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CONTENTS

CREATING A SPACE FOR FOSTERING TALENTS IN THE CLASSROOM: A STUDY OF GIFTED EDUCATION AWARENESS COMPETENCIES OF CBSE SECONDARY SCHOOL TEACHERS OF GUJARAT **1**

DR. BIBHUTI NARAYAN BISWAL
Academic Co-ordinator,
Reliance Foundation Schools Academic Council (RFSAC),
Reliance Corporate Park,
Navi Mumbai - 400709

SCIENTIFIC ATTITUDE OF HIGH SCHOOL STUDENTS **12**

P. H. JEBALIN PAUL
Research Scholar,
N.V.K.S.D.College of Education,
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Assistant Professor of Physical Science,
Christian College of Education,
Marthandam 629165

DR. V. S. MINI KUMARI
Associate Professor in Biological Science,
N.V.K.S.D.College of Education,
Attoor, Kanyakumari District,
Tamilnadu 629177

TRAINING ACTION RESEARCH MODULE FOR EFFECTIVE LEADERSHIP AMONG SECONDARY SCHOOL HEADS TO IMPROVE S.S.L.C. RESULTS OF THEIR INSTITUTIONS **17**

DR. JAGADEESH BASAPUR
Assistant Professor,
K.S.College of Education,
Kappagallu Road, Gandhinagar,
Bellari 583103

TEACHING FOR UNDERSTANDING: CHILDREN WITH COCHLEAR IMPLANT TO ENSURE SUCCESSFUL INCLUSION **22**

S. N. HAMSAPRIYA
Assistant Professor,
Department of Hearing Impairment,
Ramakrishna Mission Vivekananda
Educational and Research Institute,
Faculty of Disability Management and
Special Education,
Coimbatore 641020

DR. S. RAJAGURU
Principal (Retd.),
Sri Ramakrishna Mission Vidyalaya College
of Education (Autonomous),
Coimbatore 641020

PROFESSIONAL WORK COMMITMENT TOWARDS THE TEACHING PROFESSION OF SCHOOL TEACHERS **27**

DR. C. SHANKAR
Associate Professor,
K.R.P.College of Education,
Sankari West, Namakkal Dt,
Tamil Nadu 637303

SRI. G. RAJESH
M.Ed Scholar,
K.R.P.College of Education,
Sankari West, Namakkal Dt,
Tamil Nadu 637303

PARENTAL BELIEFS AND SCREEN TIME OF YOUNG CHILDREN **33**

DR. M. JAGADESH
Assistant Professor in Education,
Sri Ramakrishna Mission Vidyalaya College of Education (Autonomous),
Coimbatore, Tamil Nadu, India 641 020

A STUDY ON INTEREST IN MATHEMATICS AMONG HIGH SCHOOL STUDENTS IN THIRUVALLUR DISTRICT **42**

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CREATING A SPACE FOR FOSTERING TALENTS IN THE CLASSROOM: A STUDY OF GIFTED EDUCATION AWARENESS COMPETENCIES OF CBSE SECONDARY SCHOOL TEACHERS OF GUJARAT

1

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INTRODUCTION

Research reveals that no two people can have a similar level of cognitive and scholastic abilities even though they are brought up in the same family, socioeconomic condition and same teaching-learning conditions. How are our schools catering to the students having varying cognitive needs? It is a fact that high-ability students probably do not come to mind first when schools are anticipating counseling needs may be academics or behavioural distortions. The majority of gifted children are not cared; even some could not attend a school which results in national loss of scientists, technocrats and administrators. Even some attend school; lack of care makes them underachievers and failures or laggers (Khan, 2005).

Actually gifted learners afflicted with many problems like average learner such as, inattention, timidity, difficulty with transitions to new contexts, discomfort with a high level of classroom activity and large numbers of people in one place, smells and noise and visual stimuli, crying and a high energy level, questioning authority, sensitivity to criticism and extreme self-criticism, etc which needs constant teacher attention. Giftedness can be both an asset and a burden when they are responded by the school to developmental challenges like pedagogical needs, adjustment with peers, Cognitive development and counseling needs they face from time to time.

STUDENTS WITH DIFFERENT CAPABILITIES

Gifted learner represents an exciting and challenging population in school settings. The experiences, abilities, needs, and challenges of these students are as diverse as the students themselves. The term gifted refers to exceptionally high intellectual capability regardless of commensurate academic performance. Thus both high achievers and underachievers with high ability are considered gifted. The National Association of Gifted Children, USA definition of giftedness includes a direct reference to more than just academic performance.

WHY TEACHER COMPETENCY

To develop 21st-century skills in students teachers need to possess skills like organizing the curriculum, fostering a conducive learning environment, continuous learning which is commonly called competencies. Teacher competency refers to the sum of *knowledge, skills and values* a teacher must demonstrate for successful completion of curriculum & daily teaching-learning activities effectively. Competence standards for teachers, both in teacher education and daily classroom practice, are increasingly under lens owing to diverse learning needs in school setting.

NCFTE-2010 envisages the teacher training programme's prime function is to: Prepare teachers who can care for children, enjoy to be with them, seek knowledge, develop sensitivity to the problems of the learners, own responsibility towards society and work to build a better world. Therefore, gifted education competency must be there with teachers who are dealing with gifted learners every day.

REVIEW OF RELATED LITERATURE

Kennedy *et al* (2018) studied Counseling Gifted students: School-based considerations and strategies. The article reviewed the potential risks and challenges found in gifted students which include stress, anxiety, social difficulties, social isolation, and depression underachievement, which is hypothesized to be due to social or emotional factors, or a lack of challenge, support, motivation, or engagement, perfectionism, academic anxiety, and asynchronous development faced by gifted students in schools, and the strategies that school-based counselors may consider when working with gifted students. Counseling strategies for Perfectionism and Academic Anxiety, Perfectionism, other academic anxiety, *Asynchronous Development* are discussed in detailed.

RATIONALE

A. A vast country like ours where there is a large amount of youth and school-going children, equal educational opportunities for all is important for which the existing provisions are not adequate to meet the needs of all the gifted children. In India, there is a lack of structured national programme of gifted education, which deprives ≈ 7.5 million school-going children (3% of 248 million students 6-18 years) which India loses an opportunity to tap the talent of these young minds that can contribute to the growth and development of the nation.

B. Further due to their advanced cognitive abilities such as memory, information processing, use of higher-order thinking skills like convergent and divergent thinking, gifted children sometimes possess less developed social skills that lead

to difficulties in relating to, and forming satisfying bonds with other children in their peer group, social isolation from same-aged peers, identification with adult or elder peers and frustration in class (Roy, 2017).

C. Gifted education programme it is not consciously planned in our teacher education programme which is reflected in poor syllabi, lesson plans, and classroom planning and observations which do not lend students teachers to adopt "creative" teaching as a result rote learning is prevalent in our classes (Sen et al, 2009).

