

A Study of the Effect of Inclusive Approach on Conceptual Clarity and Divergent Thinking of students at Primary Level

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ABSTRACT

The present study was conducted on a paradigm shift in the teaching learning process from traditional teaching methods to teaching by Inclusive Approach.

Inclusive Approach focuses on the diversity of the students and caters to their individual needs. The aim of the study was to assess the effect of Inclusive Approach on Conceptual Clarity and Divergent Thinking of Primary Level Students. Inclusive Approach of teaching learning caters to the individual needs of the students and tries to foster mutual self respect among them and requires each student to learn creatively, the results clearly reflected a significant increase in Conceptual Clarity of the Experimental Group as compared to the Control Group where no such treatment was given. Similarly there was a significant increase in the Divergent Thinking of Experimental Group Students as compared to the Control Group.

Keywords: *Inclusive Approach, Conceptual Clarity, Divergent Thinking, Diversity*

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Introduction

Education is a continuous and lifelong process. Living is learning and one has to undertake lifelong learning for integrated and holistic development especially in modern day education. The Primary education, in India, has undergone periodic changes. Several efforts have been made to improve the quality of education vis-à-vis the text books, classroom processes, teacher competence and level of pupil achievement and the greatest was the social achievement. But they have not made significant departures from the conventional form of teaching which had no provisions for catering to the diversity of the students.

National Policy of Education 1986 has opined that Education in India stands at the crossroads today, neither normal linear expression nor existing pace and nature of improvement can meet the needs of the situation. Every human being is a precious national resource which needs to be cherished nurtured and developed with tenderness and care coupled with dynamism. He has his own growth and problems. The Teacher has to take the initiative to bring about revolutionary changes in

the teaching learning process so that the educational experiences that are provided to the child in schools cater to them individually and are meaningful to them. The traditional school system does not have a holistic intersect oral approach; it is static not catering to individual needs of the students. As a result some students feel left out and never enter the school or enter for few years as 'repeaters' and then become drop outs without their needs having met. These children are a vivid illustration of failure of schools rather than children (Johnson 2002).

Inclusive Approach

Inclusive Approach is one such practice that can be taken up to cater to the diverse needs of the students. It is not a reform of the special education but is an approach that facilitates the public education system to meet the needs of the changing society. It embraces the idea that since everyone is an individual one needs to organize school teaching and learning in a manner that each student gets a learning experience that fits each student. It is an approach which covers a variety of learning needs of normal or special

children. Inclusion is a philosophy which views diversity of strengths, abilities and needs as natural and desirable bringing to any community the opportunity to respond in ways in which learning and growth for the whole community takes place by giving each and every member a valued role. This approach will help in providing conceptual clarity to the students and will also enhance their creativity, higher order or divergent thinking.

Conceptual Clarity- Learning by the formation of Gestalt and learning as a whole gives fosters quality Learning as students are able to organize concepts into well connected and meaningful entities. Learning therefore provides evidence that individual has been able to connect to a new stimulus and it is reflected in the ability to apply the new knowledge to other situations.

Divergent Thinking- Divergent Thinking is a thought process used to generate creative ideas. It is often used in conjunction with convergent thinking which follows a particular set of logical steps to arrive at a correct solution. The concept of Divergent Thinking can be evaluated on the basis of

- i. Fluency- The ability to reproduce a large number of ideas or solutions.
- ii. Flexibility -Capacity to consider a variety of approaches to a problem simultaneously.
- iii. Originality-Tendency to produce ideas different from other people

