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Implementation of continuous and comprehensive evaluation in mathematics assessment

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Abstract: Continuous and Comprehensive Evaluation (CCE) was introduced in the Indian education system in 2004 as an assessment scheme with an aim to refurbish the existing education system which was exam-oriented, rigid and promoted only lower order learning among students. The application of this scheme was made mandatory in all the State Board Schools of Gujarat from the year 2011. This paper is based on the findings of a survey carried out on 30% of the Secondary and Higher Secondary State Board Schools in the city of Vadodara in January 2014. The survey dealt with an important objective of CCE: 'the development of Higher Order Thinking Skills in students', narrowing the spectrum only to the subject of Mathematics. Responses of the Mathematics teachers were analyzed to attain information on their awareness and comprehension regarding all aspects of CCE, the tools and techniques used to implement CCE, the methods used by them to inculcate and assess higher order thinking skills among students and the difficulties they faced while implementing CCE. A semi-structured interview was also conducted to understand the support provided by the State Government to aid Mathematics teachers to comprehend and implement the scheme well. It was found that though teachers had theoretical understanding about CCE, their practical application was mechanical and lacked holistic conceptual understanding. The transaction of higher order thinking skills were yet to get due importance from teachers and authorities and a more intensive training highlighting the bigger perspective of CCE was required to be planned out by concerned authorities.

Keywords: Continuous comprehensive evaluation, mathematics education, higher order thinking skills, support system for teachers

Introduction

"Education teaches how to think", this statement given by Otto Friedrich is probably the most fitting way to define Education. Indeed education in its most primitive and purest form has been teaching human beings to think, act, evaluate and inculcate a set of values. The dominance of education over mankind has increased many fold times today; as it is the main source of human resource required for the unbounded progress that we aspire for.

The school plays an important role in helping children according to their unique needs and potentialities. It is in the classroom that learners can analyze and evaluate their experiences, learn to doubt, to question, to investigate and to think independently. Shere (as cited in Faith, 2013) defines life skills as "the ability to analyze a situation, propose a

solution and, should that solution not work, be able to re-strategize to try again". These skills can mould the mentality of a child and make him a challenge facer and a life winner. The subject of Mathematics displays a wide scope in developing and enhancing these skills. The learning of Mathematics also is an excellent vehicle to train minds, and to develop the capacity to think logically, abstractly, critically and creatively. These are important 21st century competencies that we must imbibe in our students.

Higher order thinking skills include critical, logical, reflective, meta-cognitive, and creative thinking. They are activated when individuals encounter unfamiliar problems, uncertainties, questions, or dilemmas. Valid assessment of higher order thinking skills requires that students be unfamiliar with the questions or tasks they have sufficient prior knowledge, to enable them to use their higher order thinking skills in answering questions or performing tasks. Classroom teachers recognize the importance of having students develop higher order thinking skills yet often do not assess their student's progress (King, Goodson, and Rohani, n.d.). Shah (2005) concluded in his Study that the students lacked higher order skills. The Study of Yerraiah (2013) indicated that one of the factors that cause hindrance in Mathematics learning was examination focused assessment which caused the teachers to dilute the curriculum. The Study of Blom & Saeki (2010) revealed the deficiency of higher-order thinking skills in Indian graduates.

Thus, it becomes imperative to establish and execute an evaluation system in schools which makes it mandatory to develop and assess higher order thinking skills among students.

In order to renovate, revamp and rejuvenate the existing education system, India's Right to Education Act (RTE, 2009), includes a promising mechanism for improving pedagogical practice; the mandatory introduction of Continuous and Comprehensive Evaluation (CCE) scheme: the first and the boldest expression of the government's intent to introduce the concept of quality learning into school education.

Continuous and comprehensive evaluation (CCE)

The Continuous and Comprehensive evaluation system was introduced and implemented by the Central Board of Secondary Education (CBSE) in Primary classes (I to V) in 2004 in India. It was based on the recommendations presented in the National Curriculum Framework (NCF-2005). The Position Paper on Examination Reforms (2006), states that CCE should be established to (i) reduce stress on children, (ii) make evaluation comprehensive and regular, (iii) provide space for the teacher for creative teaching, (iv) provide a tool for diagnosis and for producing learners with greater skills. It also laid the condition that, the CCE scheme should be simple, flexible, and implementable in any type of school from the elite one to a school located in the rural or tribal areas. Keeping in view the broad principles of the scheme, each school should evolve a simple suitable scheme involving its teachers, and owned by the teachers.

In the State of Gujarat, CCE was first implemented for class II children in1998 in 566 schools as a pilot project. Later these were updated as per the NCF-2005. The CCE

framework was developed by State Resource Group and approved by the Curriculum Committee. It was piloted during year 2011-2012 in two modes. One model was designed for pilot schools for new textbooks and the second one was for all remaining schools across the states. Since the textbooks of UpperPrimary classes have been introduced last year, the piloted CCE model has been scaled up across the state up to class VIII. Textbooks and workbooks have scope for CCE during classroom teaching itself. A package of instruction and formats has been developed. The training of all teachers was organized through teleconference and face to face mode.

Thus, this paper discusses the implementation status of CCE in Mathematics assessment in the Gujarat Secondary and Higher Secondary Education Board (GSHSEB) schools specifically addressing four areas: (1) The awareness level, regarding CCE, among Mathematics teachers. (2) The extent to which the higher order thinking skills are being assessed by the teachers. (3) The difficulties faced by the teachers in implementing CCE. (4) The support and the guidance provided to them by Government officials.

Need for the study

An article in the Times of India (March 25, 2014, p. 10) stated, "As we tried to reach education to the lowest common denominator, we constantly lowered standards so that the weakest could catch up." It further emphasized the country's need for intelligent (not clever) and imaginative (not plagiarist) individuals, who are equipped with thinking skills. Education is the only apostle we can look up to, which can take up the challenge of creating such stalwarts. In fact various Educational Commissions and Committees have been emphasizing on the issue of bringing in quality in Indian education.

The major step incorporated to achieve this goal is the introduction of CCE, which not only envisages the all-round development of the child but also aims to equip him with a strong mind ingrained with higher order thinking skills. This long term venture with futuristic goals for the entire nation can reach its final destination successfully only if it is critically studied and modified in its formative stages. The CCE blueprint would become ineffective and futile, if its comprehension does not reach the grass root level, that is, the teachers. Presently, CCE is in its initial implementation stage in Gujarat, and before it gets interpreted and practiced in a wrong way and matures as one more defective system; it is very important to continuously review it, analyze and diagnose it, pick out the hurdles and set it on the right track.

The strategies of CCE, if implemented well, can promote higher-order thinking skills. Also one of the objectives of CCE, as mentioned in the GCERT's 'School based Comprehensive Evaluation (SCE)' Teacher's Module, happens to be 'Development of Higher Order Thinking Skills in the students'. After two years of its execution in Gujarat, it becomes imperative to know, whether CCE has earned a better place in the minds of the teachers? Is there an increase in their awareness levels with respect to its various components? Are they actually using the mechanisms of CCE to inculcate higher-order thinking skills in students, and in doing so, what difficulties are they facing

and support are they getting? These are some questions, the investigator sought to find answers to, through this Study.

The present Study addresses these queries with aid of responses attained from *Mathematics teachers* teaching in UpperPrimary classes in State Board Schools in Vadodara city and *educationists* responsible for training, monitoring and guiding the teachers.

Key terminologies

Gujarat Secondary and Higher Secondary Education Board (GSHSEB)

It is the short form of Gujarat Secondary and Higher Secondary Education Board, which has under its aegis schools that include classes from I to XII. Upper Primary section includes classes VI to VIII.

Continuous and comprehensive evaluation (CCE)

It is a system of school based evaluation of students, framed by the Central government and passed on to the State government for implementation. The CCE is also referred to as School based Comprehensive Evaluation (SCE) in Gujarat. The Study is delimited only to the subject of Mathematics.

Higher order thinking skills

The present Study deals with the methods used by Mathematics teachers to assess mathematical thinking skills, logical reasoning, spatial representation and problem solving.

Objectives

This paper reports a study that took place in January 2014. It used quantitative as well as qualitative research method to accomplish the following objectives:

1. To study the awareness among the Mathematics teachers regarding CCE in the Upper Primary sections of GSHSEB schools of Vadodara city.
2. To study the extent to which CCE implementation in GSHSEB schools focus on higher order thinking skills in Mathematics.
3. To study the difficulties faced by the Mathematics teachers in implementing CCE.
4. To study the support mechanisms provided by the Government officials to the Mathematics teachers teaching in GSHSEB schools for CCE implementation.

Method

Participants

A stratified sampling technique was used to select the samples to address the first three objectives of the study. Data was attained from a random sample of total 21 schools and

50 teachers teaching Mathematics in the Upper Primary sections in GSHSEB schools in Vadodara city. To address the fourth objective, 5 government officials out of the 16 were selected.

Delimitation of the study

The study was delimited to the Mathematics teachers teaching in the Upper Primary sections of English medium GSHSEB Schools in Vadodara city, India.

Survey instruments

A questionnaire comprised of three sections, each with close and open ended questions so as to elicit data and also to probe as and when it was thought necessary, was constructed. The open-ended questions were framed in order to check the authenticity of the close-ended answers. This tool mainly focused on the first three objectives of the Study. For the semi structured interview, the investigator had a set of seven questions or themes framed beforehand, keeping the fourth objective in mind.

Procedure

The prepared tool was presented to five experts, comprising of one language expert, two subject experts and two experienced teachers teaching Mathematics in GSHSEB schools. Oral as well as written comments were incorporated to modify the tool before proceeding ahead with the data collection procedure. Data was collected personally by the investigator from each of the 21 sampled schools. The next stage comprised of gaining access to the government officials involved in the operational aspects of CCE in Vadodara which was followed by individual semi structured interviews of 5 officials.

Results

Awareness of teachers regarding the components of CCE

Analysis of the data referring to the awareness of the teachers regarding the several components of CCE can be summarized in Figure 1.

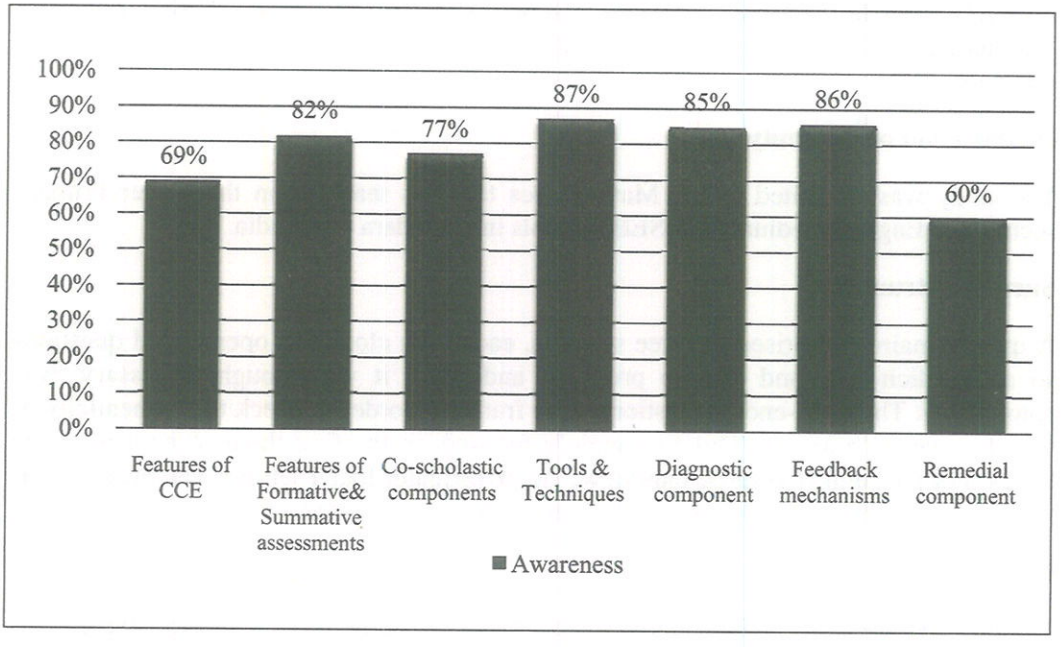

Figure 1: *Awareness of teachers regarding all the components of CCE*

With due consideration to all the components of CCE as shown in figure 1, it can be inferred that around 78% of the teachers were aware about all the components of CCE. Majority of them could identify with the vivid characteristics of CCE.

Co-scholastic component

Most of the teachers used scholastic activities like group discussions, project presentations, group activities etc. to assess and inculcate co-scholastic aspects like cooperation, regularity, leadership, initiative and interpersonal relationships in the students.

Tools and techniques component

Majority of the teachers seemed to use Questions, Observations, Examinations, Tests, Assignments, Group discussions and Projects as tool/techniques to assess students. Use of Interview, Document analysis, Checklist, Activities, Research, though less, but used by teachers in varied math topics was appreciable.

Table 1: *Use of tools and techniques*

	Contents (Mathematics)	Tools (appropriate)			Techniques (inappropriate)		
		Interview	Document Analysis	Checklist	Research	Debate	Experiment
1	Numbering System	2	1	5	-	2	-
2	Fractions - Decimals	-	4	-	-	-	-
3	Exponents & Power	2	1	3	-	-	2
4	Comparing Quantities	1	11	10	-	1	-
5	Algebra	-	3	-	1	-	-
6	Data Handling	-	-	-	-	-	2
7	Geometry	3	7	-	4	1	-
8	Mensuration	-	3	-	2	-	-
9	Graphs	-	-	-	-	1	-
10	Playing with numbers	4	4	1	1	1	2
Total (50 teachers)		12 (24%)	34 (68%)	19 (38%)	8 (16%)	6 (12%)	6 (12%)
					Average : 13.3%		

As indicated in Table 1, there seems to be a mismatch between the Math contents and the techniques used for assessment. For example, use of 'Debate' for assessment in topics like Numbering system, Comparing quantities, Geometry, Graphs is unlikely. Similarly, Research and Experiment were techniques misinterpreted among teachers. Thus, it could be concluded that teachers used comprehensive Tools and Techniques for assessment, but whether or not they were being appropriately used needs a deeper scrutiny.

Diagnosis, feedback and remedial component

The three main aspects of CCE which go hand in hand are Diagnosis, Feedback and Remedial. Table 2 and Table 3 enumerate the responses of teachers in this regard.

Table 2: *Responses of teachers regarding diagnosis as a feature of CCE*

Sl. No.	Diagnosis of learning difficulties	Always	Very often	Sometimes	Rarely	Never	No Response
1	Done on continuous basis	52%	18%	12%	4%	0%	14%
2	Done using diagnostic tests	6%	28%	30%	18%	4%	14%
3	Done using regular unit tests	44%	7%	14%	20%	0%	15%
Awareness regarding the diagnostic aspects of CCE among teachers is 85% (average of all the responses given by the teachers)							

From Table 2, it can be interpreted that majority of the teachers diagnosed the learning difficulties of students on a continuous basis – during regular instructions or from unit tests. A small number of teachers also designed special diagnostic tests for the same purpose.

The graphical representation of the tabulated data is shown in Figure 2 below.

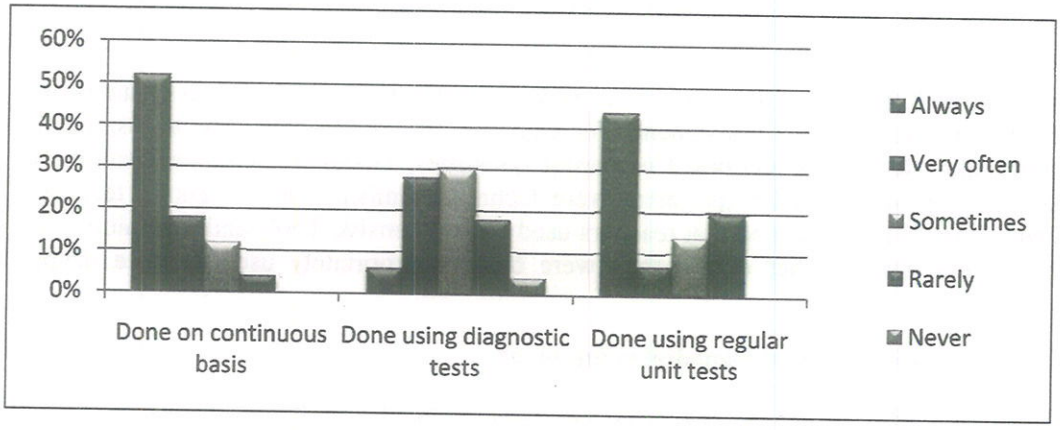

Figure 2: *Execution of diagnostics by teachers*

Awareness of teachers about feedback mechanisms used under CCE

Table 3: *Responses of teachers regarding feedback mechanisms used*

Sr. No.	Feedback	Always %	Very often %	Sometimes %	Rarely %	Never %	No Response %
1	Verbal feedback	66	14	8	2	0	10
2	Descriptive written feedback	16	28	38	4	0	14
3	Self assessment	34	16	18	12	2	18
4	Peer assessment	18	16	38	4	8	16
Awareness regarding the feedback mechanisms of CCE among teachers was 86%							

Results in Table 3 revealed that majority of the teachers provided verbal feedback on a continuous basis, while a few of them took the effort to provide written feedbacks. Some of the teachers also provided opportunities for self assessment and peer assessment to students. The identification of learning difficulties of the students was followed by the provision of remedial measures to them. Majority of the teachers made use of extra or free periods for this purpose. Around sixty per cent of the teachers were identified to provide remedial to student.

The graphical representation of the tabulated data is shown in the next page.

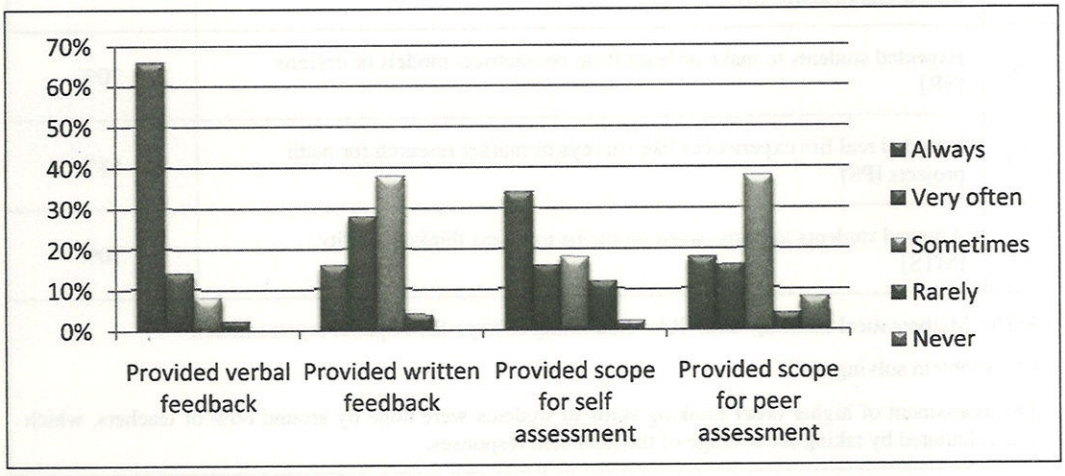

Figure 3: *Execution of different feedback mechanisms adopted by teachers*

Assessment of higher order thinking skills by Mathematics teachers

Table 4: *Methods used for the assessment of higher order thinking skills*

Sl. No.	Responses of Teachers	Assessment of HOTS%
1	Allowed students to use own techniques to memorize tables [MTS]	73%
2	Allowed students to use any relevant method to solve math problems [RA]	85%
3	Framed question paper with sums other than the ones in the text books [RA]	73%
4	Directed questions to assess the ability of students to think in different directions [MTS]	66%
5	Allowed the students to explore the given mathematics activity/project without providing well framed steps [MTS]	27%
6	Allowed the students to explain solutions verbally to assess their reasoning ability [RA]	88%
7	Provided questions like 'Explain why 2/3 < 3/2 using diagrams' over '2/3 – 3/4 (<,>,=)' [SR]	46%
8	Focused on the ability to accurately measure a given object /liquid to assess measurement skills [SR]	37%
9	Expected students to make or learn from geometrical models or designs [SR]	70%
10	Included real life experiences like surveys or market research for math projects [PS]	68%
11	Allowed students to frame word problems to assess thinking ability [MTS]	70%

MTS : Mathematical thinking skill, RA : Reasoning ability, SR : Spatial representation

PS : Problem solving skill

The assessment of higher order thinking skills in students were done by around 66% of teachers, which was calculated by taking the average of the tabulated responses.

