boys	68	81.84	10.25	10	47	11
Girls	62	82.79	11.527	10	39	13
Private School students	55	85.87	11.31	12	38	05
Govt. School students	75	80.66	9.758	09	50	16
Rural Area students	30	78.16	8.416	04	21	05
Urban Area Students	100	85.53	85.53	17	62	21

Table 1 shows the level of Scientific attitude of the entire sample. It is seen from the table that the majority of the secondary school students have moderate level of scientific attitude.

Hypothesis 1 : There is no significant difference in scientific attitude of secondary school students with respect to gender.

TABLE-2

Gender	N	Mean	S.D.	t-ratio	Remarks
Girls	62	82.79	11.52	0.4056	NS*
Boys	68	81.84	10.25		

NS* : Not Significant at 0.05 level of significance

Table 2 shows that the calculated t-value is 0.4056 which is less than the table t- value of 1.96. Hence the t-value is not significant at 0.05 level of significance. Thus the null hypothesis 1 is accepted showing that there is no significant difference in the level of scientific attitude with respect to gender.

Hypothesis 2: There is no significant difference in scientific attitude of secondary school students with respect to the type of school.

TABLE- 3

Type of school	N	Mean	S.D.	t-value	Remarks
Government	75	80.66	9.758	2.745	S**
Private	55	85.87	11.31		

S** : Significant at 0.01 level of significance

Table 3 shows that the calculated t-value is 2.745 which is greater than the table t-value of 2.62 at 0.05 level of significance. Hence the t-value is significant at 0.01 level of significance. Thus the null hypothesis 2 is rejected showing that there is significant difference in the level of scientific attitude with respect to the type of school.

Hypothesis 3: There is no significant difference in scientific attitude of secondary school students with respect to the locality of school.

TABLE- 4

Locality of school	N	Mean	S.D.	t-value	Remarks
Rural	30	78.16	8.416	3.87	S**
Urban	100	85.53	11.22		

S** : Significant at 0.01 level of significance

Table 4 shows that the calculated t-value is 3.87 which is greater than the table t-value of 2.62 at 0.01 level of significance. Hence the t-value is significant at 0.01 level of significance. Thus the null hypothesis 3 is rejected showing that there is significant difference in the level of scientific attitude with respect to the locality of school.

Findings of the study

1. **Majority of the secondary school students have average level of scientific attitude.**
2. **There is no significant difference in the level of scientific attitude of secondary school students with respect to gender.**
3. **There is significant difference in the level of scientific attitude of secondary school students with respect to the type of school.**
4. **There is significant difference in the level of scientific attitude of secondary school students with respect to the locality of school.**

Conclusion

From the findings of the present study it is seen that the majority of secondary school students have average level of scientific attitude. Boys and girls do not differ significantly in their scientific attitude. This is in agreement with the findings of Pillai (2012), Olasehinde and Olatoye (2014) and Sethi (2015). Significant difference was found in the scientific attitude of students with respect to the type of school and locality of school. Students studying in private schools have better scientific attitude than the government school students. The mean scientific attitude score of urban area school students is more than the rural area school students. Similar results were found by the studies of Jancirani et.al (2012) and Sekar and Mani (2013) . Hence due care should be taken by the schools and teachers to develop the scientific attitude of the students.

Educational Implications

The scientific attitude is the kind of outlook that prepares us for critical thinking. To have scientific attitude means to have the enthusiasm and willingness to question and explore the world around us, because science emerges from the curiosity of the human mind. Scientific attitude can be developed in the students by adopting the

following practices :

- Teaching of science should focus on learning through experimentation.
- Students should be motivated to design low cost improvised apparatus for better learning and understanding of basic concepts of science.
- Students should be taught not to accept and follow anything in life blindly without scientific verification.
- They should be motivated to follow scientific method to make every decision of life.
- Basic science process skills like observing, question raising, measuring, communicating, classifying, predicting and inferring should be developed among students.
- Students should be encouraged to test and verify the already established theories, laws and principles by themselves.
- Science curriculum should be designed in such a way as to develop scientific temper and critical thinking of the students.
- Child centred teaching methods like laboratory method, heuristic method, problem solving method, project method where the child is in the role of an investigator should be used.
- Students should be encouraged for independent learning .
- Unscientific practices like blind faith , miracles, traditional beliefs, superstitions etc should be refuted by rational and scientific outlook

REFERENCES

Best, J.W and Kahn J. V. (2011). *Research in Education*. 10th edition. PHI Learning Pvt. Ltd. New Delhi.

Caldwell, O.W., & Curtis, F.D. (1943). Everyone science. Boston: Ginn and Co., p 17. Retrieved on June 19, 2016 from http://www.ncert.nic.in/publication/journals/indian_education_review/January_2010.pdf

Jancirani,R., Dhevakrishnan,R., and Devi,S.(2012). A Study on Scientific Attitude of Adolescence Students in Namakkal

District. *International Educational E-Journal.* 1(4), 2-8.

Olasehinde & Olatoye.(2014). Scientific Attitude, Attitude to Science and Science Achievement of Senior Secondary School Students in Katsina State, Nigeria. *Journal of Educational and Social Research.* MCSER Publishing, Rome-Italy *4*(1), 445

Opong, I. K. (1981). Science education in primary schools: Toe product of science or the way to science. *Journal of Science Teachers Association of Nigeria*, 19 (2) , 9 - 17.

Pillai, S. (2012). An analytical study on Scientific Attitude of Higher Secondary School Students in Virudhunagar district. *International Journal of Teacher Educational Research (IJTER). 1*(4), 32-37 retrieved from www.ijter.com on 15-11-2016

Sekar, P. And Mani, S. (2013). Science Attitude of Higher Secondary Students, *Indian Journal of Research.* 2 (11), 50-52.

Sethi, U. (2015). Study of Attitude of the Students towards Science in relation to certain Non- School Factors. *International Journal of Education and Information Studies.* 5 (1), 75-80.

MATHEMATICS ANXIETY AND ACHIEVEMENT OF THE LEARNERS AT ELEMENTARY LEVEL

Sri Rakesh Chowdhury *

Abstract

Some students do not like mathematics simply for the reason that they are scared of it and do not feel like they are able to understand the concepts. The same students who have this fear of mathematics do not try as hard to understand and finish their homework as students who do not have this fear. They set themselves up for failure before they even attempt to succeed. They fear taking more advanced mathematics classes (Hsiu-Zu, 2000). Students with math anxiety may also feel embarrassed, irritated, frustrated, and fearful (Buxton, 1981). The textbooks could be unintelligible, and somewhere during their education they could have received misinformation about mathematics and about who should do well in mathematics (Furner & Duffy, 2002). Another major source of math anxiety is the teaching approach of "explain practice- memorize" (Steele & Alfred, 1998, p. 18). The mathematics teacher needs to be creative in his teaching methods, so students do not lose interest. This idea is supported by a study conducted by Pyne, Bates, and Turner (1995). They taught elementary mathematics to college students who did not reach the minimum requirements to be enrolled in a course they needed.

The teacher can help his students overcome math anxiety. The mathematics teacher needs to be excited about teaching mathematics and he must believe that there is a reason for his students to learn the mathematics. If the teacher is not motivated to teach the subject, then one cannot expect his students to be motivated to learn it has been shown that students tend to internalize their instructor's interest in and enthusiasm for teaching mathematics (Jackson & Leffingwell,

* *Research Scholar, M.Ed., M.Sc.(Applied Mathematics)*

1999).
Thus the present study is followed as: "Mathematics Anxiety and achievement of the learners at elementary level".

Keywords : *Mathematics Anxiety, Achievement of the Learners*

Introduction

Mathematics anxiety has been defined as "an inconceivable dread of mathematics that can interfere with manipulating numbers and solving mathematical problems within a variety of everyday life and academic situations" (Buckley & Ribordy, 1982, p. 1).

Some students would even go so far to say that they panic about mathematics. Panic can be seen as turbulence in the mind, a kind of mental frenzy. The mind may also freeze and the student may experience physical tension and rigidity (Buxton, 1981).

The National Council of Teachers of Mathematics developed standards in 1989 for the curriculum and evaluation of mathematics at all grade levels. These standards express five general goals for all students: that they learn to value mathematics, that they "become confident in their ability to do it,...become mathematical problem solvers , ... learn to communicate mathematically , and learn to reason mathematically" (National Council of Teachers of Mathematics, 1989, p. 5).

Mathematics anxiety is caused by poor test grades, inability (or unwillingness) to complete difficult assignments, negative predispositions of parents, and even the mathematics teacher. Teachers and parents that are afraid of mathematics pass that on to their students and children (Furner & Duffy, 2002).

Middle school students in our country face much pressure in mathematics learning, which, to some extent, leads to students' mathematics anxiety. So, here it is important to find out the relationship of mathematics anxiety with achievement of the learners at elementary level.

Statement of the problem

This research is entitled as *"Mathematics Anxiety and Achievement of the Learners at Elementary Level"*.

Objectives

1. To assess the level of mathematics anxiety of the learners at elementary level.
2. To investigate whether mathematics anxiety has relationship with achievement of the learners at elementary level.

Hypothesis

H: There is no significant correlation between mathematics anxiety and mathematics achievement.

Methodology

In this study, a quantitative method was used to determine if there is significant relation between mathematics anxiety and mathematics achievement at elementary level.

Tools-

For data collection the following tools were used:

1. The "Mathematics Anxiety Scale".
2. Class observation.
3. Mathematics Achievement Scores in examinations over the last academic year were used.

1. ***The Mathematics Anxiety Scale***: The Mathematics Anxiety Scale, developed by Sadia ***Mahmood and Dr. Tahira Khatoon (2011),*** measures the math anxiety of secondary school and senior secondary school students. It consists of 14 statements in which 7 items are worded positively and 7 items worded negatively. It is a 5-point Likert type instrument that assesses positive and negative dimensions

of math anxiety. MAS have split- half reliability of 0.89 and Cronbach's alpha 0.87. The content validity of the MAS was established along with the criterion validity.
This MAS was translated into Bengali for use in Bengali medium secondary schools. The translated version was validated by two experts.

2. ***Mathematics Achievement Scores:*** This was calculated in the following manner:
Scores of the first examination out of a total of 15,
Scores of the second examination out of a total of 25,
Scores of the third examination out of a total of 70 were added.
Therefore the achievement scores consisted the sum of the three examinations out of a total of 110.

Sample-
The sample was purposive sampling, consisted of 90 male students of class VI, VII & VIII from a Secondary Boys School in Dumdum, Kolkata.

Table 1: Sample showing the classes and no. of students:

Class	Students(Boys)
6^{th} grade	30
7^{th} grade	30
8^{th} grade	30
Total	90

Data Collection-
Data were collected from the head master and the students of the school. The scale was administered to the students in groups in the classroom environment.

Techniques used for data analysis

Both quantitative and qualitative techniques were used for the data collection.

Mainly statistical techniques i.e. Mean, S.D.,'t' test and correlation were used for analysis of the data.

Data analysis

Table 2: Descriptive Statistics showing Mean & S.D.