D. The diversity of gifted learners and developmental problems they present today necessitate more skills than ever before on the part of the teachers handling them. Many gifted students do not get the help they need most and resort to self-destructive behavior which in other way impact their abilities.

OBJECTIVES

A. To study the competence of secondary school teachers working in CBSE schools towards their understanding of gifted students in their classes.

B. To evaluate teachers awareness competence for the gifted learner with regards to their pedagogical needs, social integration needs, cognitive intervention and differencing technological needs.

STATEMENT OF THE PROBLEM

To study the awareness competence of CBSE secondary school teachers towards gifted students' pedagogical needs, social integration needs cognitive intervention and differencing technological needs.

METHODOLOGY

Keeping in mind, the statement of the problem, the investigator studied and reviewed the related available past studies. On the basis of previous studies, the research gap has been identified and the investigator developed a structured questionnaire to collect the data. A qualitative survey method was used for the present study. The major statistical technique used is percentage, Intensity Index (II).

POPULATION

The participants were 35 teachers (14 male, 21 female) and 10 Principals (3 female, 7 male) who voluntarily joined the interviews. These teachers and principals were chosen from different disciplines working in CBSE schools of Gujarat at the secondary level. In total, 37% of the teachers taught Science, 21% Mathematics, 13% Social Science and 29% taught language subjects. Teachers' teaching experience ranged from 8 to 10 years. Principals were selected conveniently and having at least 9 years of experience in leading Senior Secondary Schools. The sample was chosen purposefully.

TOOLS

The instruments used in this study consisted of the researcher-made Gifted Education Awareness ***(GEA***) questionnaire containing 21 items**.** A Likert type five-point scale was applied in all the questions. Ten principals were interviewed using a semi-structured interview protocol. The main interview themes included goals of Gifted Education, student support in gifted education, and assessment of Gifted learners. Along with these main topics, the researcher asked the participants, whether they had encountered any problems during the process of identifying gifted leaners. Interview questions were:

- In your opinion, what are the goals of Gifted education in your school?
- How are students prepared in Gifted education programme?
- How do students work together in their groups?
- How are gifted learner assessed?
- Do you have any problems during the process of identifying gifted learners? If yes, what are they?
- If a child under-achieves only in some subjects, it's possible that:
- What are the special needs of a gifted child?

At the end of each interview, the researcher asked the participants whether there were any other problems associated with the gifted learner to all principals.

DATA ANALYSIS AND INTERPRETATION

Data was collected from the schools in Term II of the academic year 2019-20 and analyzed as under.

Pedagogical Needs

The detailed analysis reveals that: 96.2% of teachers agreed that "*The teacher helps to resolve the personal conflict of Gifted Learner (GL) in case of low achievement*" and 3.8% disagreed to the statement. The intensity index of 4.4 strongly indicates that teachers are providing help for low achievement to increase academic performance but that doesn't assure resolving personal conflict of the gifted learners.

77.14% of respondents agreed that "*The teacher regularly plans for gifted learners present in the class*" and 22.86% disagreed with it and the intensity index was found to be 4.01 which indicates that the teacher is making plans for the gifted learner but that is not necessarily a skill-based plan.

87.86% of respondents agreed that *"The teacher provides enough intervention to gifted learners rather than giving information only" and* 12.14% remain undecided about the statement. The intensity index was found to be 4.42 which mean there is intervention plan with the teacher but the quality of the intervention plan is still a matter of concern.

82.14% teachers agreed that "*The teacher allows students to pursue independent projects based on their own*

individual interests" and 17.84% strongly disagreed with it and the intensity index was found to be 4 which indicates that teachers are allowing students to manage their own learning without taking the responsibility.

31.42% of respondents agreed that "*The teacher provides opportunities for the gifted learner to interact with other gifted children across grade levels*" whereas 5.71 remained neutral to it and 62.87 strongly disagreed. The intensity index was found to be 2.48 which strongly disapproved the statement.

64.86% of respondents agreed that "*Teacher rarely create opportunity for small scale research project with the gifted learner*" and 17.14% cannot say and 18% disagree to it which is followed by a very low-intensity index of 3.88 which implies that majority of teachers agreed to the fact that they rarely crate opportunity for small scale research project with the gifted learner

Social Integration

79.72% of respondents agreed that "*The teacher always guides GL more who are way ahead than peers in many areas like content mastery, cognition, emotional maturity*" and 20.28% disagreed with it and the intensity index was 4.14 which indicates that teachers guide GL in content areas more than the cognitive and emotional level which needs immediate attention.

87.29% responders agree that "*Teachers facilitate the gifted learner to take up collaborative projects*" and 12.71% remain undecided for the statement and intensity index was 4.45.

76.57% of respondents agreed that "*The teacher assists GL when he gets irritated with a peer who doesn't understand their idea*" and 23.43% disagree with it having intensity index 4.11 which shows the fact that the majority of teachers opines that GL frequently gets irritated with their peers.

90.86% respondents agree that "*The teacher provides Emotional Scaffolding to GL*" and 9.14% remains neutral with intensity index of 4.3. 87.71% of respondents agree that "*The teacher gives confidence to GL in order to cope with society that does not recognize, understand, and welcome giftedness*" and 12.29% of teachers remain undecided which is supported by intensity index 4.31. This implies in our society there exists social stigma to accept gifted learners

Cognitive Intervention

62.77% respondents agree that "*The teacher allows gifted children to assume ownership of their own learning*" and 22.86% of teachers remain undecided and 14.37% disagree with it. The intensity index of 3.8 shows how teachers pass the responsibility to the leaner.

62.77% respondents agree that "*Giftedness is one of many aspects of diversity that a school team must consider when supporting any student*" and 37.23% of teachers remain undecided. The intensity index of 3.4 shows the plight of the understanding about the gifted learners in schools.

90.86% respondents agree that "*The teacher approaches the counselor to provide Cognitive-behavioral therapy (CBT) and Solution-focused brief therapy (SFBT) to GL*" and 9.14% disagree to it along with the intensity index of 4.2.

91.43% respondents agree that "*The teacher provides tips to the gifted learner during the time they are anxious when faced with academic tasks such as test-taking and tackle them through expressive writing*" and 8.57% of teachers remain undecided. The intensity index of 4.4 shows the high response of teachers towards anxiety with response to test taking.

85.57% respondents agree that "*Teacher supports for Asynchronous Development through using psycho-education to teach coping strategies*" and 14.43% disagree with it. The intensity index for it was of 4.2 which indicate about the coping strategy by the teachers for GL.

Differentiating Technology

73.57% respondents agree that "*Teachers use software programs that provide adaptive learning in core subject areas for GL*", 26.43% disagree with it and the intensity index for it was 4.1.