Table 5: *Tools/ techniques used for the assessment of higher order thinking skills*

Sl.No.	Responses	Used by	
1.	**Thinking skills**		
	Questioning in the form of word problems, oral questioning, mental ability tests, quizzes, puzzles & extra questions	68%	**80%**
	Laboratory activities	7%	
	Paper pencil test	5%	
	No/Unsuitable response		20%
2.	**Logical Reasoning**		
	Written assessments	24%	**62%**
	Games & Puzzles	26%	
	Various activities	12%	
	No/unsuitable response		34%
3.	**Spatial Representation**		
	Drawing of two dimensional figures	15%	**55%**
	Geometrical models	29%	
	Cut & paste activities and chart making	7%	
	Geometrical activities	4%	
	No/Unsuitable response		45%
4.	**Problem Solving**		
	Word problems	34%	**57%**
	Activities related to real life	15%	
	Field work	5%	
	Tests	3%	
	No/Unsuitable response		43%
The average of 80%, 62%, 55%, and 57% is 63.5%			

From the analyzed data shown in Table 4, it can be interpreted that around 27% of the teachers set question papers with the same sums given in text books – which indirectly promoted rote memorization. More than 50% of the teachers provided lower order questions in the tests and although 68% of the teachers admitted they provided surveys or market research in the close ended question, the open ended question as analyzed in Table 5 revealed only 5% teachers engaged the students in field work. Also the Table 6, given below contradicts the same, revealing the fact that only 6.25% of the teachers provided real life learning experiences in the form of research to students.

Table 6: *Responses of teachers regarding the implementation of tools and techniques*

Sl. No.	Tools	% of Usage	Techniques	% of Usage
1.	Question	41%	Examination & Test	29%
2.	Observation	32.5%	Assignment	18.50%
3.	Interview	4.1%	Project	18.25%
4.	Checklist	9.1%	Debate	1%
5.	Document Analysis	13.3%	Group Discussion	11.25%
6.			Activity	12.25%
7.			Experiment	3.50%
8.			Research	6.25%

Thus, through different questions addressing the same issue, the investigator was able to detect dichotomies in the responses given by the teachers and that is how the authenticity of the Study was established.

An overall analysis of the attained data, provided ground to the investigator to conclude that although the teachers were aware of the components of CCE, only around sixty per cent of them were able to implement it, to sharpen the higher order thinking skills of the students. The same can be represented graphically as shown in Figure 4.

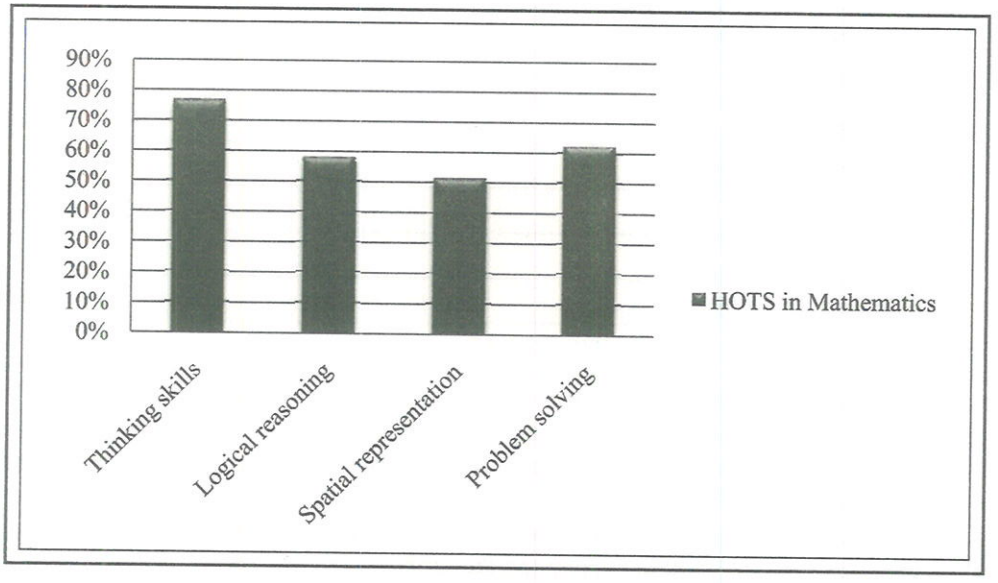

Figure 4: *Assessment of higher order thinking skills in mathematics*

Difficulties faced by teachers in the implementation of CCE

Table 7: *Major difficulties faced by teachers*

Sl. No.	Difficulties	
1.	Syllabus completion	71%
2.	Changing the instructional methods	48%
3.	Provision of individual attention to students	83%
4.	Equal distribution of tasks in group activities	54%
5.	Provision of grades in group activities	44%
6.	Provision of grades in projects	28%
7.	Selection of relevant activities/projects	58%
8.	Time constraints	74%

On an average 58% of the teachers faced difficulties in varying amounts in different aspects related to CCE implementation.

The graphical representation of the same is shown below.

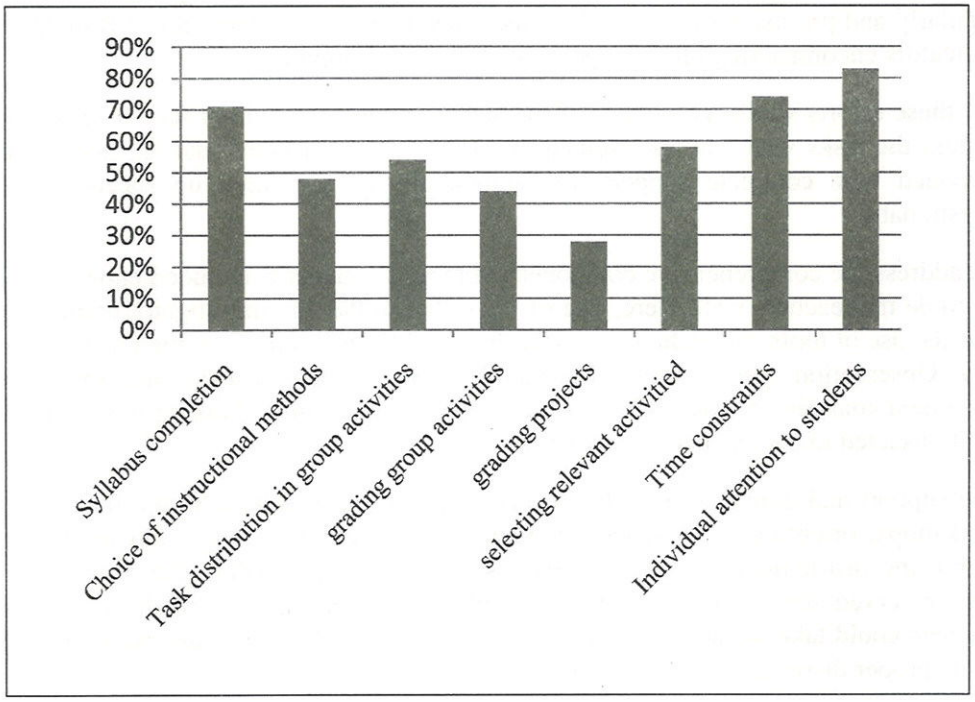

Figure 5: *Difficulties faced by teachers in CCE implementation*

Support mechanisms provided by the government officials to the teachers

The data collected from the semi-structured interview and an intrinsic study of the Teacher Education Module (School based Comprehensive Evaluation-SCE) issued by Gujarat Council of Education Research and Training (GCERT) made available to all teachers, helped the investigator to interpret in a nutshell that, 'the CCE in Gujarat was in its formative stage and efforts were on for its fruitful implementation'.

The Government's efforts in initializing the CCE included arranging mass training programmes, organizing workshops, voluntary visits to schools to extend help, providing guidelines in the form of the Teacher Module and Handbook, and publishing CCE incorporated textbooks. All the teachers and schools in the district could not be covered yet. The Teacher's module in the government website could be viewed for reference by schools and teachers.

The Teacher's Module prepared to help the teachers, had the various components of SCE described in a clear and detailed manner, but was available only in local language and this was a setback for most of the English Medium schools in Vadodara, under the wings of GCERT.

The Formatted sheets prepared to help the teachers with the documentation had its set of merits and demerits. Sheet A filled up by teachers could provide information regarding the continuous assessment of students, diagnosis of the learning difficulties done regularly and provision of remedial for the objectives not achieved. Sheet B included 40 indicators encompassing all the aspects of student development.

All these efforts would get diluted if the school authorities did not take it up seriously. Unless the tasks were not streamlined, work was not distributed and teachers were not provided with complete support, the authenticity of the filled up sheets would be questionable.

To address the comprehensive component of the SCE, Sheet B included enough pointers to guide the teachers well. Here, one of the setbacks that the investigator could identify was the use of tools and techniques; only the usual Questioning in written and oral forms and Observation were listed. Mechanisms like group discussions, experiments, document analysis, research which could promote higher order thinking in students were not transacted to the teachers in any form.

The support and guidance provided to mathematics teachers were in the form of a few workshops, orienting the teachers to mathematical activities that could be embedded within the instructional process, to exercise the SCE philosophy. The Math Resource Center served the purpose of making mathematics real life oriented. But very few teachers could take the advantage of these opportunities. Limited staff caused hindrance in the proper dissemination of knowledge.

No steps were taken to promote the teaching of higher order thinking skills among students. Concentrating only on Mathematics, the investigator could find very few sums

in the text books (GCERT) which promoted such skills in the students. Also the activities enlisted in the textbooks did not provide much scope for higher order thinking.

With 'Capacity building' as the agenda for future trainings and workshops, the government authorities were on the right track. It is only excellent quality training that could make the CCE implementation successful; this has been acknowledged by various research studies. The same followed here can reap great results.

Major findings

The major findings of the study are as follows:

- Around seventy eight per cent of the Mathematics teachers teaching in the GSHSEB schools were aware of the various features and benefits of CCE.
- The Co-scholastic aspects of CCE, which was the major concern, as depicted in most of the earlier Studies, was better comprehended and assessed by the teachers, as interpreted from the responses obtained in the present Study.
- Assessment of Co-curricular activities had earned a place in the evaluation scheme, which could be concluded from the teachers' responses and the GCERT released formatted assessment sheets (Sheet B) which included many pointers addressing this aspect.
- The Study indicated that mathematics teachers required more intensive training by the State government regarding the various tools and techniques as well as their implementation, to enhance the proper utilization of tools and techniques for assessment.
- Around seventy five per cent of the teachers were using activity-based assessment techniques along with written unit tests; which proved, if not directly, that some preliminary measures were being taken to promote the objectives of CCE among students.
- The present Study indicated that only around sixty five per cent of the mathematics teachers focused on higher order thinking skills of the students.
- The Study also indicated the reasons for the limited emphasis on higher order thinking skills by mathematics teachers of the GSHSEB schools:

  1. Teachers were yet to be given training in this regard.
  2. The mathematics textbook followed in GSHSEB schools offered limited scope to infuse higher order thinking skills in students.
  3. Mechanisms like provision of real life experiences, research projects, provision of higher level questions in tests, which indirectly promote higher order thinking skills, had limited use in assessments carried out by mathematics teachers.

- Major difficulties faced by the teachers while implementing CCE, were :

  1. Syllabus completion
  2. Organizing, grading and distribution of tasks in group activities
  3. Designing relevant activities and projects
  4. Providing individual attention to each student.

- Inadequate training and guidelines, management of time and resources for CCE related activities and an increased and tedious paper work, also posed difficulties for around fifty per cent of the teachers.
- Only fifty per cent of the teachers admitted to be satisfied with the support they got from school authorities for CCE administration.
- Around eighty two per cent of the teachers, who had received training from School or Government authorities, admitted that they needed more clarity regarding CCE with respect to its implementation.
- Around seventy three per cent of the teachers were yet to receive any written documents from the State government with CCE related guidelines.
- The ratio of the training staff to that of the number of teachers to be trained was highly in congruent. Thus, a need to increase the staff responsible for the training and periodic monitoring of teachers was emphasized in the present Study.

Conclusion

CCE implemented well, can truly pull out this generation from their memorizing and plagiarizing tendencies and help them develop original thinking skills. This necessity is acknowledged not only by experts and stalwarts but also the common man. But, sadly, the present Study states that this issue needs to be given greater importance in the State of Gujarat. Despite all the challenges, there is no doubt that CCE is a good scheme and the government should carry it forward, giving due considerations to the difficulties faced by the teachers and students, by making it more achievable.

In a nutshell, this Study intrinsically scans various aspects of CCE implementation in GSHSEB schools of Vadodara and concludes that CCE is being implemented in all schools but needs to be implemented with greater thought and rigor.

A major suggestion to the government would be to strengthen the existing mechanisms (training, guidelines for CCE implementation) promoting higher order thinking skills within their CCE scheme, and transact it through their future programmes and workshops. Finally, the investigator visualizes this Study as an enlightening journey and has strived hard to present an authentic and relevant report.

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Relationship between learning styles and academic achievements of CBSE board intermediate students

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Abstract: This paper is based on a study that explores the correlation between the learning styles of students and their academic achievements in the CBSE board at the intermediate level. The purpose is to support teachers and teacher educators at the intermediate level to have a better understanding of how to structural classroom activities to shapes the learning outcomes. Based on a sample of 200 students who had cleared their intermediate CBSE, the study established a positive relation between the academic performance and independent, collaborative and competitive learning styles.

Keywords: Learning styles, learning achievement, academic streams, senior-secondary education

Introduction

Cognitive style is a major consideration of curriculum transaction at school stage. Learning style is similar to cognitive style. It is a more specific form of cognitive style. Grasha (1996) defines learning style as child's preferences in thinking and interaction with other children in different classroom environments and experiences. Learning styles are characteristic strengths and preferences of the learners for responding to the stimuli in environment and processing the information. It is a behavioural pattern developed for any new learning. This approach to learning emphasizes the fact that individuals perceive and process information in very different ways. A comprehensive definition for learning styles that has been adopted by leading theorists in the field is given by Keefe (1979). According to him, the learning styles can be defined as the composite of characteristic cognitive, affective and physiological factors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment.

Learning style is an individual, natural or habitual pattern of acquiring and processing information in learning situations. Learners adopt different ways to learn. Hence their learning styles differ from each other. It's commonly believed that most people favour some particular method of interacting with, taking in and processing stimuli of information. Such process can have significant association with academic performances of school students. There are different patterns of learning styles. Accordingly learners can be identified with specific category of learning styles.

Need and significance

This study focuses on exploring the relationship between learning styles, and the academic achievement among the Central Board of Secondary Education (CBSE) Board students with a view to enable teachers and teacher educators to have better understanding of learning activities and its outcome. The learners also need to be aware of their own learning styles. The teachers need to understand their learners with a view to prepare well for facilitating learning of different group of learners. It is known that most teachers tend to teach in the way they were taught or in the way they preferred to learn. In such cases conflict arises because of mismatch between the teacher's teaching style and learner's learning style, leading to negative consequences on the part of the learners. For this reason, as Stebbins (1995) asserts that teachers should know the general learning style profiles of the whole class, which will enable them to organize instructional activities accordingly. Making students' aware of their learning styles and learning strategies might make them not only more prepared for learning but also more analytic about their learning styles and learning strategies. According to Reid (1995) developing an understanding of learning environments and styles "will enable students to take control of their learning and to maximize their potential for learning". CBSE as a pioneering body of secondary school system in the country make systemic efforts to link theoretical clarities with curriculum.

This study might be useful to the curriculum developers and material producers of CBSE in the context of National Curriculum Framework-2005. The New Curriculum Framework envisages to be dedicated to active involvement in learners knowledge creation. Hence curriculum developers must provide opportunities for learner centric processes having thorough understanding of learners' cognitive style. Similarly, knowing students' general preferences tendencies might be useful to the material developers and textbook writers to produce materials that match students' learning styles and help them manipulate appropriate strategies. In other words, academic functionaries may have enough time not only to identify their students' styles and strategies, they might become capable of integrating appropriate activities that match the learners' learning styles and they can have better opportunities to assess and guide the learners with respect to learning strategies. It is worthwhile to quote Kinsella (1995) suggests that teachers should go far beyond the instructional modifications in their efforts "to create democratic learning environments"; they should also pursue and cooperate with other colleagues to provide practices that will aid learners find out the obstacles which limit their potentials in the academic life and society, and they should equip all of the students in their classes with the knowledge and strategies to take the appropriate actions against the things which restrict them. Messick (1976) writes, "... that differences in style of learning and thinking also require the attention of educators and researchers. Concern about differences in prior learning and achievement and in level of social and cognitive development is not enough. We must move beyond these differences in context and level of learning to more suitable differences in the process of cognition and creative thinking to find effective basis for individualized education."

As stated above learning styles encompass the perceptual as well as intellectual functioning of a learner comprehensively. A study on learning styles of senior secondary students in the context of streams, gender and achievements shall facilitate understanding various process issues in teaching-learning process of Intermediate stage. Such study will help in evolving appropriate strategies for engaging learners of different cognitive characteristics in appropriate learning situations there by promoting learner centric curricular practices at intermediate stage.

Objectives

The objectives of present study are:

1. To study the pattern of learning styles of Intermediate students of CBSE Board in the context of academic streams and gender background.
2. To study the relationship between different learning styles and academic achievement of Intermediate students of CBSE Board.

Hypotheses

The hypotheses of the study were stated in null form:

1. There is no significant association between different learning styles and academic streams of Intermediate students of CBSE Board.
2. There is no significant association between different learning styles and gender of Intermediate students of CBSE Board.
3. There is no significant relationship between different learning styles and academic achievement of Intermediate students of CBSE Board.

Method

Descriptive and correlational survey methods were used in this study.

Population and sample

The population of the study consisted of all the CBSE Board pass-out students of eastern Uttar Pradesh (UP). The sample of the study consisted of 100 male and 100 female students of 10 CBSE Board schools of eastern UP. The CBSE schools were selected randomly. 10 boys and 10 girls higher secondary students from each school were selected randomly with total number of 100.

Tools

Grasha-Reichmann Learning Style Scale (1996) was used to determine the Learning Style of learners of CBSE Board. It was developed by Grasha-Riechmann (1996) and it is applicable for high school and college level students. Different kinds of interaction of

the students with the teachers and their peer groups/friends are covered in the learning style dimension of this inventory. It focuses more on students' preferences for the learning environment. The questionnaire is a 60 item self- evaluation inventory scored using a 5-point Likert scale, with the average score for each style ranked according to its percentile position in comparison with the general norm. Data were collected from the sample respondents by administering the questionnaire in person.

Statistics

χ^2-tests and percentage analysis were used for testing the null hypotheses and interpreting & analyzing the data of the study.

Analysis and results

Pattern of learning styles

Learning Styles of trainees were determined accordingly to GRLSS scale. Percentage analysis of the different learning styles and weightage given to each are represented in Table 1 and Figure 1.

Table 1: *Learning styles and weightage*

S.N.	Item	Weightage	Percentage (%)	Rank
1.	Collaborative Learning Style	40.98	81.97	I
2.	Dependent Learning Style	40.41	80.82	II
3.	Independent Learning Style	40.23	80.46	III
4.	Participant Learning Style	39.16	78.33	IV
5.	Competitive Learning Style	37.36	74.72	V
6.	Avoidant Learning Style	25.31	50.62	VI

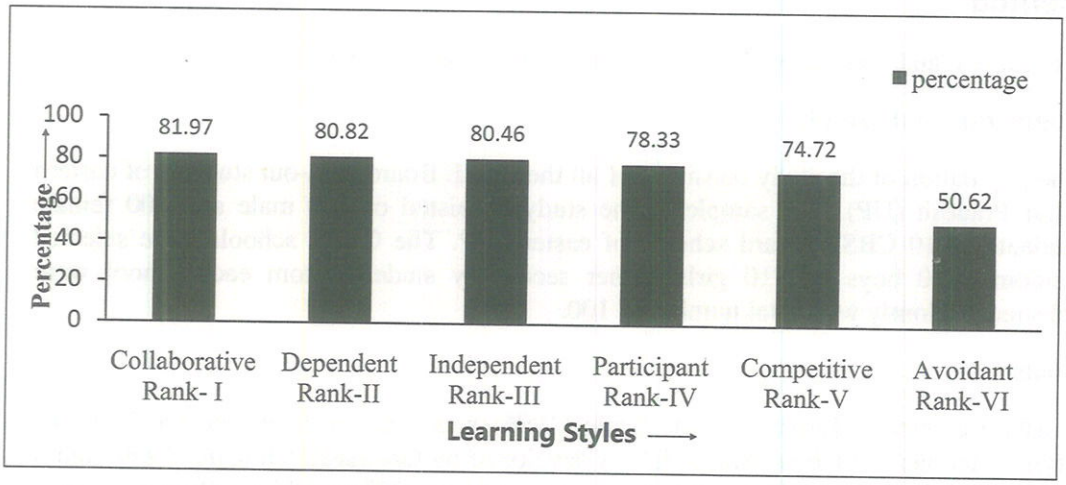

Figure 1: *Ranking of learning styles adopted by CBSE Board*

It can be observed from Table 1 and Figure 1 that a large majority of students (74.22% to 81.97%) were found to adopt collaborative learning style, dependent learning style, independent learning style, participant learning style, and competitive learning style in order. Average numbers of students were of avoidant learning style nature (50.62%). It can be interpreted that mainly the CBSE Board students made use of different practices which were of collaborative, dependent and independent nature (80.46% to 81.97%). As a whole a large majority of students were found to be of very active learners.

