Case Study of Inclusive classroom with Data analysis and Interpretation methods accompanied by Blooms Taxonomy for the Special Education Needs for students, teachers and parents in Pune City

[1]AMRUTA PRABHU, [2]Prof. DR MEGHA UPLANE

Education Department, Savitribai Phule Pune University, Pune, India

Abstract: The study helps us to realize that changing the teacher's attitude for handling and guiding the SEN children is of paramount importance Inclusive education is a concept that is gaining attention all over the world. After the World Conference on Special Education Needs in Salamanca in 1990s, inclusion become the magic word in the educational field. Our government has implemented the RTE (Right to Education Act) and the Sarva Shiksha Abhiyan which states that no school can deny the right to education to any child regardless of disability. So All individuals should be treated equally and be given an equal opportunity. The study aims to point out the effect such teacher attitude has in an Inclusive classroom. There is an urgent need to rectify such attitude to have true inclusion. The role of evaluation in assessing and analyzing the inclusive classrooms is also an important factor in judging the success of inclusive education. Inclusive education is built around the goals and ideologies of the social model. study covers key variables like inclusive education and evaluation methods for students, Blooms Taxonomy etc. In terms of context, the study would be carried with reference to CBSE students Pune studying in classes VIth, VIIth and VIIIth. Equal access to education empowers people with disabilities to be independent and contributive, helpful members of an inclusive, barrier-free society.

Keywords: SEN, Sarva Shiksha Abhiyan, Blooms Taxonomy, barrier-free society, Right to Education Act.

1. INTRODUCTION

It has been over the last few years that **Special Education Needs (SEN)** has been gaining efficacy in India. Efficacy means to ascertain how effective the developed evaluation scheme of Inclusive Classroom would be in bringing out positive results in the performance of SEN children. All individuals should be treated equally and be given an equal opportunity. Our government has implemented the RTE (Right to Education Act) and the SarvaShikshaAbhiyan which states that no school can deny the right to education to any child regardless of disability (Position paper - Education of children with special needs – NCERT.) Many schools especially the private ones have adapted inclusion in spirit and are admitting children with Special Education Needs in regular schools. The study helps us to realize that changing the teacher's attitude for handling and guiding the SEN children is of paramount importance. The teacher has to be trained to empathize and handle such students helping them to overcome their individual challenges and ensure their academic growth in a conducive environment. Though we are far behind most developed countries in our way of thinking and living we are taking small steps towards inclusion.Teachers are an integral component for successful implementation of an Inclusive classroom. But most teachers are reluctant to devote additional time to SEN children in the classroom. They feel it is the resource teacher who should deal with these students. The study aims to point out the effect such teacher attitude has in an Inclusive classroom. There is an urgent need to rectify such attitude to have true inclusion. The true essence of an inclusive classroom based on the premise that all individuals with disabilities have a right to be included in naturally occurring settings and activities with their neighborhood peers, siblings and friends (Erwin, 1993, P-1). In this research, evaluation scheme for core subjects viz English, Math, Science, Social Science and Hindi will be done.

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The role of evaluation in assessing and analyzing the inclusive classrooms is also an important factor in judging the success of inclusive education. Inclusive education is built around the goals and ideologies of the social model. Education is just one of the many sections of society to which the social model applies; and "inclusion" in education means removing the barriers in the classroom and school so that students of all ability levels are included in the same lesson. Equal access to education empowers people with disabilities to be independent and contributive, helpful members of an inclusive, barrier-free society.

2. REVIEW OF LITERATURE

To review literature on inclusive education with special reference to Special Education Needs (SEN) students

a)   Ainscow, M. (1999) in his study' Understanding the development of the inclusive schools.' reckoned that barriers to participation can be identified if classroom teachers are encouraged to examine their practices carefully and systematically; consideration should be given to the most effective use of learning support assistants. Positive interdependence, individual accountability, face-to-face interaction, social skills are recommended for group work. Teachers within a school need to develop a 'shared language' in which to discuss what is happening the classrooms and to articulate what is often intuitive and unconscious.

b)   Mohammed Ali Alkahtani (2016), Review of the Literature on Children with Special Educational Needs, the presented chapters review a framework for the research, which focuses on four major parts. The first part involves cross-cultural issues. The Second part refers to special education needs policies. The third area is an overview of the term of SEN and its definition and disability models is presented. The fourth area is suitabletraining methodology for children with SEN.

c)   Oliver (1996) claims that an unwillingness to accept children with special needs can be seen as a problem within society. In fact, a negative attitude towards people with special needs frequently prevents them from using their right to be involved in society. Therefore, this model proposes a change from the 'individual medical model' to the 'social model' of disability. The purpose of the individual medical model is to explain disability by diagnosing individual impairment as the basis for intervention and cure as opposed to changing attitudes in society. Given that such an opinion is acknowledged, it can be seen that the social model puts forward its aim to accept disabled students in society.

d)   Gibb and Dyches (2000) mentioned that, in terms of preparation and application, an individualised educational plan is based on a set of steps as follows. With regards to the first step, it concerns identifying the practical performance level of the student, by starting to teach the special education skill, which should be done individually through standardised reference tests, as well as those based on curricula and scientific observations. The data from these evaluative tools should give a true picture of the child's unique and special needs in the designated skills to be taught. The second step takes account of the formulation of the behavioural objective in light of the child's unique and special needs. This behavioural objective is formulated in terms of special sequential behavioural skills to be learned by students in order to achievement a wider skill. As for the third step, it involves the division of the behavioural goal, by using task analysis, into the elements of which it is composed starting from that part of the knowledge already possessed by the student. In this sense, the task of analysing the behavioural objective is the process by which the teacher recognises the elements of the behavioural objective on the one hand, and the student's mental characteristics, cognitive abilities and past experience, as well as how they learn, on the other; in so doing, these students should be provided with the most appropriate learning environment.