79.29% respondents agree that "*The teacher facilitates GL to use technology to research information as consumers of knowledge and to create products and presentations as producers of knowledge*", 5.71% teachers remain undecided and 14.29% disagree with it. The intensity index of 4 shows that teachers are facilitating GL to use technology.

82.86% respondents agree that "*The teacher uses free website/app (e.g. Pictogon means creating an interactive story by using audio, music & text) for teaching GL*" and 5.71% teachers remain undecided and 11.43 % disagree to it. The intensity index of 4.1 shows that teachers are using free websites to teach GL.

85.71% respondents agree that "*Teachers use websites that best meet learning objectives and students' needs*" and 14.29% of teachers remain undecided, the intensity index of 4.

92.29% respondents agree that "*Teachers some time challenge gifted learners to think more critically and creatively using new technology*" and 7.71% teachers remain undecided, the intensity index of 4.4 which shows that teachers may be heavy banking on technology to teach GL.

DISCUSSION

Pedagogical competence of teachers require how to resolve personal conflict of the gifted learners, separate plan for *the* gifted learners, how to create an opportunity for small scale research project with the gifted learners. Areas of pedagogical concern includes quality of intervention plan, how to take students responsibilities to manage their self-learning, how to handle gifted learner to interact with other gifted children across grade levels.

In social integration front, teachers need to guide GL more in cognitive and emotional levels. Teacher needs to devise a strategy to handle GL when they get irritated with their peers. In our society there exists social stigma to accept gifted leaners for which teachers need to work as a catalyst. Writing tests again and again sometime will not go well with gifted learners and schools should respect the one aspect of diversity and support for GL accordingly. Teachers must be empowered to train the coping strategy to GL when in need.

Adaptive software for GL is very limited. Use of technology to learn as consumer and then producer is the need. Free websites like Pictogon can be used and teachers are heavily dependent on using new technology which is costly and schools may not afford it.

Principals Opinion:

1. *In your opinion, what are the goals of gifted education in your school?*

   The goal of gifted education is to make the students able to show their talents in various fields which can bring name and fame to the students as well as the school. They should be given equal opportunity and some flexibilities in assessment, to identify and provide them proper training for high order thinking.

2. *How are students prepared in a gifted education programme?*

   The students are trained by the faculties in a particular subject. Extra time and parental interaction are given to them. They are encouraged to take part in different competitive examinations, encouraged for talent search examinations, given extra responsibilities and frequent appraisal as well.

3. *How do students work together in their groups?*

   In group, students share their views, interact with each other and can perform the given task very effectively, freedom for peer interaction is given, group activities are performed, and presentations by students are encouraged.

4. *How are gifted learner assessed?*

   The gifted learners are assessed by their performance in particular subject, in which they are inclined towards, through open-ended questions, HOTS assignments, individual projects, class tests, and summative tests and through the worksheet with high order thinking skills questions and investigative activities.

5. *Do you have any problems during the process of identifying gifted learners? If yes, what are they?*

   The gifted learners are identified easily during the various activities, sometimes difficult to understand giftedness and mischievous attitude. While giving ranks in class it is difficult for the teacher to give real importance to gifted leaners.

6. *If a child under-achieves only in some subjects, is it possible to say that the child is facing some emotional issues?*

   Yes, because the liking and disliking of the subject depends upon the faculty who teaches that particular subject. The child may be learning disabled in some subjects or not be interested in subjects.

7. *What are the different ways you address the special needs of a gifted child?*

   The gifted children's special needs are identified by subject teachers, by counselling with the help of a counsellor, by involving parents, giving assistance for scholarship examinations and sports, giving challenging tasks and involving in complex activities to foster their critical thinking skills.

8. *Whether there are any other problems associated with the gifted learner to all principals?*

   Sometimes these gifted learners become overconfident and they underestimate all and demoralize others, Other students and parents do not support them. Sometimes they do not perform better. Also, well-trained teachers required to identify them and their needs. These children need extra time as well.

9. *Do you offer cognitive enhancement activities and study habits for gifted students?*

   Yes, during external exams of national and international level the subject teachers help the students to enhance their talents. By giving more questions for a given chapter, asking them to prepare models in science, offering online quiz programmes and adding some logical questions in the worksheets study habits of the students can be enhanced.

Discussion on Principals' Interview

Majority of schools' gifted education programme is limited to academic achievements and all such schools do not have a structured gifted education policy or programmes which demands a clear necessity of school-based gifted education programme to address the needs. Schools prepare mostly for

academic examinations and occasionally in sports. Scant attention has been paid to other areas like linguistics, creativity, music, and multiple abilities. In schools, those who are scoring good marks and good ranks are called gifted students. Minimum focus is given to enhance their abilities and address their difficulties rather than putting pressure on them to do well in academics at the cost of sports, music, and areas of their interest. Summative test, special assignments are the only way to assess gifted learners as there is no formal method available at schools to apply. Therefore, assessment for gifted students needs special attention.

There is a lack of awareness among school leaders to have at least talent nurture programmes in their schools and there is virtually no framework to identify gifted learners. Sometimes, such students are not properly identified and remain unnoticed. In many schools, the academic remediation mechanism looks gloomy and students pay a heavy price for it as parents some time clueless about the progress of their ward in examinations. The term-end examination is the only way to identify the achievement. Present situation talks about counseling and parents' involvement is the only way to give help to gifted leaners whereas there are many areas wherein gifted leaner's can be engaged productively. Therefore 360 degree gifted learner's engagement mechanism is to be formulated on every school to cater to the needs.

Though there is scant attention by the principals for gifted learners, identification is one of the biggest challenges and how to nurture and retain them in the system is another challenge. The cognitive enhancement process is virtually nonexistent in schools in the absence of counselors and experienced teachers as they are the breed of people who can offer some help to gifted leaners.

MAJOR FINDINGS

- Scant attention has been paid to diverse areas of giftedness like linguistics, creativity, music and multiple abilities other than academic achievements in our schools for which awareness among teachers is very much needed.
- Teacher's awareness in pedagogical competence requires strategies to resolve personal conflict, differentiated plan, create opportunities for small scale research projects, quality of intervention plan, take students responsibilities to manage their self-learning for gifted leaner.
- More cognitive and emotional level guidance, strategy to handle Gifted Learners (GL) when they get irritated with their peers and to counter social stigma to accept gifted leaner's, teachers need to work as a catalyst.
- Schools need to find alternate assessment methods and coping strategies for GL.
- School need to encourage more adaptive software like Pictogon and make provisions for using new technology.

- All schools do not have a structured gifted education policy or programmes which demands a clear necessity for school-based gifted education programme.
- Gifted learners identification is one of the biggest challenges and how to nurture and retain them in the system is another challenge.