Relationship between different learning styles and academic streams

Table 2: *χ^2-test of independence between different learning styles and academic streams*

S.N.	Variable		Academic Streams		Total	χ^2-value
	Learning Style	**Weightage**	**Arts**	**Science**		
1.	Independent Learning Style	High	78	50	128	0.55 N.S.
		Mod.	40	32	72	
		Total	**118**	**82**	**200**	
2.	Avoidant Learning Style	Mod.	106	70	176	0.91 N.S.
		Low	12	12	24	
		Total	**118**	**82**	**200**	
3.	Collaborative Learning Style	High	104	74	178	0.22 N.S.
		Mod.	14	08	22	
		Total	**118**	**82**	**200**	
4.	Dependent Learning Style	High	68	44	112	0.31 N.S.
		Mod.	50	38	88	
		Total	**118**	**82**	**200**	
5.	Competitive Learning Style	High	114	62	176	**20.20** **
		Mod.	04	20	24	
		Total	**118**	**82**	**200**	
6.	Participant Learning Style	High	34	28	62	0.64 N.S.
		Mod.	84	54	138	
		Total	**118**	**82**	**200**	

Note: N.S. = Not significant, **: Significant at .01 level of significance.

It can be noticed from Table 2 that the calculated χ^2-values of independence between different learning styles (viz. Independent, Avoidant, Collaborative, Dependent, and Participant) and streams of learners was found 0.55, 0.91, 0.22, 0.31, and 0.64 respectively. The obtained values were less than the Table value (3.84) at .05 level of significance with df-1 thus the observed values were not found significant in the case of independent, avoidant, collaborative, dependent, and participant learning styles. However in the case of competitive learning style calculated χ^2-value of independence between competitive learning style and academic streams of learners was found 20.20 which was greater than the Table value (6.64) at .01 level of significance with df-1.Hence we can say that competitive learning style and academic streams of learners were significantly associated with each other.

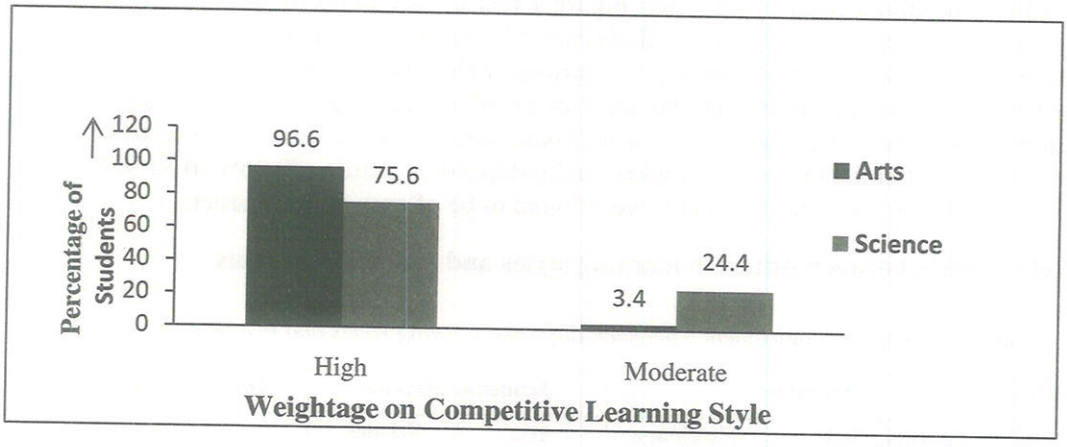

Figure 2: *Relationship between academic streams and competitive learning style*

Figure 2 revealed that a large majority of (96.6%) Arts stream learners are found to be high in Competitive learning style whereas 75.6% of Science stream learners are noticed with this category. Thus on the basis of Table 2 and Figure 2 we can conclude that Arts stream students are more Competitive than Science stream counterparts.

Relationship between different learning styles and gender

Table3: *χ^2-test of independence between different learning styles and gender*

S.N.	Variable		Gender		Total	χ^2-value
	Learning Style	Weightage	Male	Female		
1.	Independent Learning Style	High	62	66	128	0.347 N.S.
		Mod.	38	34	72	
		Total	**100**	**100**	**200**	
2.	Avoidant Learning Style	Mod.	88	88	176	0.00 N.S.
		Low	12	12	24	
		Total	**100**	**100**	**200**	
3.	Collaborative Learning Style	High	92	86	178	1.84 N.S.
		Mod.	08	14	22	
		Total	**100**	**100**	**200**	
4.	Dependent Learning Style	High	62	50	112	2.92 N.S.
		Mod.	38	50	88	
		Total	**100**	**100**	**200**	
5.	Competitive Learning Style	High	84	92	176	3.03 N.S.
		Mod.	16	08	24	
		Total	**100**	**100**	**200**	
6.	Participant Learning Style	High	28	34	62	0.84 N.S.
		Mod.	72	66	138	
		Total	**100**	**100**	**200**	

Note: N.S. = Not significant.

It can be noticed from Table 3 that the calculated χ^2-values of independence between different learning styles (viz. Independent, Avoidant, Collaborative, Dependent, Competitive and Participant) and gender of learners was found 0.347, 0.00, 1.84, 2.92, 3.03 and 2.25 respectively. The obtained values were less than the Table value (3.84) at .05 level of significance with df-1, thus the observed values were not found significant. Hence we can say that different learning styles and gender of learners were not-significantly associated with each other. The boys and girls students exhibited similar pattern of learning styles.

Relationship between different learning styles and academic achievement

Table 4: *χ^2-test of independence between different learning styles and academic achievement*

S.N.	Variable		Academic Achievement				Total	χ^2-value
	Learning Style	Weightage	<70%	70-80%	80-90%	>90%		
4.1	Independent Learning Style	High	30 (37.12)	44 (43.52)	42 (36.48)	12 (10.88)	128	6.45 N.S.
		Mod.	28 (20.88)	24 (24.48)	15 (20.52)	05 (6.12)	72	
		Total	**58**	**68**	**57**	**17**	**200**	
4.2	Avoidant Learning Style	Mod.	53 (51.04)	61 (59.84)	50 (50.16)	12 (14.96)	176	5.56 N.S.
		Low	5 (6.96)	7 (8.16)	7 (6.84)	05 (2.04)	24	
		Total	**58**	**68**	**57**	**17**	**200**	
4.3	Collaborative Learning Style	High	53 51.62)	(61 (60.52)	52 (50.73)	12 (15.13)	178	6.61 N.S.
		Mod.	05 (06.38)	07 (07.48)	05 (06.27)	05 (1.87)	22	
		Total	**58**	**68**	**57**	**17**	**200**	
4.4	Dependent Learning Style	High	32 (32.48)	36 (38.08)	36 (31.92)	08 (9.52)	112	2.01 N.S.
		Mod.	26 (25.52)	32 (29.92)	21 (25.08)	09 (7.48)	88	
		Total	**58**	**68**	**57**	**17**	**200**	
4.5	Competitive Learning Style	High	53 (48.14)	56 (56.44)	45 (47.31)	12 (14.11)	166	5.43 N.S.
		Mod.	05 (9.86)	12 (11.56)	12 (9.69)	05 (2.89)	34	
		Total	**58**	**68**	**57**	**17**	**200**	
4.6	Participant Learning Style	High	22 17.98)	(12 (21.08)	16 (17.67)	12 (5.27)	62	**19.65 ****
		Mod.	36 (40.02)	56 (46.92)	41 (39.33)	05 (11.73)	138	
		Total	**58**	**68**	**57**	**17**	**200**	

Note: N.S.: Not significant, **: Significant at .01 level, Figures in Parenthesis indicated expected frequency.

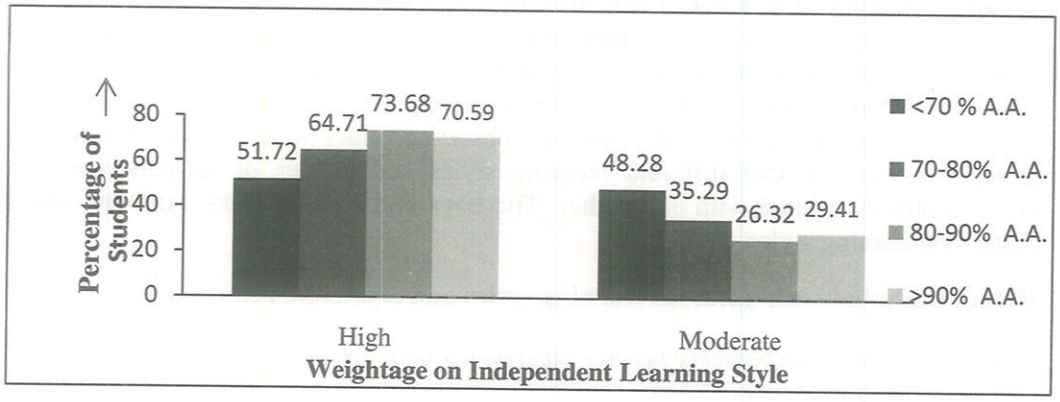

Figure 3: *Relationship between academic achievement and independent learning style*

From Table 4 it can be noticed that the calculated χ^2-values of independence between independent learning style and academic achievement of learners was found 6.45. The obtained value was lesser than the Table value (7.82) at .05 level of significance with df-3; thus the observed value was not found significant. Hence we can say that there was no significance association between independent learning style and academic achievements of the students. From Figure 3 it can be observed that about 52% to 74% students having academic achievement around 70-90 % have high weightage in independent learning style.

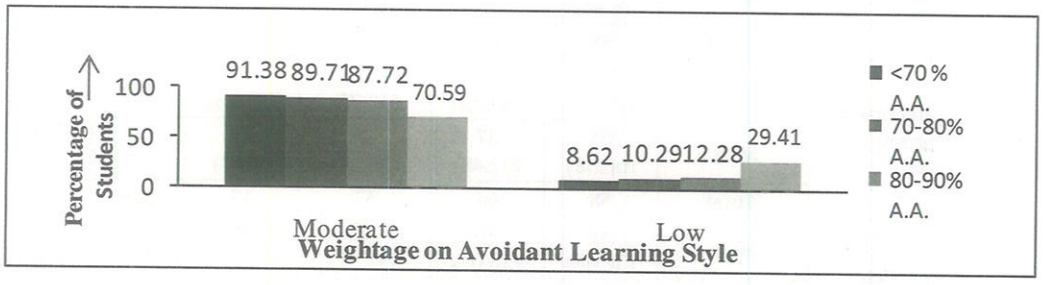

Figure 4: *Relationship between academic achievement and avoidant learning style*

From Table 4 it can be noticed that the calculated χ^2- values of independence between avoidant learning style and academic achievement of learners was found 5.56. The obtained value was lesser than the Table value (7.82) at .05 level of significance with df-3; thus the observed value was not found significant. Hence we can say that there was no significance association between avoidant learning style and academic achievements of the students. From Figure 4 it can be observed that about 88% to 91% students having academic achievement around 70-90 % have moderate weightage in avoidant learning style while only 71% students having >90% academic achievement have moderate weightage in avoidant learning style and about 29% students having >90% academic achievement have low weightage in avoidant learning style.

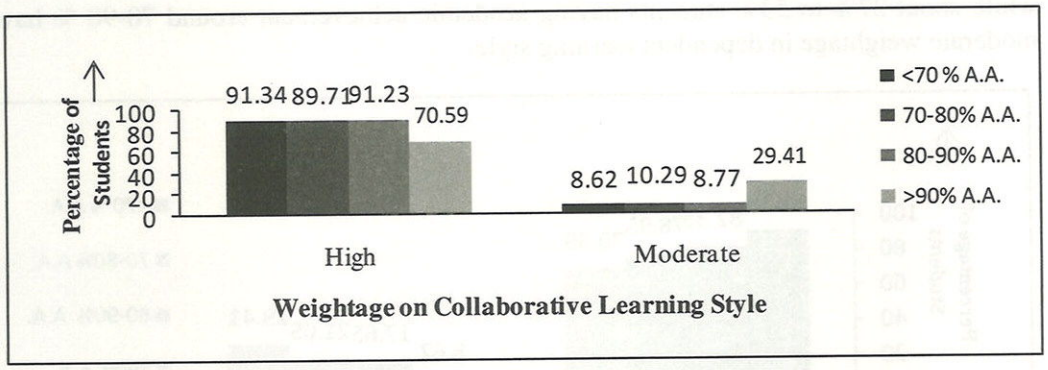

Figure 5: *Relationship between academic achievement and collaborative learning style*

From Table 4 it can be noticed that the calculated χ^2-values of independence between collaborative learning style and academic achievement of learners was found 6.61. The obtained value was lesser than the Table value (7.82) at .05 level of significance with df-3; thus the observed value was not found significant. Hence we can say that there was no significance association between collaborative learning style and academic achievements of the students. From Figure-5 it can be observed that about 91% students having academic achievement around 70-90 % have high weightage in collaborative learning style while only 71% students having >90% academic achievement have high weightage in collaborative learning style and about 29% students having >90% academic achievement have moderate weightage in collaborative learning style.

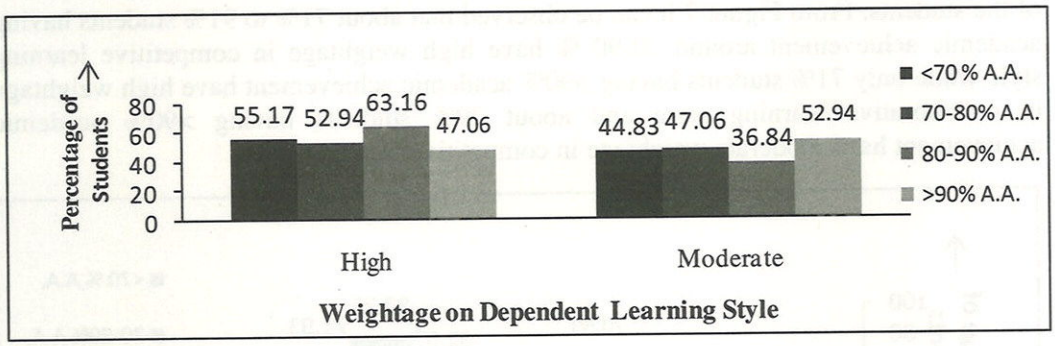

Figure 6: *Relationship between academic achievement and dependent learning style*

From Table 4 it can be noticed that the calculated χ^2-values of independence between dependent learning style and academic achievement of learners was found 2.01. The obtained value was lesser than the Table value (7.82) at .05 level of significance with df-3; thus the observed value was not found significant. Hence we can say that there was no significance association between dependent learning style and academic achievements of the students. From Figure 6 it can be observed that about 47% to 63% students having academic achievement around 70-90 % have high weightage in dependent learning style

while about 37% to 53% students having academic achievement around 70-90 % have moderate weightage in dependent learning style.

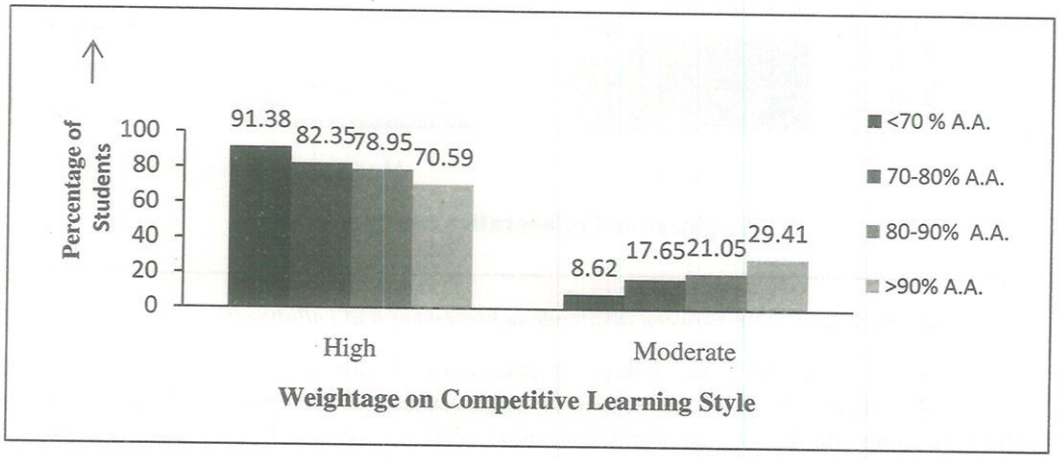

Figure 7: *Relationship between academic achievement and competitive learning style*

From Table 4 it can be noticed that the calculated χ^2-values of independence between competitive learning style and academic achievement of learners was found 5.43. The obtained value was lesser than the Table value (7.82) at .05 level of significance with df-3; thus the observed value was not found significant. Hence we can say that there was no significance association between competitive learning style and academic achievements of the students. From Figure 7 it can be observed that about 71% to 91% students having academic achievement around 70-90 % have high weightage in competitive learning style while only 71% students having >90% academic achievement have high weightage in collaborative learning style and about 29% students having >90% academic achievement have moderate weightage in competitive learning style.

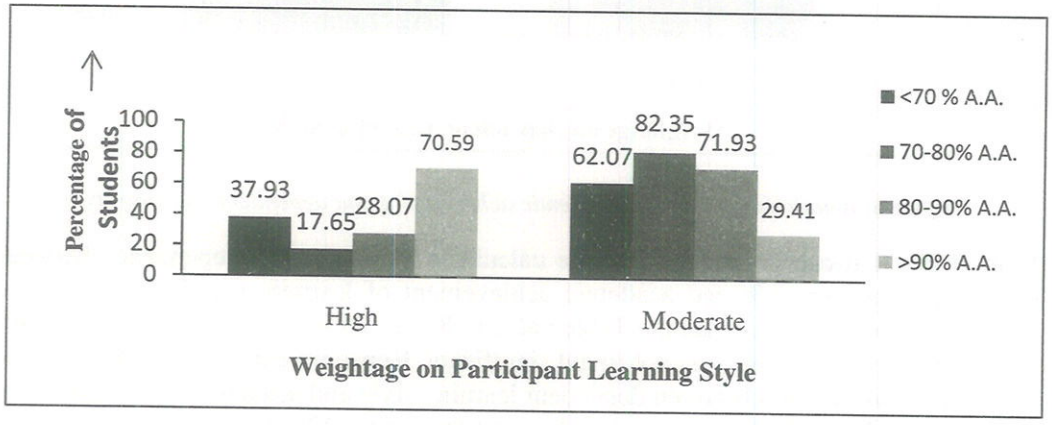

Figure 8: *Relationship between academic achievement and participant learning style*

From Table 4 it can be noticed that the calculated χ^2-values of independence between competitive learning style and academic achievement of learners was found 19.65. The obtained value was greater than the Table value (11.34) at .01 level of significance with df-3.Hence we can say that Participant learning styles and academic achievement of learners were significantly associated with each other. From Figure 8 it can be observed that about 62% to 82% students having academic achievement around 70-90 % have moderate weightage in participant learning style while only 71% students having academic achievement >90% have high weightage in participant learning style and about 29% students having academic achievement >90% have moderate weightage in participant learning style.

Conclusion and Discussion

Every learner learns in his/her own ways. On the whole, every student adopts certain degree of preferences in specific learning style. Majority of learners have dominance in one or more styles of learning. Basically CBSE Board students are of collaborative nature. However, they adopt dependent and independent behaviour in different kinds of instructional practices organized by the higher secondary schools. They are dependent on teacher and to peers as a source of structure and guidance and prefer authority figure to tell them what to do. At the same time, they learn by independent-self paced study and prefer to work alone on certain kind of course related activities. Examination orientations also make them competitive in nature. A large majority of students were found to be collaborative and very active in their study. It is noticed that most students possessed multiple learning styles or a combination of different learning styles in completing their studies. As such, they were able to learn differently.