	N	Minimum	Maximum	Mean	Std. Deviation
ACHIEVEMENTSCORES	90	0	102	39.77	18.614
ANXIETY	90	14	52	30.83	9.087
N (list wise)	90				

Objective 1:

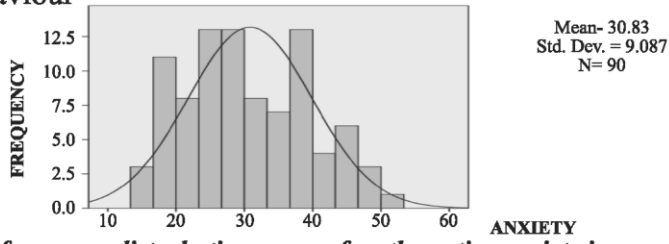
Table-2 represents that the range of achievement scores of mathematics is 102 and the range of anxiety score is 38.

Interpretation

The mean score for the Mathematics Anxiety Scale (MAS) was 34.10 for the total sample. As the mean MAS score of 'more anxiety behaviour' is 45.51 and for 'less anxiety behaviour' is 32.45, the mean score for the sample shows that the participants' anxiety was neither less nor more.

Therefore the sample shows that in secondary school students have different levels of math anxiety where some of them are suffer in 'more anxiety behaviour' and some of them are suffer in 'less anxiety behaviour'

Graph: 1



The frequency distrubution curve of mathematics anxiety is not represents a normal curve.

Objective 2:

Table 3: Correlations

		ACHIEVEMENT SCORES	ANXIETY
ACHIEVEMENT SCORES	Pearson Correlation	1	-.659**
	Sig. (2-tailed)		.000
	N	90	90
ANXIETY	Pearson Correlation	-.659**	1
	Sig. (2-tailed)	.000	
	N	90	90

*****. Correlation is significant at the 0.01 level (2-tailed).***

Table-3 represents a correlation between mathematics achievement scores and mathematics anxiety scores. Pearson Correlation between mathematics achievement scores and mathematics anxiety scores is -.659 with significant at the 0.01 level.

Hence the null hypothesis was rejected.

The result shows that the correlation between mathematics achievement scores and mathematics anxiety scores is highly significant and negative. It means that students who have high mathematics anxiety tended to get low score in mathematics. However, those who have low mathematics anxiety tended to get high score in mathematics.

Conclusion

The present study aims to evaluate the relationship between two variables. The results revealed a significant negative correlation between mathematics anxiety and mathematics achievement is found. Therefore this is seen that high anxiety is reason for low achievement in mathematics.

Here it was noticed that due to lack of drill-practice in mathematics at

elementary level students are facing phobia to the subject. They need more and more practice with their own interest and proper guidance to avoid this kind of situation.

Mathematics anxiety is a real problem facing students, teachers, and parents. Students who have mathematics anxiety face real and long-lasting consequences. Thankfully, there are real methods that teachers and parents can use to help students overcome their mathematics anxiety. There are also ways of helping students realize their own math anxiety and work towards overcoming it. A better understanding of mathematics anxiety is needed in order to help students overcome this problem. The more research is done, the more students, teachers, and parents will be able to work together to overcome this problem. As methods are found that help prevent and reduce math anxiety, the ideas and information should be shared so others can benefit from it as well.

Suggestions

Teachers should develop teaching strategies that help anxious students. The following techniques can be use: (a) Create an environment in which students do not feel threatened and allow them to relax. (b) Use cooperative grouping. It helps students to understand that others have the same problems as they do. (c) Teach at a slow pace. It can help students better comprehend the material being taught. (d) Provide extra sessions so that they are not left behind academically. With all these efforts it can be a positive force in reducing mathematics anxiety. Mathematics teacher should show their students a sincere, caring attitude to help them overcome mathematics anxiety.

School is a happy time for every students and mathematics is an important subject so it is vital that students succeed in it.

REFERENCES

Das, R. & Das, G. C. (2013). Math Anxiety: The Poor Problem Solving Factor in School Mathematics. *International Journal of Scientific and Research Publications, 3*(4).

Harari, R.R., Vukovic, R.K. & Bailey, S.P. (2013). Mathematics Anxiety in Young Children: An Exploratory Study. *The Journal of Experimental Education, 81*(4), 538-555.

Mahmood, S. & Khatoon, T. (2011). Development and Validation of the Mathematics Anxiety Scale for Secondary and Senior Secondary School Students. *British Journal of Arts and Social Sciences. 2*(2).

Sherman, B.F. & Wither, D.P. (2003). Mathematics Anxiety and Mathematics Achievement. *Mathematics Education Research Journal, 15*(2), 138-150.

Swanson, D. (2006). Math Anxiety: What can teachers do to help their students overcome the feeling?

●

ATTITUDE OF TEACHERS TOWARDS INCLUSIVE EDUCATION

Smita Paschal *

Abstract

The inclusion of children with special needs in educational settings has become a primary service option since the adoption of the UNESCO's Salamanca statement and framework for action on special needs education (UNESCO 1994). Although inclusion may mean different things to different people, it is generally believed to mean the extent to which a school welcomes children with special needs and values them for the contribution they make. Thus, Inclusive Education (IE) takes into account the presence, active participation and accomplishments of all learners. The principle of an inclusive education system in which tolerance, diversity and equity is striven for may be uncontested; however, the way in which we achieve this is much more challenging. The purpose of the study is to find the attitude of teachers towards IE. The dimensions of inclusive education are curriculum, in-service programs, methodology, teaching aids, government aid and policies and the motivational steps taken to motivate the teachers to effectively manage an inclusive classroom. The investigator has proposed to use Survey Method for the present study. A standardized questionnaire on attitude of teachers towards Inclusive Education will be employed to survey 100 teachers, randomly selected from different schools of Patna district. A self constructed standardized tool is to be used keeping the above mentioned dimensions in mind. The result of this research will show the attitude of teachers towards Inclusive Education.

Keywords: *Inclusive Education, Curriculum, In-service training , Teaching Aids, Government Aids and Policies, Resources.*

* *Asst. Prof. St. Xavier's College of Edu, Digha, Patna -11*

1. Introduction

Inclusive Education (IE) is a new approach towards educating the children with disability and learning difficulties with that of normal ones within the same roof. It seeks to address the learning needs of all children with a specific focus on those who are vulnerable to marginalization and exclusion. It implies all learners – with or without disabilities being able to learn together through access to common pre-school provisions, schools and community educational setting with an appropriate network of support services. This is possible only in flexible education system that assimilates the needs of diverse range of learners and adapts itself to meet these needs. Inclusion is not an experiment to be tested but a value to be followed. All the children whether they are differently challenged or not have the right to education as they are the future citizens of the country. In the prevailing Indian situation resources are insufficient even to provide quality mainstream schools for common children, it is unethical and impracticable to put children with special needs to test or to prove anything in a research study to live and learn in the mainstream of school and community.

1.1 Understanding the terms: Inclusive, Integrated and Segregated Education

Globally, children with disabilities count for one-third of all children out-of-school. In developing countries, the numbers are even more staggering, with 90% of all children with disabilities out-of-school. Although it is imperative that children with disabilities receive an education, it is also being recognized by bodies around the world that the type of education that children with disabilities receive is just as important. There are three basic types of Special Education, although many different models of classroom organization and teaching are available within each type.

Segregated education occurs when students with disabilities learn completely separate from their peers. Often, especially in

"developing" countries, segregated education takes place in the form of special schools created specifically for the education of students with disabilities, or in completely separate classrooms for students with disabilities. Segregated education pinpoints the child as the problem in the system, the impediment to learning, and as a result, these students will often receive a completely different curriculum and different methods of testing, rather than being taught the same curriculum as their peers. This separation in school often creates separation within other areas of life as well.

Integrated education is similar to inclusive education, but without any ideological commitment to equity. Integration places students in a mainstream classroom with some adaptations and resources. However, students are expected to fit in with pre-existing structures, attitudes and an unaltered environment. Integration is often mistaken for inclusion because students are placed in a mainstream classroom, which is a step towards inclusion. However, if there has not been a paradigm shift within the school and these students are not perceived as equals, if curriculum is not taught for the understanding of all instead of some, then the students are integrated, but not included in the school. Inclusive education is a process of strengthening the capacity of the education system to reach out to all learners. It involves restructuring the culture, policies and practices in schools so that they can respond to the diversity of students in their locality. For a school to be inclusive, the attitudes of everyone in the school, including administrators, teachers, and other students, should be positive towards students with disabilities.

Inclusive education means that all children, regardless of their ability level, are included in a mainstream classroom, or in the most appropriate or least restrictive environment, that students of all ability levels are taught as equals, and that teachers must adjust their curriculum and teaching methodologies so that all students benefit. This also avoids wasting resources, and "shattered hopes," which often occurs in classrooms that are "one size fits all." Studies have shown that systems that are truly inclusive reduce drop-out rates and

repetition of grades, and have higher average levels of achievement, compared to systems that are not inclusive. People who believe in IE believe that the education system is the impediment to learning for a child, and that every child is capable of learning. It is important to note that within government documents and scholarly publications in India, the three different terms-segregation, integration and inclusion-are often used interchangeably.

Teachers play an important role in making inclusive education effective and beneficial. They should be fully equipped with all types of knowledge and skills to deal with any situations arising in this context. Thus, it becomes adequately important to include IE in the curriculum of the teachers. It is noticed that the current curriculum fails to give importance to IE as it aims at building teachers who will cater to the average classroom. No special emphasis is given to Special Education. Thus the present study deals with finding out the attitude of the teachers towards Inclusive Education.

2. Main Body

2.1 OBJECTIVES OF THE STUDY

1. To find whether there is significant difference between male and female teachers in their attitude towards Inclusive Education.
2. To find whether there is significant difference between married and unmarried teachers in their attitude towards Inclusive Education.
3. To find whether there is significant difference between English Medium and Hindi Medium background of teachers in their attitude towards Inclusive Education.
4. To find whether there is significant difference among the teachers of ages below 25, 25 to 30 and above 30 in their attitude towards Inclusive Education.
5. To find whether there is significant difference among Science, Commerce and Humanities background of teachers in their attitude towards Inclusive Education.

2.2 NULL HYPOTHESES

1. There is no significant difference between male and female teachers in their attitude towards Inclusive Education.
2. There is no significant difference between married and unmarried teachers in their attitude towards Inclusive Education.
3. There is no significant difference between English and Hindi medium teachers in their attitude towards Inclusive Education.
4. There is no significant difference among teachers of age below 25, 25 to 30 and above 30 in their attitude towards Inclusive Education.
5. There is no significant difference among teachers of Science, Commerce and Humanities in their attitude towards Inclusive Education.

2.3 METHODOLOGY

i. **Method** – Survey Method was used to collect the data.
ii. **Population** - The population for the study will be the teachers in Patna, Bihar.
iii. **Sample** - The investigators used stratified random sampling technique for selecting the sample. The sample consisted of 100 teachers.
iv. **Tools used** – The investigator has used self-constructed and validated Attitude test.
v. **Statistical Techniques used** - Mean, Standard deviation, 't'-test and ANOVA .