Review of related Literature

- **(Kunc 1992)** The Fundamental principle of Inclusion is valuing the diversity within humancommunity because every person has a contribution to offer.
- **(Ramsey 1993)**Education in its Inclusivity would be richer more diverse stimulating and appropriate for an egalitarian community not only for those students who are disadvantagedbut indeed for all.
- **(Rogers 1993)** have stated that the population in schools have become increasingly diverse and the schools have failed to provide an individualized curriculum if the students are to become successful.
- **UNESCO 1994**-The Salamanca Statement Framework) Inclusive Education refers to an education system that accommodates all children regardless of their physical, intellectual, emotional, social. Linguistic and other conditions, their diverse abilities have to be met by creating child centered pedagogy capable of successfully educating all children.
- **(Ainscow M 1997)**Inclusive Education is concerned with overcoming barriers to participation that may be experienced by many pupils.
- **The National Curriculum Framework for school education NCERT 2000** has recommended inclusive school for learners with special educational needs by making appropriate modifications in the content transaction strategies preparing teachers and developing learner friendly evaluation procedures.
- **(Christensen 1992 cited in Foreman 2001)** rather than few students having special needs the schools must regard all students needs as part of the fabric of human experience and must be open and responsive rather than eliminate human difference.
- **(Ainscow, Booth and Dyson 2006)** have argued that the Inclusive Education has a much broader concept than acquisition of skills.It aims to promote democratic principles and set of values and beliefs relating to equality and social justice so that all children can participate in teaching and learning
- **(Deiver L Penny 2010)**All children are unique and yet have much in common they have strengths and weaknesses. The educators need to know the techniques to

cater to all children.

- **(Novak 1977)** Meaningful Learning provides evidence that individual has been able to connect to a new stimulus and it is reflected in the ability to apply the new knowledge to other situations.
- **(Okebukola.P.A.,Jegde.O.J.1988)**state that concept maps help in meaningful learning
- **(Wallace .J.D.1990)** The studies indicate a change in use of more number of critical concepts and propositions and more intricate hierarchical structure branching patterns and occurrences of cross linkages.
- **(Zimmarao .D.M Cawley.J.M.1998)** that concept maps are useful in obtaining clarity in concepts.
- **(Bernard 1999)** says that quality in education is which strengthens capacities of children to act progressively on their own behalf through acquisition of relevant knowledge.
- **(Etupes Work (1995-2001)** Quality also pertains to the relevance of what is taught and learnt and how well it fits the present and future. Quality concept has to embrace and develop the potential of every member of each new generation
- **(Rao.M.P. 2004)** have shown positive results of concept mapping on science achievement and cognitive skills and attitude of students.
- **(Lalit.D.2005)** have stated that teaching science through cognitive maps at upper primary level have shown positive results.
- **(Baser.M. 2006)**have shown the effect of conceptual change on students understanding of the concepts of heat and temperature.
- **(David, R.J. 1967):** The study concluded, that semantic divergent thinking and convergent thinking tests were closely related to fudge creative verbal performance and conventional academic progress respectively.
- **(CA, Harbeck 1972)** The study concluded, through training and feedback student teacher may increase divergent questions.

- **(Guajardo C.E. 1986)** The study concludes that Inductive and Deductive approaches are equally effective in promoting concept formation attainment and in fostering the Meta cognitive strategies that are crucial to higher order thinking. The most consistent, positive predictor of achievement in these studies is the giving of detailed, elaborate explanations
- **(Bayer 1987)** Divides thinking skills into 2 main categories cognitive and meta cognitive. This skill refers to knowledge about one's own, thought processes and ability to monitor what are is doing why and how so that it help in problem solving.
- **Schoenfeld A.H. (1987)** He says assign specific activity to each student in cooperative situation a group of students may work or a problem with teacher as moderators. Students may solve a problem on black board it leads to reflective thinking.

Rationale of the Study

A perusal of the studies revealed that inclusion was initially and to some extent even now generally conceived as a part of special education dealing with students who have disability (Collin 1987), Salamanca Statement and Framework (1994) (Laski 1996) (World Conference on Mental Retardation New Delhi 1994) (Daker 2000).

Gradually the Concept of Inclusion broadened with the need of dealing with diverse learning needs in the classroom and dealing with a more personalized curriculum (Rogers 1993). NCF 2005 has emphasized on creating an Inclusive Environment in the class in order to cater to the diverse individual needs of the students (Freagon 1993).