The present study revealed that majority of learning styles and academic streams were not significantly associated with each other. It means both streams of students i.e., Arts and Science follow similar types of learning styles. Only competitive learning style and academic streams of learners were significantly associated with each other. The study also revealed that Arts stream students were more competitive in their learning style than that of Science stream students. This is mainly because of examination orientation in the schools. On the other hand learning styles and gender of students were not found significantly associated with each other. It means all students follow similar types of learning styles irrespective of their gender.

Majority of CBSE Board students having high Academic achievement have high weightage on independent, collaborative, dependent and competitive learning style. Moderate weightage was given to participant learning style. There is need to promote participant learning among CBSE Board students to bring group cohesive practices in curriculum. Teachers' orientation is very much significant in this perspective.

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Occupational stress of school teachers and their attitude towards counseling

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Abstract: The present research studied school teachers' stress reactions (SR) and attitude towards counselling (ATC). 623 full-time secondary and higher secondary school teachers from Kolkata and other districts in West Bengal (181 from government schools, 264 from government-aided schools, 178 from private schools) completed an Information Schedule, Teachers' Stress Reactions Inventory (TSRI) and Teachers' Attitude Scale For Teachers' Counselling (TASFTC) constructed and standardized by the researcher. Descriptive and quantitative analyses revealed that 52% teachers were stressed amongst whom, 21.9% were from government schools, 47.5% from government-aided schools, and 30.6% from private schools. Teachers from government-aided schools had highest level of stress, followed by those from private schools, and government schools. The analysis further revealed that 57.62% teachers had a positive ATC amongst whom, 31.80% teachers were from government schools, 26.70% from government-aided schools, and 41.50% from private schools. Teachers from private schools showed most positive ATC, followed by those from government-aided schools, and government schools.

Keywords: Stress reactions, occupational stress, teachers, attitude and counselling

Background and rationale

It is rightly said that teachers, as a professional fraternity, are the engineers of forthcoming generations. An individual who aspires to become a teacher must realize that this profession has its own challenges. Presently, many individuals are inclined to join the teaching profession. But how many of them desire to become a teacher simply because they love this profession – remains a question. Reasonably good pay scales, more number of holidays, convenient working hours, job security etc. might be some of the reasons behind the present popularity of this profession. However, just as every coin has two sides, similarly every profession has its own benefits and demands. Teachers must be mentally prepared to face the practical challenges that this profession may pose, such as handling first generation learners, working amidst minimum infrastructural facilities, commuting long distances to reach the schools of their placement, facing defiance and bullying from the students, absence of opportunities for promotion, and so on. Moreover, compared to other professions, teachers are still underpaid. Many teachers suffer from reality shocks, once they step into a real classroom situation. Repeated onslaughts generate stress and frustration and eventually leading to burnout in them, as most of them have not been mentally prepared or professionally groomed to tackle these adversities tactfully. Hence their dedication towards this profession gradually wanes in course of time. Perhaps, this is the reason why, the quality and degree of teacher-

integrity are becoming dubious day by day. Teaching today encompasses a comprehensive connotation far beyond the paradigm of simply delivering frontal lectures. In an inclusive classroom, a teacher has to be creative, dynamic, insightful, impartial, agile and flexible every moment. The influx of Information and Communication Technology (ICT) has also made things easier for the teachers, provided the teachers know how to utilize the same.

Today, classrooms can be made a lot more interesting, interactive and activity-oriented by using information technology and internet facility. In many institutions tedious lectures have been replaced by – project-works, field works, interactive classroom discussions and learning by doing. The present generation of students has become far less tolerant towards arbitrary practices of coercion by teachers and school authorities and do not like being passive listeners in the classroom either. So, besides the knowledge of the subject teachers must train their personalities to cater to the requirements of this profession. Teacher stress becomes problematic, and potentially harmful, when the challenges teachers face outpace their perceived ability to cope, or when they perceive that important needs are not being met (Kowalski, 2002). A lamp that burns to emit radiance is likely to extinguish in course of time unless its wick is replaced and its fuel is replenished. Similarly, in course of the persistent journey of providing relentless support to students, even the teachers' tenacity is liable to get eroded, resulting in emotional fatigue and despondency on account of stress. In such circumstances, teachers need to invent constructive measures to rejuvenate their diminishing spirit and restore their fortitude.

Counselling is one such prospect which can yield potentially effective results. Teachers must be geared up to maintain perfect composure and poise amidst extreme challenges and use tactful discretion to elegantly confront all forms of stress that might arise from diverse classroom situations. In order to keep an educational institution flourishing, it is essential to pay attention to the psycho-social and emotional requirements of the teachers as well. To expect more productivity from teachers, schools and teachers' training institutions must help them to handle day-to-day job stress and equip them with stress management strategies or facilities of counselling by virtue of which they can seek support and constructive guidance whenever their own problem-solving mechanisms get exhausted. For teacher quality enhancement, it is essential to equip teachers to help themselves to deal with stress constructively. It is only in a stress-free mind state that teachers can enjoy being in the profession and strive to improve their teaching skills. These days many websites have been launched which serve as teacher support networks in order to help teachers tackle professional problems, share their problems with other teachers and seek solutions to them. Counselling for students has become a popular feature in the contemporary society. But counselling exclusively meant for teachers is a concept that very few institutions have ever thought about, especially in India. Keeping in view the existing circumstances, this topic was selected for study, bearing in mind its pertinence from both present and futuristic socio-educational perspectives.

Objectives

1. To identify the stress reactions of the school teachers.
2. To assess the level of stress in school teachers in terms of stress reactions.
3. To ascertain the difference in the stress levels of government, government-aided and private schools teachers in terms of stress reactions.
4. To assess the attitude of the school teachers towards counselling.
5. To find out the difference in terms of attitude towards counselling among teachers of government, government-aided and private schools in terms of attitude towards counselling.

Hypotheses

H_o1. There is no significant difference between the stress levels of government and government-aided school teachers in terms of stress reactions.

H_o2. There is no significant difference between the stress levels of government and private school teachers in terms of stress reactions.

H_o3. There is no significant difference between the stress levels of government-aided and private school teachers in terms of stress reactions.

H_o4: There is no significant difference between the government and government-aided school teachers in terms of attitude towards counselling.

H_o5: There is no significant difference between government and private school teachers in terms of attitude towards counselling.

H_o6: There is no significant difference between the government-aided and private school teachers in terms of attitude towards counselling.

Method

Research design

The present study involved one independent variable, namely – type of school, with three types, i.e. government, government-aided and private school teachers; and two dependent variables – stress reactions of teachers and teachers' attitude towards counselling. The study explored the relationship between the independent variable and dependent variables.

Population and sample

Out of data collected from 800 teachers from secondary and senior secondary schools, 36 part-time and para-teachers were excluded and only full-time teachers were included as subjects for the present study. The part-time and para-teachers were excluded from the sample as their professional responsibilities and accountabilities are comparatively

different from the full-time teachers. This group may also be stressed, but that may be selected as the subject matter of a different research study. From the 764 data collected from full-time teachers, 623 complete inventories were procured. The remaining 141 inventories were excluded because they were incomplete. Finally, data from 623 full-time, secondary and higher secondary school teachers from Kolkata and some other districts in West Bengal were included in the study.

Delimitation

The sample was limited within full-time school teachers teaching in secondary and higher secondary levels, within Kolkata and some other districts in West Bengal, including – Howrah, South and North 24 Parganas, Bardhaman, Hooghly, Nadia, East and West Midnapore, North and South Dinajpur, Bankura, Cooch Behar, Purulia, Jalpaiguri, Malda, Barasat, Murshidabad and Birbhum.

Tools

The following tools were constructed by the researcher and rated by four experts:

1. An *Information Schedule* was provided to be filled in by the subjects, where in they had to provide personal details like name (optional), age, sex, years of work experience, board of the school they are teaching in, nature of recruitment, status regarding completion of teachers' training, etc.
2. *Teachers' Stress Reactions Inventory (TSRI)* – An inventory consisting of 13 test-items-to identify the stress reactions of school teachers.
3. *Teachers' Attitude Scale For Teachers' Counselling (TASFTC)* – An attitude scale consisting of 16 test-items to measure the attitude of the school teachers towards counselling for teachers for occupational stress reduction. Two test-items in this scale had sub-items.

Development of the tool

The tools were prepared in both English and Bengali. The English version of the test instruments was rated by four experts. In order to difficulty in comprehending the language, a corresponding Bengali version of the same was also constructed by translating from the English version and approved by language experts.

TSRI included 13 items, against which the respondents had to tick one of the 4 options – Strongly Agree, Agree, Disagree, and Strongly Disagree.

TASFTC consisted of 16 items – against which the respondents had to tick one of the 4 options – Strongly Agree, Agree, Disagree, and Strongly Disagree.

The 4-point scale was deliberately used and the fifth option (i.e. Undecided) was purposely excluded to leave no scope for indecisive responses expressing neutral/indifferent attitudes. The respondents had to supply some of their personal details

like age, sex, years of work experience, type of school board, process of recruitment (in terms of SSC or interview), and status regarding completion of B.Ed. in the *Information Schedule*.

Pilot study

A pilot test was conducted on a sample of 100 teachers. On the basis of the results, a Bengali version was prepared translating from the English version and approved by language experts, on seeing the inconvenience of many of the teachers in comprehending English.

Reliability and validity

Content Validity was established by expert rating of items by 3 experts. Only those items which were rated as 'good' and 'very good' were selected. The inter-rater agreement model was used (Gregory, 2005) to see the reliability of the raters. The range of coefficient of content validity was 0.84 to 0.9 for *TSRI*. The average content validity was 0.87. The range of coefficient of content validity for *TASFTC* was 0.83 to 0.87. The average content validity was 0.85.

Reliability was measured by using the Cronbach's Alpha and was found to be 0.619.

Scoring

The scores were so arranged that in case of negative statements, Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD) were scored as 1,2,3,4 respectively; and in case of positive statements the same was scored in the reverse order as 4,3,2,1. The scores were designed in such a manner that in case of in case of attitude towards counselling, the higher the score, the more positive was the teachers' attitude towards counselling and vice versa. Opinions derived through some open-ended questions were also recorded.

Results and discussion

Stress reactions of the school teachers

Table 1: *Percentage-wise identification of stress reactions*

Order	Stress Reactions
1.	88.44% teachers often felt that they had not selected the right profession.
2.	86.84% teachers found their profession boring and fatigue causing.
3.	83.79% teachers felt that students tended to be so indisciplined in class that resorting to corporal punishment became indispensable.
4.	77.05% teachers were mostly pre-occupied with anxieties, frustrations and inferiority in their leisure time.

5.	67.26% teachers felt that their job efficiency would have been better had there been less undue pressure from the management and external (political) sources.
6.	59.39% teachers agreed that situations often compelled them to have quarrels with their colleagues.
7.	53.45% teachers were satisfied with the infrastructural facilities in their schools.
8	36.92% teachers became perturbed over the immoral activities of their colleagues.
9.	33.23% teachers sometimes lost their temper on account of excessive workload.
10.	30.18% teachers felt that even effective teachers might find it tough to keep their thoughts cool in complex situations.
11.	25.36% teachers were comfortable with their respective institutional rules and present service conditions.
12.	12.2% teachers felt sad to witness the careless attitude of their students.
13.	5.78% teachers found their teaching work comfortable and interesting.

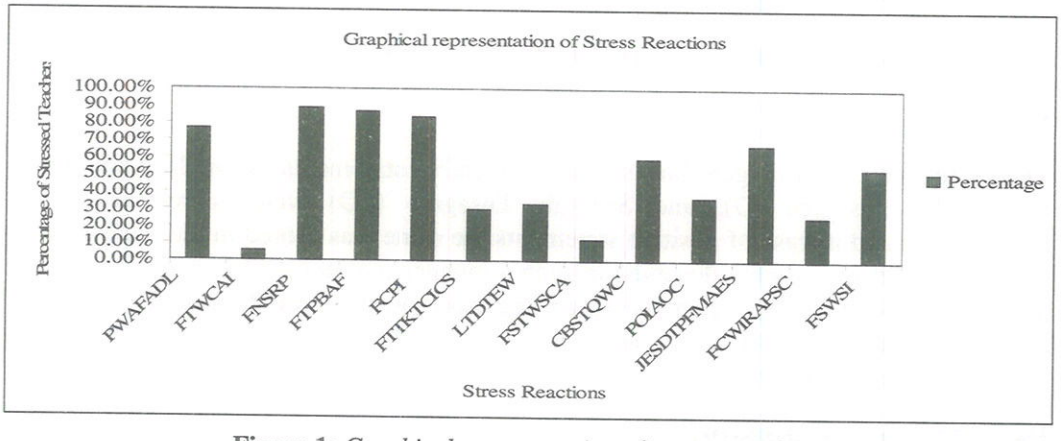

Figure 1: *Graphical representation of stress reactions*

[Abbreviations used:

PWAFADL – Preoccupation with anxieties, frustrations and inferiority during leisure time.
FTWCAI – Finding teaching work comfortable and interesting.
FNSRP – Feeling (that one has) not selected (the) right profession.
FTPBAF – Finding this profession boring and fatiguing.
FCPI – Feeling corporal punishment is indispensable.
FTTKTCICS – Finding (it) tough to keep thoughts cool in complex situations.
LTDTEW – Losing temper due to excessive workload.
FSTWSCA – Feeling sad to witness students' careless attitude.
CBSTQWC – (Being) compelled by situations to quarrel with colleagues.
POIAOC – Perturbation over immoral activities of colleagues.
JESDTPFMAES – (Feeling that) Job efficiency (is) suffering due to pressure from management and external (political) sources.
FCWIRAPSC – Feeling comfortable with institutional rules and present service conditions.
FSWSI – Feeling satisfied with (respective) school's infrastructure.]

Level of stress in school teachers in terms of stress reactions

Stress reaction scores also revealed that teachers from government-aided schools had the highest level of stress, followed by those from private schools, and finally government schools. Significant difference was found between the stress levels of government and government-aided school teachers in terms of stress reactions. Government-aided school teachers were more stressed than government school teachers, and the difference was significant at 0.01 level of confidence. Significant difference was found between the stress levels of government and private school teachers in terms of stress reactions. Private school teachers were more stressed than government school teachers, and the difference was significant at 0.01 level of confidence. No significant difference was found between the stress levels of government-aided and private school teachers in terms of stress reactions.

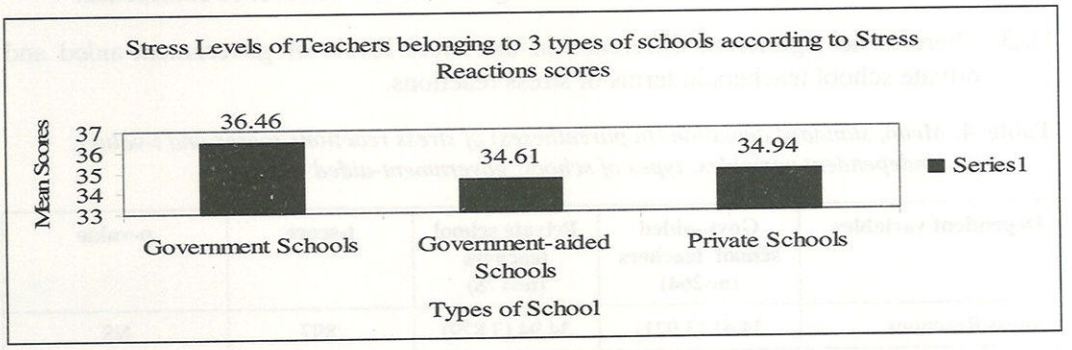

Figure 2: *Graphical representation of the stress levels of teachers belonging to 3 types of schools according to stress reactions scores*

Difference in the stress levels of government, government-aided and private school teachers in terms of stress reactions

H_o1. There is no significant difference in the stress levels of government and government-aided school teachers in terms of stress reactions.

Table 2: *Mean, standard deviation (in Parentheses) of stress reactions scores and t-values. (Independent variables: types of school: government-government-aided)*

Dependent variables	Govt. school teachers (n=181)	Govt.-aided school teachers (n=264)	t-score	p-value
Stress Reactions	36.46 (4.112)	34.61 (3.921)	4.814	<0.01

Inference 1: H_o1 was rejected. There is significant difference between the stress levels of government and government-aided school teachers in terms of stress reactions. Government-aided school teachers are more stressed than government school teachers, and the difference is significant at 0.01 level of confidence.

H_O2. There is no significant difference in the stress levels of government and private school teachers in terms of stress reactions.

Table 3: *Mean, standard deviation (in parentheses) of stress reactions scores and t-values. (Independent variables: types of school: government-private)*

Dependent variables	Govt. school teachers (n=181)	Private school teachers (n=178)	t-score	p-value
Stress Reactions	36.46 (4.112)	34.94 (3.829)	3.624	<0.01

Inference 2: H_O2 was rejected. There is significant difference in the stress levels of government and private school teachers in terms of stress reactions. Private school teachers are more stressed than government school teachers, and the difference is significant at 0.01 level of confidence.

H_O3. There is no significant difference in the stress levels of government-aided and private school teachers in terms of stress reactions.

Table 4: *Mean, standard deviation (in parentheses) of stress reactions scores and t-values. (Independent variables: types of school: government-aided -private)*

Dependent variables	Govt.-aided school teachers (n=264)	Private school teachers (n=178)	t-score	p-value
Stress Reactions	34.61 (3.921)	34.94 (3.829)	.897	NS

Inference 3: H_O3 is accepted. There is no significant difference in the stress levels of government-aided and private school teachers in terms of stress reactions.

Percentage of stressed teachers on the basis of stress reactions scores

Stress reactions scores have revealed that 52% teachers are stressed. Amongst them, 21.9% are from government schools, 47.5% from government-aided schools, and 30.6% from private schools. Thus, in terms of stress reactions, most of the government-aided school teachers are stressed followed by those from private schools and finally government schools.

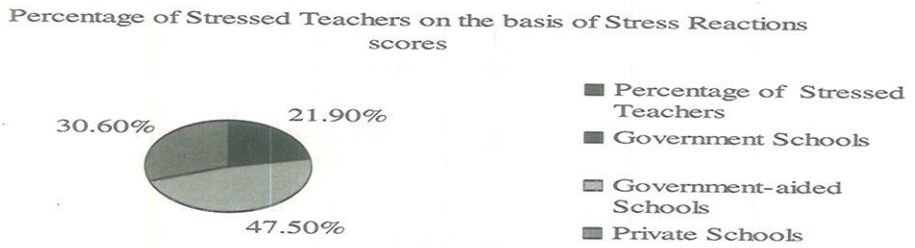

Figure 3: *Graphical representation of percentage of stressed teachers (government, government-aided, and private) on the basis of stress reactions scores*

Attitude of the school teachers towards counselling

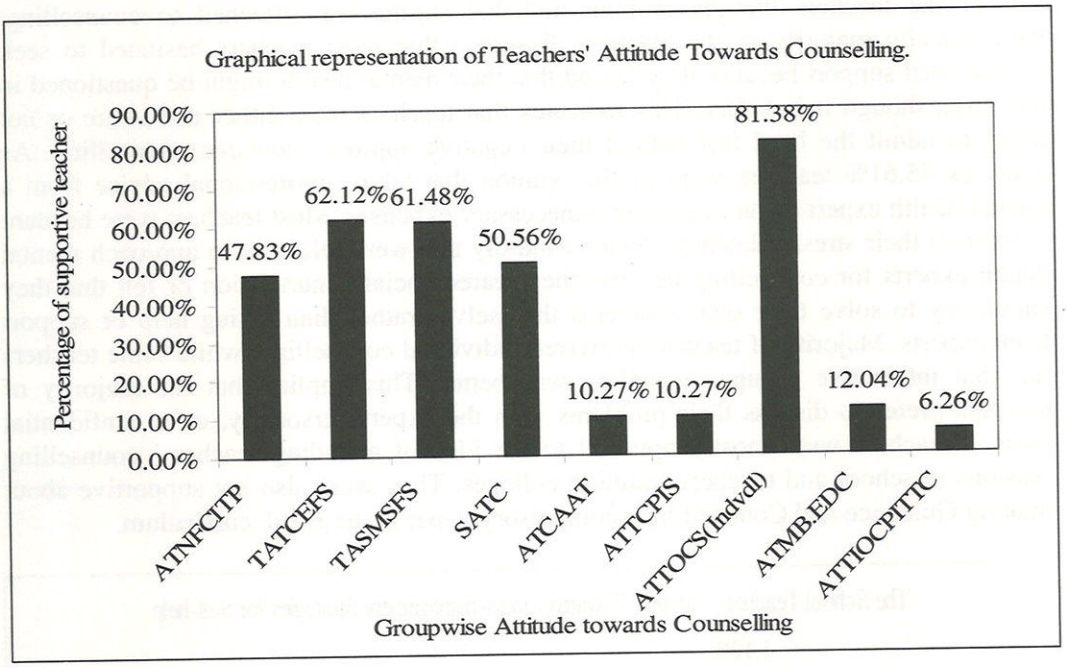

Figure 4: *Graphical representation of teachers' attitude towards counselling*

[Abbreviations used:

ATNFCITP – Teachers' attitude towards need for counselling in teaching profession

TASMSFS – Teachers' attitude towards stress management strategies for self-help

TATCEFS – Teachers' attitude towards consulting experts for support

SATC – Social attitude to counselling

ATCAAT – Attitude to creating awareness among teachers.