To review literature on evaluation systems in educational institution and problems faced by Special Education Needs (SEN) students

a)   Research has supported that teachers in many parts of the world agree that the inclusion of all children in regular schools will help to develop an inclusive society, although concerns are expressed about the effective implementation of inclusive practices (Beacham& Rouse, 2012; Gao&Marger, 2011; Haq&Mundia, 2012). Hull's (2005) study established that teachers' attitude is a critical element in promoting inclusion and in particular, the success of students with SEN. Teachers' attitudes form the basis for being willing to support students with SEN. When teachers have a positive attitude towards inclusion, then children are in the right place for learning. Teachers' willingness to accept students with SEN gives them the confidence in their ability to support students in the class.

b)   Nida&Parveen (2012) looked at the practice of teacher educators in using Taxonomy of Educational Objectives by Bloom, which considers the kinds of cognitive processes students may move through as they learn. The discoveries show the positive attitude of trainers concerning the use of Bloom's Taxonomy for making instructional decisions. The study

recommends using Bloom's Taxonomy in a diversity of levels and incorporation of Bloom's Taxonomy with diverse learning methods.

c)   In 1956, Bloom developed a cognitive learning taxonomy to enhance communication between college examiners. The Bloom's Taxonomy involves of 6 hierarchical levels of learning which has gone through diverse range of implementations and revisions.

d)   UNESCO (2004) stated that individuals use different cognitive processes at the same time without limiting it to one process only. This however requires trainer to set and ask questions which prompts responses that facilitates them to establish their creative and critical thinking. The tasks and questions given by trainer must not be for the purpose of recollecting information but to synthesize or examine it.

e)   Abdul Rahman, et al, 2017, states that Bloom's Taxonomy of Cognitive Learning is not an appropriate taxonomy to design pedagogical approach for English Literature and to teach creative and critical thinking. This is insufficient as other criteria must be considered as Bloom's taxonomy may no longer be sufficient in the Malaysian context as well as in the digital age whose pedagogy in teaching literature with digital natives as the targeted group, will need to be reformed.

Research Gaps:

a) A predominant dilemma relates to the definition of SEN that needs to be investigated further.

b) Many of the studies addressing children with special needs involve small samples. This affects generalization.

c) There is a lack of literature for investigating the experience of teenagers with SEN.

d) There seems diminutive focus on the consistency and validity of assessment measures used both in qualitative and quantitative research.

e) The need for balance between the individual and the collective affects policy and practice throughout the education system from national policy to the classroom: where inclusion is reduced to a matter of individual needs policy it cannot succeed

f) Occurrence and outcome profiles are confused by the data (or lack of it), problems with classification, the limitations of the difficulties the childrenexperience and the failure to consider SEN developmentally, contextually and culturally.

3.   MATERIAL AND METHOD

Research Purpose and formulation of hypotheses

The purpose of the research wasto study the implementation of the concept of inclusive classroom with special emphasis on evaluation methods.

The following chart depicts the structure of the study and the relatedscheme of hypotheses formulation fig 1

Based on the above scheme the hypotheses formulation is presented below in Table 1 –

3.1Outline of Scheme for Testing of Hypotheses –

- A questionnaire was designed to collect primary data in order to test the hypothesis as stated earlier.

- In line with the hypothesis the questionnaire was divided into twoparts –

- Profile and basic information

- Questions pertaining to assessment of key variables

- The structure of the questionnaire was kept simple by framing statements/ factors as questions and responses were sought by way of agreement or disagreement responses.

- The mean of the responses for parts was planned for statistical testing against the benchmark score (hypothesized mean of population) of 0.50 (50%) using T-test at 95% confidence level. If p-value of the t-test statistic was less than 0.05, the null hypothesis would get rejected.

- In case of the 2nd hypothesis based on content analysis the sample mean of adherence to Blooms Taxonomy was planned for statistical testing against the benchmark score (hypothesized mean of population) of 0.75 (75%) using T-test at 95% confidence level. If p-value of the t-test statistic was less than 0.05, the null hypothesis would get rejected.

3.2 Population and sample selection–

Population -

Population of SEN students, teachers (of the VIth, VIIth and VIIIth class) and parents (with wards in the VIth, VIIth and VIIIth class) were first estimated as under

Some of the popular CBSE Schools in Pune include the following (Justdial.com) given in Table 2

Estimates of population were as under –

SEN students = 400 schools x 3 classes (VIth, VIIth&VIIIth) x 40 students per class (as per CBSE norms) = 48000 total students. Out of these 20% were considered as SEN students on the basis of the following information from www.franchiseindia.com

Thus, out of the 48,000 students 20% students (1 out of 5), that is, 9600 students were estimated tobe the population of SEN students.

a. Teachers - As per CBSE circular (2010) student teacher ratio has been specified as 30:1, applying which the population of the teachers for CBSE class VIth, VIIth&VIIIth in Pune worked out to 1600 (48,000 / 30).

b. Parents – For the strength of 9,600 SEN students the parent population was estimated to be 9,600 x 2 = 19,200.

3.3 Resource identification for elements identified above in Table 3 –

The main aim of the research is to study the concept of inclusive education and its application to CBSE schools in Pune for classes VIth, VIIth and VIIIth.It will focus on the following issues -

• Assessment of current methods of evaluation and problems by SEN students,

• Evaluation of adherence to standards like Blooms Taxonomy by the current evaluation methods and

• Devising alternative methods of evaluation for facilitating inclusive education.

This research relied on both primary and secondary data. Based on literature and past research, it tried to gain deeper insights in the various issues related to the matter. At the same time it also tried to explore the intricacies of the issue by way of collection and analysis of primary data.

Following were the objectives set for the research –

a) To identify existing evaluation scheme (Assessment and feedback) for classes VI – VIII of CBSE Schools in Inclusive classrooms,

b) To analyze the existing evaluation scheme considering needs of Inclusive classroom,

c) To develop an Evaluation scheme for Inclusive classroom (ESIC) and

d) To test the efficacy of the developed evaluation scheme (ESIC).