CREATING SPACE FOR HOLISTIC DEVELOPMENT

Gifted Education Curriculum Development

Gifted learners need multiple resources and creative thinking platform which curriculum must address. Self-directed learning packages, programmes organized around thinking process like analysis, synthesis and evaluation, less reinforcement activities, special project-driven, acceleration of content, reorganization of contents according to high-level skills and concepts, scope for more inquiry in the lesson, use of curriculum transaction strategies like convergent, divergent and evaluative types, higher level questions for discussion, ideas for student independent investigation should be explored. Content adaptations should be made from KG through 12th grades.

Innovative Model of Teaching

Gifted education is a concept and requirement for our country which needs a breed of teachers who possess deep commitment; mastery of subject, didactics love of children and multiple models of teaching. The ability to collaborate with other teachers and a capacity for reflection are added advantages. They should possess generic as well as domain-specific knowledge and skills to deal with gifted learners.

National Programme for Gifted education

Unlike first world countries where a dedicated gifted education programme exists, our country lacks such programmes. If at all any programme exists now in India, it is isolated and its impact has not trickled down to the lower strata of the society. For instance, in Singapore 1% of the students of every class in every year are selected for Gifted Education Programme (GEP) and treated well. In case any intelligent student does not get school having GEP, he can be shifted to another school. Such provisions should be made in India as well to cater to 7.5 million children annually.

Pre-service Teacher Training Programme Renewal

Just having a good foundation of disciplinary knowledge is not sufficient. Would-be teachers need a strong foundation on Gifted education, an understanding and connections among different kinds of problems gifted learners face, and ability to work with them especially as a facilitator and perhaps most importantly, they need to know how to develop their own personal, professional competencies to hold gifted learners. Curriculum areas like gifted education policy and vision, curriculum assessment, pedagogical leadership,

professional development should be broadly covered during the training programmes.

School-Based Gifted Education (SBGE):

There should be a screening test for students to identify students for the SBGE programme every year by the government. Giving Scholarships like NTSE and KVPY does not suffice the curricular and cognitive needs of gifted learners in our country as they are again treated like 'one size fit for all' method by the respective institutions.

CONCLUSION

In a nutshell, identification of gifted learners, assessment practices extended to them by the schools, use of adaptive technology and softwares, provision for full-time counselor in each school seems inadequate. Parental apathy, lack of teacher awareness and social stigma add the thwart to the problem. Our education system should be rejuvenated immediately to respond to the above challenges which 21st century world education demands. This indicates for a Gifted Education Programme for schools for which teachers need to be trained and principals need to be oriented to go beyond the academic frame of mind from time to time so as to offer maximum help to those deserving students else, we are doing a disservice to the gifted fraternity.

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SCIENTIFIC ATTITUDE OF HIGH SCHOOL STUDENTS

2

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INTRODUCTION

Science has revolutionised our way of living. Our thinking, attitudes, interests, outlook etc. have undergone tremendous change due to the development of science and technology. Science is one of those human activities that man has created to gratify human needs and desire. According to Fitzpatrick "Science is a cumulative and endless series of empirical observations which result in the formation of concepts and theories, with both concepts and theories being subject to modification in the light of further empirical observations. Science is both a body of knowledge and the process of acquiring it" (Mohan, 2004).

Scientific attitudes are the most important outcomes of science teaching. Scientific attitude is a set of attitudes and values possessed by an individual, which are commonly used in solving problems in a scientific way (Ahmad, 2011). Scientific attitude is defined as a set of emotionally toned ideas about science, scientific methods and related directly or indirectly to the course of action in the literature of science education (Mishra and Singh, 2014). A person with scientific attitude possess qualities such as intellectual curiosity, passion for truth, respect for evidences, open-mindedness, unbiased judgement and belief in cause-effect relationship in science.

REVIEW OF RELATED STUDIES

Prasanthi (2019) conducted a study on scientific attitude among secondary school students in model school. The findings of the study revealed that the students were good in the domains of curiosity, open-mindedness, faith in scientific method, critical mindedness, cause and effect relationship, seeking evidence, suspended judgement, objectivity and aversion to superstition.

Jampannanavar (2018) studied the relationship between scientific attitude and academic achievement in science among secondary school students. The study revealed that there is high correlation between scientific attitude and academic achievement in science of secondary school students.

Veliappan and Nambikkai (2018) investigated the attitude towards

science of higher secondary students in Puducherry region. The findings of the study were: i) There is significant difference among government, aided and un-aided higher secondary school students in their attitude towards science. ii) There is significant difference among pure science, mathematics and computer science group of higher secondary students in their attitude towards science. iii) There is significant difference among rural, semi urban and urban higher secondary students in their attitude towards science.

NEED AND SIGNIFICANCE OF THE STUDY

One of the major objectives of teaching science is the development of scientific attitude among the students. The development of scientific attitude makes pupil open minded, helps him to make critical observations, develops intellectual honesty, curiosity, unbiased and impartial thinking etc. Scientific attitude is the most important outcome of science teaching. Though some educationists view, scientific attitude as a by-product of teaching science, yet a majority of educationists consider it to be major product or the aim of science teaching (Sharma, 1999).

A person having scientific attitude is found to have love for the exploration of truth by adopting true means for such exploration and believing in the results of such true findings. The main aim of science teaching should be the development of knowledge and inculcation of proper scientific attitude among students. In the present educational system, though students' knowledge in science increases, they fail to develop proper scientific attitude. So it is necessary to encourage the students to develop scientific attitude. The present study has been undertaken to find out the level of scientific attitude among high school students.

OBJECTIVES OF THE STUDY

1. To study the level of scientific attitude of high school students.
2. To find out whether there is any significant difference in the mean scores of scientific attitude of high school students with respect to the background variables gender, locality and type of management of the school.

HYPOTHESES

1. There will be significant difference in the mean scores of scientific attitude of male and female high school students.
2. There will be significant difference in the mean scores of scientific attitude of rural and urban high school students.
3. There will be significant difference in the mean scores of scientific attitude of high school students studying in government, aided and self-financing schools.

METHODOLOGY

The normative survey method was adopted for conducting the present study. The sample consisted of 200 high school students studying in different

schools of Kanyakumari District. The tool used for the collection of data was "Shailaja Bhagawat Scientific Attitude scale (2006)" (SBSAS) constructed by Shailaja Bhagwat. The collected data were analysed by using the statistical techniques such as percentage, arithmetic mean, standard deviation and t-test.

RESULTS AND DISCUSSION

Table: 1 Percentage wise distribution of sample according to different levels of Scientific Attitude

Scientific Attitude	Count	Percent
Low	37	18.50
Medium	123	61.50
High	40	20.00
Total	200	100.0

From the above table it is seen that the percentages of samples according to low, medium and high level of scientific attitude were 18.5%, 61.5% and 20% respectively. This indicates that the majority of high school students have medium level of scientific attitude.