2.4 DATA ANALYSIS

Hypothesis 1

There is no significant difference between male and female teachers in their attitude towards Inclusive Education.

Table No. 1

Gender	N	Mean	Std. Deviation	Std. Error Mean	t- ratio	Level of Significance
Male	26	111.85	10.238	2.839	2.453	S
Female	74	120.14	11.146	1.832		

(At 0.05 level of significance, the table value of 't' is 1.96)

It is inferred from the above table that there is a significant difference between male and female teachers in their attitude towards Inclusive Education.

Hypothesis 2

There is no significant difference between married and unmarried teachers in their attitude towards Inclusive Education.

Table No. 2

Qualification	N	Mean	Std. Deviation	Std. Error Mean	t- ratio	Level of Significance
Married	84	119.17	10.590	1.634	1.399	NS
Unmarried	16	111.75	14.260	5.042		

(At 0.05 level of significance, the table value of 't' is 1.96)

It is inferred from the above table that there is no significant difference between married and unmarried teachers in their attitude towards Inclusive Education.

Hypothesis 3

There is no significant difference between the English Medium and Hindi Medium teachers in their attitude towards Inclusive Education.

Table No. 3

Medium	N	Mean	Std. Deviation	Std. Error Mean	t- ratio	Level of Significance
Hindi	26	115.15	13.963	3.873	0.902	NS
English	74	118.97	10.423	1.714		

(At 0.05 level of significance, the table value of 't' is 1.96)

It is inferred from the above table that there is no significant difference between English Medium and Hindi Medium teachers in their attitude towards Inclusive Education.

Hypothesis 4

There is no significant difference among teachers of ages below 25, 25 to 30 and above 30 in their attitude towards Inclusive Education.

Table No. 4

Source of Variation	Sum of Squares	df	Mean Variance	F- ratio	Level of Significance
Between groups	889.069	2	444.534	3.797	S
Within groups	5501.911	97	117.062		

(At 0.05 level of significance, the table value of 'f' is 3.19)

It is inferred from the above table that there is significant difference among the teachers on the basis of their age in their attitude towards Inclusive Education.

So, we calculate t-ratio to know the inter group difference between them.

Null hypothesis for t-ratio:

1. There is no significant difference between teachers of ages below 25 and 25 to 30 years in their attitude towards Inclusive Education.

Table No. 5

Age	N	Mean	Std. Deviation	Std. Error Mean	t- ratio	Level of Significance
Below 25	32	124.13	7.641	1.910	2.596	S
25 to 30	42	115.19	13.117	2.862		

(At 0.05 level of significance, the table value of 't' is 1.96)

It is inferred from the above table that there is a significant difference between the teachers of ages below 25 and 25 to 30 years in their attitude towards Inclusive Education.

2. There is no significant difference between the teachers of ages 25 to 30 and above 30 in their attitude towards Inclusive Education

Table No. 6

Age	N	Mean	Std. Deviation	Std. Error Mean	t- ratio	Level of Significance
25 to 30 years	42	115.19	13.117	2.862	0.067	NS
Above 30 years	26	114.92	9.937	2.756		

(At 0.05 level of significance, the table value of 't' is 1.96)

It is inferred from the above table that there is no significant difference between the teachers of ages 25 to 30 and above 30 in their attitude towards Inclusive Education.

3. There is no significant difference between the teachers of ages below 25 and above 30 in their attitude towards Inclusive Education.

Table No. 7

Age	N	Mean	Std. Deviation	Std. Error Mean	t- ratio	Level of Significance
Below 25	32	124.13	7.641	1.910	2.744	S
Above 30	26	114.92	9.937	2.756		

(At 0.05 level of significance, the table value of 't' is 1.96)

It is inferred from the above table that there is a significant difference between the teachers of ages below 25 and above 30 in their attitude towards Inclusive Education.

Hypothesis 5

There is no significant difference between teachers on the basis of their educational stream Science, Commerce and Humanities in their attitude towards Inclusive Education.

Table No. 8

Source of Variation	Sum of Squares	Df	Mean Variance	F- ratio	Level of Significance
Between groups	964.986	2	482.493	4.179	S
Within groups	5425.994	97	115.447		

(At 0.05 level of significance, the table value of 'f' is 3.19)

It is inferred from the above table that there is a significant difference among the teachers on the basis of their stream of education in their

attitude towards Inclusive Education.
So, we calculate t-ratio to know the inter group differences between them.

Null hypothesis for t-ratio:

1. There is no significant difference between teachers on the basis of their educational stream Science and Commerce in their attitude towards Inclusive Education.

Table No. 9

Stream	N	Mean	Std. Deviation	Std. Error Mean	t- ratio	Level of Significance
Science	16	108.38	16.903	5.976	1.654	NS
Commerce	54	118.74	9.785	1.883		

(At 0.01 level of significance, the table value of 't' is 2.58)

It is inferred from the above data that there is no significant difference between teachers on the basis of their educational stream Science and Commerce in their attitude towards Inclusive Education.

2. There is no significant difference between teachers on the basis of their educational stream Commerce and Humanities in their attitude towards Inclusive Education.

Table No. 10

Stream	N	Mean	Std. Deviation	Std. Error Mean	t- ratio	Level of Significance
Commerce	54	118.74	9.785	1.883	1.058	NS
Humanities	30	121.73	8.181	2.112		

(At 0.05 level of significance, the table value of 't' is 1.96)

Thus it is inferred from the above table that there is no significant difference between teachers on the basis of their educational stream Commerce and Humanities in their attitude towards Inclusive Education.

3. There is no significant difference between teachers on the basis of their educational stream Science and Humanities in their attitude towards Inclusive Education.

Table No. 11

Stream	N	Mean	Std. Deviation	Std. Error Mean	t- ratio	Level of Significance
Science	16	108.38	16.903	5.976	2.108	S
Humanities	30	121.73	8.181	2.112		

(At 0.05 level of significance, the table value of 't' is 1.96)

It is inferred from the above table that there is a significant difference between teachers on the basis of their educational stream Science and Humanities in their attitude towards Inclusive Education.

2.5 FINDINGS

1. There is a significant difference between male and female teachers in their attitude towards Inclusive Education.
2. There is no significant difference between married and unmarried teachers in their attitude towards Inclusive Education.
3. There is no significant difference between the English Medium and Hindi Medium teachers in their attitude towards Inclusive Education.
4. There is a significant difference among teachers on the basis of their age in their attitude towards Inclusive Education.
   a. There is a significant difference between the teachers of ages below 25 and 25 to 30 years in their attitude towards Inclusive Education.
   b. There is no significant difference between the teachers of ages 25 to 30 and above 30 in their attitude towards Inclusive Education.
   c. There is a significant difference between the teachers of ages below 25 and above 30 in their attitude towards Inclusive Education.
5. There is a significant difference among teachers on the basis of their stream of education age in their attitude towards Inclusive Education.
   a. There is no significant difference between teachers on the basis of their educational stream Science and

Commerce in their attitude towards Inclusive Education.

b. There is no significant difference between teachers on the basis of their educational stream Commerce and Humanities in their attitude towards Inclusive Education.

c. There is a significant difference between teachers on the basis of their educational stream Science and Humanities in their attitude towards Inclusive Education.

2.6 INTERPRETATION

1. There is a significant difference between male and female teachers in their attitude towards Inclusive Education. Women are more open to the idea of Inclusive Education as their mean is greater than that of the males. This may be due to the fact that women are considered to be more sympathetic and kind hearted. They are motherly and have soft corners for children.
2. There is a significant difference among teachers on the basis of their age in their attitude towards inclusive education. Teachers below the age of 25 have higher mean than that of the other two age groups. This may be because teachers below the age of 25 have closer attachment with the family and society. Also, their attitude is on the positive side as they are studying about it in their course. Inclusive Education as a part of curriculum is a recent event.
3. There is a significant difference among teachers on the basis of their stream of education age in their attitude towards Inclusive Education. The mean of teachers with Humanities background is more than the mean of the teachers from Science and Commerce background. This may be due to the fact that students with Humanities background are said to have more favorable attitude towards Inclusive Education as they are studying about them in their current curriculum.

CONCLUSION

Inclusive Education (IE) is about presence, participation and achievement of all learners (Ainscow 2005; Engelbrecht and Green 2007). The principle of an inclusive education system in which tolerance, diversity and equity is striven for may be uncontested; however, the way in which we achieve this is much more challenging. According to Rabindranath Tagore, "A teacher can never truly teach unless he is a continuous learner. A lamp can never light another lamp unless it continues to burn its own flame." Therefore, it can be said that the teacher is the most vital factor in education and the success of education depends on them. Thus it is very important for the present educational system to equip the Teachers with ample knowledge and expertise to ensure that they will be able to handle an inclusive classroom effectively and work for the betterment of all students.

REFERENCES

Jayaswal, Sitaram,(). Foundations of Educational Psychology. Lucknow: Prakash Kendra.

Kuppuswamy B., (1991) Advanced Educational Psychology. New Delhi: Sterling Publishers Private Limited.

Kundu, C.L.,(1988). Educational Psychology. New Delhi: Sterling Publishers Private Limited.

Maccagnano, Ann, (2007). Identifying & Enhancing the Strengths of Gifted Learners K-8. Thousand Oaks: Corwin Press.

Morse William C. & Wingo Max G. (1970). Psychology and Teaching. Bombay: D.B. Taraporevala Sons & Co. Private Ltd.

Reddy G. Lokanadha, et al.(2000). Learning Disabilities (A Practical Guide To Practitioners). New Delhi: Discovery Publishing House.

Walia, J.S., (2011). Learner, Learning and Cognition. Jalandhar: Ahim Paul Publishers .

Walia, J.S., (2011). Development of The Learner and Teaching-Learning Process. Jalandhar: Ahim Paul.

WEBSITES

Ratra Amiteswar (2008), In- Service Teacher Education on Inclusive Education: Introduction to Inclusive Education. Retrieved on 17 February 2014 from http://depssa.ignou.ac.in /wiki/images/c/c1/ Inclusive_Education.pdf.

Sharma, Umesh. (2005). Integrated Education in India: Challenges and Prospects. Disability Studies Quarterly(Vol25, No.1). retrieved on 17 February 2014 from http://dsq-sds.org/article/view/524/701.

JOURNALS

Al-Zyoudi M., (2006). Teachers' attitudes towards Inclusive Education in Jordanian schools. *International Journal of Special Education*, 21(2): 55-62.

Chireshe Regis. (2011). Special Needs Education In-Service Teacher Trainees' Views on Inclusive Education in Zimbabwe. J Soc Sci, 27(3): 157-164 (2011)

Hasting RP, Oakford S., (2003). Student teachers' attitudes towards the inclusion of children with special needs. *Educational Psychology: An International Journal of Experimental*

Hodge SR, (1998). Prospective physical education teachers' attitudes towards teaching students with disabilities. *The Physical Educator*, 55(2): 68.