The rationale for selection of the above objectives along with plan for their achievement is given below –

While the correlation between the students and teachers (-0.018) & parents (-0.022) was found to be negligible, that between the teachers and parents (0.539) was found to be quite significant.

a. Neither the class (-0.050) nor the gender (0.028) showed any significant relationship with the responses by the SEN students to the proposed method of evaluation.

b. A significant sizable correlation between the pre-change and post-change ratings of the method of evaluation was found as evidenced by the Spearman's correlation coefficient of 0.67.

c. There was no significant relationship between assessment of present evaluation methods and proposed method of evaluation responses by students. (0.049).

d. Neither the class (-0.008) nor the gender (0.044) showed any significant relationship with the responses by the parents to the proposed method of evaluation.

e. Neither the class (0.036) nor the gender (0.094) showed any significant relationship with the responses by the teachers to the proposed method of evaluation.

To translate these objectives into actionable research following hypotheses were set –

Ho1 – The SEN students are not facing any problems with current system of evaluation

Ha1 – The SEN students are facing problems with current system of evaluation

(To be tested on the basis of survey of SEN students)

Ho2 – The existing evaluation schemes adhere to Blooms Taxonomy guidelines

Ha2 - The existing evaluation schemes do not adhere to Blooms Taxonomy guidelines

(To be tested on the basis of content analysis of CBSE school question papers)

Ho3 – The proposed evaluation scheme will not be useful

Ha3 – The proposed evaluation scheme will be useful

(To be tested on the basis of survey of SEN students, teachers and parents)

Ho4 – There is no difference between pre-test and post-test understanding of the evaluation methods

Ha4 – There is a difference between pre-test and post-test understanding of the evaluation methods

(To be tested on the basis of survey of SEN students)

Overall data collection scheme –

The data collection method envisaged collection of both primary and secondary data. The primary data was to be collected from 400respondents each from the three categories. Secondary data was to be collected through journals, articles, internet and other sources.

Primary data collection scheme– Primary data was collected from respondents through questionnaires as given below in Fig 2 -

3.4 Design of questionnaire

The response to the key variable questions were taken on a Likert scale of agree/disagree. The responses were sequenced as under –

- No Response
- Somewhat agree
- Completely agree
- Somewhat disagree
- Completely disagree

The option of No Response was kept as the 1st choice going by the suggestion of a DK (Don't Know) filter wherein the respondent can opt for an early exit from the question if he or she is not confident of the answer (Menold and Bogner, 2016).

Names were not taken for the sake of confidentiality. The construction of questionnaire was divided into two basic segments – the Profile information that had 2 questions about class and gender and the analytical information that contained 10 sub-questions.

3.5 Sample questionnaire

The sample questionnaire is given at the end of the thesis by way of annexure.

3.6 Statistical testing for the null hypotheses (use of t-test)

Model adopted for statistical testing –

There are different types of statistical tests for hypotheses testing under different scenarios. In the current situation, the researcher had to evaluate the mean of the sample where standard deviation of the population is not known but standard deviation of the sample can be calculated.

The methodology for testing the mean with standard deviation of population unknown is adopted from the following example given in chapter 10 – Hypotheses Testing available on the website*http://www.aaec.ttu.edu/faculty/eelam/3401/coursematerials/notes_fall07/notes_ch10.pdf*.

P-Value Method using the t-Distribution—Hypothesis Test Regarding μ with σ Unknown

Problem: A feed dealer buys 20% protein feed from a feed manufacturer and resells the feed to local ranchers. The feed dealer is interested in checking to make certain that the feed does not average less than 20% protein. Carry out a hypothesis test of the relevant null hypothesis at the 5% significance level. Show all of your calculations and justify your conclusion.

Step 1: Null and Alternative Hypotheses:

 H0: μ = 20% protein H1: μ < 20% protein

Step 2: Select α = 0.05.

Step 3: Draw a random sample of n=10 bags of feed. Calculate the sample standard deviation, s. Calculate the test statistic, t0, and the P-value.

Protein content of 10 bags of feed (%)

X

19.60, 19.95, 20.15, 19.90, 20.00,

19.82, 19.85, 20.04, 19.79, 19.60

Average = 19.87

to = (Xbar – Ho) / (s / sqrt (n))

= (19.87 – 20) / (0.178 / sqrt (10))

= -0.13 / 0.056

= -2.304

s = standard deviation that can be calculated by using the MS Excel formula = STDEV

Using Table III, the P-value is as follows: 0.02 < P-value < 0.025. When σ is unknown, exact P- values can be found only via technology (e.g., Excel P-value of 0.023 is shown below in Fig -3).

Step 4: Conclusion— As the P-value = 0.023 is less than α=0.05, reject H 0 at the 0.05 significance level. The mean protein level of the feed is significantly less than 20%.

Step 5: State the conclusion, with specific reference to the question under consideration.

The critical value represents the maximum number of standard deviations the sample mean can be from μ0 before the null hypothesis is rejected

3.7 A Basic Data Processing Sheet

The basic data sheet was designed in MS Excel. This was done so as to facilitate data extraction from the questionnaires and its processing.

3.8A Data processing methodology

The techniques used for data analysis and its presentation are explained below –

a. Pie charts and column diagrams have been used to represent the plain count for each of the data elements (Brown, 2011).

b. Agreement or disagreement has been measured using the Likert items and scale concept (Brown, 2011).

c. Basic statistical computations like mean, minimum, maximum and standard deviation have been calculated at appropriate places to get a feel of the features of the data (Brown, 2011).

d. Spearman'sCorrelation coefficient has been used to calculate the degree of association between two variables. This information has been presented by way of a matrix. Obviously the correlation between the same variable would be 1.

e. Since the standard deviation of responses of the population is not known, we have applied the t-test instead of the z-test which is a common practice.

f. For testing of the hypotheses following connotations have been applied –

SD is the standard deviation of the sample responses to the questions under each of the areas.

H1 is the hypothesized mean of the population agreement response taken at 50%. (in case of 2nd hypothesis, taken at 75%).

H0 is the average agreement percentage of the sample

n is the sample size

t-score is the t-test statistic value calculated using the formulae $((Ho-H1)/(SD/\sqrt{n}))$

p-value is the probability value calculated by using Excel t-dist formulae =TDIST(ABS(t-score),(n-1),1)

3.8 Validity & Reliability

Test of validity –The hypotheses, hypotheses testing method, questionnaire etc.werevalidated by the Guide and other experts in the field so as to ensure that the measurement was adequate and accurate in terms of the desired direction.