(Salisbury 1991) is of the view that diverse needs of all children can be achieved in Inclusive Settings. (Ahuja 1996) said that "Inclusion motivated the students and improved the attitude

of students towards learning and also provided them with conceptual clarity of the content taught (McGregor and (Vogelberg1998) stated that social competence and communication skills of children with diverse abilities are improved in Inclusive Settings. (Volman M 2001) by working with Inclusive Pedagogy divergent thinking of the students is enhanced. (Alur2003) is of the view that inclusion addresses the learning needs of all students and teachers are able to connect with the learners and their ways of learning curriculum so as to achieve conceptual clarity and think in a divergent manner.

This study was taken up with the prime aim to study about how the students can achieve conceptual clarity (formation of gestalt) in the content taught to them during the teaching learning process which in turn will also provide a boost to their divergent thinking ability.

Objectives of the study

The Present study was undertaken.

- 1- To study the impact of Inclusive Approach on Conceptual Clarity (Formation of Gestalt) of students at Primary Level
- 2- To study the impact of Inclusive Approach on Divergent Thinking of students at Primary Level

1. Hypothesis

- 1- There is no significant impact of Inclusive Approach on Conceptual Clarity of students at primary level.
- 2- There will be no significant impact of Inclusive Approach on Divergent Thinking of students at primary level.

2. Methodology

This was an impact study where the effect of Inclusive Approach on Conceptual Clarity and Divergent Thinking of students at Primary level was examined. Hence it was an experimental study where two groups were assigned randomly

and treatment was provided to one group only.

3. Sample

The sample of the present study (N-50) was collected from class V of Silver Line School, Ghaziabad. Both the Experimental and Control Group consisted of 25 students each.

4. Tools Used

The Following tools were used for collecting the data:

- Conceptual Clarity – Concept Maps
- Divergent Thinking – Prepared by the Investigator

Concept Mapping is a technique by which lectures and written texts can be converted into a graphic form. It assists the students in visualizing complex relations and interactions to encourage critical thinking and improves memory of new information.

As students create a spatial representation on oral or written discourse they symbolize and organize ideas in ways that force constructive decision making. They have to analyze and evaluate information to determine how to structure it and connecting information with lines, students can show relatedness of different sorts as features, examples, cause, effect, compare, contrast sequence and so on. Such a representation allows many pieces of information and their relatedness to be seen all at once. Thus concept mapping provides an alternative and more efficient form of representing information than ordinary note taking.

Concept Mapping may be used in several ways and can be used effectively across the academic subjects. Basically for concept mapping the teacher introduces a select topic by placing on one side of the topic and slots labeled with the kind of information to be shown.

The teacher asks the students what they know about the topic and lists their comments on the display in places where they seem to fit. The teacher then directs the student to read the topic in

order to see if their existing knowledge about the topic is correct and to see if there is any other information they need to know. While students read, the teacher places on the other side of the blackboard the original partial display of the material but without the students' elaborations. When the student finishes reading, the teacher calls upon them to finish display with information gleaned from texts presentation of the topic. The teacher then assigns the topic and after reading instructs them to construct a concept map of what they have read.

Concept Mapping can be a powerful method of instruction because it makes use of student's spatial- visual abilities for understanding and remembering complex subject matter.

Through concept mapping the students learn skill of organization that aid in development of comprehension, critical thinking and writing skills. To teach effectively with concept mapping the teacher needs to be familiar with the subject matter and be able to show how main ideas and their supporting details are related.

5. Divergent Thinking

It was prepared by the investigator purporting to evaluate the students on the basis of

- a) Fluency- The ability to reproduce a large number of ideas or solutions.
- b) Flexibility-Capacity to consider a variety of approaches to a problem simultaneously)
- c) Originality-Tendency to produce ideas different from other people

6. Data Collection

As per the tools and design the data was collected as per schedule on the dependent measures.