Lambe J, Bones R. (2007). The effects of school based practice on student teachers' attitudes towards inclusive education in Northern Ireland. *Journal of Education for Teaching: International Research and Pedagogy,* 33(1): 99-113.

Weber, Alan S. (2012, May). Inclusive Education in the Gulf Cooperation Council. Journal of Educational and Instructional Studies in the World, Volume: 2 Issue: 2 Article: 11

●

EFFECTS OF AROMATHERAPY AND BREATHING EXERCISE ON AGGRESSION IN INTELLECTUAL DISABILITY

Akash Ranjan *

Abstract

The purpose of the present study was to compare the effects of aromatherapy, breathing exercise, and the combination of those on aggression of adolescents with educable intellectually disability. Therefore, 50 students (23 girls, 27 boys) aged 12-16 years with educable intellectually disability were selected from a special elementary school as convenience and were assigned randomly to 4 groups, including aromatherapy, breathing exercise, combination, and control. The B.D.GH aggression inventory was used to measure the amount of aggression in pre-test and post-test. During 8 weeks (2-sessions per week), aromatherapy group inhaled Lavender essence, breathing exercise group performed the selected breathing exercises, combination group inhaled Lavender and performed the selected breathing exercises, and control group did not perform any activities. Two-way (group-test) analysis of variance with repeated measures of last factor were used to analyze data in $p<.05$. According to the results, the amount of aggression and verbal and nonverbal aggression to others subscales decreased after 8 weeks of aromatherapy, breathing exercise, and combination of those, but there were no significant differences between the effects of various interventions. Thus, Interventions of aromatherapy, breathing exercise or the combination of those can be similarly effective to reduce aggression in adolescents with educable intellectually disability.

Keywords: *Aromatherapy, Breathing Exercise, Aggression, Lavender Essence, Intellectually Disability.*

* *Ph.D. Research Scholar, Department of Edu., Patna University, Patna.*

INTRODUCTION

Aggressive antisocial behaviors are the most common reasons why children and adolescents are referred to mental health clinics. Aggression affects destructively on social competence, self-efficacy, and interpersonal relationship and impedes forming correct identity. Aggressive actions include physical and verbal behaviors such as threatening, verbal dispute, and damaging property. Regarding to special limitations of children and adolescents with intellectually disability, it can be expected more aggressive behaviors. They face several failures because of different cognitive limitations and weakness in physical, sensory, and motor abilities that will result aggression. The aggression is the instrument being used to meet a need by children and adolescents with intellectually disability because of lack of behavioral range and physical activities. Thus, aggression is one the most common problems for physical trainers, teachers, and parents of these special individuals. Unfortunately, since teachers don't have enough awareness and cognition about intellectually disable children and adolescents' behaviors, they show negative reactions to these behaviors and cause disappointment in them. Dekker, Koot, Vander Ende, and Verhulst in 2002 reported that children with intellectually disability present behavioral problems as weak relations with peers, low Self-Confidence, robbery, escaping from home, aggressive behaviors, lack of attention, and antisocial behaviors. Aggression is a common problem in children and adolescents which searching about solving it is a great challenge for researchers and theorists. Scientists have been founding ways to decrease aggression. Aromatherapy is one of the methods has developed in many countries in recent years. Aromatherapy with aromatic plants oil has used from thousand years ago in India and China to treat different diseases. It alleviates depression, anxiety, and stress, causes relaxation, and stimulates psyche and body refreshing by penetrating to central nervous system, but the influences of aromatherapy have not proved exactly and mechanism of its effectiveness have not recognized. Some studies have investigated the psychological effects of aromatherapy result of absorbing by skin

or respiratory system. For example, Babashahi, Fayazi, Aghel, and Haghizadehin 2010 indicated the effect of aromatherapy inhaling with lavender on reducing anxiety in patients before surgery. Ballard, O'brien, Reichelt, and Perryin 2002 found that aromatherapy with oil are a safe and effective treatment to control anxiety in dementia people. Lee in 2005 found the effect of aromatherapy on reducing aggressive behaviors of elderly with dementia. On the other hand, Yoga is an important factor in treatment of lots of physical problems and psychological disorders like anxiety and depression. According to previous studies, such as Kazee in 2010 and Sagha in 2007 physical activity is impressive for reducing aggressive behaviors in children and adolescents with developmental and intellectually disabilities. Breathing exercise is a natural and enjoyable activity that constitutes the basis of child's affective Physical, social, psycho-motor, and cognitive development. Bratton, Ray, Rhine, and Jones in a review of 82 experimental studies about breathing exercise therapy in 2005 reported its effective results on self-concept, behavioral changes, cognitive ability, social skills, and anxiety. Baggerly and Parker in 2005 suggested that group breathing exercise therapy is effective on improving self-control, responsibility, feelings expression, reverence, self- and others-acceptance, social skills, and Self-Esteem, and reducing depression and anxiety. Ghaderi, Asgharimoghadam, and Shaeiri in 2006 indicated the effect of behavioral-cognitive breathing exercise therapy on reducing aggression of children with conduct disorder and Ray in 2008 showed the effect of breathing exercise therapy on parent–child relationship stress at a mental health training setting. Although the effect of yoga and physical activity on reducing aggression in children with intellectually disability is clear, this effect in adolescents with intellectually disability is not obvious. Also the effect of aromatherapy on intellectual disable adolescents' aggression has not studied. Thus, the present study compared the effects of aromatherapy, breathing exercise, and their combination on intellectual disable adolescents' aggression.

MATERIALS AND METHODS

Participants. Fifty students with educable intellectually disability and physical health in range of age 12-16 years old and intelligence quotient 55-70 were selected in convenience from one school in Patna. Written informed consent was received from all participants and their parents after verbal explanation of the experimental design. The adolescents were divided randomly to 4 groups and participated in a pre-test, post-test randomized-groups design: aromatherapy, breathing exercise, combination, and control group.

Measures. A demography questionnaire including information like age, height, weight, and questions about allergy, migraine, chronic headaches, disorders in sense of smell and using tranquilizer drugs was filled in by parents. Aggression questionnaire of mentally retarded children (B.D.GH) (Bahrami. Davarmanesh. Ghezelsefloo) included 78 close-ended questions that use a 4-point scale on a Rating question ranging from 0 = never to 3 = always. The questionnaire had 4 subscales: (i) verbal aggression to self, (ii) nonverbal aggression to self, (iii) verbal aggression to other and (iv) nonverbal aggression to other.

Procedures. At first, teachers of every group answered separately to aggression questionnaire. Then, experimental groups received intervention for 8 weeks (2 sessions, one hour weekly) and control group did not perform any activity during the period. Aromatherapy group inhaled lavender by their smell which was distributed by vaporizer machine in class. Breathing exercise group performed selective breathing exercises in school yoga room. Combination group performed selective breathing exercises and inhaled lavender.

Statistical analysis. Two-way ANOVA with repeated measures of test factor and one-way ANOVA were used to analyze data in $p<.05$.

RESULTS

Figure 1 shows aggression mean of pretest and posttest in different groups. There were significant differences between pretests of total aggression and verbal and nonverbal aggression to others subscales and regression slopes was not equal ($p<.05$), therefore one-way ANOVA for gain scores was used. For verbal and nonverbal

aggression to self subscales 4(group) *2(test) ANOVA with repeated measures of last factor was used.

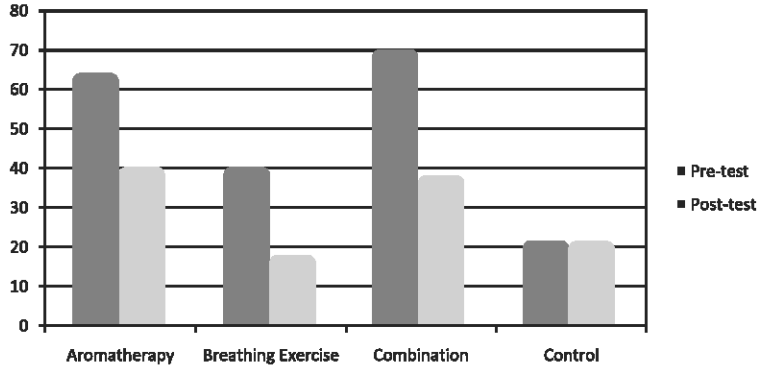


Figure 1. Aggression means of different groups in pre-test and post-test.

Results of one-way ANOVA indicated significant differences for total aggression ($F_{(2,46)}$=9.789, p=.01), verbal aggression to others ($F_{(2,46)}$=5.924, p=.02), and nonverbal aggression to others ($F_{(2,46)}$=9.414, p=.01). Pair wise comparisons by Games-Howell post hoc test indicated that the changes of total and verbal and nonverbal aggression to others in control group was significantly less than experimental group (p<.05) and there was not significant differences among experimental groups. The result of paired t test with Bonferroni correction for within groups comparisons showed significant decrease in total and verbal and nonverbal aggression to others for experimental groups (p<.012), but there was no significant difference between pre-test and post-test of control group (p>.012). According to results of 4X2 ANOVA with repeated measures of test factor, the main effects of test were significant for verbal aggression to self ($F_{(1,46)}$=17.936, p=.01) and nonverbal aggression to others ($F_{(1,46)}$=29.197, p=.01). The main effects of group were not significant for verbal aggression to self ($F_{(2,46)}$=1.767, p=.191) and nonverbal aggression to self ($F_{(2,46)}$=.768, p=.518). Interaction of group by test for nonverbal aggression to self was significant ($F_{(2,46)}$ = 2.864, p =.048), but for verbal aggression to self was not significant ($F_{(2,46)}$=19.136, p=.091). The result of paired t-test with Bonferroni

correction for within groups comparisons showed significant reduction in verbal and non-verbal aggression to self for experimental groups ($p<.012$), but the difference between pre-test and post-test of control group was not significant ($p>.012$). The results of one-way ANOVA for between groups comparisons of nonverbal aggression to self did not indicate significant differences in pre-test and post-test ($F_{(2,46)}=1.594$, $p=.204$; $F_{(2,46)}=.096$, $p=.962$, respectively).

DISCUSSION

The purpose of present study was to compare the effects of aromatherapy, breathing exercise, and combination of both on aggression of adolescents with educable intellectually disability. The results indicated the aggression reduction was significant after 8 weeks of lavender inhaling. This finding was consistent with the results of Lee in 2005 that observed the effect of lavender aromatherapy on the reduction of aggressive behaviors in older people with Dementia. Although the mechanism of aromatherapy effectiveness has not recognized, it has been proposed that aromatherapy can be impressive from psychological and physiological aspects. It seems to smell of aromas activates smell nervous cells. These signals are transferred to limbic system of the brain which is control center for feelings and emotions and influence the nervous and Hormonal systems. These signals affect heart rate, stress, blood pressure, breathing, memory, ingestion, and immune system. So the smells are able to change feeling in human. It seems Linalool and Linalyl acetate in this plant can stimulate parasympathetic nervous system and Linalyl acetate has narcotic effects and Linalool acts like tranquilizer drugs. In this study, the effects of aromatherapy on the reduction of verbal aggression to others and nonverbal aggression to self and others confirmed. Aromatherapy had no effect on verbal aggression to self, because verbal aggression to self among students with intellectual disability observes rarely. These students often display a nonverbal aggression to others. Although results indicated low levels of verbal aggression

to self in children with educable intellectual disability when investigating validity and reliability of B.D.GH questionnaire, this subscale has not been omitted for precaution.