Test of reliability – Cronbach's Alpha and other tests were applied on the questionnaire using "Siegle Reliability Calculator" an excel program and the results are summarized as under – Test for the entire questionnaireof SEN students given in Fig 4,5,6 .

As the Cronbach's alpha score was more than 0.70, the questionnaire was considered as reliable.

Cronbach's Alpha and the other tests provide an assurance that the instrument being used for the research is reliable in the sense that it can be expected to produce consistent results over a period of time. Moreover we have used the "No Response" filter that provides an early exit option to the respondent if he or she doesn't know the response. This ensures that the responses fetched are reasonably accurate.

4. RESULT

Based on the direction of the study, collection of data, data analysis etc. the following table presents achievement of the research objectives Result

Research Findings

1. Profile characteristics of samples –

a. Class VIth and class VIIIth had a 36% representation each in the sample of the students, while class VIIth has a 28% representation in the sample of 400 SEN students.

b. 54% of the 400 SEN students were female whereas 46% of the SEN students were male.

c. 39% of the teachers sampled were teaching a mix of VIth, VIIth and VIIIth classes, whereas 18% of the teachers were teaching only the VIth class, 23% were teaching the VIIth class and 20% were teaching only the VIIIth class.

d. 71% of the teachers were female whereas 29% were male.

e. Parents had a fairly equal distribution with reference to the classes of their wards with 34% each belonging to the VIth and VIIth class, whereas 32% belonging to the VIIIth class.

f. 54% of the parents were female whereas 46% were male.

2. Inferential findings –

a. As many as 71% of the SEN students disagreed that they were not facing any problems with the current method of evaluation. In other words, they suggested that they were facing problems with the current method of evaluation.

b. Content analysis of 25 CBSE questions papers of classes VIth, VIIth and VIIIth of the subjects English, Hindi, Math, Science and Social Sciences showed that adherence level to Blooms Taxonomy was as low as 34% only.

c.   72% of the SEN students, 82% of the teachers and 88% of the parents agreed with the proposed method of evaluation in the direction of an inclusive classroom concept.

d.   While the pre-change method of evaluation was rated at 36%, the post-change method of evaluation was rated at 64% by the SEN students.

e.   73% of the SEN students, 83% of the parents and 89% of the teachers agreed that there is a need for improvement in assessment of oral skills.

f.   70% of the SEN students, 82% of the parents and 87% of the teachers agreed that there is a need for improvement in assessment of performance skills.

3.   Findings from finer data analysis –

The Spearman's correlation matrix on responses to the proposed method of evaluation between SEN students, teachers and parents was as under -

Correlation matrix (Spearman):			
Variables	Stu-Avg.	Tea-Avg.	Par-Avg.
Stu-Avg.	**1**	-0.018	-0.022
Tea-Avg.	-0.018	**1**	0.539
Par-Avg.	-0.022	0.539	**1**

Snapshot view of the research type, methodology, process and other elements shown

5.   CONCLUSION

a.   A high percentage of students disagreeing to the fact that they are not facing problems with the current system of evaluation leads us to conclude that there are problems faced by the SEN students with the current method of evaluation. These are in the form of not easily understanding the questions set in the evaluation methods, not very clearly understanding the questions set in the evaluation methods, wordings of the questions not guiding to the expected form of response, not understanding the expected length of the answers based on the questions and marks allotted, instructions given at the top of the paper not good enough to clarify overall expectations, time allowed not commensurate with the answers expected, degree of difficulty of questions not consistently observed for all the subjects, questions by and large not covering all aspects of the syllabus, ease in guessing the question papers on the basis of previous question papers and the question papers not being free of any typographical errors and confusing by using abbreviations etc.

b.   There was a high percentage of agreement on the part of the students, teachers and parents that both oral and performance skills are not assessed well. There was an overwhelming agreement that due attention should be paid to these two skills along with regular academics.

c.   On the basis of content analysis of 25 CBSE papers it can be concluded that the adherence level to Blooms Taxonomy is at a dismal level making it difficult for the SEN students to clearly understand the questions and their requirements. In other words, it can be concluded that the present method of evaluation is largely based on ad-hoc methods instead of standard systems like the Blooms Taxonomy.

d.   All the three respondents, SEN students, teachers and parents overwhelmingly agreed with the proposed methodology of evaluation in the direction of inclusive education. The guidelines agreed to in this regard were as under –

1) Questions as far as possible should be of MCQ types

2) Questions should be a mix of easy, little difficult and difficult questions

3) Evaluation should cover the entire syllabus

4) Question papers should not follow a repetitive pattern to prevent any kind of guessing based onprevious papers

5) Evaluation methods should follow standards like the Blooms Taxonomy

6) As far as possible evaluation should be online in a computerized set-up

7) In MCQ questions options like "All of the above" or "None of the above" etc. should be avoided

8) Evaluation should have a clear connect with the Learning Outcomes

9) Descriptive questions should clearly specify the length of expected response

10) A reasonable mix of oral evaluation with written evaluation should be done.

e.   A sizable difference was noted between the pre-change and post-change effectiveness of method of evaluation. The changed methodology was based on standard methods like Blooms Taxonomy and hence was found to be more acceptable to the students.

On an overall basis it can be concluded that if methods like Blooms Taxonomy are adopted and other measures suggested are followed it is possible to move a step further in the direction of an inclusive classroom.

The suggested methodology along with its rationale is described below -

1) Questions as far as possible should be of MCQ types – Such questions are more analytical in nature and makes the student think instead of recalling the answers based on pure memory.

2) Questions should be a mix of easy, little difficult and difficult questions – This is a more rational approach considering the needs of all types of students including the SEN students.

3) Evaluation should cover the entire syllabus – This helps the students to approach the subject in a more holistic manner instead of a pure exam-oriented approach.

4) Question papers should not follow a repetitive pattern to prevent any kind of guessing based on previous papers – Genuine knowledge evaluation would be facilitated when the guessing element is removed.

5) Evaluation methods should follow standards like the Blooms Taxonomy – Blooms Taxonomy has been accepted worldwide for its comprehensive and systematic approach for evaluation and hence it should be adopted.