ATTCPIS – Attitude to teachers' counselling provisions in schools

ATTOCS – Attitude to type of counselling sought (Individual/Group)

ATMB.EDC – Attitude to modifying B.Ed. curriculum

ATTIOCPITTC – Attitude to introduction of teachers' counselling provisions in teachers' training colleges.]

Results have revealed that more than half of the teachers have expressed the view that they should try to solve their problems themselves rather than taking help or support, though quite a few admitted that the teaching profession often got so stressful that expert guidance could become instrumental in releasing stress. The over-all consciousness for the need to practice stress management strategies for self-help regularly, was limited to very few teachers. Teachers also showed very little awareness about the concept of counselling and its benefits though paradoxically most of them claimed that they were quite informed about the subject. Only a few teachers felt that they should be provided with more platforms to voice their problems leading to stress, which indicates that

teachers are mostly hesitant to express their stress-related problems candidly. More than half of the teachers thought that an invisible stigma was attached to counselling. Paradoxically majority of the teachers disagreed that most teachers hesitated to seek professional support because they feared that their mental health might be questioned in that case, though it is a fact. This indicates that teachers were either not aware or not ready to admit the hard fact behind their negative approach towards counselling. As many as 75.61% teachers were of the opinion that taking professional advice from a mental health expert meant incurring unnecessary expenses. Most teachers were hesitant to express their stress-related problems candidly and were reluctant to approach mental health experts for counselling because they feared social denunciation or felt that they should try to solve their own problems themselves rather than taking help or support from experts. Majority of teachers preferred individual counselling, while some teachers felt that interactive group counselling was better. This implies that the majority of teachers prefer to discuss their problems with the expert personally, on a confidential basis. Teachers were mostly opposed to the idea of attending teachers' counselling sessions in school and teachers' training colleges. They were also not supportive about making Guidance and Counselling a compulsory paper in the B.Ed. curriculum.

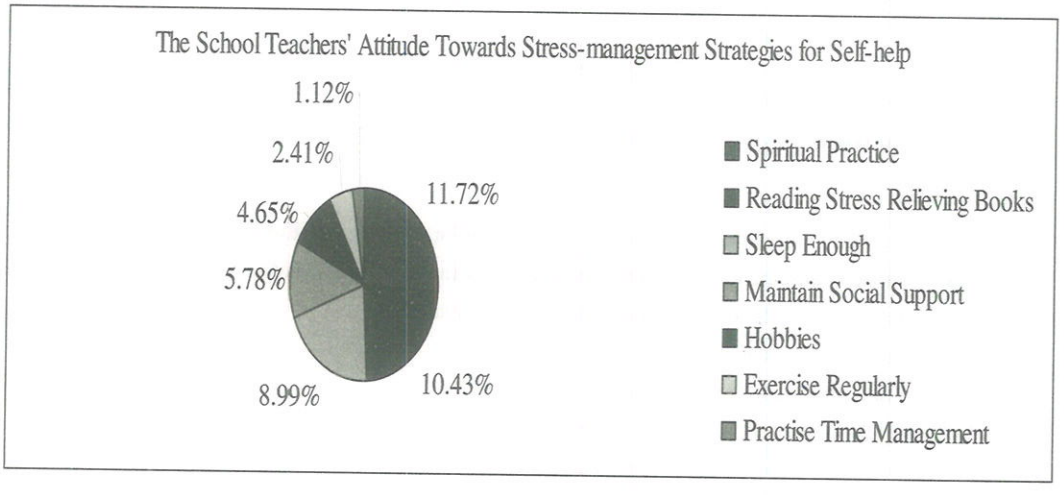

Figure 5: *Graphical representation of the school teachers' attitude towards stress management strategies for self-help*

Maintaining a spiritual practice like – meditation/guided visualizations/religious practices etc. has been accepted as an effective stress management strategy followed by – reading books on relieving stress. Unfortunately, a small population of teachers supported doing regular exercises like – working out at the gymnasium/walking/ jogging/yoga/breathing exercises to reduce stress; and practicing time management.

Difference among teachers of government, government-aided and private schools in terms of attitude towards counselling

Table 5: *Mean, standard deviation (in parentheses) of teachers' attitude towards counselling scores and t-values. (Independent variables: types of school: government-government-aided)*

Dependent variables	Government school teachers (N=181)	Government-aided school teachers (N=264)	t-score	p-value
Teachers' Attitude Towards Counselling	71.02 (11.867)	72.23 (11.838)	1.061	NS

H_O4. There is no significant difference between the government and government-aided school teachers in terms of attitude towards counselling.

Inference 4: H_O4 is accepted. No significant difference has been found between the government and government-aided school teachers in terms of attitude towards counselling.

Table 6: *Mean, standard deviation (in parentheses) of teachers' attitude towards counselling scores and t-values. (Independent variables: types of school: government-private)*

Dependent variables	Government school teachers (N=181)	Private school teachers (N=178)	t-score	p-value
Teachers' Attitude Towards Counselling	71.02 (11.867)	74.11 (12.204)	2.432	<0.05

H_O5. There is no significant difference between the government and private school teachers in terms of attitude towards counselling.

Inference 5: H_O5 is rejected. Significant difference has been found between the government and private school teachers in terms of attitude towards counselling. Private school teachers showed more positive attitude towards counselling than government school teachers, and the difference is significant at 0.05 level of confidence.

Table 7: *Mean standard deviation (in parentheses) of teachers' attitude towards counselling scores and t-values. (Independent variables: types of school: government-aided - private)*

Dependent variables	Government-aided school teachers (N=264)	Private school teachers (N=178)	t-score	p-value
Teachers' Attitude Towards Counselling	72.23 (11.838)	74.11 (12.204)	1.615	NS

H_o6. There is no significant difference between the government-aided and private school teachers in terms of attitude towards counselling.

Inference 6: H_o6 is accepted. No significant difference has been found between the government-aided and private school teachers in terms of attitude towards counselling.

Percentage of teachers with positive attitude towards counselling

Out of 623 teachers, 57.62% teachers had positive attitude towards counselling. Amongst them, 31.80% were from government schools, 26.70% from government-aided schools, and 41.50% from private schools. Thus, a greater number of teachers from private schools had positive attitude towards counselling, followed by those from government-aided schools and finally government schools.

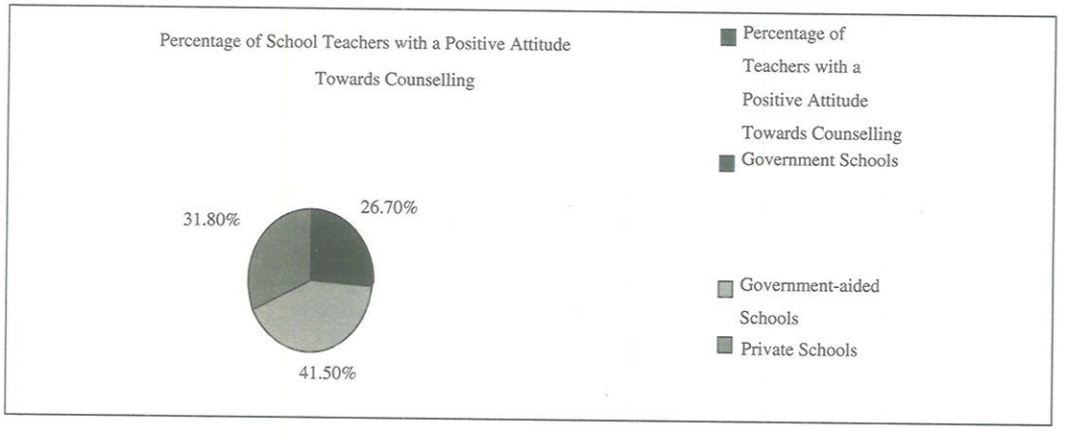

Figure 6: *graphical representation of percentage of school teachers (Government, government-aided and private) with a positive attitude towards counselling.*

Level of positivism in school teachers with relation to their attitude towards counselling

Teachers from private schools showed most positive attitude towards counselling, followed by those from government-aided schools, and finally government schools. However, no significant difference has been found between the levels of positivism in government and government-aided school teachers; significant difference has been found between the levels of positivism in government and private school teachers at 0.05 level of confidence; and no significant difference has been found between the levels of positivism in government-aided and private school teachers - in terms of attitude towards counselling.

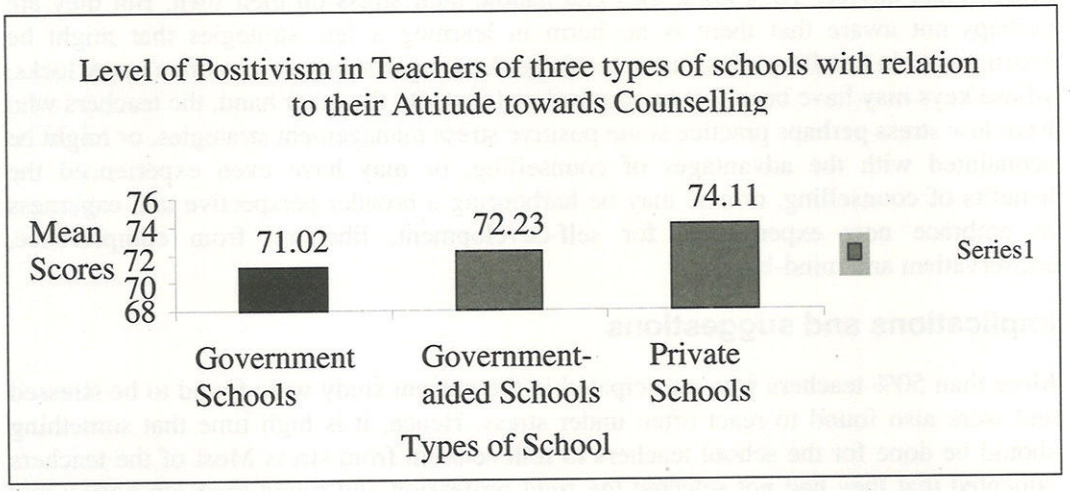

Figure 7: *Graphical representation of the level of positivism in school teachers (Government, government-aided and private) with relation to their attitude towards counselling.*

General trend observed in the teachers' attitude towards counselling vis-à-vis their respective levels of stress

- Among teachers who are overall stressed, majority have a negative attitude towards counselling. And among those teachers who had overall low stress, more individuals had a positive attitude towards counselling.
- The highly stressed school teachers mostly have a negative attitude towards counselling, while the least stressed school teachers mostly have a positive attitude towards counselling.

The observation of the general trend in the teachers' attitude towards counselling vis-à-vis their respective levels of stress was done in order to find out how far the teachers were conscious about their stress and need for counselling. In other words, this observation explored to what extent the teachers' need for counselling was expressed explicitly or implicitly through their views expressed, which would reveal how far the teachers were aware of their need for counselling and to what extent their stress levels indicated that they needed professional help.

Majority of stressed teachers had a negative attitude towards counselling, and majority of teachers having low stress, had a positive attitude towards counselling. The reasons behind such a predisposition might be that stressed teachers perhaps do not practice stress management strategies, and keep their minds closed, harbouring a prejudiced perception that seeking "counselling" is socially looked upon as stigmatizing because it questions an individual's mental health. This tendency is chiefly due to ignorance about the subject and lack of zest for continuous self-development. Some of the teachers seek help in their heart of hearts, and some of them are vehemently opposed to seeking

professional advice. They think they can handle their stress on their own. But they are perhaps not aware that there is no harm in learning a few strategies that might be instrumental in handling stress more tactfully. And experts' advice can open many locks, whose keys may have been lost or accumulated rust. On the other hand, the teachers who have low stress perhaps practice some positive stress management strategies, or might be acquainted with the advantages of counselling, or may have even experienced the benefits of counselling, or else may be harbouring a broader perspective and eagerness to embrace new experiences, for self-development, liberated from complacence, conservatism and mind-blocks.

Implications and suggestions

More than 50% teachers who participated in the present study were found to be stressed and were also found to react often under stress. Hence, it is high time that something should be done for the school teachers to relieve them from stress Most of the teachers lamented that they had not selected the right profession and found their job boring and fatiguing. Many teachers were pre-occupied with anxieties and frustrations in their leisure time. Some teachers agreed that they lose their temper due to excessive workload, and get disturbed over their colleagues' immoral activities. More than half of the teachers agreed that situations often compelled them to quarrel with their colleagues, but only some teachers felt that effective teachers might find it tough to keep their thoughts cool in complex situations. Many teachers were of the opinion that their job efficiency was thwarted by undue pressure from external (political) agencies. Very few teachers were comfortable with their respective institutional rules and present service conditions, though comparatively many were contented with the infrastructural facilities in their schools. Teachers hardly reacted on seeing the careless attitude of the students. Finally, only a handful of teachers found their work comfortable and interesting. An overall ambience of ennui and apathy is noted among the teachers, along with some amount of despair and emotional exhaustion. They seem to have come into this profession with different expectations and most of them were perhaps disillusioned by the reality. As a result most of them lamented having joined this profession.

The present study has revealed that teachers were not much informed about counselling and its benefits. But paradoxically, majority of the teachers asserted that they were well informed about the subject. Private school teachers were comparatively more positive in their attitude towards counselling. The study has further indicated that many teachers implicitly sought counselling but were hesitant to accept it candidly. As many as 67.74% teachers disagreed that most teachers hesitated to seek professional support because they feared that their mental health might be questioned in that case, though the fact is that most people usually hesitate to seek counselling because they feel that it will defame them. Unfortunately, 75.61% teachers were of the opinion that taking professional advice from a mental health expert meant incurring unnecessary expenses. This is probably because they are mostly prejudiced and/or unaware of the phenomenal aid they can receive from this resource. The findings also indicated that most teachers needed expert advice to learn positive stress management strategies. Teachers mostly preferred

private consultation, as they were not quite optimistic about openly voicing their problems in forums or group discussions. This may be probably due to fear of spoiling their social image. The over-all consciousness for the need to practice stress management strategies for self-help regularly, was limited to very few teachers.

In the international arena the concept of teachers' counselling has gained substantial ground. In an article in *The Independent*, dated March 24, 2000, titled – *Education: Thousands of teachers seeking help for stress. Burden of responsibility weighing more heavily as demands of the national curriculum impose new limits on classroom freedom,* the author, Judith Judd, Education Editor wrote: "A thousand teachers a month are calling a new helpline and many are suffering from stress or depression, according to figures released today. Teachers are desperate for advice about disruptive pupils, ever-growing paperwork, bullying head teachers and inspections. Teacher line, operated by the Teacher Support Network and funded mainly by the Government, has received 6,000 calls - several hundred from teachers who are already on anti-depressants - since it opened six months ago...." There is also a gradually rising consciousness in India about the fact that teachers need counselling as well. In an article by Siddhartha D. Kashyap in *The Times of India* dated December 19, 2001, titled - *Even teachers need counselling, say experts*, the author wrote: "...Are teachers turning into bullies? Or are they simply "stressed out?" Or is it that they are finding gen next kids just too difficult to cope with...While educationists strongly advocate the idea of equal counselling to students as well as teachers...Echoing this, Dr. A.P. Bhupatkar, Director, Institute of Management Development and Research (IMDR), Deccan Education Society in the Fergusson College campus, said that it is equally important that educational institutions have similar counselling facilities for teachers as well...". Again in *The Times of India* dated July 6, 2010, titled -*Teachers' meet on how to beat stress, the author commented:* "It's time to counsel school teachers...."

Accordingly, more awareness on the benefits of counselling needs to be inculcated among the school teachers to help them break free from inhibitions and accept experts' counsel for self-development and personal cum social well-being. Once the teachers experience its benefits, they will certainly be able to overcome their personal inhibitions and social prejudices, and develop a more positive perspective. If counselling sessions are organized from time to time in schools and Teachers' Training colleges, then the teachers can receive this facility for personal and professional growth and development. Teachers' Training colleges have both in-service and pre-service teachers learning the art and science of teaching under a friendly environment, free from pressures from students, parents, colleagues or higher authorities. If counselling sessions are organized within their academic session, then both pre-service and in-service teachers can get an exposure to the experience of counselling, which may reduce their mental inhibitions to some extent. Such interactive sessions can provide technical assistance from the counsellors to help teachers realise the stress inside them through self-introspection, voice out their problems more candidly, and guide the teachers, and the school and college authorities to solve them mutually. Counselling can also acquaint teachers with positive coping strategies, interventions, and updated stress management techniques like

yoga, meditation, physical exercises, exposure to Nature, progressive muscular relaxation techniques, etc, which can help them to regulate their emotions, temper their stress and control their negative stress reactions in order to set better examples before their students.

However, this cannot be successfully materialized into regular practice unless the teachers themselves are willing to accept it. If teachers are invited to join "Counselling" sessions, they are likely to shirk away, due to their prejudice related to the concept or term. Instead, they can be invited to join sessions on counselling, just termed differently as workshops or seminars, etc. As they start participating in these sessions, they would become more vocal and candid about their problems. Once they experience the fact that these sessions help them to solve their problems and enlighten them with novel strategies and techniques for problem-solving and stress management, they would definitely look forward to more such sessions from time to time. Only after they get used to such interactive sessions, they can be eventually informed that they are experiencing nothing but "counselling". Thus they would gradually overcome their scepticism and fallacy related to "counselling" that only mentally deranged people require counselling. Once the teachers experience its benefits, they will certainly be able to overcome their personal inhibitions and social prejudices, and develop a more positive perspective. Keeping pace with present times, counselling facility can be utilized as a phenomenal aid in mitigating teachers' stress, and thereby act as a potential instrument for qualitative enrichment of human resource in the education sector.

Teachers are assets for any nation. They are the artisans who craft those little hands and brains that eventually mature to steer the future course of the nation. Counselling services for teachers can help to furnish teachers with stress management strategies to combat personal and occupational stress, and thereby act as a potential instrument for qualitative enrichment of human resource in the education sector. If schools and Teachers' Training Colleges judiciously pioneer this endeavour to empower teachers with this provision, they will produce a new generation of stress-free teachers – capable of nurturing young children more effectively.

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Creating an alternative conception of educators: Insights from Paulo Freire

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Abstract: Education systems all over the world are undergoing through a period of massive transformation. These changes can be attributed to the neo-liberal regime of quality, standardization, and accountability. Education as an enterprise is now being viewed as profit generating industry rather than as an agency that can help in reducing social inequalities. Subsequently, teachers are made an 'object of reform' to 'refine' the education system and the complex notion of pedagogy has been reduced to a mechanical activity. Freire's views on education add value to the current debates because of his passionate rejection of the philosophy of neo liberalism as it dehumanizes teachers' professional identity and work. His philosophical orientation offers great value to the debates about the role and preparation of teachers. He created an alternative conception of the teaching professional as a critical thinking ethical professional. This paper aims at throwing light on the revolutionary ideas of Paulo Freire and how his work offers a refreshing outlook towards educators.

Keywords: Conception of educators, Paulo Freire; teacher preparation, neo-liberal regime

Introduction

Education systems all over the world are undergoing through a period of massive transformation. This change can be attributed to the neo-liberal regime of quality, standardization, accountability and assessment that started in the developed countries during 1980s under the disguise of reforms. Within the last decade its presence has been felt in the developing countries such as ours. These reforms aim at state's gradual withdrawal from its responsibility from the important areas such as health and education. In education, through schemes such as the voucher system and many others, the administration and organization of schools as well as of teacher education are increasingly brought under the influence of the ideologies of corporate business houses. Hence, education as an enterprise now reflects a concern of the free market at the expense of social equity and social justice. This ensures that students are 'indoctrinated' into a skewed worldview devoid of social critique or base their understanding of the world on more democratic assumptions. It can be argued that neo-liberalism as an ideology seeks to naturalize differences arising out of social inequities.

Even the contemporary policy discourse focuses on individual choices rather than recognizing factors such as social and economic inequalities in the educative process of the students. According to Soudien (2011), there seems a "convergence between economic and educational discourses, with the former coming to give the latter its

substance and content" (p.7). In other words, the process of education has redefined itself as a deliverable leaving aside the 'larger purposes' of education and its relationship with society. Education has been subordinated to the ethos of market leading to the reduction of human/personhood to resource/capital. It is now marketed as a social investment in preparing `human resources' (students) to participate in a global, competitive economy.