According to results, the reduction of aggression in adolescents with educable intellectual disability after 8 weeks breathing exercise was significant. This finding was consistent with Asgarnia's study in 2001 in which was resulted the effect of cognitive-behavioral breathing exercise therapy using the self-teaching method on reduction of aggression in children. Also, this finding was consistent with Karcher and Lewis in 2002 that found the pair counseling breathing exercise therapy is effective on reducing aggressive behaviors in children with behavioral disorders. Packman and Bratton in 2003 showed the significant effect of school-based group breathing exercise/activity therapy intervention on learning of disabled pre-adolescents exhibiting behavior problems too. Schumann in 2004, consistent with the present findings, showed child centered breathing exercise therapy is an effective method on the behaviors of children referred for aggression in an elementary school setting. At last, the finding was consistent with Zaare and Ahmadi in 2007 that found the effectiveness of breathing exercise therapy using behavioral-cognitive method on reduction of behavioral problems in children. Most of these studies have investigated the effect of cognitive breathing exercise therapy. The studies on physical activity are limited and the present findings are consistent with them. For example, Ghobaribonab and Nabavi in 2003 indicated the significant reduction of aggression after 3 months of morning exercise in children aged 10-13 years with intellectual disability. Shojaei and Hemati Alamdarlooin 2007 showed the significant effect of one month exercise on reduction of aggression in educable intellectual disable boys aged 9-17 years. Sagha in 2007 found the significant effect of exercise on aggression control in adolescents with intellectual disability. Kazee in 2010 indicated the significant effect of physical activity on reducing the aggressive behaviors in people aged 8-11 years with developmental disabilities. Exercise causes to secrete natural opiates (sedative containing opium narcotic drugs) which result physical calmness and aggression reduction. In addition,

breathing exercise helps the psychological relaxation and aggression reduction by regulating the cardiovascular system. People learn the psychological, social, behavioral, and necessary communication skills in group sport which cause their constituent response to others' behavior and reduce the aggression. The results indicated the effect of breathing exercise on reducing of verbal and nonverbal to others. Breathing exercise was not effective on verbal aggression to self. The possible reason of this finding was to appear verbal aggression to self rarely in intellectual disable students. Moreover, breathing exercise had not the significant effect on reduction of nonverbal aggression to self in intellectual disable adolescents. Further studies are needed to explain the reason of this finding.

CONCLUSION

The results of the present study indicated that breathing exercises, smelling aromatherapy with lavender essence, and combination of both have significant effects on reduction of aggression in adolescents with educable intellectual disability, but there were no significant difference between these methods. Since the aggressive behavior is one of the main problems in intellectual disable adolescents, their school teachers and parents could select a proper intervention among these according to present facilities, adolescents' interests, and their sensory, physical, and motor problems. Further studies are needed to find more effective strategies to reduce aggression in intellectual disables.

REFERENCES

Asgarnia, R. **(2001)**; MSc thesis. Tehran University,Tehran, Iran.

Ballard, CG. ; O'brien, JT. ; K Reichelt; EK Perry **(2002)**; *J clinPsychiat*, 63, 7, 553-558.

Baggerly, J. ; Parker, M. **(2005)**; *J CounsDev*, 83, 4, 387.

Babashahi, M. ; Fayazi, S. ; Aghel, N. ; Haghizadeh, M. **(2010)**; *Medicine*, 9, 5, 507-516.

Bratton, SC. ; Ray, D. ; Rhine, T. ; Jones, L. **(2005)**; *Prof Psychol- Res Pr*, 36, 4, 376-390.

Daghighbin, E. **(2007)**; MSc thesis.Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

Divbad, M. **(2009);** Education and rehabilitation through breathing exercise for special groups. Hatmi, Tehran, in press.

Dekker, MC. ; Koot, HM. ; J van der Ende; FC Verhulst **(2002)**; *Junior Child Psychology*, 43, 8,1087-1098.

Donaldson, SJ. ; Ronan, KR. **(2006)**; *Adolescence*, 41, 162, 369-389.

Ghobaribonab, B. ; Nabavi, M. **(2003)**; *J Psych EducSci*, 33, 1, 139-154.

Ghaderi, N. ; Asgharimoghadam, M. ; Shaeiri, M. **(2006)**; *Daneshvar Raftar*, 13, 19, 75-84.

Ghezelsefloo, M. **(2009)**; MSc thesis.University of Well-Being and Rehabilitation Sciences, Tehran, Iran.

Henley, M. ; Ramsey, RS. ; Algozzine, R. **(2008)**; Characteristics of and strategies for teaching students with mild disabilities, 6th ed., Pearson, London.

Kazee, AR. **(2010)**; MSc thesis, Ohio State University, Ohio, USA.

Kyle, G. **(2006)**; *ComplementTherapieClinPract*12, 2, 148-155.

Karcher, MJ. ; Lewis, SS. **(2002)**; *Int J Breathing exercise Ther*, 11, 1, 19-41.

Lin, ZP. **(2004)**; Aromatherapy Massage. United States Sports Academy.

Lee, SY. **(2005)**; TaehanKanhoHakhoe Chi,35, 2, 303-312.

Mohammad Ismaeel, E. **(2008)**; Breathing exercise therapy: Theories, methods, and clinical applications, Danjeh, Tehran.

Nissimov-Nahum, E. **(2009)**; *ArtPsychother* 36, 140-147.

Packman, J. ; Bratton, SC. **(2003)**; *Int J Breathing exercise Ther*, 12, 2, 7-29.

Ray, DC. **(2008)**; *Brit J GuidCouns*, 36, 2, 165-187.

Romeo, R. & Knapp, M. **(2006)**; S Scott. *Brit Jpsychiat*, 188, 547-553.

Sane, A. ; Salman, Z. ; Aghazadeh, M. **(2008)**; *Educinnov*, 26, 7, 87-106.

Schumann, BR. **(2004)**; PhD thesis. University of North Texas, Texas, USA.

Sagha, G. **(2007)**; MSc thesis. Islamic Azad University, Tehran, Iran.

Samavati, S. **(2008)**; MSc thesis. Islamic Azad University, Tehran, Iran.

Shojaei, S. & Hemati Alamdarloo, G. **(2007)**; *Exception Children*, 6, 4, 855-870.

Zaare, M. ; Ahmadi, S. **(2007)**; *ApplPsych*, 1, 3, 18-28.

MARKETING ECONOMICS OF EDUCATION

Dr. Nimisha Srivastava *

Abstract

Education is not only known for its all round development of the students but it is also a full fledged business with all the characteristics of a market. No education is free. The price of education is also fixed by the forces of the market i.e. demand and supply. The demand force implies students who desire education at the cheapest cost or fee. On the supply side are the institutions which wish to maximize profit along with professionalism .Both the forces compromise and an agreeable price is fixed called equilibrium price. This paper suggests that equilibrium is essential for price stability.

Key Words: *Price of education, demand and supply, equilibrium price.*

Economics is a subject which deals the economic activity of human being. Robbins defined Economics as a social science subject that studies human behavior as a relationship between ends and scarce means which have alternative uses. World known classical economists like Adam Smith, Alfred Marshall, and John Stuart Mill had discussed education and development extensively, advocating for public investment in education. Today, we use principles and theories of Economics in education, in terms of ECONOMICS OF EDUCATION. It includes the institutions or suppliers and individual or purchases of educational services.

A commodity is demanded because it has ability to satisfy human want. When a consumer wishes to consume a commodity and has the necessary purchasing power, he is said to have a demand for the commodity. Therefore, effective demand = desire for a commodity+ purchasing power.

Factor determining demand for a commodity-The demand for any particular individual for any commodity depends on various factors-

* *Asst. Professor, St. Xavier's College of Education, Patna*

1. **Income of the consumer**- The demand for any commodity depends on the income of the consumer. It increases his\her purchasing power.

2. **Price of the commodity**- The price of the commodity also determines the demand for the commodity. If the price of a commodity increases, the consumer buys less of it. On the other hand, if there is a fall in the price of that commodity, the consumer purchases more of it.

3. **Price - expectation** - Price expectation also influences the individual demand for any commodity. If the price will rise in near future, he will purchase more of that commodity even at higher price.

Individual demand - The effect of price on individual demand is usually shown with the help of the individual demand curve. The individual demand curve is a curve drawn with the price of the commodity on one axis (usually along the vertical axis) and the quantity demanded on the other (the horizontal) axis. The curve is usually drawn as a downward- sloping one, i.e., it slopes downwards from left to right. In Fig.-1 we have a demand curve for education, where OP line shows the individual fees for education and OQ line represents quantity demanded. When the price is OP_1, demand extends to OQ_3. When the price raises further to OP_2, demand reduces to OQ_2. When the price or fee rises to OP_3 the quantity demanded reduces to OQ_1. If we join the three locus points we get a curve Thus the curve that we get by joining the points K, L, M, etc., is called the individual demand curve. This curve shows, when fee becomes high, demand reduces and when the fee is low, the demand for education is high.

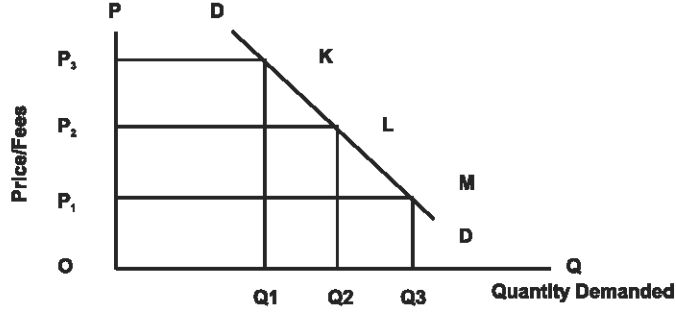


Fig. 1. Demand Curve

Concept of supply- The term 'supply' means the willingness and ability of suppliers/sellers or people to supply goods and services for a price. The supply of any commodity depends on the behavior of the producer or the supplier. The amount of a product that different firms are able and willing to offer for sale at different possible prices may be regarded as ' quantity supplied'.

Factors determining the supply of a commodity-

Price of the product- If the price of the product becomes higher and if it is more than the marginal cost of production, then the firm can earn excess profits by selling its product at the higher price. So, the supply of that product may also rise.

Price of the inputs- A firms also uses different inputs like raw materials, worker, machines, etc. to produce something. Now, other things remaining the same, if prices of these inputs increase, then the profitability of the firm will fall. In such a case, the firm will supply less than before at the prevailing price level. On the other hand, if there is a fall in input price, then the possibility to earn profit increases. So in that situation, the firm will be ready to supply more than before at a given price level.