Table: 2 Comparison of Scientific Attitude based on gender

Gender	Mean	SD	N	t	p	Level of significance
Male	133.78	22.18	91	0.039	0.969	Not significant
Female	133.90	21.28	109			

From Table- 2 it is seen that the obtained t-value (t=0.039) is not significant at any level. This result indicates that there is no significant difference between the male and female high school students in their scientific attitude. So it can be concluded that gender has no influence on the scientific attitude of high school students.

Table: 3 Comparison of Scientific Attitude based on locality

Locality	Mean	SD	N	t	p	Level of significance
Rural	139.97	21.57	103	4.314	0.000	Significant at 0.01 level
Urban	127.34	19.83	97			

From table - 3 it is seen that the obtained t-value (t=4.314) is significant at 0.01 level. This result indicates that there is significant difference between the rural and urban students in their scientific attitude. The mean score of the rural students (139.97) is higher than that of the urban students (127.34). So, it can be concluded that locality has influence on the scientific attitude of high school students.

Table: 4 Comparison of Scientific Attitude based on type of management

Type of management	Mean	SD	Source	Sum of squares	df	Mean square	F	p	Level of significance
Government	138.13	22.27	Between GP	1982.79	2	991.40	2.142	0.120	Not Significant
Aided	131.25	21.55	Within GP	91195.40	197	462.92			
Self-financing	135.33	18.73	Total	93178.19	199				

From table-4 it is seen that the obtained F-value (2.142) is not significant at any level. This result indicates there is no significant difference in the mean scores of scientific attitude of high school students studying in government, aided and self-financing schools. So it can be concluded that the type of school management has no influence on scientific attitude of high school students.

FINDINGS

1. Majority of the high school students have medium level of scientific attitude.
2. There exists no significant difference between the male and female high school students in their scientific attitude.
3. There exists significant difference between the rural and urban high school students in their scientific attitude.
4. There exists no significant difference between the high school students studying in government, aided and self-financing schools in their scientific attitude.

CONCLUSION

The study revealed that the majority of high school students have medium level of scientific attitude. It was also found that gender and type of school management have no influence on scientific attitude of high school students but the locality has influence on scientific attitude. Since the high school students have only medium level of scientific attitude, the teachers should take necessary steps to develop scientific attitude among students. The teacher can manipulate various situations to infuse certain characteristics of scientific attitude among the students. The teacher should develop desirable atmosphere in the class for the development of scientific attitude. The major responsibility for developing scientific attitude among the students lies on the science teacher. Without developing scientific attitude among students the aims of teaching science cannot be achieved.

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TRAINING ACTION RESEARCH MODULE FOR EFFECTIVE LEADERSHIP AMONG SECONDARY SCHOOL HEADS TO IMPROVE S.S.L.C. RESULTS OF THEIR INSTITUTIONS

3

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INTRODUCTION

Education is the greatest panacea for many social evils. The system of education will be effective when a proper leadership and administration set up establish in schools. The present pattern of education as recommended in NPE 1986 is 10+3+2 wherein 4 years of primary, 3 years of higher primary and 3 years of secondary school education. The secondary education commission recommended that the secondary education is the weakest link in the total education system. So many strategies were recommended to improve and strengthen the secondary education. The high school education is the common name use for secondary education. In the 10 years of compulsory schooling, secondary education plays the pivotal role in setting the goals of the future life. So, the secondary education should be considered as most important phase of education. But the failure in administration and educational leadership leads to failure of total system. Training and innovation among the school leadership shall change the scenario of the schools. The Action Research training will be able to identify the problems and failures in S.S.L.C (10^{th} grade) results of their school. The module prepared and presented in the present research article will be used as a hand out for conduct the Action Research to identify and solve the problem of low achievement in S.S.L.C results of their schools.

OBJECTIVES

The objectives of the study are as follows.

1) To develop the skill of identifying the problems for low achievement in S.S.L.C students through self exploration.
2) To explore the students related, teaching related, parent related, department related reasons for the low achievement is S.S.L.C results.
3) To construct the questionnaire to collect the data to identify the problems for low achievement.
4) To acquaint the Heads of the institutions to chart out the measures to improve the S.S.L.C. results.

METHODOLOGY

A systematic survey was adopted to prepare the Module of Action Research.

Data Collection: A questionnaire of 40 test items prepared by the investigator

to collect the data from teachers, students, parents and personnel of education department of the respective schools. The 40 questions were distributed among 4 stake holders. Each stake holder had 10 questions to answer, which are answered as Yes (or) No. The questionnaire can be used by head of institution to collect the data. (The questionnaire is given in plan of action section in this article.)

DATA ANALYSIS

The Module is administered to ten Headmasters of selected high schools of Ballari district of Karnataka state. All most all the Headmasters and Headmistresses accepted the usefulness of the module in identifying the problems for the failure in S.S.L.C results of their schools. The strategies listed and explored in the module were very useful.

FINDINGS AND CONCLUSION

The work load of the educational leaders is more hence they are unable to concentrate on all the aspects of the school, hence the modular approach improves the leadership qualities. There is a significant difference between the Headmasters usage of the modules of Action Research to solve the failure in S.S.L.C. results. The modules resolve the problems of Head of the institutions related to the low achievement in S.S.L.C results of their schools.

CHALK OUT PLANS TO IMPROVE S.S.L.C RESULT

The formula RFPAF is suggested for improvement the result. The details of the formula are as follows.

Remove: -

1) Remove all the negative thoughts in students about exams.
2) Let the students enjoy the exams instead of being afraid of.
3) Laziness in students.
4) Laziness in ourselves.
5) Department non-cooperation from your mind (if any)
6) Up root the negative thoughts from children, parents and ourselves about examination and education.

Fill/**F**etch: -

1) Confidence among children and ourselves
2) Arrange special talks by experts once in month about exams as well as other related issues.
3) The classroom with full of learning environment.

Program: -

1) Convince the fast/gifted learner to cooperate with slow and average learners to learn.
2) Arrange students' seminar on related topic once in a week.
3) Arrange meetings with the senior and successfully passed out candidates of the school.

Action:-

1) Prepare year plan
2) Solve the previous year question papers three months prior to final Examinations.

3) Believe in team teaching. Get feedback from your senior and junior colleagues about your teaching by observing.
4) Get the feedback from students about your class.
5) Open the school gate and doors of the class 24x7 at least one month prior to examination.
6) Use different innovative methods of teaching to make the learning joyful.
7) Feel all children are your own children and hence take care of them as like your children.
8) Use your mobile sets for teaching, connect them to computer/LCD screen to give new idea to students using technology.
9) Use memory devices of your own as students can remember the answers.
10) Prepare concept maps.
11) Believe in hard work and not on luck.
12) Use different sources of internet as well as your surroundings to enrich and refresh your selves.