6) As far as possible evaluation should be online in a computerized set-up – This era is a digital era. Gone are the days of paper, pen and pencil. Hence to be in tune with times, the evaluation should be in a computerized set-up.

7) In MCQ questions options like "All of the above" or "None of the above" etc. should be avoided – Such options are easy temptations for guess work and hence should be avoided.

8) Evaluation should have a clear connect with the Learning Outcomes – Often the learning outcomes are completely forgotten while designing the evaluation methods. This defeats the very purpose of learning the subject.

9) Descriptive questions should clearly specify the length of expected response – Otherwise student waste time on thinking about the expected length. There is no logic in being "secretive" about the expected length of the answer.

10) A reasonable mix of oral evaluation with written evaluation should be done – It will help develop both the methods of communication.

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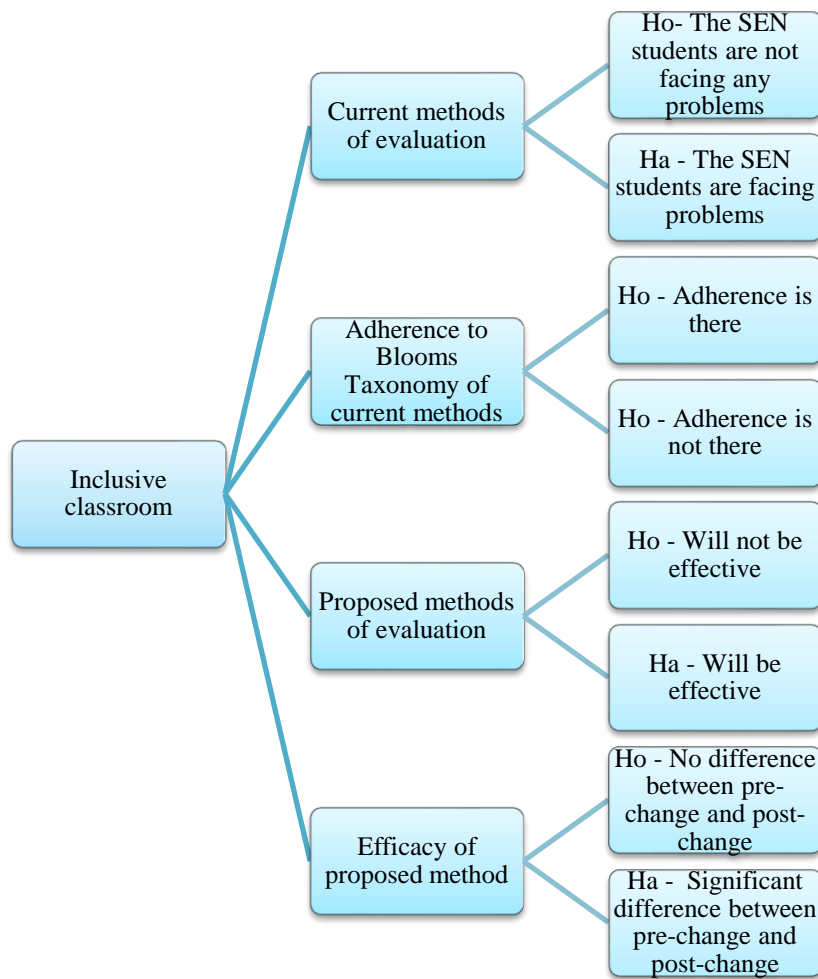
FIGURE & TABLES

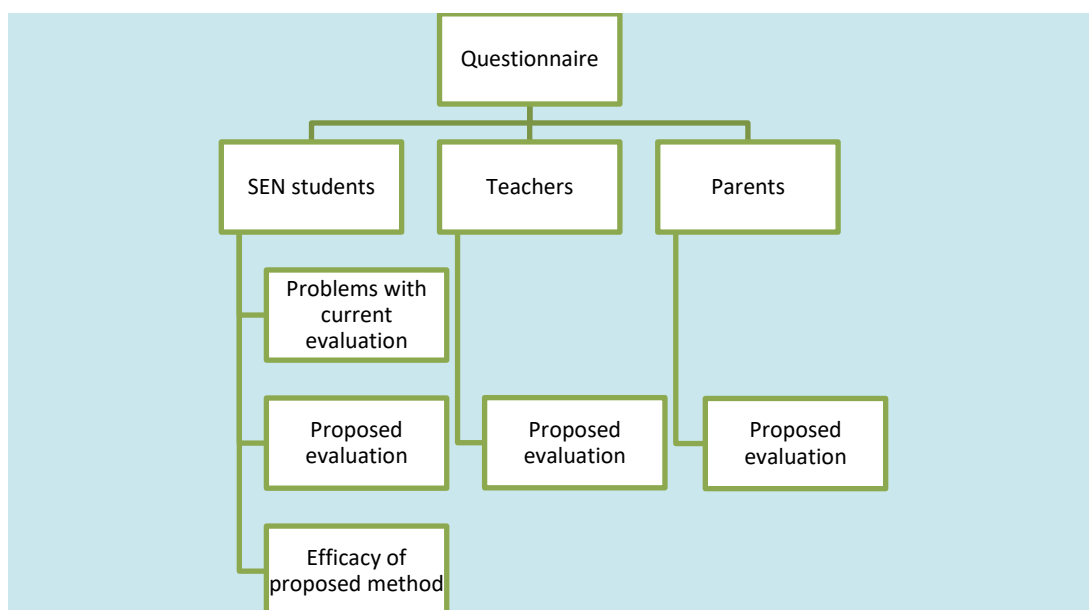**Figure 1 – Structure of the research and hypotheses formulation**
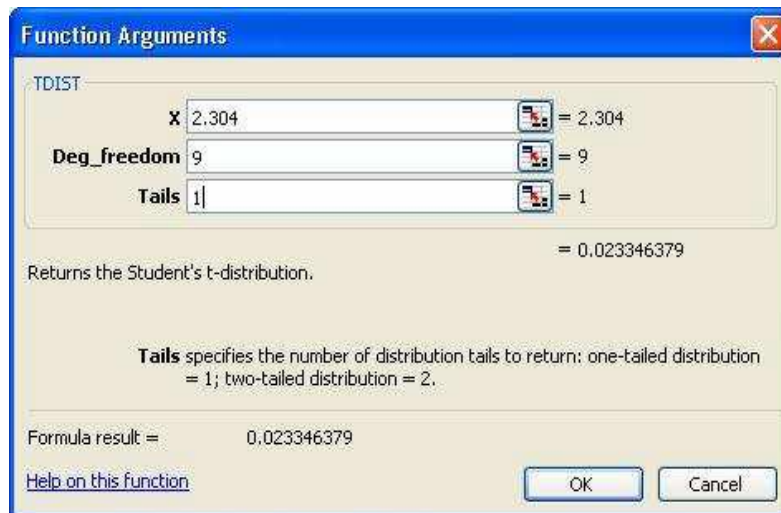