Teacher: 'An object of reform'

As argued above that the recent policy developments all over the world such as high accountability measures have sparked a renewed interest in teachers work and pedagogy. An increasing constriction on the authority and decision making power of teachers can be observed. It is made to appear that continuous monitoring and increase in teacher accountability can enhance student learning. According to Lingard (2010):

> This accountability development has been accompanied by reductionist accounts within the policy of teachers as the most significant school-based factors for determining student learning outcomes. These policies see teachers as de-contextualized practitioners and as both the cause of, and solution to, any problems with learning outcomes, often reduced to student performance on high stakes testing (p. 169).

Thus, under this "effectiveness and efficiency" discourse, there has been a new level of distrust in teachers' judgment of professional practice. Such teaching practices have negative and reductive effects on pedagogic possibilities, which ultimately lead to a decline in learning effectiveness of both students as well as teachers. Teachers' work and identities are being restructured to reflect the values and behaviour of the corporate world with detrimental consequences for teachers and students alike.

Smyth (1998) observed, in respect of such outcome accountability: "A crucial element of this educational commodity approach to teachers' work is the attention to calculable and measurable aspects of the work, especially educational outputs" (p. 193). Further, Smyth (2001) describes how the role of teachers is now being constructed in the context of neo liberal agendas:

> Require teachers to work within more rigidly defined policy frameworks and guidelines; Place greater emphasis on determining the worth of teaching in terms of measurable outcomes; Make teachers more accountable by linking outcomes to the actions and activities of individual teachers, classrooms, and schools; Move teachers and schools in the direction of processes that are more appropriate to those of the corporate and industrial sector – performance appraisal, curriculum audits, quality assurance, and the like; and Preach the virtues of education and schooling as being no different than any other commodity sold in the marketplace – to be measured and calibrated according to quality standards; packaged and delivered to targeted audiences p. 39).

Subsequently, under a period of sustained neo-liberal dominance, teaching as a nuanced pedagogical process has been reduced to a mechanical activity. The role of a teacher gets reduced to a mere technician or an implementer of reforms rather than a 'transformative intellectual' as argued by Giroux (1988). Till now, the policy discourse in India usually remains silent on the role teachers can play as a fundamental agent in bringing the issues of social justice. In the contemporary scenario, the Right to Education Act (RTE), 2009 stresses on the need to recruit a large teaching workforce to meet the Act's obligations. This has led "the Indian state to once again seek comfort in convenient solutions that 'equip' teachers to deliver' education for which theory is not necessary, nor the design of meaningful learning experiences" (Batra, 2012, p.7). Thus poor quality of teacher education has led to a diminished professional role of teachers, which has further undermined their agency and ability to be critical educators. This demands an urgent need to reconceptualise how teacher professional knowledge takes into its fold the socio political and cultural discourses in preparing teachers for diverse classroom.

Reclaiming Paulo Freire

Against this backdrop, Freire's ideas on education specifically on teachers can provide a provocative lens for examining existing teacher preparation programs. In the contemporary scenario, Freire's views on education add value because of his passionate rejection of the philosophy of neo-liberalism as it dehumanises teachers' professional identity and work. The work of Paulo Freire has been considered to be indispensable for liberatory and socially just education. He has always been termed as a radical educator due to his action oriented philosophy that aims at social change through education. The Freirean pedagogy is considered as pedagogy of transformative action and helps in understanding the political nature of education. His humanistic discourse differs from the current demands for evidence-led teaching, teacher effectiveness and school improvement. In his words, "to transform the experience of education into a matter of simple technique is to impoverish what is fundamentally human in this experience: namely, its capacity to form the human person" (Freire 1998a, p. 39).

Freire's ideas become all the more important to reconsider in the Indian context as the neo liberal agenda appeared on the education front when the nation is still struggling to make elementary education accessible to thousands of children. However, in the developed nations the neo liberal assault on education began when most of the countries have established a proper schooling system. The role that education can play as a social equalizer in an iniquitous and diverse society like ours still needs to be evolved. To make egalitarian education reach masses, teachers need to be educated through a socially just pedagogy.

Freire's radical teacher

Freire redefines the notion of teacher's authority, professionalism and progressive education through the ethics of love, humbleness and care. Freire articulates in *Teachers as Cultural Workers* that the task of a teacher is both joyful and rigorous. It is a task that requires that those who commit themselves to teaching develop a certain love not only of

others but also of the very process implied by teaching. It is impossible to teach without the courage to love, with the courage to try a thousand times before giving up (Freire, 1998b, p.3). He regarded teachers as learners and learners as teachers in the dialectal search for knowledge. This search requires mutual respect for the freedom of the student and authority of the teacher. For him, teaching is a "directive, political, ideological, gnostic, pedagogical, aesthetic and ethical" process (1998a, p. 32). It demands seriousness and scientific, physical, emotional, and affective preparation.

A radically different teacher is required for Freire's radical notion of education who can act as a political radical agent while simultaneously functioning as a cultural worker, in which culture is critically viewed as the centre of all pedagogic activity. It can be said that Freirean educative practice is driven by the teacher and his radical ideas derived from Marxist underpinnings views the teacher as an agent of social change. The strong sense of agency and praxis that is all pervasive in Freire's work comes from the humanist aspect of Marx's writings. He accorded an important role to human agency in the context of revolutionary activity for social transformation as he had firm belief in the capacity of humans as makers of history rather than being made by history. Therefore, he negated the idea that educators must wait for society to reach some level of transformation for progressive ideas to be introduced in educational practice. The Freirean pedagogy is pedagogy of transformative action and helps a teacher to see the political nature of education. Freire (1998b) observed

> To the extent that I become clearer about my choices and my dreams, which are substantively political and attributively pedagogical, and to the extent that I recognize that though an educator I am also a political agent, I can better understand why I fear and realize how far we still have to go to improve our democracy. (p.41)

A teacher, in Freire's view, cannot maintain a posture of neutrality. She needs to analyze issues, to make decisions, and to accept its responsibility. This does not mean that teacher have to make her school a political base for supporting or rejecting any political party ideals. Instead, a teacher needs to articulate what she is doing, the grounds that support her actions and the rationale she has for selecting and pursuing certain objectives and goals. This brings in clarity in students mind about their teacher's political affiliations. Consequently, the development of self-awareness in teachers becomes vital so that they become aware of their role in a system that is never neutral and ideologically driven. As for Freire, being political is being ethical as only humans exist with the right and duty to opt, to decide and struggle. An important point that he articulated is that a teacher does not appear by accident, but exists by choice. Hence, teachers must respect their profession and enter into it by their choice not because they were forced into it or had no other option. They must recognize the 'dignity and importance' of their task as teachers (Freire, 1998b, p. 34).

Freire heeded teaching as a very specific task that requires a specific militancy. Usually teachers strongly believe that individually they cannot effect systemic change. In India, there is no focus on developing a collective agency of teachers as practitioners. On the

contrary, Freire continually asserted that teachers should act in union and their democratic struggle must not be transformed into a singular and individual struggle. The distortion of a teacher's task helps neo-liberal ideologies to manifest in the teaching profession by isolating teaching from political ideology. In the contemporary scenario, teachers' role has been reduced to that of a parent. This prevents teachers' from exercising their duty to protest (to go on a strike) against unacceptable working conditions in schools. Freire recognized this false identification and urged teachers to fight back to assert their rights as educators. Besides, this will give their students concrete testimony of the substantive meaning of struggle, democracy and progressive teaching.

Simultaneously, Freire accorded prime importance to the nurturing aspect of teaching. Teaching, he elaborates, is more than 'coddling'. It must challenge learners, encouraging them to be rigorous, serious, critical – even uncomfortable – in their search for knowledge. Freire warns that although teaching is a joyful task, but it must be intellectually rigorous too and these two should never be viewed as mutually exclusive. He strongly asserts that teaching should not be reduced to a merely feel-good process and to paternalistic nurturing. This parenting role of teacher reduces their professional identity. For Freire, professional identity as a process involves rigorous intellectual pursuits and preparation. According to Freire (1998b), the new ideology attempted to deprofessionalize the teacher, by suggesting that children call their teachers 'aunties'. He perceived teaching as a political project and this task gets undermined when the position of a teacher gets reduced to a merely parental role or what he terms it as "coddling parent". For Freire, teaching does not transform a teacher on to student's parent and nor does being a parent imply one to be a teacher of one's children.

Freire's conception of teacher education

Freire's philosophical orientation offers great value to debates about the role and preparation of teachers. Till now, teacher education remains dominated by pedagogies that are largely instrumental and focus on conformity and performance. In the *Pedagogy of Freedom*, Freire eloquently argued that teacher preparation should go beyond the technical preparation of teachers and be rooted in the ethical formation of selves and of history. He envisioned teacher education that will prepare ethical, critically conscious educators. At the same time, he was critical of teacher education programmes that focus on technocratic transfer of content and emphasized on the importance of contextualizing education. Teacher education practices in our country still view teaching as the "wisdom of practice" and engages with "pedagogy as mere techniques" (Batra, 2011, p. 142-144). Consequently, the issue of social justice through curriculum reforms only remains unattainable as there is little interest in understanding the pedagogical foundation of education as a deeply civic and political project that takes liberation from any kind of injustice as a collective goal.

Freire conceptualized education as an activity which is both emotional and cognitive. Accordingly he articulated that the teacher preparation programmes should recognize

'the value of emotions, sensibility, affectivity and intuition' in their curricula (1998a, p. 48). Further, he listed the kinds of knowledge that are vital for critical educative practice and therefore should be considered as essential in teacher preparation programmes. The first kind of knowledge should avoid the transfer or 'banking' transmission of content instead should focus on creating the circumstances for knowledge construction. Secondly, the programme should build in prospective teachers the knowledge to help students move from a state of ingenuous curiosity to a rigorous and critical 'epistemological curiosity'. He argued in favour of building a methodological rigour that will help future teachers to be aware of the fact that "our knowing and our knowledge are the fruits of historicity" (1998b, p. 32). Thus through epistemological process, one gets immersed in the existing knowledge and yet at the same time is open and capable of producing knowledge that does not exist.

Thirdly, teacher education programmes should build in future teachers the practice of critical teaching. It implicates a correct way of thinking that involves a dynamic and dialectical movement between doing and reflecting on doing. This reflection on one's practice separates critical thinking from ingenuous practice. "Critical reflection on practice is a requirement of the relationship between theory and practice otherwise theory becomes simply 'blah, blah, blah' and practice, pure activism"(Freire,1998a, p. 30).He raised this persistent issue of fostering a critical consciousness in teachers because teachers are a part of a culture that is embedded with inequity and oppressive systems. Therefore, the ability of critical reflection on one's personal and social world ought to be incorporated as an integral part of teacher preparation.

Role of teachers as cultural workers

Freire perceived culture as a social construction and teachers are seen as important agents in this process of cultural association, meaning making and imagining. He argues that "Intellectuals who memorize everything, reading for hours...fail to make any concrete connections between what they have read and what is happening in the world, the country, or the local community... rarely teach anything of personal value"(1998a, p. 34). Therefore, it is extremely important for teachers to make connections between the social reality and the text they study/teach. Freire argues that as a cultural worker, a teacher stresses a certain perception of culture in the classroom. She needs to be conscious about the significant cultural divisions in the classroom that reflects the hegemonic structures of society. These divisions need to be contested so as to empower learners and ultimately liberate them from oppressive conditions. Therefore, a critical understanding of the learner's context is crucial for the teachers to teach. Teachers "need to know the universe of their [learner's] dreams, the language with which they skillfully defend themselves from the aggressiveness of their world, what they know independently of the school, and how they know it" (1998b, p. 73). This would also bring dignity into their teaching practice as teachers who are aware of their students' culture can respect learners as human beings in totality, for what they are and what they want to be irrespective of their social and cultural identity.

At the same time, it is necessary for a teacher to understand the impact of culture upon his or her own identity. For Freire, the concept of cultural identity is a "dynamic relationship between what we inherit and what we acquire" (1998b, p. 46). A teacher has to reflect on his/her cultural upbringing as it unconsciously motivates in choosing the pedagogical approaches used for teaching. Hence, a connection between economic and political and how they are being related to the cultural sphere needs to be made by teachers in order to understand their classroom in a better way. Freire stresses on the need of working on the cultural experiences of student teachers during a teacher education programme. In this way, personal experience becomes a crucial and meaningful pedagogical resource that gives student teachers an opportunity to relate their own narratives, social relations and histories to what they study in the classroom.

An opportunity is provided to student teachers in participating and governing their own learning rather than being governed by prevailing ideological and material forces. Hence the role of human agency in moving out of one's social conditioning takes centre stage in Freire's educational philosophy. He articulates "I like to be human because in my unfinishedness I know that I am conditioned. Yet conscious of such conditioning, I know that I can go beyond it, which is the essential difference between conditioned and determined existence" (1998a, p.54). To put simply, Freire believed that we make and are made by history. Knowledge is constructed rather than derived and must be understood contextually as historically and culturally informed discourses.

When such critically conscious teachers enter classrooms as cultural workers, they use the knowledge already possessed by students to give them the power to re-appropriate dominant knowledge for their own emancipation. However, for Freire, a truly critical education must go even beyond this. "It is necessary that, in learning the so-called norm, [the students] understand that they are learning it not because their language is ugly and inferior, but because in mastering the 'norm' they acquire tools to [use in] the struggle for the necessary reinvention of the world" (as cited in Apple et.al, 2001, p.131). Thus in *The Pedagogy of Freedom*, he argues that our capacity to go beyond the factors of conditioning is one of the obvious advantages of the human person and at the same time cautions teachers to recognize that "it was when the majorities are denied their right to participate in history as subjects that they become dominated and alienated" (Freire, 1970, p.125). This process of being an active participant in the making of history rather a dormant observer needs to be learnt in schools.

In the Freirean paradigm the role of the teacher as a cultural worker is primarily of a political and intellectual being who can transform learners into culturally conscious agents rather than as passive recipients. In the Indian context, usually, teachers are prepared in programmes that ignore the socio-political context of education and where the technical approach is privileged. The unexamined assumptions about the role of power and ideology in culture and how it affects one's social location promotes a submissive attitude in the student teacher. Moreover, the new teacher develops a feeling of helplessness when placed in a classroom with students of different ethnic, linguistic, cultural backgrounds. Thus, the experience of awareness of oneself and one's culture can

foster a more critical way of looking at schools, at students, and at what it means to teach. "It is in experiencing the differences that we discover ourselves as I's and you's" (Freire, 1998b, p.71). He articulates that it is in this experience of difference that we experience who we are. And in our awareness comes knowing; and with knowing, growth. This critical outlook makes teacher humble as s/he understands that "[a]s a teacher I cannot help the students to overcome their ignorance if I am not engaged permanently in trying to overcome my own" (Freire, 1998a, p.89). This awareness helps in development of love towards students and towards the process of education.

Progressive teaching

In *Teachers as Cultural Workers*, Freire articulated the important characteristics of a progressive teacher, which are built upon the foundations of scientific competence, political clarity and ethical integrity. A progressive or problem-posing education gives significance to education as a 'practice of freedom' (Freire, 1998a) rather than viewing it as an economic utility. As a result, progressive teaching gives importance to the autonomy of students as an aim of a critical education. For Freire, progressive teaching is a task of becoming. Both teachers and students are subjects involved in the process of education. Thus, he saw student as well as teacher as unfinished beings. In a state of perpetual unfinishedness, no-one could be fully human. He declared "Unfinishedness is essential to our human condition" (1998a, p.52). Education does not make us educable however it is our awareness of being unfinished that makes us educable.

Freire argues that progressive practice happens through: the critical analysis of events; the rejection of easy explanations of social relations and the questioning of the historical truth as most teachers associate knowledge with irrefutable certainties. He argued that "one of the essential tasks of the teaching process is to introduce the learners to the methodological exactitude with which they should approach the learning process" (1998a, p. 33). This would help students as well as teachers to focus on the process of learning rather than its outcome. Freire maintained that education has always implied utopias, dreams and desires. A teacher ought to be committed to dreams and should not keep them to herself rather disclose them to her students. Students will realize that there are dreams other than the teachers', thus making it an ethical practice. Dreams and utopias form an important constituent of a progressive education as they give direction to the educational practice. This suggests that education starts from a given level and goes beyond itself. This notion of directivity does not allow education to be a neutral process (Gadotti, 1994). Dreams give courage to fight against oppression and a hope for an egalitarian world. Having utopias implies the denial of a mechanistic explanation of history. This would make a progressive teacher as subject of history rather than an object.

Freire argues that there is a danger of the progressive discourse becoming meaningless either through using authoritarian pedagogy by the teacher or by using a laissez-faire practice in the classroom. In both cases, progressive education does not bring any positive results. Thus, he maintained that to be progressive in a true sense means to act

democratically and exercising authority in setting conditions of learning for students. Viewing from a Freirean lens, the essential characteristics of progressive education can be framed as follows:

Scientific competence

In *Teachers as Cultural Workers*, Freire mentions about scientific competence as an essential skill for developing professional understanding. This he said should be assisted by physical, emotional and affective preparation too. Accordingly, these domains should interact and they together form the major component of a teacher education programme. He believed that cognition and emotions work together and should therefore not be dichotomized. However, at the same time, he stressed on the need to incorporate the common sense or experiential and out of school experiences of students as important contributions in learning of both students and teachers. Though he demanded that such knowledge should not be accepted at its face value, a teacher needs to have "intellectual rigor" and "epistemological curiosity" to examine such knowledge.

Consequently, enabling such learning was linked with inclinations to be self reflective and epistemologically curious. Freire subsumed political clarity and ethical integrity under the broader category of scientific competence. For him, scientific preparation should be informed by political clarity. He asserted that a teacher cannot be secure in her thoughts and choice sunless she has a strong scientific knowledge base for his/her action. The teacher needs to be clear about what s/he is doing and toward which goals s/he is moving as a professional. In both *Teachers as Cultural Workers* and *Pedagogy of Freedom*, Freire throughout mentioned about the need for a teacher to be competent in the subject matter with an understanding of pedagogical expertise and a sensitivity towards learners' socio economic, cultural, and linguistic settings as essential for developing the disposition of a progressive teacher. Hence, a professional teacher needs to have a humanistic, scientific, disciplinary, and cultural knowledge that informs both theory and practice.

Political clarity

Throughout Freire's academic writings, he repeatedly argues that the teacher is a political agent and education is a political choice and an undertaking. For Freire, decisions about curricular, pedagogical and evaluative matters are often related to the lives of people and are substantively political. He labelled the teacher as a "political militant" so as to unmask the so-called neutral topics and discriminating ideologies. He viewed teachers as politicians who fight against social injustices that oppress schools and students as well as the teachers. When teachers act politically through talking and sharing with their students, their own critical consciousness, it leads to the realization of a democratic vision. Learners are likely to emulate the democratic and critical behaviour of their teachers. Thus, for Freire, teachers should exemplify democratic thought processes and behaviours towards their students and society. He emphasises the need to listen to and dialogue with others, regardless of their social, political, and economic status in life as an important aspect under the virtue of political clarity.

Ethical integrity

Related to political clarity is the aspect of ethical integrity. For Freire, being political is being ethical as only humans exist with the right and duty to opt, to decide and struggle. The decision to be a teacher is an ethical one. Therefore teachers must respect their profession and enter into it by their choice not because they were forced into it or had no other option. They must recognize the 'dignity and importance' (1998b, p. 34) of their task as teachers. This would imply that teachers need to be educated as ethical persons seeking the goals of humanisation and transformation for each student. In Freire's view, it is vital for a teacher to act on one's chosen ethic as it enables a person to maintain his own ethical integrity, including condemning as well as affirming personal, institutional, and governmental actions. Thus Freire stated that teachers are always engaged in ethical decision making, whether or not they take responsibility for it.

Qualities indispensable to the progressive teacher

In *Teachers as Cultural Workers*, Freire articulated the important qualities a progressive teacher needs to have. The progressive teacher has to cultivate a number of virtues in order to become competent. He listed nine attributes that he considered necessary for progressive educational practice; for maintaining the commitment to democracy and to an unequivocal rejection of prejudice. The attributes are as follows:

Humility

For Freire, humility should not be seen in contrast to lack of self respect or cowardice. It requires an understanding that we all know some 'things' and we are all ignorant of some 'things'. This allows teachers to listen and learn rather than to speak and teach. Subsequently, he believed that humility requires courage, self-confidence and respect for others. To be humble, one needs to listen regardless of his/her intellectual level. It is a prerequisite for a dialogical teaching as humility allows one to listen to the other. It implies understanding oneself in the process of being with all the abilities and all the faults; to accept oneself as one who is becoming. This is in contrast with authoritarianism where a single truth exists that needs to be imposed on others. Authoritarianism leads one to either adopt a rebellious position or a position of excessive obedience. For Freire, both such situations are dangerous for progressive teaching. By rejecting authoritarianism, teachers cope with the tension between authority and freedom. A teacher needs to understand the crucial link between the two as their authority does not diminish the freedom of the student. However, at the same time teachers need to be careful of not losing their authority while exercising freedom with students. Thus, humility helps in embracing a democratic instead of an authoritarian classroom.