Technology- If there is an improvement in production technology, then it may be possible for the firm to produce more at a low price with the given resources. Hence, technological innovation plays a great role in raising the flow of a supply of a product

Goals of the producing firm- Generally, the goal of every firm is to earn maximum profit. If their goal is sales – maximization, rather than profit- – maximization, then at each price level, they may sell more than before.

Government Policy- Government Policies also influence the supply of a product. Government may impose sales tax on the sale- value of a product sold by the seller. The seller has to pay this tax to the Government. Ultimately, the supplier shifts the burden of tax to the

consumer by charging higher price of the commodity.

Individual Supply Curve- Individual Supply Curve, is a graphic representation of the relationship between product price and quantity of product that a seller is willing and able to supply. Product price is measured on the vertical axis of the graph and quantity of product supplied on the horizontal axis. When the price is low, OP_1 the supplier produces less quantity OQ_1 because his margin of profit is low. If he produces at higher price OP_2 , his margin of profit increases. Therefore he supplies more OQ_2, when the price is high. If we join the various locus we get a supply curve which rises from left to right diagonally,

In most cases, the supply curve is drawn as a slope rising upward from left to right as the product price and quantity supplied are directly related (i.e., as the price of a commodity increases in the market, the amount supplied increases). This relationship is dependent on certain ceteris paribus (other things equal) i.e the conditions remain constant. Such conditions include the number of sellers in the market, the state of technology, the level of production costs, the seller's price expectations, and the prices of related products. A change in any of these conditions will cause a shift in the supply curve. A shifting of the curve to the left, corresponds to a decrease in the quantity of product supplied, whereas a shift to the right reflects an increase.

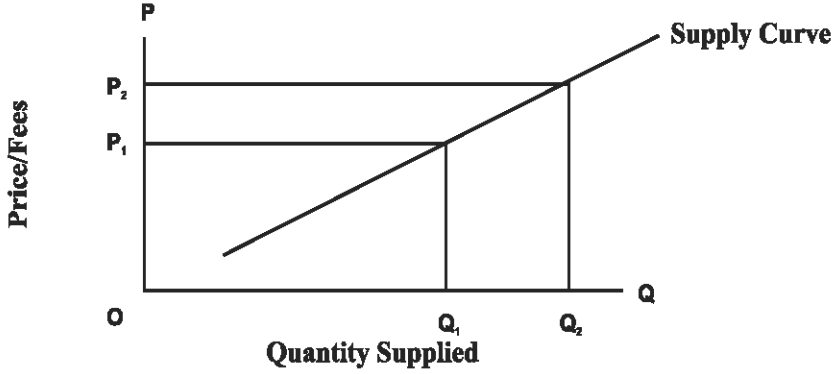


Figure No- 02: Supply Curve

The following determinants cause shifts in the entire demand curve:

- change in consumer's tastes
- change in the number of buyers
- change in consumer's incomes
- change in the prices of complimentary and substitute goods
- change in consumer's expectations

The following determinants cause shifts in the entire supply curve:

- change in input prices
- change in technology
- change in taxes and subsidies
- change in the prices of other goods
- change in producer's expectations
- change in the number of suppliers
- Any factor that increases the cost of production decreases supply.
- Any factor that decreases the cost of production increases supply.

Equilibrium of Demand and supply-The equilibrium price is the only point where the plans of consumers and the plans of producers agree—that is, where the amount consumers want to buy of the product, i.e. quantity demanded, is equal to the amount producers want to sell, i.e. quantity supplied. This common quantity is called the **equilibrium quantity**. When the price isOP_3, quantity demand is OQ_4 and supply is OQ_2. Here supply is far more than the demand. When the price is OP_1, quantity demanded OQ_1, supply is OQ_5. Here supply is less than demand. Since in both cases supply and demand are not at equal point, therefore both the demand and supply have to move towards each other's equal point. AtOP_2 price, the quantity supply is OQ_3 and demand is also the same OQ_3.Hence OP_2 happens to be the equilibrium price. At any other price, the quantity demanded does not equal the quantity supplied, so the market is not in equilibrium at that price.

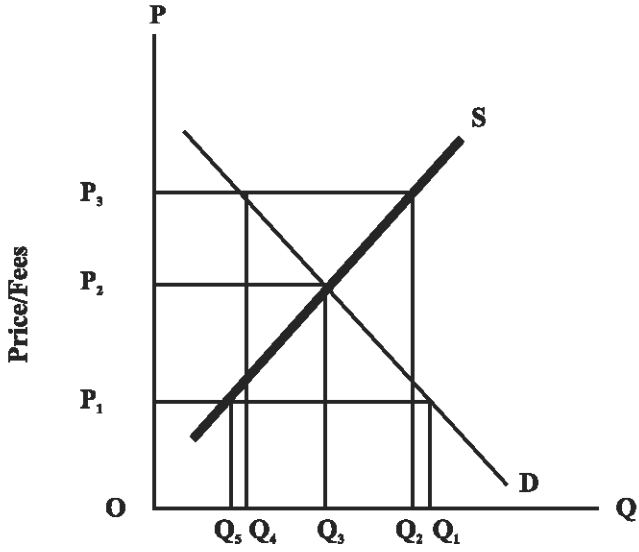


Figure No-03 Quantity Demanded and Supplied

The word equilibrium means balance. If a market is at its equilibrium price and quantity, then it has no reason to move away from that point. However, if a market is not at equilibrium, then economic pressures arise to move the market toward the equilibrium price and the equilibrium quantity.

This theory is equally relevant in the context of education. Because education is also a kind of market, where price is determined by balancing demand and supply curves. On the demand side are the students who demand education. They demand education on different subjects and facilities from the institutions. They constitute the typical demand curve like the consumer i.e. downward sloping demand curve from left to right. If the fee for particular subject is higher less students take admission in that subject or discipline. On the contrary, if the fee is low more students opt for that subject. On the supply side are the institutions which supply education and represent the supply curve; higher the price or fees, better or more are the facilities provided by the institutions. The

Institutions reflect the typical supply curve which rises from left to right upward.

Again we refer to Fig. no 1 show that when the price is P_1, then the demand for education is the maximum. When the price is high P_3 the demand is less i.e. Q_1. India is a poor country where maximum people live low average standard of life. Some people are forced to live below poverty line. In that situation it is not possible for that person to spend more money on education. That is why when the prices become high , they go for other sources of education.

In some cases, it has been seen that when prices increase, the demand for education rises. . For example, when the government declares bumper vacancies in the field of higher education, mostly people prefer to go into that field or education in spite of higher fees. As shown in Fig 2. In this case, the demand curve rises from left to right.

On the supply side, the supplier wants higher price for his product, so that he gets the maximum profit. In order to reap maximum profit, he increases the cost of education, naturally education becomes costlier. The general people cannot afford this high priced education. Therefore the suppliers have to reduce the fee so that more people are attracted by lower price. (Figure no.4) When the fee is P_2, less people demand education OQ_1. When the fee falls to OP_1 more students demanded education OQ_2.

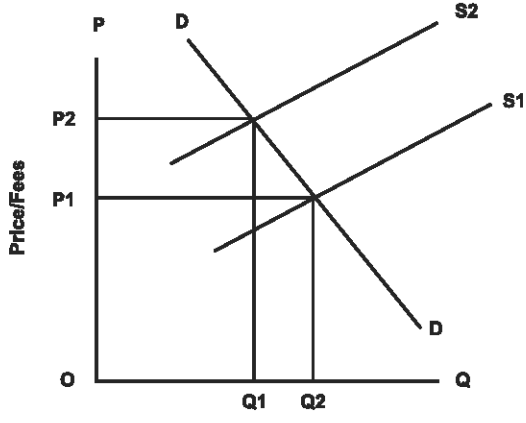


Figure No. 04- Quantity Demanded and Supplied

Since both the curves have opposite behavior that is the demand curve has a downward trends and the supply curve has upward trend, hence a balance has to be established in order to fix price. Naturally in order to increase the demand the supplier has to bring down the prices and on the other hand the consumer has to comply to pay higher price to get the benefit of education. Both the forces have to adjust to the prices then only a constant price or fee can be enforced.

REFERENCES:

Nagpal, Mittal, (1993). Econosmics of education. Anmol Publication Pvt. Ltd. New Delhi.

Naik, J.P. (1965). Educational Planning in India Bombay: Allied Publishers.

Tilak, J.B.G. (1987). The Economics of inequality in Education New Delhi: Sage Publication.

Web References:

www.ncert.nic.in

www. academia.edu

Archive.mu.ac. in

ncertbooks.prashanthellina.com/12_Economics.html

VOCATIONAL CHOICES OF SECONDARY SCHOOL STUDENTS IN PATNA WITH SPECIAL REFERENCE TO GENDER, TYPE OF STREAM AND PARENTA EDUCATION

Rimmy Singh *

Abstract

The study was carried out to find the vocational choices of students at secondary level. A sample of 200 students was drawn randomly from 12 secondary schools of district Patna. The selected sample comprised of arts and science streams. Chatterji's Non-Language Preference Record was administered to collect the data. Besides, parental education as one of the variables was also taken into consideration. Data was subjected to statistical treatment by applying percentages and't' values. The results revealed some significant differences on the basis of gender and parental education in various vocational choices of the subjects under investigation.

Key Words: *Vocational choices; Secondary students; Gender; Type of stream; Parental education.*

Introduction:

Appropriate choice of a vocational is reported to have received greater attention in the world of work (Kulshrestha, 1979). The modern society with its scientific and technological advancement, its division of labour and specialization of functions demand the fullest use of manpower at all levels. Our pressing need today is to harness and broaden the ways and means of proper utilization of manpower resources. Therefore, capacities and strengths require a proper direction. This will culminate into the fresh attempt towards research in vocational orientation with a view to understand the ways in which our teeming millions may choose their vocational (Mattoo and

* *Ph.D Scholar, A.K.U, Patna*

Sugra, 2007). This was realized some more than two decades ago when Government of India introduced 10+2+3 pattern of education in 1987. With the implementation of this system the students have to decide the main stream of education which they have to pursue after the completion of secondary education. Even the Kothari Education Commission (1964-66) observed that, "students are admitted to vocational courses unsystematically which results in the wastage of manpower and viz-a-viz. the expenditure earmarked on education. To overcome this malpractice, it is of paramount importance that right type of educational courses be made available according to their aptitude and interest. It can be made possible if we initiate vocational guidance at school level which hitherto has been debated much but not implemented in letter and spirit.

Considerable amount of research has been carried out in the area of career education in India and abroad. A host of researchers have concentrated on a number of areas falling under cognitive, affective and demographical variables. Attempts have been made to study vocational choices of students in relation to intelligence, scholastic achievement and creativity. Age, socio-economic status, type of institution and influence of parental education has also been the focus area Locale, personality factors, gender has been the interest area of researchers. The results of these studies reveal that interests are dependent upon these variables. The gender differences have also been reported to exist. It has also been reported that dichotomies like rural and urban play a significant role in shaping the interest patterns of students.

Objectives

Following objectives have been designed to carry the present investigation.