7. Data Analysis

To test the effect of Inclusive Approach on Conceptual Clarity and Divergent Thinking of students at Primary Level the following statistical techniques were used for analysis.

- 1- Descriptive Statistics
- 2- Inferential Statistics

'T' test to find out the significant difference

1.1 Descriptive Statistics of Variables Used

(Experimental Group)

Variables	N	Min	Max	Mean	S.D.
Conceptual clarity pre	25	7	22	17.80	4.435
Conceptual clarity post1	25	7	25	19.80	4.243
Conceptual clarity post2	25	16	25	21.52	2.600

Conceptual clarity post3	25	12	24	19.48	3.177
Divergent thinking pre	25	8	13	10.32	1.376
Divergent thinking post1	25	7	13	11.12	1.536
Divergent thinking post2	25	8	14	11.80	1.633

Divergent thinking post3	25	8	13	10.04	1.428
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From **Table 1.1** of the experimental group the fact emerges that mean value of Conceptual clarity at the Pre Test level of sample of 25 students showed Mean value of 17.80 and SD 4.435. After the treatment of Inclusive Approach was given to the students and the first Post Test administered after a period of two months the Mean Value went up to 19.80 with SD 4.243. When second Post Test was administered on the students after a period of four months the Mean Value of Conceptual Clarity showed a considerable rise of Mean Value to 21.52 and SD 2.600. Post Test 3 after a gap of 4 weeks showed a downward trend in the Mean Value which was recorded at 19.48 and SD 3.177. From the table it is observed that there is homogeneity in variance after the pre test and first post test after the II post test the range became low and after the III post test there was a rise in the variance

From the table of the experimental group the fact emerges that mean value of Divergent Thinking at the Pre Test level on a sample of 25 students showed Mean value of 10.32 SD 1.376. After the treatment of Inclusive Approach was given to the students and the first Post Test administered after a period of two months the Mean value was 11.12 SD 1.536. When second Post Test was administered on the students after a period of four months the Mean Value of Divergent Thinking showed a considerable rise of Mean Value of 11.80 SD 1.633. Post Test 3 after a gap of 4 weeks showed a downward trend in the Mean Value which was recorded at 10.04 SD 1.42. From the table it is observed that there is homogeneity nature of variance from the pre test to all the three post tests

Table 1.2 Descriptive Statistics of Variables used Control Group

Variables	N	Min.	Max.	Mean	Std. Dev.
Conceptual clarity pre	25	13	25	18.32	3.338
Conceptual clarity post1	25	10	24	18.60	3.452
Conceptual clarity post2	25	12	24	18.08	2.886
Conceptual clarity post3	25	11	23	18.84	2.809

Divergent thinking pre	25	6	14	10.04	2.441
Divergent thinking post1	25	5	12	9.16	2.095
Divergent thinking post2	25	6	13	9.44	1.938
Divergent thinking post3	25	6	13	9.84	2.055

From **Table 1.2** of the control group the fact emerges that mean value of Conceptual clarity at the Pre Test level on a sample of 25 students showed Mean value 18.32 SD 3.338. The first Post Test administered after a period of two months the Mean Value was 18.60 SD 3.452. When second Post Test was administered on the students after a period of four months the Mean Value of Conceptual Clarity was 18.08 SD 2.886. Post Test 3 after a gap of 4 weeks showed the Mean Value at 18.84 SD 2.809.

From the table it is observed that there is Homogeneity of variance after the Pre and all Post Tests. From the table of the control group the fact emerges that mean value of Divergent Thinking at the Pre Test level on a sample of 25 students showed Mean value of 10.04 SD 2.441. The first Post Test was administered after a period of two months the Mean value was 9.16 SD 2.095. When second Post Test was administered on the students after a period of

four months the Mean Value of Divergent Thinking was 9.44 SD 1.938. Post Test 3 after a gap of 4 weeks the Mean value was 9.84 SD 2.05. From the table it is observed that there is Homogeneity of variance after the Pre and all Post Tests.