Figure 2 – Questionnaire scheme

Fig -3   P-value of 0.023

Figure 4– Cronbach'sAlphascorefor entire questionnaire (SEN students)

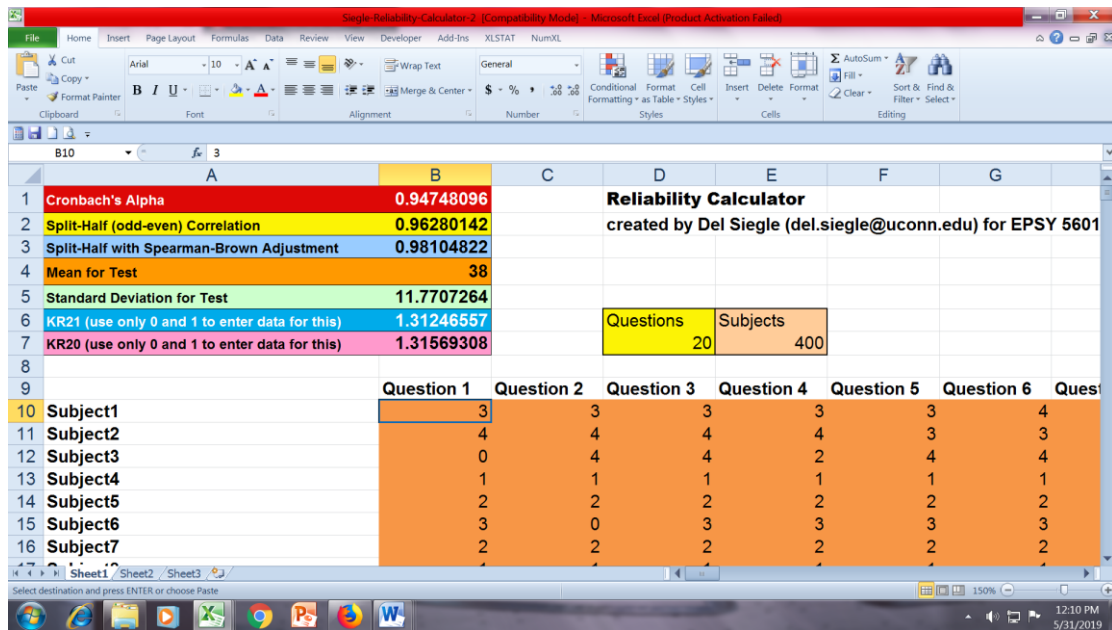**Figure 5 – Cronbach'sAlpha score for questionnaire (Teachers)**

Figure 6 – Cronbach'sAlpha score for questionnaire (Parents)

Table 1: Hypotheses formulation

Sr. No.	Area of study	Null Hypotheses (H0)	Alternate Hypotheses (HA)
1	Current method of evaluation	The SEN students are not facing any problems with current system of evaluation	The SEN students are facing problems with current system of evaluation
2	Content analysis of current methods with reference to Blooms Taxonomy	The existing evaluation schemes adhere to Blooms Taxonomy guidelines	The existing evaluation schemes do not adhere to Blooms Taxonomy guidelines
3	Proposed method for evaluation	The proposed evaluation scheme will not be useful.	The proposed evaluation scheme will be useful.
4	Efficacy of proposed method	There is no difference between pre-test and post-test understanding of the evaluation methods.	There is a difference between pre-test and post-test understanding of the evaluation methods.

Table 2: Popular CBSE Schools in Pune City

Sr. No	Name of the School
1	City International School
2	BharatiVidyapeeth English Medium School,Balewadi
3	Sanskriti School
4	City International School
5	City International School Kothrud
6	DattakalaShikshanSanstha
7	Holy Spirit Convent School
8	City International School
9	Dav Public School
10	New Pune Public School
11	Dnyanvardhini English Medium School
12	Global Indian International School
13	Gurukul English Medium School
14	Gurukul School
15	The Heritage School
16	Akshara International School

17	Air Force School
18	J. V. Patil International School
19	City Pride School
20	Podar International School Chakan
21	Pandurang International English School at PippaleSaudagarDist Pune
22	Mansukhbhai Kothari National School
23	Fazlani International School
24	Vidyashilp Public School
25	Priyadarshini School
26	R&de(Engrs.) School
27	KendriyaVidyalaya No.1
28	St. Josephs English Medium School
29	B K Birla Centre For Edn.
30	High Vision English Medium School
31	Blossom Public School
32	Rajiv Gandhi Academy Of E- School
33	DattakalaShikshanSanstha
34	Delhi Public School
35	KendriyaVidyalaya
36	B G Academy (Pratham)
37	KendriyaVidyalaya
38	Army Public School
39	Snbp International School
40	VikhePatilMem School
41	Nalanda English Medium School
42	VidyaPratishthansEng Med School
43	JawaharNavodayaVidyalaya
44	Priyadarshani Primary School
45	Glory English Medium School
46	Global Indian International School
47	ShriParshwaPradnyalaya
48	City International School
49	Dr. Cyrus Poonawalla English Medium School
50	Army Public School

Table 3: Resource identification for data collection for research variables

Sr. No.	Area	Primary Data resource	Secondary Data resource
1	Current method of evaluation	Responses to question 1 from the SEN Students questionnaire – total 10 sub-questions. Responses to sections IV & V from students questionnaire and sections II & III of parents and teachers questionnaire	Agency research, publications by individuals, research publication by institutions, annual reports etc.
2	Content analysis of current methods with reference to Blooms Taxonomy	Content analysis of 25 CBSE papers for class VIth, VIIth and VIIIth for subjects of English, Hindi, Math, Science and Social Science	Agency research, publications by individuals, research publication by institutions, annual reports etc.
3	Proposed method for evaluation	Responses to question 2 from the SEN Students questionnaire and question 1 from the Teachers and Parents questionnaire	Agency research, publications by individuals, research publication by institutions, annual reports etc.
4	Efficacy of proposed method	Responses to question 3 from the SEN Students questionnaire divided into two parts – Pre change and post-change.	Agency research, publications by individuals, research publication by institutions, annual reports etc.