Lovingness

This quality is required by a teacher so as to relate to students. Freire advised that loving is not enough; one must know how to love. A progressive teacher needs love not only

towards his/her students but also towards the very process of teaching. Freire assured that great teachers love teaching, even in the face of struggle and injustice. They are willing to fight for what is right for them and for their students. That is why he called this attribute as *"armed love"* (or fighting love) as it is required to survive the negativities associated with the teaching profession such as low wages, awful treatment of teachers. A teacher having love for the profession would take a stand and this helps educators to remain devoted to their profession.

Courage

For a teacher to demonstrate ethical consistency, it is crucial to display courage to action his/her beliefs. In the *Pedagogy of the Oppressed*, Freire dwelled in detail about the fear of freedom, and how teachers should replace this conditioned behaviour to embrace the pedagogy of liberation. He asserted that with sufficient autonomy and responsibility critical teachers come to see how the domesticating power of the dominant ideology causes them to become ambiguous and indecisive and move away from their transformative work. He expressed that one needs to constantly reinvent oneself in one's social experience. Courage implies not finding fears outside but within oneself. It involves being sure of one's choices and dreams. These choices are considerably political and attributively pedagogical. In critical education, fear does not remain an abstraction as a conscious learner is constantly involved in exposing the dominant ideology. He stressed that there is no need to hide fear as fear is a manifestation of being alive. A teacher needs to learn to face fear in a better way by being courageous. Hence to overcome one's fears both in the classroom and beyond requires one to control fear by educating it; by being clear about one's political stand.

Tolerance

A teacher needs to understand tolerance as a critical virtue–professionally, democratically, and personally. For Freire (1996, p. 148), "Tolerance is the virtue that teaches us to live with difference and learn from it, to live with those who are different without considering ourselves superior or inferior". This virtue teaches one to embrace and respect others. It does not mean "coexistence with the intolerable" but "coexistence with the different" (Freire, 1998b, p. 42). Without tolerance no teaching can take place. It teaches us to learn and live with difference. He further dwelled upon the levels of tolerance. He states that at the initial level tolerance may seem as a favour or a courtesy, a thoughtful and 'tolerating' way of accepting the other. But Freire reminded that this is a virtue of hypocrisy rather than tolerance.

Tolerance needs to be embraced firstly through coherence with one's historical being and then as a democratic political choice. As one of the principles of democracy is coexistence with the different, this cannot be achieved without accepting tolerance as a virtue. Tolerance cannot be 'learned' in an authoritarian regime where freedom is restricted. In this regard, Freire claimed that neither a bigot's 'progressive' discourse nor a scientism can teach one to be tolerant as both believe in an ultimate truth that can provide certainty. This has vital implications for teaching practice in general. For

instance, a teacher cannot force students to agree with ideas that they find objectionable or deny that a genuine conflict of opinions exists. S/he needs to accept that students have a right to think and be different from teachers. This makes a tolerant teacher or student perhaps more authentic if s/he learns to defend their ideas and accepts the "profound ethical duty... not to lie" (Freire, 1996, p. 148).

Decisiveness

According to Freire, an educator's ability to make decisions is extremely important for his/her educational work. Taking a decision involves careful evaluation of many available choices. Decision making is not always an easy experience. It involves coming to a clear decision by displaying willingness and confidence to make a difficult choice that is best for students. This also means a commitment to seeking permanent justice in one's actions as "democratic educators must not nullify themselves in the name of being democratic". However, teachers need to be careful by not evading their responsibility in the name of democracy. At the same time, an educator's decisions should not be arbitrary. Indecisiveness of an educator is perceived by learners as either moral weakness or professional incompetence. It reveals a lack of confidence. Hence another related virtue of *security-confidence*, becomes important for an educator. This confidence or security is not associated with arrogance but rather with the manifestation of humility.

Security

Freire stated that security and confidence requires scientific competence, political clarity and ethical integrity. An educator cannot be secure in his/her actions until s/he knows how to support those actions scientifically. This security gives learners an idea about what an educator does, why and to what end? It avoids arrogant outbursts on an educator's part. An educator need not hurt the dignity of his/her learners to challenge them. He termed this as ethical irresponsibility. Thus security and determination are needed by a progressive educator to balance his/her authority. She acknowledged that a teacher may like one student more than others; that is a teacher's right but at the same time, a teacher needs to be careful about not to disregard the rights of the other students in favouring one student. For such teachers, security comes in as a by product of knowledge, especially when the teacher recognizes that she is an unfinished being who needs to be open to learning throughout life.

Tension between patience and impatience: A progressive educator needs to exercise wisdom in balancing between permissiveness or resignation and blind activism. Patience can bring inactivity, hinders the attainment of objectives central to the educator's practice. On the other hand, impatience may lead to irresponsible activism and to a practice that does not respect the necessary relationship between tactics and strategy. It threatens the success of one's own practice. Therefore, the virtue lies in living the permanent tension between the two rather than experiencing either without the other.

Verbal parsimony

It is the understanding of the power of words and how to use them responsibly for maximum effect. This virtue is implied in the balance between patience and impatience a one who has this virtue will rarely lose control over his/her words. Freire affirmed that a patient person's discourse is well-behaved whereas an impatient person's discourse lacks restraint. He cautioned that both these discourses- the overly controlled and the undisciplined, contribute to the preservation of the status quo by falling short and surpassing it respectively. The infinite patience signals learners that almost anything goes whereas the impatience reflects an arrogant, irresponsible and unrealistic discourse. Neither of these would lead to the learner's education. There lies an inherent danger with the excessive restraining of one's patience as it leads to sudden outburst of uncontainable impatience and creates a climate of insecurity for children around them.

Joy of living

Freire attributed this as a fundamental value for democratic educational practice. By living the above mentioned attributes, an educator can create a happy and joyful school. A school that thinks, participates, creates, speaks, loves, guesses, passionately embraces and says yes to life. It is a school that is not afraid of the risks and that rejects immobility. A person, who abandons conflicts, takes convenient positions, who quits struggle and history lacks the dignity of life. Thus every educator has certain rights that include the right to freedom in teaching, the right to speak, the right to better conditions for pedagogical work, the right to criticize the authorities without fear of retaliation (which entails the duty to criticize truthfully. Hence, through these, a teacher could fully enjoy both life and teaching.

Conclusion

The sense of hope and human agency in Freire's work makes it appealing particularly at a time when the process of education is undergoing massive market oriented reforms. He challenged the dominant hegemonic discourse of technical rationality and marketability through his unique approach of humanization and an unshakable belief in the capacity of humans as makers of history. The strong emphasis on human agency in Freire's work emphasizes a central role of teachers in constructing a process of education through socially just pedagogy. Freire's perception about teachers as cultural workers helps to re-imagine teachers' work in socially just, democratic and sustainable ways. He reminds teachers to make connection between economic and political spheres and how they are being related to the cultural sphere in order to understand their classroom in a better way. Freire (1992) asserted the importance of redefining teachers as cultural workers who are capable of "reclaiming, without romanticizing, popular culture as a complex terrain of pedagogical struggle" (p. 78). Thus as a cultural worker, a teacher questions commonsensical understandings, interrogates dominant beliefs and representations of social life. Freire's work becomes all the more crucial to comprehend as he was among the foremost theorists who discussed pedagogical activity in the context of power. He created an alternative conception of educators as critical thinking ethical professional,

different from the meaning of professional as propagated under the neo-liberal regime. For Freire, the task of teaching is a professional task and a progressive teacher must have a strong sense of professionalism so as to protect his/her identity in times of adversity such as low salaries that reduces their professional status. He commended strong personal critical autonomy as essential for teachers to develop a humanistic discourse towards education as an enterprise. Therefore it becomes crucial to view and design teacher education programme so as to educate prospective teachers as ethical persons seeking the goals of humanization and social transformation.

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Effect of intervention in spatial perception on performance in mathematics and spellings

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Abstract: A group of 36 subjects deficient in spatial perception were divided in three equal groups: two experimental and one control. The first experimental group was administered intervention in directionality, location and spatial relations, second experimental group was given intervention in figure ground perception and visual coordination. The control group served to examine effects of threats to validity and was not given any treatment. Subjects of experimental groups improved at the time of post test, in spatial perception, mathematics and spellings. At the time of a delayed post test also, they retained the benefits of intervention in spatial perception.

Keywords: Intervention, spatial perception, performance in mathematics and spellings

Introduction

Spatial thinking is integral to everyday life. People, natural objects, human made objects and human made structures exists somewhere in space and the interactions of people and things must be understood in terms of locations, distance, directions, shapes and patterns (National Research Council, 2006).

The ability to mentally rotate the concrete as well as imaginary objects in space while perceiving their spatial characteristics such as size, colour, form, direction, distance, orientation is known as spatial perception (Jain, 2000). People vary among themselves in proficiency in this skill.

Spatial perception is the ability to make sense of the size, shape, movement, and orientation of objects. According to Baron (2007), intelligence related with space is the ability to visualize objects in three dimensions.

Spatial perception is the ability to sense the size, shape, movement, and orientation of objects (Wisegeek, 2014). It may be worth a mention that all visual perception may be spatial but all spatial perception is not visual in nature. Spatial perception may relate to auditory modality.

According to Frostig and Horne (1964) a child should have developed visual perceptual skill between the ages of three and a half and seven and a half. By the time a child arrives at school, a child ordinarily has developed a rough understanding of space and

distance. During the elementary years a more abstract concept of space such as directionality, sequentially, spatial orientation and organization develops.

The discovery of 'place cells' and 'grid cells' which supposedly function for human GPS in brain, by three noble laureates has helped develop understanding of how the brain computes spatial information to make a representation of spaces (Basu, 2014).

Objective

The objective of present paper is to examine whether children with deficits in math and spelling performance, along with deficits in spatial perception will improve in math and spelling when given intervention to aid spatial perception.

Spatial perception and mathematics: Review

Following is a brief account of literature which brings out relationship in spatial perception and performance in math.

Visuospatial perceptual dysfunction apart from affecting overall academic performance manifests its deficit particularly in the area of Mathematics. Curley and Reilley (1983) conducted a research to determine whether use of a teaching method geared to learner's dominant perceptual modality increases level of learning and efficiency with which that level was achieved in selected learning task. Sixty children (8-12 years) were divided into three groups of 20 each. Grouping was based on perceptual screening procedures. During instruction, subjects given information to be mastered under following three sense modalities: audio-vocal motor, visual vocal motor and combination channel. Two-way ANOVA indicated main effects of training in visual and combination conditions only.

According to Battista (1990), visual spatial ability is one of main factors affecting mathematical performance. Various studies of Sylvia (1993); Montague (1993); Barron (1989) have directly or indirectly established relationship between spatial ability and achievement in mathematical skills including geometry and word problems. They found that students with visual spatial deficit often misread numerical signs, rotate and transpose numbers or both e.g. '6'↔ '9', 'X' ↔ '+'; '-'↔ '÷'etc, misinterpret spatial placement of numerals resulting in place value errors and have difficulties with problems involving space in areas as required in algebra and geometry.

When a person has a difficulty in task requiring visual discrimination of geometric designs, pictures, letters, words and numerical signs, the condition is termed as perceptual handicap (Cunningham and Reagan, 2004).

Demonstrating the vital role spatial perception plays in the learning of mathematics, Sunberg and Goodman (2005) have provided a picture of the learning environment that should be created for pre-service mathematics teachers and how development of spatial abilities can be incorporated into courses for students. Blatto-Vallee Kelly, Gaustad, Poster, and Fonzi, (2007) stressed that while teaching problem solving in mathematics

using visual spatial representations, teachers should emphasize the explicit and implicit relationships in problems. This is of great help to students.

Sarama and Clements (2009) show how spatial deficits affect children's ability to comprehend numeric quantities and magnitudes. This problem may be starting very early, when children start to subitize and suddenly start apprehending small quantities e.g. think of dice and the almost-instant awareness of the quantity in particular dot arrangements without needing to count the dots. In children problems in mathematics, the ability to subitize may be delayed, and these children may need to continue to count every item in small collections; children with such a difficulty in dealing with small quantities are at serious risk in development of their mathematical concepts.

In a longitudinal study, Wai and colleagues (2009) found that spatial skills assessed in high school predicted which students would later enter and succeed in disciplines related to science, technology, engineering and mathematics. Moreover, spatial thinking was a better predictor of mathematics success than either verbal or mathematical skills. Taken together, the above research findings paint a clear picture when it comes to mathematics, spatial thinking matters.

Krajewski and Schneider (2009) investigated the importance of kindergarten phonological awareness, working memory, and quantity number competencies (QNC) in achievement in math in third graders. It was found that the visual -spatial working memory, assessed at five years of age, was mediated by early QNC, which predicted math achievement in third grade.

Diezmann and Lowrie (2012) established that spatial thinking is important in mathematics. They examined performance of 11-12 year old subjects on two mathematical tasks which required spatial thinking and interpretation of graphics. They also proposed strategies for capitalizing on graphics for learning to think spatially.

Wang, Chen, Lin (2014) examined 12 students aged 11-12 years who participated as novices and 4 mathematics students who participated as experts. A comparison of the visual-spatial abilities of each group showed key factors of superior spatial ability

According to Yarmohammadian (2014), there exists a significant relationship between mathematical disorders and spatial awareness.

Drefs and D'Mour (2014) point out spatial ability is connected to understanding numeric quantities and to early numeracy performance.

Studies have suggested a link between a well-developed sense of spatial awareness and artistic creativity, as well as success in math.
(http://www.balametrics.com/explain.htm,2014).

Research literature of nearly a hundred years confirms a close connection in spatial thinking and performance in mathematics. In a similar way, Mix and Cheng (2012) point

out that relationship in spatial ability and mathematics is so well established that it no longer makes sense to ask whether they are related.

Based on the literature presented above, following was hypothesized.

Hypothesis 1: Intervention in spatial perception skills will significantly improve performance in mathematics

Spatial perception and spellings skills: Review

Students with weaknesses in spatial relationship may experience difficulty recalling the sequential order of letters in a word (ldsupport.homestead.com/visualspatialrelations.html). Spelling acquisition is an area where no creativity is encouraged. It is a matter of sequencing. There is just one correct position, no alternative. If a child is not good at sequencing, be it visual or auditory, he is bound to have problems in spelling ability.

Spellings in English language require ability of understanding meaning and usage of words like left, right, before, after, in between, end, beginning etc. For accuracy in spellings, understanding many rules like 'I before E except C' is necessary. Those with visual spatial deficits are bound to find problems in understanding such rules and hence problems in spelling tasks.

Book (1929) found how images of letter sequences were essential for a child who found his misspelled words correct. He could not pronounce them correctly and spelt them by sound. This child had good imagery. He was encouraged to compare his image of a word with word itself. After eliminating old vocalizations, he could visualize. He had to be sure that mental picture of each word agreed with printed word besides other remedies. The child slowly improved in spellings.

Wakefield (1971) found that students with reading and spelling difficulties showed poor performance on WISC and ITPA sequential tasks. He suggested that observations of students in class may be directed to student's responses in reading and spelling tasks when they show problems in sequence.

Rourke and Finlayson (1978) studied three equal sized groups of children who were impaired in reading, spelling and arithmetic in the following way: G1 subjects was deficient in equally reading, spelling and arithmetic, G2 was below age in arithmetic but better than reading and spelling, G3 subjects had better reading and spelling than arithmetic, G2 was equated with G3 on Arithmetic, G3 subjects were better on reading and spellings than G2 subjects. On visual spatial and visual perceptual abilities (WISC block design and Target test), G1 and G2 were found to be superior to G3. Performance of G2 was significantly superior to G3 on all of measures of visual perceptual and visual spatial skills (WISC-picture completion & arrangement, object assembly, block design, and target test). Findings seem to suggest that the spatial perception is better in children with better math than those better in language. However, the findings were discussed in relative terms.

McLeod and Greenough (1980) found in their research on sequential and gross memory of poor and good spellers, that good spellers were not particularly superior to poor spellers in sequential memory, though they were better in gross memory.

Carlisle (1987) found that ninth grade students with perceptual deficit showed less evidence of morphological or rule based knowledge in spelling than even fourth graders who were normally achieving.

Hendrickson (1988) opines that spelling problems among children develop due to problems in form discrimination and inadequate visualization. Sequence of visual development in a child comprises learning motor control and co-ordination, with vision directing and monitoring movements, learning comparisons of size, shape, directionality visually, cultivating visual memory and or recall.

Golon (2004) suggests that it is quite usual for children and adults with visual spatial deficits to have problems with spellings tasks.

Williams Syndrome (WS) is a developmental delay disorder carrying severe visual spatial impairment, in a person affected by it. In a case study, Dessalegn et al (2012), found that reading and spelling abilities among two individuals, affected by WS differed by more than 5 grade levels.

Gupta (2014) conducted a co-relational study entitled 'Visual perception as a correlate of spelling performance' and found a significant co-relation in four of the elements of visual perception viz. perceptual constancy, spatial perception, figure ground perception and visual motor coordination. Spelling performance had a significant co-relation with total value of visual perception. Only element that was not co-related with visual perception was that of directionality.

Visual Closure perception helps us recognize sight words. It is a foundation skill for fluency and speed in reading and spelling (http://www.visuallearningforlife.com/visual-perceptual-area-visual-closure.html).

A visual spatial deficit may contribute to reversals of forms and letters such as 'd' and 'b' and words like 'was' and 'saw' besides some other motor and math problems (www.visiontherapy4kids.com/contentpage.aspx?id=52)

Based on above arguments and literature, it was hypothesized that:

Hypothesis 2: Intervention in spatial perception will improve performance in spellings significantly.

Method

Design

An experimental design named pre-test post-test control group design, with two experimental groups, was used.

Sample

Initial sample consisted of 370 subjects of both the genders in the age groups of 7-10 years, studying in the classes III and IV. Sample was taken from various schools of Chandigarh, Haryana (Panchkula and Yamunanagar), Punjab (Mohali and Patiala), and Rajasthan (Kotputli) in India. The final sample for conducting the experimental work consisted of 36 children identified as having spatial perception deficits. Geographical areas were chosen conveniently. The schools were selected randomly. Purposive sampling was used for selection of final sample. Allotment of subjects to groups was done randomly. The test of spatial perception was administered on 370 school children. Those students who scored below a score equivalent to M-1.41σ, (around 9.3% of the population, Garrett and Woodworth, 1981) on the test, formed the sample. The selected subjects were eight boys from class III, eight girls from class III, ten boys from class IV and ten girls from class IV, making it a total of 36. The subjects were then divided into three groups viz. two experimental groups, E_1 and E_2 and one control group (C) randomly through lottery system. Each group comprised of twelve subjects.

Tools

Following tools were used for data collection:

Self developed test on spatial perception named Spatial Perception Ability Test (SPAT) (Gupta and Bansal, 2005) to identify children with spatial deficits. The components of this test were: position in space, form perception and constancy, figure ground perception, visual closure, spatial relations and awareness.

Test on Mathematics: Twenty well sampled items on addition, subtraction, multiplication and division and problems on logical reasoning from the Mathematics Text Book of CBSE for class III were taken. Each correct response got one mark and an incorrect response was awarded zero mark (Bansal, 2005).

Test on spellings: 30 English words of medium difficulty level were picked from books of CBSE board books for standard III for this test.

Remedial programme

Perceptual motor models of intervention emphasize processes such as visual and auditory discrimination and perception, visual motor coordination and integration, visual auditory integration and motor skills. Some models claim direct relationship between neurological functioning and motor perceptual awareness whereas other models place more emphasis on paper pencil tasks designed to improve visual motor skills. However, all variations of perceptual motor models assume relationships between these skills and academic achievement.

Bloom (1982), Hill (1988), Khanna (1999) found that when modality preferences are not considered, multi-sensory instructions for learning disabled children were more beneficial as instructions from more modalities help them concentrate. Cunningham and

Reagan (2004) have also stressed that spatial perception training program should involve an integrated program involving a wide range of sensory modalities and visual motor perceptual activities.

Activities were designed in such a manner that the students were exposed to a wide range of experiences involving many sense modalities to the maximum. A brief detail of the activities designed for the program is presented below.