Summary of Findings Based on Qualitative Analysis

From the Mean Scores it is observed that Mean Scores of Conceptual Clarity of the students of Experimental Group after Pre Test, Post Test 1, Post Test 2 and Post Test 3 is more than that of the Control Group students.

From the Mean Scores it is observed that Mean Scores of Divergent Thinking of the students of Experimental Group after Pre Test, Post Test 1, Post Test 2 and Post Test 3 is more than that of the Control Group students.

T tests Table 1.3: Comparison of Experimental and Control Group on Conceptual Clarity and Divergent Thinking of Students at Pre Test Level

Variable	Group	N	Mean	S.D.	T	Sig	EffectSize
Conceptual Clarity	Experimental	25	17.80	4.435	.468	NS	.006
	Control	25	18.32	3.338			
	Control	25	166.84	14.636			
Divergent Thinking	Experimental	25	10.32	1.376	.500	NS	.050
	Control	25	10.04	2.441			

From **Table 1.3** Comparison of Experimental and Control Group on Conceptual Clarity at Pre Test Level indicates that mean for Experimental Group is 17.80 and for Control Group is 18.32. The t value is .468 which is not significant statistically.

Comparison of Experimental and Control Group on Divergent Thinking at Pre Test Level indicates that mean for Experimental Group is

10.32 and for Control Group is 10.04. The t value is .500 which is not significant statistically.

Table 1.4: Comparison of Experimental and Control Group on Conceptual Clarity and Divergent Thinking of Students at Post Test-I Level

Variable	Group	N	Mean	S.D.	T	Sig	Effect Size
Conceptual Clarity	Experimental	25	19.80	4.243	1.097	NS	0.15
	Control	25	18.60	3.452			
	Control	25	17.80	3.304			
Divergent Thinking	Experimental	25	11.12	1.536	3.772	S	.047
	Control	25	9.16	2.095			

From Table 1.4 Post Test I Level indicates that mean for Experimental Group is 19.80 and for Control Group is 18.60 for Conceptual Clarity. The t value is 1.097 which is not significant statistically.

In the Divergent Thinking aspect the Mean value is 11.12 and 9.16 for Experimental And Control Group respectively and the t value is 3.772 which is highly significant.

Table 1.5

Comparison of Experimental and Control Group on Quality Learning at Post Test 2 Level

Variable	Group	N	Mean	S.D.	T	Sig	Effect Size
Conceptual Clarity	Experimental	25	21.52	2.600	4.428	S	0.53
	Control	25	18.08	2.886			
	Control	25	157.80	22.989			
Divergent Thinking	Experimental	25	11.80	1.633	4.656	S	.047
	Control	25	9.44	1.938			

From Table 1.5 Comparison of Experimental And Control Group on Quality Learning Dimensions at Post Test II Level indicates that mean for Experimental Group is 21.52 and Control Group is 18.08 for Conceptual Clarity. The t value is 4.428 which are highly significant. In the Divergent Thinking Aspect the Mean value 11.80 and 9.44 for Experimental and Control Group respectively and the t value are 4.656 which is highly significant statistically.

The highly significant 't' values on Conceptual Clarity establishes the fact that teaching by Inclusive Approach makes the students get more conceptual clarity than when they are taught by the traditional method. Divergent thinking, showed highly significant t values which establishes the fact that Inclusive Approach has positive impact on Divergent Thinking of the students.

Table 1.6: Comparison of Experimental and Control Group on Quality Learning at Post Test 3 Level

Variable	Group	N	Mean	S.D.	T	Sig	Effect Size
Conceptual Clarity	Experimental	25	19.48	3.177	.755	NS	0.10
	Control	25	18.84	2.809			
	Control	25	148.88	25.587			
Divergent Thinking	Experimental	25	10.04	1.428	.400	NS	.05
	Control	25	9.84	2.055			

From Table 1.6 Comparison of Experimental and Control Group on Quality Learning at Post Test 3 Level indicates that mean for Experimental Group is 19.48 and Control Group is 18.84 for Conceptual Clarity. The t value is .755 which is not significant statistically

In the Divergent Thinking Aspect the Mean value is 10.04 and 9.84 for Experimental And Control Group respectively and the t value is .400 which is not significant.