Follow up:-

1) Observe other schools strategies and adopt them in your school if they are ideal.
2) Study the successful schools and adopt the mechanisms they are adopted.

Plan of Action:-

1) The Headmaster and Headmistress are responsible to implement this Action Research module.

ANNEXURE-1.

High school Head Master/ Head mistress check list for improve the S.S.L.C. Result.

1) This check list consists of **40** questions in **4** sections.
2) Each question has two options as **yes** (or) **No**. Write the (Tick) mark in the appropriate box according to your choice.
3) There is no right (or) wrong answer.
4) Answer to all questions is compulsory.
5) Your answers are kept confidential and never disclosed to any authorities or public. The data will be used for improvement of S.S.L.C. students results alone.
6) Fill all the details in column given below.
   i) Name:
   ii) School name:
   iii) Designation:
   iv) Experience:
   v) Mobile no:
   vi) Email Id:

Section "A" Students related questions

1) Students are not/less interested in learning
2) Students are ignoring the seriousness of examinations.
3) Students knew that examinations are not strict and it is easy to get through without hard work.
4) Students are not attending the classes regularly.

5) Students are not properly trained in their primary level.
6) Most of the students are unable to write and read fluently.
7) Students have no /less respect to teachers.
8) Students are ignoring about their future.
9) Students are not fit to be continuing in S.S.L.C.
10) Most of the students are not in a position to understand the subjects taught in their classes.

Section "B" Parents related questions

1) Most of the parents ignore about their children education.
2) Most of the parents are non-cooperative.
3) Most of the parents are not in a position to provide learning environment in their homes.
4) Most of the parents wanted to use their children in agricultural and some other earning sectors rather than sending to school.
5) Most of the parents are illiterate and hence they are unable to let their children to learn.
6) Most of the parents wanted their children not to work hard and get through examinations easily.
7) Most of the parents wanted to watch T.V. (or) Mobiles while their children study.
8) Most of the parents are not attending (or) rarely attend the teacher-parent meetings.
9) Most of the parents opined that there is no benefit from education and hence learning is waste.
10) Most of the parents wanted their children directly appear for examination.

Section "C" Department related questions

1) No/Less cooperation from the department.
2) No/less training provided from the department.
3) No Motivation/less motivation to teachers to work in school.
4) Other works assigned by the department along with teaching is hectic.
5) Department pressure is more.
6) Meetings of department consume most valuable time of teachers.
7) Department rules are unsupportive to teaching.
8) Department immediate decisions make much negative changes in teachers teaching.
9) Most of the personnel in department do not understand the teacher's problems.
10) Training programs arranged for teachers are not useful.

Section "D" Teacher related questions

1) I am not/less interested in teaching.
2) I have no proper skills of teaching.
3) I am ignoring new / innovative methods of teaching.

4) I do not believe that hard work improves the S.S.L.C. results.

5) I am influenced negatively by my senior teachers /junior teachers.

6) I fail to establish learning environment in my class room.

7) I do not want to undergo any training to improve my teaching skills.

8) I am not responsible for the low achievement of students in S.S.L.C.

9) I do not know how to improve the student's achievement.

10) I do not want to read additional books to enrich my knowledge other than text books.

Date:-

Place:-

Signature

Time line:-

S.No	Activities	Time/period
01	Administer the questionnaire	1 day
02	Tabulate the data	1 day
03	Analyze the collected data	1 day
04	Arrange counseling sessions for students.	1 week
05	Arrange counseling sessions for parents	1 week
06	Arrange meeting for teachers and parents	2 days
07	Implement the chalked out plans	2 months
08	Concluding activities with preparatory exam for S.S.L.C students.	6 days

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TEACHING FOR UNDERSTANDING: CHILDREN WITH COCHLEAR IMPLANT TO ENSURE SUCCESSFUL INCLUSION

4

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INTRODUCTION

Hearing is one of the important senses that connect people with the world. Due to hearing loss the functional aspects like speech, language and communication are affected severely. Mayer et al., (2016) claimed that they experience various challenges in learning literacy skills like listening, speaking, reading, writing, arithmetic and spelling. Individual with hearing impairment faces problems in daily living, education and employment. Nowadays advanced medical science and assistive technology plays an important role in the improvement of person with hearing loss. Different types of programmable hearing aids and cochlear implantation supports the individual to acquire knowledge and access information at ease from the environment.

Provision of ADIP Scheme from the Ministry of Social Justice and Empowerment has been increasing the number of Children with Cochlear Implant (CwCI) all over the country. Due to the support enrolment of CwCI in regular education system is growing day by day. This evolutionary change in inclusive education has created various responsibilities and challenging role to the general teachers. To carry over the role and responsibilities the teachers should focus on many aspects namely curriculum adaptation and environmental modification, teaching methods, instructional strategies, etc., but "the main success refers to teaching for understanding". (Sundqvist et al., 2014).

BACKGROUND OF COCHLEAR IMPLANT

The Cochlear Implant (CI) was developed under the direction of Dr. William. F. House in the year 1972. The device was approved by the FDA (Food and Drug Administration, U.S) for adults in November 1984 and children in 1985 (Gelfand, 2007). There are two components of Cochlear Implant namely internal and external parts. The internal

part of Cochlear Implant is fixed surgically and the external part is removable. It assists with sophisticated technology by stimulating the hearing nerves over an electrode array. There are several channels through which electrical impulses travel rather than an acoustic signal to the inner ear part cochlea. Watson (2006) clarified that hearing aids can be helpful for individuals with different degree of hearing loss namely mild and moderate categories. But children with severe and profound hearing loss remain unable to benefit out of hearing aids. In such cases cochlear implant is suggested and their eligibility criteria depend upon the degree and type of hearing loss with reference to audiogram report.

The main understanding about CwCI is they belong to hearing impairment population purely, even after spending more money and time in their life. As a safety measure removable of external components of CI during bath time, sleep hours and rain etc. response to sounds through auditory mode is impossible. CI is an advanced technological support not a magical instrument to cure hearing impairment. It's a kind of treatment from the field of medical and a notable support from medical technology to rehabilitate individuals with severe and profound degree of hearing loss.

Persons with Cochlear Implant can benefit from concessions and scholarships provided by the government. A special permission is authorised to travel in flights with the surgical metal as their internal component of the body. (Krista, 2007). Many inter and multi-disciplinary research studies published from medical, technological and educational fields and the association between these three helps in identifying the strength and weaknesses to progress in future. After the medical treatment, most of the role is played by parents and speech therapist. But the real responsibility is in the hands of teachers since they spend most of the time in classrooms. Kumar et al., (2017) mentioned that "the accountability of the teachers is rested in the methods, modes, approaches and instructional strategies used in the teaching learning process to CwCI privileged in the classroom".