Table 4: Study objectives, rationale for selection and plan for achievement

Sr. No.	Objective	Rationale for selection	Plan for Achievement
1	To identify existing evaluation scheme (Assessment and feedback) for classes VI – VIII of CBSE Schools in Inclusive classrooms.	This was to understand the nature of existing evaluation scheme in order to gauge if it serves the concept of an inclusive classroom.	Content analysis of 25 CBSE papers of class VIth, VIIth and VIIIth was planned to check adherence to Blooms Taxonomy.
2	To analyze the existing evaluation scheme considering needs of Inclusive classroom.	This was to understand issues with existing evaluation scheme, if any. The inputs were considered valuable while suggesting the new scheme.	Question 1 of the SEN student questionnaire was to be used to examine this aspect.
3	To develop an Evaluation scheme for Inclusive classroom (ESIC).	An evaluation scheme that confirms with standards like the Blooms Taxonomy can be helpful for inclusive classroom concept.	Opinion on the proposed methodology weretobe taken from SEN students, teachers and parents.
4	To test the efficacy of the developed evaluation scheme (ESIC).	Whether the proposed scheme is really useful or not ought to be checked through a practical experiment.	Pre-change and post-change opinions of the SEN students were to be taken based on a pre-change and post-change question paper as per old and new methods of evaluation.

Table 5 – Summary view of major research parameters

Sr. No.	Element	Parameters applied
1	Research type	Qualitativeand Quantitative
2	Research approach	Empirical study based on primary and secondary data and use of mix methods
3	Research subject	Development of an evaluation scheme for Inclusive Classroom
4	Hypotheses	Ho1 – The SEN students are not facing any problems with current system of evaluation Ha1 – The SEN students are facing problems with current system of evaluation (Tested on the basis of survey of SEN students) Ho2 – The existing evaluation schemes adhere to Blooms Taxonomy guidelines Ha2 - The existing evaluation schemes do not adhere to Blooms Taxonomy guidelines (Tested on the basis of content analysis of CBSE school question papers) Ho3 – The proposed evaluation scheme will not be useful Ha3 – The proposed evaluation scheme will be useful (Tested on the basis of survey of SEN students, teachers and parents) Ho4 – There is no difference between pre-test and post-test understanding of the evaluation methods Ha4 – There is a difference between pre-test and post-test understanding of the evaluation methods (Tested on the basis of survey of SEN students)

5	Population and sample	Population estimated to be more than 20000. (large population) Total sample size was fixed at 400 SEN students, teachers and parents.
6	Type of research data	a. Primary data – responses collected from 400 SEN students, 400 teachers and 400 parents b. Secondary data – Printed literature, websites, annual reports etc.
7	Tool used for data collection	Questionnaire
8	Tools used for data analysis	Statistical test (T-test), correlation, regression, tabulation, charts etc.
9	Validation and reliability testing	Done from time to time through discussion with Guide and other experts in the field and also through publication of research article on the study in reputed journals. Tests like Cronbach alpha were also used.

Questionnaire – SEN students

QUESTIONNAIRE	
DEVELOPMENT OF AN EVALUATION SCHEME FOR INCLUSIVE CLASSROOM	
(Responses are to be recorded in column C only by way of selection from the pop-up menu)	
1 Name of the student (not to be entered for confidentiality)	
2 Class of the respondent (VI, VII, VIII)	
3 Gender (Female, Male)	
I. Assessment of present evaluation methods	
Response Codes - 0 - No response, 1 - Somewhat agree, 2 - Completely agree, 3 - Somewhat Disagree, 4 - Completely Disagree	
For the following statements please record your response on the scale given above -	
1 We can easily understand the questions set in the evaluation methods	
2 We can very clearly understand the questions set in the evaluation methods	
3 The wordings of the questions guide us to the expected form of response	
4 We can understand the expected length of the answers based on the questions and marks allotted	
5 The instructions given at the top of the paper are good enough to clarify overall expectations	
6 Time allowed is commensurate with the answers expected	
7 Degree of difficulty of questions is consistently observed for all the subjects	
8 Questions by and large cover all aspects of the syllabus	
9 It is not difficult to easily guess the question papers on the basis of previous question papers	
10 The question papers are free of any typographical errors and doesn't confuse us by using abbreviations etc.	
II. Proposed method of evaluation (General guidelines)	
Response Codes - 0 - No response, 1 - Somewhat agree, 2 - Completely agree, 3 - Somewhat Disagree, 4 - Completely Disagree	
For the following statements please record your response on the scale given above -	
1 Questions as far as possible should be of MCQ types	
2 Questions should be a mix of easy, little difficult and difficult questions	
3 Evaluation should cover the entire syllabus	

4	Question papers should not follow a repetitive pattern to prevent any kind of guessing based on previous papers	
5	Evaluation methods should follow standards like the Blooms Taxonomy	
6	As far as possible evaluation should be online in a computerized set-up	
7	In MCQ questions options like "All of the above" or "None of the above" etc. should be avoided	
8	Evaluation should have a clear connect with the Learning Outcomes	
9	Descriptive questions should clearly specify the length of expected response	
10	A reasonable mix of oral evaluation with written evaluation should be done	

III. Pre & Post evaluation

Rate the two question papers on the adjacent sheet on a scale of 1-5 (1-Poor, 2-Just Ok, 3-Good, 4, Very Good, 5 - Excellent) for the 10 parameters given below

	Parameter	Pre	Post (New)
1	Ease of understanding due to choice of words		
2	Clarity due to specific instructions		
3	Convenience in answering		
4	Coverage of syllabus		
5	Balanced mixture of difficulty level questions		
6	Linkage with Learning Outcomes		
7	Balancing of oral and written evaluation		
8	Error free questions		
9	Effectiveness due to usage of Blooms Taxonomy		
10	Overall quality of evaluation (neatness, clarity etc.)		