The not significant' values of Conceptual Clarity and Divergent Thinking shows that when the treatment on the students of Experimental group was discontinued and the third post test taken after a gap of four weeks and the students were taught in the same traditional chalk and talk method in the same old classroom environment the conceptual clarity which had been enhanced

by the Inclusive approach received a set-back, the divergent thinking also could not progress further.

8. Gainscore

In the present study two post tests were given in between Pre Test and the Final Post Test to assess the effect of treatment on dependent variable. Gain Score was calculated for each dependent variable by subtracting the final post test from pre-test. To analyze the significance of this gain score Test was used to compare the gain score mean between experimental and control group. The statistical Analysis is presented below sequentially starting with the Descriptive Statistics for Experimental and Control Group.

Table 1.7: Descriptive Statistics-Gain Score (Experimental Group)

Variable	N	Min	Max	Mean	S.D
Gain-Conceptual Clarity	25	-.200	12.00	3.7200	3.38526
Gain-Divergent Thinking	25	-1.00	5.00	1.4800	1.58430

From table **Table 1.7** of the experimental group the fact emerges that Gain Score mean value of Conceptual Clarity is 3.7200 and SD 3.38526 Gain

Score mean value of Divergent Thinking is 1.4800 and SD 1.58430

Table 1.8 Descriptive Statistics-Gain Score (Control group)

Variable	N	Min	Max	Mean	S.D
Gain-Conceptual Clarity	25	-.600	7.00	-.2400	3.38231
Gain-Divergent Thinking	25	-6.00	3.00	.6000	2.27303

From table **Table 1.8** of the control group and the fact emerges that Gain Score mean value of Conceptual Clarity is -.2400 SD is 3.38231 Gain Score mean value of Divergent Thinking is .6000 and SD 2.27303

Table 1.9: Gain Score Experimental and Control Group

Variables	Group	N	Mean	S.D.	T	Sig	Effect size
Gain Conceptual Clarity	Exp	25	3.7200	3.38526	4.138	S	.51
	Con	25	-.2400	3.38231			
	Con	25	-9.0400	19.77473			
Divergent Thinking	Exp	25	1.4800	1.58430	3.754	S	.47
	Con	25	-.6000	2.27303			

To compare the gain score of Experimental and Control Group T test was used and significant difference between Experiment and Control Group was analyzed

From **Table 1.9** above it is observed that T value is highly significant it shows there is significant difference between experimental and control groups on gains achieved in Conceptual Clarity. From the mean score it is found that the Experimental group has substantial gain than control group where control group has less score in Final Post Test.

From **Table 1.9** is observed that T value is highly significant it shows there is significant difference between experimental and control groups on gains

10. Discussion

The present study revealed that Inclusive Approach was found to be far more effective than

achieved in Divergent Thinking

From the mean score it is found that the Experimental group has substantial gain than control group where control group has less score in Final Post Test.

9. Summary Of Findings Based On T Tests Of Gain Score

1. There is significant difference between Experimental and Control Group on gains achieved in Conceptual Clarity.
2. There is significant difference between Experimental and Control Group on gains achieved in Divergent Thinking.

the traditional teaching method of teaching since it catered to the need of the students in an individualized manner, it was helpful in Providing

them conceptual clarity thereby increasing their divergent thinking too. The findings of the present study revealed there was difference in mean scores of Conceptual Clarity of Experimental Group students to whom the treatment was given as compared to the Control group students who were not given treatment at all. Similarly there was difference between mean gain scores of experimental and control from in their Divergent Thinking too.