TEACHING FOR UNDERSTANDING: WHAT IT IS AND HOW TO DO IT

The viewpoint of teaching for understanding focuses on CwCI is inclusion. Maria Montessori defined that there are different types of learners namely visual, auditory, kinaesthetic and mixed. Most of the children with hearing loss are visual dominant learners. As our education system supports all type of learners but, CwCI needs additional supports from teachers for understanding the concepts. Many research reports that there exists of language gap in case of children with hearing loss when compared to the typically growing children. "Whether the teacher using text based or ICT in the classroom the aim of the teaching should end in understanding the content" (Newton, 1985). Comprehending concrete concepts is easy and abstract

learning in any subjects depends upon language. The major problems of children with hearing loss are speech, language and communication. General teachers are familiar and experienced in different teaching methods, approaches, techniques and strategies. The awareness and acquaint level is a big question mark in case of CwCI. Teaching and learning in inclusive classroom of children with special needs is a challenging one for both teachers and the individuals.

Understanding cannot be transmitted but has to be constructed by the learner. Always understanding can satisfy personal needs, facilitate and enable flexible learning, be creative and enhance retention of knowledge (Newton, 2014). The word understanding varies in different contexts. In education it is important to know what counts as understanding. In the process of teaching and learning, it is referred as mental connections and structures, understanding in various subjects, levels of understanding, understanding problem solving and creative thought, providing support for understanding etc., Teaching for understanding is not a way of teaching; it is an overall orientation which allows any reasonable strategy that supports understanding. (Putnam et al., 1992). The teachers may use variety of approaches to make the children to understand their teaching but the teaching should bridge the gap that exists in case of CwCI regarding concept formation and comprehension.

ROLE AND RESPONSIBILITIES OF TEACHERS IN INCLUSION

Ensure the success of CwCI in inclusive education lays in the hands of team members in the Individual Educational Plan (IEP). Executing the plan inside the classroom helps the children with CI brings achievements in education and employment in their life. Stowe, (n.d) outlined that the top most responsibility is, teaching for understanding and motivating and evaluating the understanding levels among children with hearing loss. Teachers have to recognize the problems, plan and manage the life changing methods to ensure that all children with special needs learn without any barrier. The teachers have to plan and implement carefully to achieve the goals and undoubtedly the teaching for understanding by the teachers will transform the learning experience of the children with cochlear implant.

- The teacher should take care about seating arrangement and environmental sounds in and around the classroom.
- As they depend on visual mode providing visual support is more important to make children to understand the abstract concept.
- Preparation of teaching learning materials.
- Supporting to learn language in connection with other subjects.

- Curriculum adaptations for primary and secondary levels help to understand better about the contents.
- Coordinating the provisions of support services for CwCI.
- Ensuring the CwCI joins in the school activities with other students.
- Utilization of available special educators for updating the information.
- Maintain the data base of the children and periodical meetings with parents and other professionals.

CONCLUSION

Inclusive education has become a buzzword, it requires transformation of teachers that what has been common practice in schools and colleges to ensure CwCI can be successful in achieving their social and academic potentials. Maganlal and Molia, (2018) addressed that the literature on inclusive education is undisputed about no matter how well excellent the educational infrastructure might be, how well articulated educational policy might be, how well resourced a program might be, effective inclusion does not take place until regular classroom teachers deliver relevant and meaningful instruction to students with disabilities. The government provides training programmes to update knowledge and understanding for general teachers and school system. To conclude, successful inclusion laid on teaching for understanding in the hands of general teachers in the inclusive classroom.

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PROFESSIONAL WORK COMMITMENT TOWARDS THE TEACHING PROFESSION OF SCHOOL TEACHERS

5

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TEACHERS' PROFESSIONAL WORK COMMITMENT

Teachers' work is sophisticated and multifaceted and occurs in contexts that are demanding and emotionally and intellectually challenging" ***(Day, 2004).*** Teaching is a profession that requires personal commitment to maintain enthusiasm for being actively involved in the work. This concept of commitment as investment of personal resources has long been associated with the professional characteristics of a teacher. Teacher commitment is thought to be important because it is seen as significant in achieving quality teaching, the ability of teachers to adapt to change, teacher attendance, burnout, staying in the profession, organizational health of the institutional and student perspectives and learning outcomes. Teacher commitment may play a vital role in assisting institutions and teachers to adapt to the formidable demands of reframing teaching and learning in institutions for the knowledge society and beyond. Teaching as profession has undergone some extensive reforms and has been in a state of constant change for over a decade.

SIGNIFICANCE OF THE STUDY

Teacher commitment is thought to be important because it is seen as significant in achieving quality teaching, the ability of teachers to adapt to change, teacher attendance, burnout, staying in the profession, organizational health of the institutional and student perspectives and learning outcomes. Teacher commitment may play a vital role in assisting institutions and teachers to adapt to the formidable demands of reframing teaching and learning in institutions for the knowledge society and beyond. Teacher should keep abreast of the developments in the teaching profession. He should justify public trust and confidence by providing quality education to all students. Maintain membership in some professional organizations relevant to his subject and area of speciality. He should ensure that professional knowledge is regularly updated and improved. Keep abreast of subject-matter through study of books, periodicals, newspapers, journals and

other sources concerning development in his field. Teacher should utilize audio-visual aids like films, filmstrips, television, radio, etc., as a means of keeping abreast of new and advanced knowledge in his field. Attend conferences, workshops, seminars and meetings: take field trips, which tend to broaden knowledge. So there is need to study professional work commitment towards the teaching profession of school teachers to the present context to know whether the teachers have adequate and expected level of professional work commitment.

TITLE OF THE STUDY

"Professional Work Commitment towards the Teaching Profession of School Teachers".

OPERATIONAL DEFINITION OF THE TERMS

The various operational definitions of the terms are discussed below.

PROFESSIONAL WORK COMMITMENT

According to the investigator, *Professional work commitment means loyalty towards one's profession in which one fulfils his responsibilities towards that concerned profession.*

SCHOOL TEACHERS

According to the investigator, *School Teachers are the teacher's one who teaches to the students at primary, secondary, and higher secondary levels of education.*

OBJECTIVE OF THE STUDY

The following is the important objectives of the study.

- To know the normality of the scores of professional work commitment towards teaching profession of school teachers.

HYPOTHESIS OF THE STUDY

The following is the important hypothesis of the study.

- The distribution of scores of professional work commitment towards teaching Profession of school teachers is not normal.

METHOD, SAMPLE AND SAMPLING TECHNIQUE

The investigator has selected normative methodology and survey technique for the present study based on the problem selected. Population of the present study comprised selected school teachers who are working in three higher secondary schools in Salem District. For the present study, a sample of 90 school teachers was selected from three schools in Omalur Taluk, Salem District. The researcher adopted random sampling technique for the selection of the sample.