Group E_1 was given training in directionality and location. Details are divided into outdoor and indoor activities.

Outdoor activities included walking between the parallel lines without touching them, walking as slowly as possible on a straight line for 5-10 minutes with eyes open, throwing and catching of plates, balls, discs, rings of varying sizes and through varying distances.

Indoor activities included indicating to the subjects various directions with respect to oneself through songs, poems etc, differentiating between left and right positions of objects in relation to oneself, differentiating the left, right and other positions of objects in relation to each other, drawing different patterns using different colours, placement of coloured blocks according to designs presented in pictures, connecting the dots to form pictures and figures, reversal and rotation of three dimensional figures.

Group E_2 was engaged in activities related to figure ground perception and visual motor coordination. Details included playing with bingo cards, sorting of items of different shapes, colours, sizes and texture, striking out the letters in paragraphs, reading from text book, matching the playing cards in varying combinations, matching similar forms or marking odd one out, tracing and colouring of patterns, bead stringing in various patterns, finger tracing of geometric designs, copying the design, drawing between the lines without touching them.

Through all the activities for both the groups pertained to spatial perception only but to be more specific, the activities designed for E_1 group had the dominant use of kinesthetic modality in them whereas for E_2 group the activities were based on the dominance of visual modality over other modalities. The assignment of remediation program to two experimental groups was also done randomly

Each subject was attended to individually and the program comprised of forty sessions of 40-45 minutes each. Most of the indoor activities were done in the library room of the schools with minimum of disturbance, while the rest were performed in school playground.

Procedure of data collection

After the selection of the final sample based on scores obtained on SPAT, informal test on Mathematics and spellings were administered to all the three groups. These measures

served as pre-test. Then treatment sessions continued as specified above in remedial program.

After the treatment period, the test of Mathematics and spellings were administered on all the three groups as post test. Twenty seven days after the measures of post tests were taken, the two tests were again administered as delayed post test. This was done to test the retention of benefits of treatment.

Results

Data have been described using mean and SD. Overall significance of differences has been computed using ANOVA and significance of differences in individual pairs using t-ratios.

Mathematics

Table 1 presents means and SDs of all groups w. r. t. stages of testing for math.

Table 1: *Means and SDs of groups for stages of testing in math*

	Pre-test	Post test	Delayed post test
Groups	Mean (SD)	Mean (SD)	Mean (SD)
E1	6.16 (1.94)	10.00 (1.85)	9.83 (1.95)
E2	6.33 (2.29)	11.25 (3.44)	10.83 (3.13)
C	6.00 (1.85)	6.16 (2.20)	6.33 (2.05)

It is evident from Table 1 that experimental group 1 i.e. E1 has improved in performance from pre-test to post test. Variability has remained roughly the same. Form post to delayed post mean and SD both have not changed much. Similarly E2 has improved from pre to post test, but change is more than that in E1. However, increase in SD at post test stage shows that the subjects have varied in their improvement. Delayed post test shows a decline in both mean and dispersion. Mean increases slightly at every stage from pre test to delayed post test stage in case of control group and dispersion does not vary much at three stages.

As the subjects were allotted randomly to the three groups, they were found to be equivalent in performances in Mathematics in the pre-test. F-ratio calculated for pre-test for Mathematics ($F_{2, 33}$=.0187; p>.05) was not significant. For post test, F-ratio obtained was significant ($F_{2, 33}$=.4.72; p<.05), implying groups varied significantly in math at the time of post test. Details of t-ratios follow.

Table 2: *Statistics for t test for mathematics*

Comparison	difference	t-ratio	Significance (df=22)
E1 and C	3.84	3.17	p<.01
E2 and C	5.09	3.29	p<.01
E1 and E2	1.25	1.12	p>.05

Table 2 shows that both experimental groups differ significantly from control group in terms of performance in math. Performance of E2 group indicates a better performance than that of E1 (table 1), though that difference is not significant as is clear from table 2. This implies that treatment in spatial perception for both the groups has been effective in improving performance in math.

For delayed post test, ANOVA yielded a significant F ratio ($F_{2, 33}$=.8.28; p<.01) suggesting groups differed even at the time of delayed post test. When performance in math was compared in post and delayed post test, the picture that emerged is presented in Table 3.

Table 3: *Statistics for t-ratios in post and delayed post test in math*

Group	Comparison	Mean (SD)	Difference In mean	t-ratio	significance
E1	Post & delayed Post test	10.00 (1.85) 09.83 (1.95)	0.17	.636	p> .05
E2	Post & delayed Post test	11.25(03.44) 10.83(03.13)	0.42	1.17	p> .05
C	Post & delayed Post test	06.16(2.20) 06.33(2.05)	0.17	.70	p> .05

It is clear from the Table 3 that the subject in both experimental groups have slightly decreased performance at the time of delayed post test. However, this decrease is not significant in both the cases. This finding suggests that effects of the treatment are stable after almost a month also.

The findings are in consonance with findings of earlier researches (Battista, 1990; Sarama & Clements, 2009; Wai et al, 2009; Yarmohammadian, 2014; Drefs and D'Mour, 2014). Treatment provided in spatial perception, whether it is predominantly kinesthetic or visual in nature, improves performance in math.

Spellings

Analysis of data on spellings is as under. Table 4 presents means and SDs for groups and stages.

Table 4: *Means and SDs of groups for stages of testing in spellings*

	Pre-test	Post-test	Delayed post test
Groups	Mean (SD)	Mean (SD)	Mean (SD)
E1	06.75 (2.48)	09.50 (2.43)	09.25 (2.26)
E2	06.00 (1.85)	10.33 (2.93)	10.00 (2.95)
C	05.33 (2.46)	06.08 (2.45)	06.00 (2.41)

From Table 4, it is clear that both experimental groups improve performance in spellings after intervention from pre-test to post test and it remains fairly stable at the time of delayed post test. Pattern of changes in dispersion in both these groups is similar to one found in math. In E2, it increases along with increase in mean, whereas in E1, it remains almost the same. It implies that the improvement in performance has introduced more variability. In control group, both mean and dispersion do not change much across stages.

At the time of pre-test, groups did not differ significantly in spellings performance as indicated by obtained F-ratio ($F_{2, 33}$=0.825; p>.05). Overall differences were not significant, implying that the groups were equal before starting the experiment.

The groups differed significantly among themselves at the time of post test ($F_{2, 33}$ = 9.61; p<.01). This has been followed by t-tests conducted on data.

Table 5: *Statistics for t test for spellings at post test*

Comparisons	Difference in means	Value of t-ratio	significance
E1 and C	3.42	4.19	P< .01
E2 and C	4.25	4.52	P< .01
E1 and E2	0.83	0.76	P> .05

A significant difference in experimental group 1 and control group is indicative of effective treatment since the two groups were equal during pre-test. Similarly, group E 2 which received treatment predominantly in visual perception improved in spellings after treatment. The two experimental groups did not differ statistically among themselves and shown in table 5. Both types of intervention are proving to be equally effective.

Table 6: *Values obtained for t-ratios at the time of delayed post test*

Group	Comparison	Mean (SD)	Difference in mean	t-ratio	significance
E1	Post & delayed Post test	9.50 (2.43) 9.25 (2.26)	0.25	1.00	p> .05
E2	Post & delayed Post test	10.33 (2.93) 10.00(2.95)	0.33	1.63	p> .05
C	Post & delayed Post test	6.08 (2.45) 6.00(2.41)	0.08	1.00	p> .05

It is evident from Table 6 that the subject in both experimental groups have a reduced performance at the time of delayed post test. However, this reduction is not significant in both the groups as shown by values of t-ratios. This finding suggests that effects of the treatment are long lasting and stable after a month also. This confirms hypothesis number 2.

These findings are consistent with views of other researchers (Cratty, 1969; Carlisle, 1987; Hendrickson, 1988; Hill, 1988; Golon, 2004; Gupta, 2014). The present finding does not appear to be in accordance with that of a landmark survey (Rourke and Finlayson, 1978). The components of visual-spatial perception in Rourke's study are from WISC and a target test whereas in this study these are position in space, form perception and constancy, figure ground perception, spatial relations and awareness and lastly visual closure. Also the study is comparative in nature; hence findings are discussed in relative terms. In the present study, point of inquiry is whether intervention in spatial perception will improve spellings among children with whatever deficit in spellings.

Discussion

The present study was based on the assumption that by giving appropriate experiences in spatial perception to a child, his skill in mathematics and spellings can be enhanced. From the results obtained in the study, it can be concluded that the training in spatial perception is quite effective in improving the performance of the subjects in Mathematics and spellings. t-ratios in both the experimental groups in Mathematics as well as spellings are significant.

The activities emphasizing the kinesthetic modality like walking between the lines, on the lines as slowly as possible, throwing and catching of balls etc. through varying distances, apart from helping a child to learn about directions, sizes and distances in space essentially increase the concentration and attention span of the child- a foremost necessity in learning of both academic areas.

The activities related to direction greatly aid in establishing left and right, back and front, up and down orientation of the child-so very important in placing numbers correctly in rows and columns while doing calculations.

The three dimensional activities like rotating and reversing which emphasize form perception are as useful as activities like copying, tracing etc. emphasizing the visual modality. These activities develop a child's strategic and visual thinking skills by training them to pay attention to detail and their ability to make use of images.

Some of the intervention activities undertaken were akin to Hendrickson (1988), results also were in line with the expectations of the researcher.

Proficiency in Visuo-spatial perception enables a child form mental images of the problem in written form. They are able to discriminate between very similar words and symbols like '6' and '9'; '+' and 'X'; 'm' and 'w' 'was' and 'saw'. It increased their attentiveness and efficiency.

Introduction of delayed test also brought out a significant finding that the effects of remedial program were long lasting.

According to Dimond (1972), much spatial perception is concerned with analysis of sequences of events in space as is much language perception. The present researchers opine that mathematics is also a matter of sequences. It is suggested here that improvement in sequential perception could be the underlying mechanism for improvement in performance of both the academic areas.

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Swami Vivekananda and teacher education

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It is a privilege to say something about *Swami Vivekananda and Teacher Education,* but I will confine myself to something that is in my mind for a long time.

We are all fascinated by the advances made by psychologists all over the world and their understanding of good educational practices. The Right of Education Act, 2009 is an outcome of many such researches. There are many ways we generally react to these situations such as:

1. Either we swallow what is given to us without question; believing these to be outcome of infallible research, or
2. We grumble that western ethos and ideas are being imposed on us without serious researches, or
3. We remain indifferent; maintaining that what is being propounded was already known to our ancestors.

But, all these reactions have some elements of Truth.

Now, all psychological theories present models of thinking, behaviour, and emotions. They have differing assumptions about the basic "nature" of people and offer different answers to questions important to educators such as: What is the relationship between learning and development?

Every theory begins with some *underlying assumptions* that shape its explanation and guide research. Learning theorists maintain that we understand more only if we learn more i.e., you develop by learning more and more. Others say Oh! No. That is not true. As your thinking develops, it enables you to develop more and more. They will tell you that *until kids reach a certain stage of development, there is no use to teach. You are wasting your time.*

These differing assumptions about people have profound effect both on the kind of research we do and education practices we advocate. Because of these different beginning assumptions, they present very different pictures of what human beings are like.

If you ask how to effect change in behaviour, Freudians and Behaviourists will offer different solutions. *The Freudian approach was to change underlying feeling, etc., in order to change behaviour.* But behaviourists say that *if somebody is in the bed and depressed, they will induce him to start working, i.e., change the environment and the emotions follow.* Because, as per Skinner, people are extremely passive; *like lumps of clay that can be shaped by the environment.* So to a pure Behaviourist, the *purpose of education is to shape behaviour.*

Piagerians (followers of Jean Piaget) have strong reservations to this. Because, they believe that people are tremendously active. YOU CAN'T SHAPE PEOPLE!!! You can teach people things but that teaching is taken in by an active thinking creative individual who is trying to understand things. So, the purpose of schools and education according to its adherents is to make children THINK. Engage kids in activities which enable them to develop their thinking and ultimately leads to problem solving. In lab schools run on Piagerian principles the first thing you will notice is that kids are active. They are exploring and not memorizing anything. They are made to solve problems; either problems presented by the teacher or problems that arises out of natural situation.

But, if you belong to the other school of thought believing that by learning more and more, you understand more, then the task of a good teachers is to show children how to do that. In such schools teacher's job is to create effective strategies for learning and retrieving information. Such schools teach kids effective strategies and ways to innovate strategies.

On the other hand, schools run on Freudian principles are not much interested in learning strategies or stuffing information in kid's brain. The thing that they care most about is the emotional health of students. If you fix that, they maintain, the kid will acquire all that they have to know.

So, when we say that we should implement Swami Vivekananda's ideas, meaning Vedantic principles, in teacher education, we need to conduct researches, validate the concepts in lab schools and build a theory of education that is as rational, scientific and workable as any theory the western world has brought out. All theories must go through known processes of data refinement in experimental settings such as lab schools. Because the *underlying assumptions* in each theory give rise to different methodologies, explanations and that needs to be validated and refined with field data. For example:

1. Let us say that my theory is that "human beings tend not to function well under pressure". The *more the stress, less they perform.* But when put to test we find that *some people perform under tremendous stress* and *some do not perform even when there is no stress*, or

2. Let us say that the basic assumption is that *kids do better when given the liberty to choose.* But, when given the choice *in real experiments, we find them doing worse because they do not have the ability to choose, and, instead, get confused.*

So, the scientific temperament dictates that all underlying assumptions must be tested and data analyzed impartially. A theory gains respect in the scientific community only because it has been validated using proven acceptable scientific procedures. It must pass the fire of scientific enquiry. I assure you that the world will be richer by such enquiry and researches with the ideas propounded in our ancient scriptures.

A case in point is the moral theory of Lawrence Kohlberg. He wanted to understand how people derive moral values and knew that it should be in tune with the stage theory of development. His method was to pose moral dilemmas (e.g., Heinz Dilemma) to his subjects and ask questions to probe their reasoning for recommending a specific course of action. The idea was to understand why they answer what they answered; the reasoning behind it. So the schools run on Kohlbergian principles wanted kids to improve their moral reasoning. They were presented with moral dilemmas and allowed to train their reason. In such schools, all rules are made by the students. The kids grapple with the problems themselves. And, in the long run, the kids come to understand that you have got to have rules to conduct societies.

Kohlberg claims to have identified a universal principle of morality and the golden rule says: LOVE THY NEIGHOR AS THYSELF! Now Jesus said the same on the Sermon on the Mount. We do not know whether Lawrence Kohlberg believed in what Jesus said and then validated it through research or he came upon the same universal principles while doing serious independent research. Because, the idea is not limited to Judeo-Christian scriptures but is there in almost all different religions. So why didn't he just take it from these religious books and avoid so much of expenditure of money, time and energy? Won't that be better, easier and simpler!!! No. We all know that the days are long past when things used to be believed simply on someone's authority. Be it man, book or society. Scientific temperament abhors, rightly so, anything based on authority other than ones derived following scientific procedures. This is so because man is a thinking animal and wants to be satisfied intellectually before accepting anything. "*The rational people are earnestly bent upon seeking out the rationality, the raison d'être of all its philosophy and its ethics; and you all know well that ethics cannot be derived from the mere sanction of any personage, however great and divine he may have been. Such an explanation of the authority of ethics appeals no more to the highest of the world's thinkers; they want something more than human sanction for ethical and moral codes to be binding, they want some eternal principle of truth as the sanction of ethics*[1]."

Swami Vivekananda himself wanted that the principles of Vedanta be made practical and made to pass the cleansing fire of reason. The Vedanta philosophy goes even further than the Kohlberg's golden rule and provides a rational basis for the dictum "LOVE THY NEIGHOR AS THYSELF". As put succinctly by Swami Vivekananda, "*the*

infinite oneness of the Soul is the eternal sanction of all morality, that you and I are not only brothers -- every literature voicing man's struggle towards freedom has preached that for you -- but that you and I are really one. This is the dictate of Indian philosophy. This oneness is the rationale of all ethics and all spirituality[2]."

Our problem is not that we do not have a philosophy, our problem is that we have been living with the highest metaphysical concepts the world has seen and yet, due to its non-application, our practices are out of tune with these ideals. We preach highest equality and practice inequality in all spheres of life. Lets conduct a few lab schools with methodologies derived from the Vedanta philosophy in universities or some selected schools especially now when the west has started appreciating and accepting many Vedantic and Yogic principles.

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Book Review

Apple, M. (2013). *Can education change the society?* New York: Routledge. ISBN-10: 0415875331, Pp 200, Price INR 2734.

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The book, *Can education change the society?,* is a personal journey reflecting Michael Apple's (author) retrospective as well as introspective thoughts and experiences. Michael Apple is an educationist who has written and spoken about education and power, cultural politics, curriculum theory and research, critical pedagogy, and democratic schools. In this work he explores the key question *Can education change the society?* In order unpack different layers of the question, Apple has put forward the voices of several actors who have struggled or answered the same set of question. He tries to portray the different meanings of the "change or transformation" of the society and contribution of the "actors" involved in this process. The book comprises of eight chapters that follow the fore-mentioned question.

The book begins with the "First thoughts" on the key question where it forces to ask and raise the issues about the 'nature' of education and its role in making of a 'self-less' and value based society. Apple contextualizes his question by portraying the two faces of education i.e. i) education as a medium of social transformation, ii) education as a phenomenon leading to social reproduction, and "neoliberal, neo conservative and authoritarian populist religious directions" (p. 22). Schools as inseparable part of the society are seen as the site "for" the change and "of" the change. They are seen as cause of the problem reform, with the assumption that education is a need for better future. Later, it moves on and focuses on the public intellectuals from both dominant and minorities communities and endeavours how their lives and thoughts have shaped this discourse. These intellectuals have tried to portray 'education' as both the site where the "unsaid" rules of racism, gender or other ideological notions are indoctrinated and a platform through which these ideologies can be challenged or interrupted. This proposes education as not just key to success but also conceived/perceived as complex web of tangled inter linkages among socio-politico and economic character of institutions, like schools, markets, actors and students.

The author asserts that many 'progressive thinkers' believe that eradication of capitalism and class biases through education can alter/ modify society. Therefore, can schools/education institution be the sites where this politics is explored examine and questioned? This is a question that Apple is trying to provoke in relation to the title. Further, if capitalism is seen as a sole "disease", then schools are also not untouched by the parts of economy. And that's why schools are also becoming a site for profitable edu-

business. The book challenges the "progressive" and "democratic" idea of neo-liberalism where market, possessive individualization and consumerism are seen as ideal to make an egalitarian society by unpacking the ability and access of choice of an individual.

The book supports that schools are secondary institution of socialization and hold central part of the society as a cultural apparatus (p.21). As social institutions they shape both the positive and negative identities through the knowledge which is assumed as "legitimate" or "official".

Furthermore, as schools/educational institution are assumed to be facilitators of change, the book examines the detailed examples and narratives of successful national and global attempts to utilize education for social modification/ transformations by the rigorous, unsafe works of critical / public intellectuals. Apple recounts the work of several historically significant activists like Paulo Freire, George Counts, W.E.B Du Bois and Carter G. Woodson. In this process, he provokes the reader to be a critical activist and question and reconstruct the critical issues, hegemonic education, "legitimate knowledge or regime" which is actually illegitimate.

Apple postulates that it is true that schools can be the site of social reproduction of inequalities and oppression but success is possible, and the society can be transformed if teachers, teacher educators administrators, educationists, and community members, are willing take public stands and form de-centered units to counter hegemonic education and keep the 'tradition'(of raising voice against oppression) alive. The narratives signifies the role of teacher and teacher educators and prescribe as well as inspire them to be a reflective critical activist who has to make elbow spaces for oneself and look society from the viewpoint of multiple oppressed groups in order to change the system/ society.

Apart from the question raised, the language, usage of words and choice of narratives by Apple make the reader feel and associate with the ideas, experience and identities, that he talks about. The metaphors he uses and concerns (like "disability", "religion", "ability", "actors", "teachers", and "refugees") bind the reader with the complex emotions, hesitations and repressions of a public intellectual.

The book places the theoretical stands about the nature of education and schooling with the author's experiences which makes it more lucid. It is closely linked with the previous books that Apple wrote *Official knowledge: Democratic education in a conservative age, Ideology and curriculum,* and *Education and power,* and provides different interconnections and perspectives on "reform" or "change". The book does not claim to provide any sacrosanct answer to the problem; instead it provides different pictures of oppression, revolt, suppression, voice, goals, transformation and reproduction. It provides significant examples, narratives and concepts that must be discussed and reflected upon to interpret the complexities of the character of "education, schooling, actors and associated issues" in the contemporary world. It must be used as potential literature for the scholars and practitioners working in the field of education.