11. Conclusion

The study was conducted on the growing need of valuing and catering to the diverse needs of students in a regular classroom and its effects on the Conceptual Clarity and the consequent rise in his Divergent Thinking too. Since Inclusive Approach embraces the idea that everyone is an individual so schools need to organize teaching learning in a manner that caters to each one because only then can the conceptual clarity of the content can be enhanced and a child will be able to thinking out of box which will develop his divergent thinking too.

In the present study the classroom process was different where the students were taught through cooperative learning strategies involving all the students.

The results of the present study strongly advocate the Inclusive Approach in bringing about Quality learning in the students by enhancing their conceptual clarity and divergent thinking.

12. Recommendations

- Similar studies can be taken up in other areas of India
- Similar studies can be taken for Higher Classes
- Other Dimensions can be tested related to teaching learning process

13. References

- [1] Ainscow M. (1997) Towards inclusive education British Journal of Special Education 24(1) 3-6
- Ames, G.J., & Murray, F.B., (1982), "When two wrongs make a right: promoting cognitive change by social conflict", Developmental Psychology v18, p894-897
- [2] Bernard. J(1999) <https://doi.org/10.1111/j>
- [3] Booth T, Ainscow M(2002) The index for Inclusion(Bristol) Centre for studies in Inclusive Education
- [4] Christensen J,(1992) D.J Ballard, Physical Therapy, vol. 88 Issue 3
- [5] Johnson, D.W., R. T. Johnson, and E. J. Holubec. (1993) Circles of learning cooperation in the classroom, 4th edition. Edina, MN: Interaction Book, 1993
- [6] Jha, M M,(2002) Inclusive Education for all, School without walls. Madhuban Educational books and Heinemann
- [7] Kagan. S.(1986) "Cooperative Learning and Sociological Factor in Schooling." In Carlos Cortes (Ed) Beyond Language: Social and Cultural Factors in Schooling Language Minority Students. Los Angeles, CA: California State University Evaluation, Dissemination and Assessment Center,
- [8] Kunc N(1992). Villa R, Thousand J Stainback, S Restructuring for caring and effective Education, Baltimore, Paul Brooks
- [9] Mani; M.N.G. (2000) Inclusive Education in Indian Context Coimbatore – International Human Resource Development centre (IHRDC)
- [10] National Curriculum Framework (2005) NCERT
- [11] NCERT (2005) VII All India Educational Survey. NCERT
- [12] Novak(1977) [https://doi.org/10.1061\(ASCE\)](https://doi.org/10.1061(ASCE))
- [13] Okebukola.P.A.Jegde.O.J(1988) Cognitive preference and learning mode as detriment of meaningful learning through concept mapping. Science Education 72(4)

-
- [14] Ramsey.G(1993) <https://doi.org/10-1111/j1467-8500>
- [15] Rath,K.B.et al (2005) Paradigm Shift in Education ,RIE .,Ajmer
- [16] Rogers (1993) <https://doi.org/10-1111/j1460-2466.1993.tb01312.x>
- [17] Schoenfeld.a.h.(1987)Educational and Mathematics, University of California, Berkley CA94720
- [18] Swarup S (2006) Education of children with special needs.Journal of Indian Education Aug pp68-74 Schwartz, D.L., Black, J.B., and Strange, J.(1991) "Dyads have Fourfold
- [19] Advantage over Individuals Inducing Abstract Rules." Paper presented at the annual meeting of the American Educational Research Assn. Chicago, Il, April
- [20] UNESCO (1994) The Salamanca Statement of framework for action in special needs World conference on sp needs education access and quality, Salamanca. Spain 1994 UNESCO and Ministry of Education and Science Spain
- [21] Wallace J.D.(1990) Journal of research in Science Teaching vol.27.No 10
- [22] Yager, S., Johnson, D.W., and Johnson, R. (1985)"Oral Discussion Groups-to-Individual Transfer, and Achievement in Cooperative Learning Groups. Journal of Educational Psychology, 77, 1, 60.