1. To find out the general pattern of vocational choices of secondary students.
2. To find and compare the vocational choices of students on the basis of gender.
3. To find and compare the vocational choices of students on the basis of the type of stream and

4. To find and compare the vocational choices of students on the basis of level of parental education.

Hypotheses

1. There shall be a significant difference between the mean scores of boys and girls on vocational choices.
2. Type of stream has a significant influence on the vocational choices of students.
3. Parental education has a significant influence on the vocational choices of students.

Design of the Study

Sample

A sample of 200 students (100 boys and 100 girls) was drawn from different secondary schools of Patna (Bihar). The sample was drawn by using a purposive sampling technique.

Tools

The investigator collected the data by using the following tools.

1. **Chatterji's Non-Language Preference Record.**
   This tool covers ten interest areas viz.
   a) Fine arts b) Literary c) Scientific
   d) Medical e) Agriculture f) Technical
   g) Crafts h) Sports i) Out door and
   j) House hold.

Analysis of Data

The collected data was subjected to statistical analysis. Percentages Mean, SD, and Test of significance were calculated. The information is presented in the below mentioned tables with indexed abbreviationslike:*Finearts(FA);Literary(LT);Scientific(SC);Medical,(MD);Agriculture(AG);Technical(TC);Crafts(CR); Outdoor(OD); Sports(SP) and Household(HH).*

Table 1.00: Showing the distribution of predominant vocational choices of students (Percent wise, N=100,each gender)

Genders	VOCATIONAL CHOICES									
	FA	LT	SC	MD	AG	TC	CR	OD	SP	HH
Males	3%	8%	19%	20%	4%	13%	7%	8%	13%	5%
Females	7%	10%	15%	23%	3%	9%	8%	6%	11%	8%

A perusal of table no. 1.00 (Fig. 1) reveals the predominant vocational choices of sample subjects on the basis of gender. The order of their vocational choice in preferential sequence in male subjects is found to be: Medical (20%), Scientific (19%), Technical (13%), Sports (13%), Literary (8%), Outdoor (8%), Crafts (7%), House hold (5%), Agriculture (4%) and Fine arts (3%). However, in case of females the order of vocational preferences is reflected as: Medical (23%), Scientific (15%), Sports (11%), Literary (10%), Technical (9%), Crafts (8%), House hold (8), Fine arts (7%), Outdoor (6%) and Agriculture (3%). The results reveal that medical choice seems to be dominant in both the genders followed by scientific choice. Least preference seems towards fine arts by male subjects and agriculture by females.

Table 2.00: Showing the significance of differences between the mean scores of boys and girls on vocational choices.

Vocational Choice	Gender(Boys)			Gender(Girls)			SED	t-value	Remarks
	Mean	SD	SEm	Mean	SD	SEm			
FA	24.33	4.55	0.46	26.17	5.40	0.54	0.71	2.592	Significant
LT	31.03	7.93	0.79	30.70	8.01	0.80	1.12	0.295	Not Significant
SC	32.64	7.49	0.75	33.72	7.86	0.79	1.09	0.991	Not Significant
MD	34.22	6.44	0.64	33.24	6.22	0.62	0.89	1.101	Not Significant
AG	19.33	4.60	0.46	19.23	4.41	0.46	0.65	0.154	Not Significant
TC	32.22	4.33	0.43	29.08	4.66	0.47	0.64	4.875	Significant
CR	27.33	4.66	0.47	29.31	4.44	0.45	0.65	3.046	Significant
OD	33.23	5.34	0.53	31.45	5.47	0.55	0.76	2.342	Significant
SP	23.34	4.56	0.46	24.68	4.78	0.48	0.66	2.030	Significant
HH	17.23	5.02	0.50	19.56	4.96	0.50	0.71	3.281	Significant

The results presented in table 2.00 (Fig. 2) reveal the significance of differences between the mean scores of boys and girls on vocational choices. The t- values in six vocational interest areas (fine arts, t=

2.592; technical, t= 4.875; crafts, t= 3.046; out door, t= 2.342; sports, t= 2.030; household, t= 3.281) are reported to be significant at 0.01 and 0.05 level/s of confidence and in rest of the areas the differences failed to arrive at any level of confidence. From these results it is revealed that boys are inclined towards technical (M=32.22) and outdoor interests (M = 33.23) than girls. However, girls are reported to be higher in fine arts (M= 26.17), crafts (29.31), sports (M= 24.68) and household interest (M= 19.56) areas. Gender differences could not be established between boys and girls on literary, scientific, medical, and agriculture interests. It can be inferred that both the groups of students have inclination towards these areas to an equal extend.

Table 3.00: Showing the significance of differences between the mean scores of students with stream Option on vocational choices (N=100 each).

Vocational Choice	Arts Stream			Science Stream			SED	t-value	Remarks
	Mean	SD	SEm	Mean	SD	SEm			
FA	29.33	4.35	0.44	26.14	4.40	0.44	0.623	5.120	Significant
LT	31.13	7.83	0.78	32.70	6.01	0.60	0.984	1.595	Not Significant
SC	32.04	7.44	0.74	34.72	7.76	0.78	1.075	2.493	Significant
MD	33.44	4.76	0.48	32.88	4.40	0.44	0.651	0.860	Not Significant
AG	19.33	4.88	0.49	22.33	4.44	0.44	0.659	4.552	Significant
TC	22.37	5.44	0.54	24.44	5.55	0.56	0.778	1.404	Not Significant
CR	29.34	5.42	0.54	28.58	6.70	0.67	0.861	0.883	Not Significant
OD	31.32	5.66	0.57	32.64	5.98	0.60	0.828	1.594	Not Significant
SP	23.44	4.56	0.46	24.44	5.22	0.52	0.694	1.441	Not Significant
HH	17.23	4.67	0.47	16.66	4.99	0.50	0.686	0.831	Not Significant

A perusal of table 3.00 (Fig. 3) reveals significance of differences between the mean scores of students in their vocational choices on the basis of subject preference. It is observed that subjects from science steam had significantly higher choice in scientific and agriculture fields than the subjects from arts streams. The obtained t- values have been found to be significant at 0.01 level of confidence in fine arts (t= 5.120), scientific (t= 2.493) and agriculture (t= 4.552) areas. Besides, subjects from arts stream are reported to have higher leaning towards

fine arts (M= 29.33) than the subjects from science streams (M= 26.14). However, the mean differences between the subjects under investigation failed to arrive at any level of confidence in literary, medical, technical, crafts, outdoor, sports and household areas of vocational choices. It can be inferred that stream option does not intervene the subjects to change their tendency in some of the vocational choices.

Table 4.00: Showing the significance of differences between the mean scores of students with the level of parental education on vocational choices.

Vocational Choice	Children of Graduates			Children of Professionals			SED	t-value	Remarks
	Mean	SD	SEm	Mean	SD	SEm			
FA	25.34	4.53	0.45	26.14	4.40	0.44	0.630	1.270	Not Significant
LT	31.03	7.83	0.77	30.70	8.21	0.82	1.125	0.423	Not Significant
SC	32.66	7.39	0.74	35.72	7.76	0.78	1.075	1.032	Not Significant
MD	34.56	6.76	0.68	35.67	6.77	0.68	0.961	1.150	Not Significant
AG	19.55	5.69	0.57	23.24	5.89	0.59	0.820	4.500	Significant
TC	21.34	5.33	0.53	26.44	5.44	0.55	0.764	6.675	Significant
CR	28.44	5.33	0.53	29.55	4.98	0.50	0.729	1.523	Not Significant
OD	30.45	6.02	0.60	27.43	4.66	0.47	0.762	3.974	Significant
SP	23.77	5.66	0.57	24.55	5.89	0.59	0.673	1.159	Not Significant
HH	18.33	4.76	0.48	19.45	4.66	0.47	0.67	1.672	Not Significant

A close examination of table 4.00 (Fig. 4) reveals the significance of differences between the mean scores of the subjects in their vocational choices on the basis of parental education. Children of professionals are seen to have greater inclination towards agricultural (M=23.24, t=4.500) and technical interest (M=26.44, t= 6.675) than the children of graduates. The calculated t- values are significant at 0.01 level of confidence. In the same table outdoor interest seems to be higher in case of the children of graduates (M=30.45, t=3.974) than the children of professionals (M= 27.43). Fine arts, literary, scientific, medical, crafts, sports and household as vocational choices could not differentiate these subjects on the basis of parental education. It can be inferred that both the groups have similar tendency/ leaning towards these choices.

Conclusion

The study is concluded with the following observations

i) The most liked vocational choice has been reported to be medical followed by scientific and sports.

ii) Girls are seen to have higher inclination towards fine arts, crafts, house hold and sports activities as compared to boys. Technical and outdoor interest is found higher in boys than girls.

iii) Uniform tendency towards vocational choices like: literary, medical, scientific, and agriculture is found in both the genders.

iv) Type of stream (arts vs. science) could not make any difference in the vocational choices like: literary, medical, technical, crafts, sports and house hold. However, students from science stream have exhibited higher inclination towards agriculture and scientific choices than arts students. Fine arts as a vocational choice is reported to be higher among students belonging to arts stream.

v) Parental education could not make any significant difference in some of the vocational choices viz. fine arts, literary, scientific, medical, outdoor, sports and household. However, agriculture, and technical choices are seen to be higher among the children of professionals.

The focal idea seems to have been towards the proper placement and comparable considerations of individuals towards a particular job. This has given birth to the strategy of "*right job for right individual*" which resulted into career based education to our youth. Despite these initiatives our country could not achieve the objectives the way idea was conceived. However, efforts are being made to provide job oriented courses to our teeming millions so that the opportunities of unemployment do not get closed. There has been a phenomenal growth in the establishment of vocational institutes throughout the country but while choosing the courses to be studied by the youth to start their career guidance services do not seem to exist. Youth carry on their programmes and at the end of the day their

precious time is consumed at employment directorates to find a placement either way. It sometimes culminates into the placement of square pegs into round wholes. Another core barrier in the career awareness channels goes to parents who seem to be reluctant in misdirecting their wards in the selection of career choices. Their intervention in most of the cases is responsible to guide their children in their own way and according to their own interest. Sometimes a parent is determined to put his child in a medical profession. On the other hand the other parent is ambitious to place his child in legal profession regardless of ignoring certain interests, aptitude and level of intelligence. With the result the youth are misled and misdirected and they cannot admit themselves with the academic activities in their colleges. Their mind is burdened with knowledge which is quite conflicting with their inborn urges, tendencies and the like (Ahluwalia, 1988). It is, therefore, of paramount importance that the Government authorities must provide a wide variety of structured programmes with occupational orientation in the curriculum instructions. This of course can stimulate career exploration among our youth with definite specialization and will lead children to choose the best vocation that suits their aptitude. The present study is an attempt in this direction.

REFERENCES

Ahluwalia, M. (1988). *Comparative study of high and low intelligent students in relation to vocational maturity and vocational interests*. Unpub. Masters Dissertation, Deptt. of Education. Punjab Univ. Chandigargh. Abhilashi, H.C. (1956) Vocational interests of undergraduates. *Vidya Bhawan Studies*. Vol. 5, No. (Nil), Pp.59-64.