IV. Evaluation of Oral Skill assessment tools

Response Codes - 0 - No response, 1 - Somewhat agree, 2 - Completely agree, 3 - Somewhat Disagree, 4 - Completely Disagree

For the following statements please record your response on the scale given above -

1	The assessment is restricted to oral exams at term-end	
2	There is no formal or informal attempt to improve oral skills	
3	Seldom we are motivated to take part in debating, elocution etc.	
4	Roles like anchoring are always given to select students only	
5	Attempts should be made to improve oral skills of all students	

V. Evaluation of Performance Skill assessment tools

Response Codes - 0 - No response, 1 - Somewhat agree, 2 - Completely agree, 3 - Somewhat Disagree, 4 - Completely Disagree

For the following statements please record your response on the scale given above -

1	There is no assessment of performance skills other than small projects	
2	There is no formal or informal attempt to improve performance skills	
3	Activity-based skills can help improve performance	
4	Activity-based learning needs to be given a priority	
5	Attempts should be made to improve performance skills of all students	

Questionnaire – Teachers

QUESTIONNAIRE		
DEVELOPMENT OF AN EVALUATION SCHEME FOR INCLUSIVE CLASSROOM		
(Responses are to be recorded in column C only by way of selection from the pop-up menu)		
1	Name of the teacher (not to be entered for confidentiality)	
2	Class taught by the respondent (VI, VII, VIII, Mix)	
3	Gender (Female, Male)	

I. Proposed method of evaluation		
Response Codes - 0 - No response, 1 - Somewhat agree, 2 - Completely agree, 3 - Somewhat Disagree, 4 - Completely Disagree		
For the following statements please record your response on the scale given above		
1	Questions as far as possible should be of MCQ types	
2	Questions should be a mix of easy, little difficult & difficult questions	
3	Evaluation should cover the entire syllabus	
4	Question papers should not follow a repetitive pattern to prevent any kind of guessing based on previous papers	
5	Evaluation methods should follow standards like the Blooms Taxonomy	
6	As far as possible evaluation should be online in a computerized set-up	
7	In MCQ questions options like "All of the above" or "None of the above" etc. should be avoided	
8	Evaluation should have a clear connect with the Learning Outcomes	
9	Descriptive questions should clearly specify the length of expected response	
10	A reasonable mix of oral evaluation with written evaluation should be done	
II. Evaluation of Oral Skill assessment tools		
Response Codes - 0 - No response, 1 - Somewhat agree, 2 - Completely agree, 3 - Somewhat Disagree, 4 - Completely Disagree		
For the following statements please record your response on the scale given above -		
1	The assessment is restricted to oral exams at term-end	
2	There is no formal or informal attempt to improve oral skills	
3	Seldom we are motivated to take part in debating, elocution etc.	
4	Roles like anchoring are always given to select students only	
5	Attempts should be made to improve oral skills of all students	
III. Evaluation of Performance Skill assessment tools		
Response Codes - 0 - No response, 1 - Somewhat agree, 2 - Completely agree, 3 - Somewhat Disagree, 4 - Completely Disagree		
For the following statements please record your response on the scale given above -		
1	There is no assessment of performance skills other than small projects	
2	There is no formal or informal attempt to improve performance skills	
3	Activity-based skills can help improve performance	
4	Activity-based learning needs to be given a priority	
5	Attempts should be made to improve performance skills of all students	

Questionnaire – Parents

QUESTIONNAIRE		
DEVELOPMENT OF AN EVALUATION SCHEME FOR INCLUSIVE CLASSROOM		
(Responses are to be recorded in column C only by way of selection from the pop-up menu)		
1	Name of the parent (not to be entered for confidentiality)	
2	Class of the ward (VI, VII, VIII)	
3	Gender (Female, Male)	
I. Proposed method of evaluation		
Response Codes - 0 - No response, 1 - Somewhat agree, 2 - Completely agree, 3 - Somewhat Disagree, 4 - Completely Disagree		
For the following statements please record your response on the scale given above		
1	Questions as far as possible should be of MCQ types	
2	Questions should be a mix of easy, little difficult and difficult questions	
3	Evaluation should cover the entire syllabus	
4	Question papers should not follow a repetitive pattern to prevent any kind of guessing based on previous papers	
5	Evaluation methods should follow standards like the Blooms Taxonomy	
6	As far as possible evaluation should be online in a computerized set-up	
7	In MCQ questions options like "All of the above" or "None of the above" etc. should be avoided	
8	Evaluation should have a clear connect with the Learning Outcomes	

9	Descriptive questions should clearly specify the length of expected response	
10	A reasonable mix of oral evaluation with written evaluation should be done	
II. Evaluation of Oral Skill assessment tools		
Response Codes - 0 - No response, 1 - Somewhat agree, 2 - Completely agree, 3 - Somewhat Disagree, 4 - Completely Disagree		
For the following statements please record your response on the scale given above -		
1	The assessment is restricted to oral exams at term-end	
2	There is no formal or informal attempt to improve oral skills	
3	Seldom we are motivated to take part in debating, elocution etc.	
4	Roles like anchoring are always given to select students only	
5	Attempts should be made to improve oral skills of all students	
III. Evaluation of Performance Skill assessment tools		
Response Codes - 0 - No response, 1 - Somewhat agree, 2 - Completely agree, 3 - Somewhat Disagree, 4 - Completely Disagree		
For the following statements please record your response on the scale given above -		
1	There is no assessment of performance skills other than small projects	
2	There is no formal or informal attempt to improve performance skills	
3	Activity-based skills can help improve performance	
4	Activity-based learning needs to be given a priority	
5	Attempts should be made to improve performance skills of all students	