Adams, A. E (1974). Vocational education: a study of socio-economicstatus, race, community of residence, and selfconcept as determinants of prestige level of occupational aspiration. *Dissertation Abstract International.* Vol.35,(2-A), P.953.

Anderson, W. A. (1993). Some social factors associated with the vocational choices of college men. *Journal of Educational Sociology.* Vol. 16, No.(X), Pp.13-18.

Bell, H. M. (1938). *Youth tell their story*. Washington, DC: American Council on Education.

Cervenka, I. (1977). Structure of adolescents with various professional aims. *Psychological Abstracts*,Vol.58,No. Nil, Pp.708-719.

Chatterji, S. (1966). *Examiners Manual Form 962* (For Chatterji's Non-language preference record. Patna: Bratalaya Station Road.

Crites, J. O. (1962). Parental identification in relation to vocational interest development. *Journal of Educational Psychology*.Vol.53 (6), pp.262-270.

Grewal, J.S. (1972). *A study of educational choices and vocational preferences of secondary school students in relation to environmental process variables*. Unpub. Ph. D. Thesis, Vikram University.

Habibollah, N. et,al. (2010). Relationship between creativity and academic achievement-A study of gender differences. *Journal of American Science. Marshland Press.* Vol.6,(1), Pp.181-190.

Hamingthanzuala, (2001). A study of vocational interests and occupational aspirations of class 10th students of district headquarters of Mizoram's related to socio-economic status and academic achievement. *Indian Educational Abstracts*. Vol. 37 (1).

Heinze, T.et,al. (2009). Organizational and institutional influences on creativity in scientific research. *Research Policy. In Press.*

Ivcevic, Z. (2007). Creativity and cognitive style: The relationship between field dependence and independence,expected evaluation and creative performance. *Psychology of Aesthetics, Creativity and the Arts.* Vol.1 (14). Pp.43-46.

Jansari, A. and Kumar, P. (1999). Study of vocational interests of students in relation to their sex and nature of residence. *Recent researches in education and psychology.* Vol.4 (3-4) Pp.97-100.

Karimi, A. (2000). *The relationship between anxiety, creativity, gender, academic achievement and social prestige among secondary school.* University Of Shiraz. Shiraz.

Kelarikova, O. (1977). Masculine and feminine characteristics of interest preference. *Psychological Abstracts,*Vol. 157, (nil), Pp.13-20.

Kulshrestha, R. N. (1979). A study of vocational interests, occupational choices, socio economic status and intelligence of class 11th students. *Indian Educational Review.* Vol.3 (4). Pp.10-16.

Kumar, A. (1984). Creativity its relation with interests. *Indian Educational Review. Vo*l. 16 (12). Pp.

Kothari, Education Commission (1964-66). Ministry of Education, New Delhi: Government of India.

Martin, S. (1977). The effect of perceived parental influence on need achievement of women traditional academic measures. *Dissertation Abstract International.* Vol. 36(4-a), P.2106.

Mattoo, M.I. (1994). Vocational interests, adjustment problems and academic achievement of high and low creative students. *Indian Educational Review, Vol. XXIX (1,2) Pp. 86-88.*

A COMPARATIVE STUDY ON THE ADJUSTMENT OF HIGH CREATIVE STUDENTS AND LOW CREATIVE STUDENTS

Sri Uttam Kumar Maji *

Abstract

Creativity is part and parcel of the psychological field which plays a vital role in each and every activity of an individual. It emphasizes how an individual is differing from the others. More or less the learners have some natural talent by birth. These talents are changed as creativity with sharpening their ideas and views. Creativity varies from time to time, place to place, situation to situation among the learners which touches society and its education as well as the emotional and adjustment situation. Therefore a little bit talent gives a little bit marks for the creative students in the society. The research is emphasized to investigate the difference between the adjustment of high creative students and low creative student, difference between the Emotional adjustment of high creative students and low creative students, difference between the social adjustment of high creative student and low creative student and difference between the Educational adjustment of high creative student and low creative student. The data obtained has been analysed and results have been discussed.

Keywords : *Creativity, Adjustment, Enutinat and Social, dynamic, Educated, adjusted date.*

Introduction

The writing is reduced if the thought is in condensed form. The final step in scientific process of research is summarizing the finding,

* *Research Scholar, JJTU, Rajasthan*

arriving at conclusion, making recommendation, formulating proper generalization for the population to which these are applicable; it requires the creative and reflective aspects of the researcher.

"Education is the organization of acquired habits of such action as will fit the individual to his physical and social environment."

- According to James.

Education means all those provisions that are needed to acquaint the child with human achievements. The search by man started with the discovery of fire and today is exploring stars and planet credit for this speedy success goes to education. Education also helps the person in making proper adjustment with family and society. In this modern era, man has achieved many extraordinary things and made many innovations and changes in the field of science and technology which have obviously created many new adjustment problem which can be solved only by creativity in the concern field. It is true that every child is not equally creative and the suitable environment and the supplementary element to develop creativity are also not equally available. Therefore it is unnecessary that the teacher should have requisite knowledge for educating creative child.

The term adjustment is the study mostly refers to the degree of capacity by which an individual tries to cope with inner tensions needs, conflict frustration and is simultaneously able to bring a co-ordination between his inner demands and those imposed by the outer world. A well adjusted child is one who does not get affected adversely by the interactions such as conflict emotions etc.

Statement of the problem

The problem can be stated as:

"A comparative study on the adjustment of high creative students and low creative students."

Objectives

Every study have some objective on the basis of which the study

proceed a researcher should know the objective of his research before he start to proceed in it. The objectives of the study are –

1. To measure difference between the adjustment of high creative students and low creative student.
2. To measures difference between the Emotional adjustment of high creative students and low creative students.
3. To measure difference between the social adjustment of high creative student and low creative student.
4. To measure difference between the Educational adjustment of high creative student and low creative student.

Hypotheses

Hypothesis acts as a frame work for the conclusions and permits the collection of relevant data and makes possible the interpretation of these data in the light of potential work with a view to investigate the study following hypothesis were formulated by the investigator.

The hypotheses of the study are as follows-

H_{0-1} There exist no significant difference in the adjustment of low creative students and high creative students.

H_{0-2} There exist no significant difference in the emotional adjustment of low creative students and high creative students.

H_{0-3} There exist no significant difference in the social adjustment of low creative students and high creative students.

H_{0-4} There exist no significant different in the educational adjustment of low creative students and high creative student.

Sample

For this study purposive sampling was taken.The sample includes 100 students at class-XI of 5 urban schools of WBCHSE in Midnapur town,Paschim Midnapur District of West Bengal for creativity test.

Methodology

After applying creativity test on 100 students the scores were calculated and on the basis of that result the researcher have been

taken top 25 students as a high creative & bottom 25 as a low creative students.

Tools

The tools used for the present study is:-

1) Verbal test of creative thinking (TCW) developed by Baqer Mehdi.
2) Adjustment inventory for school students (AISS) developed by A.K.P. Sinha Raipur and R.P. Singh (Patna).

Conclusions

On the basis of the scores of mean SD & t-value was obtained and the significance of the hypotheses were found out. The following conclusion was drawn.

H_{0-1} There exist no significant difference in the adjustment of low creative students and high creative students.

For the above hypothesis mean, SD & t-value were calculated.
On the degree of freedom 48 t-value is found insignificant at 0.05 level .Thus the proposed hypothesis is accepted.

H_{0-2} There exist no significant difference in the emotional adjustment of low creative students and high creative students.

For the above hypothesis mean, SD, t-value was calculated.
On the degree of freedom 48 t-value is found insignificant at 0.05 level .Thus the proposed hypothesis is accepted.

H_{0-3} There exist no significant difference in the social adjustment of low creative students and high creative students.

For the above hypothesis mean, SD, t-value were calculated.

On the degree of freedom 48 t-value is found insignificant at 0.05 level .Thus the proposed hypothesis is rejected.

H_{0-4} There exist no significant different in the educational adjustment of low creative students and high creative student.

For the above hypothesis mean, SD, t-value was calculated.
On the degree of freedom 48 t-value is found significant at 0.05 level .Thus the proposed hypothesis is rejected.

As per the conclusion drawn on the basis of formulated hypotheses various results have been obtained. No difference has been found in the Social adjustment of high and low creative students. The reason may be given for this, that the parents are aware now and give impartial treatment to their wards. They encourage their children in proper direction for the achievement of goal. This study has been conducted on Co-Ed private schools. It is evident that private schools give equal opportunity to all the students in different field on the basis of their ability and interest. The parents and the teachers give proper care and attention on the emotional and social development of students. The only difference has been found in the educational adjustment of high and low creative students .The reason may be given for this, that the Creativity of the student affects their educational interest and adjustment .On the basis of analysis of the result it has been shown that the high creative students can do better adjustment than the low creative students.

Suggestions

On the basis of the finding it can be revealed that problems are found

in the educational adjustment of low creative students.

To reduce these problems some suggestions are given:

1. Special class for the creative child should be arranged to advance at his superior rate of learning speed.
2. For teaching the creative children the curriculum should be changed .They should participate in out of class activities regardless of their mental status.
3. The teacher should help the creative child to have emotional balance.
4. In teaching the creative children drill should be reduced to minimum.
5. For creative children there is no need for artificial motivation as their interests are quite broad.
6. The teacher should explore the possibility of giving accelerated promotion to rapid learners.
7. The teacher should assign the project to use individual potentiality of the child.
8. The teachers and the parents should guide them in locating appropriate source of information.

Follow up

1. A study of personality adjustment of high creative and low creative students.
2. A study of motivational differences among high and low creative students.
3. A study of creative thinking in relation to socio-economic status of the students.
4. A study of creative thinking in relation to scholastic achievement of the students.
5. A study of the problem in relation to family environment amongst high and low creative students.

REFERENCES

Asha C.B. (1884). *Emotional Adjustment and creativity Journal of the*

Institute of Educational Research 3.8. Fifth survey of educational research (1988-1992) Volume PageNo.171.

Gupta (1976). *Creativity and Adjustment in status of Indian research in creativity*. Fifth survey of educational research (1988-1992) Volume-1 Page No.174.

Kolwadkar. V. (1980). *Study of creative children to their personality variables level of adjustment and scholastic achievements*. Fifth survey of educational research (1988-1992) Volume-1, Page No.179.

Kuol, Lokesh (2007). *Methodology of Educational Research*. Vikas Publishing House Pvt. Ltd.576. Masjid road Jangpura, New Delhi-110014. Yhird Revised Edition, ISBN 0-7069-8852-3.

Sharma V.P. *Creativity Potentials and Prospects*. Page no – 14, 15.

Tripathi S.N. *Talent and Creativity*. Page no – 41, 42, 43 ,45

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, 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 the 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
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, 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, Bihar, Patna-800011.

PRINTED AT : LOVELY PRINTERS, OPP. CANARA BANK, DIGHA HAAT, PATNA # 9939711961