TOOL USED IN THE STUDY

Professional work commitment towards teaching profession scale is a standardized tool developed by Indira Shukla (1999) - Work Commitment Inventory (Teacher Commitment Scale) to measure the Professional work commitment towards teaching profession of the school teachers. The scale contains

fifty two statements based on the Likert's type of five point Scale. A pilot study was conducted to thirty teachers to ensure once again the reliability and validity of the research tool. The reliability of the tool was established by using split half method and it was found as 0.9449. The square root of reliability gives the intrinsic validity. Therefore the intrinsic validity of Indira Shukla's Professional Work Commitment is 0.9720

DESCRIPTIVE ANALYSIS AND FINDINGS

The normality on the scores of professional work commitment towards teaching profession of school teachers in Salem District are given in the following Table 1.1 to study the deviation from the normal distribution property from the scores on collected data.

Table.1.1 Distribution of Scores on Professional Work Commitment Towards Teaching Profession of Scores of School Teachers

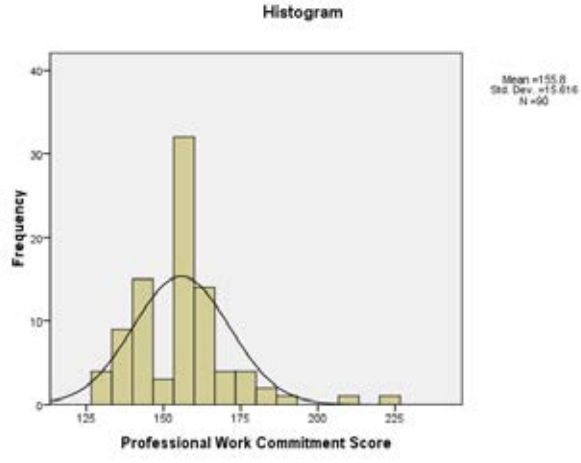
S. No.	Descriptive Statistics		Values
1	N		90
2	Mean		155.80
3	Std. Error of Mean		1.646
4	Median		155.50
5	Mode		155
6	Std. Deviation		15.616
7	Variance		243.870
8	Skewness		0.002
9	Std. Error of Skewness		0.254
10	Kurtosis		0.269
11	Std. Error of Kurtosis		0.503
12	Range		93
13	Minimum		130
14	Maximum		223
15	Mean ±1σ		140 to 171
	>Mean+1σ		172 to 260
	<Mean-1σ		52 to 139
16	Overall Level		Average
17	Percentiles	25	144.00
		50	155.50
		75	162.25

It is evident that, the overall level of professional work commitment towards teaching profession of school teachers is found as average (155.80) in nature. The values of mean, median and, mode are almost equivalent. The nature of the distribution is symmetrical in nature Here the mean is slightly greater than the median and mean, the curve is positively skewed (155.80>155.50>150) and it turn conformity with the skewness value (+0.002) which is equivalent to zero. The value peakedness of the curve (0.021) is found to be less than kurtosis value 0.269(β>3) indicates that the height of the curve is platykurtic in nature. The percentiles indicates that the level of scores present in 25th as 144.00, 50th as 155.50, and 75th as 162.25 Mean ±1σ (140 to 171) indicates that 68.26 percentage of the sample is distributed within the area under the limit Mean±1σ. The higher range value and standard deviation confirmed the slight deviations within the scores. The whole distribution was positively skewed and tending to be platykurtic in nature. The histogram with the normal curve is shown in the following Figure No.1.1. show slight deviation from the normality.

Interpretation:

The distribution of scores of professional work commitment towards teaching profession of school teachers in Salem district slightly deviates from the normality. The overall level of professional work commitment towards teaching profession of school teachers is found as average (155.80) in nature.

Figure 1.1 Shows the Normal Distribution of the Professional Work Commitment towards Teaching Profession of School Teachers



RECOMMENDATIONS

Teachers are to be guided and counseled so as to be aware of their duties and working conditions for perfect adjustment thus helping them to build a positive tendency. Teachers in general are fairly committed to their profession. If teachers and masses were non-committed then the whole structure of educational edifice must have crumbled by now. School organizations should have respect for their teachers so that they can work with more interest. More attention should be paid to the employees' fair salaries so that they do not have to work multiple jobs to make a living where their energy levels get exhausted thus leading to poor perspective towards their teaching jobs (Shamina, 2014). To increase the work commitment, the authorities need to elaborate their roles and provide guidelines for proper work. This is also necessary for stopping the exploitation of teachers. Administration should create conducive work climate to reduce stress and improve the work commitment (Maheshwari, 2003) among teachers. Motivation by the principal/ management and democratic relationship with the teacher has to be maintained.

CONCLUSION

It is the role of the teacher in the society in the development of the nation and it is true not from today but from the Vedic periods. The society and nation has given so many examples for us. The coming generation and new teacher should understand that their role as a teacher is very important in the development of society and nation and it dependents upon the economic condition of nation and it will be guided by the teachers of the nation. So they should maintain a character and should present a role teacher in their subject because the teacher is the model for their students. "Without commitment you cannot succeed; with commitment you cannot fail"- Dr. A.P.J. Abdul Kalam. This means a committed teacher can stay in this profession for a longer run. That is if the basement is laid strong the height of the building will not matter at all. In India teaching covers third largest work force; thus a large number of people enter in this profession. Lack of professional work commitment (Arjunan, & Balamurugan, 2013). among this group has made it difficult to ensure uniform standards. The increasing demand for professional service with quality has put the onus on the teaching profession to be responsible and more accountable to the needs and conditions of service. It is a need of more professional work commitment among us that is why continuous and adequate efforts are not made to recognize the best ideas in time, practice and role in action for self renewal and sustenance.

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PARENTAL BELIEFS AND SCREEN TIME OF YOUNG CHILDREN

6

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INTRODUCTION

Young children are exposed to a range of digital devices (e.g., computers, mobile phones, Televisions) from birth and their use of digital media is rapidly increasing (UK: Marsh et al., 2015; Ofcom, 2014; Livingstone, 2014; USA: Rideout, 2011). Studies have highlighted how pre-schoolers can learn communication skills by using digital devices to creatively explore their world and express themselves (Hisrich & Blanchard, 2009; Levy, 2009; Marsh, 2005; Plowman & McPake, 2013).

Parents have also reported concerns about their pre-schoolers' over use of touch screen tablets (Ofcom, 2014) voicing that the addictive features of tablets may negatively impact on children's social, physical, and cognitive development and reduce time for more traditional non-digital activities (Ebbeck, Yim, Chan, & Goh, 2015; Karuppiah, 2015; Livingstone et al., 2014). It is well established that parents play a key role in mediating young children's interactions and experiences with digital technology (Connell et al., 2015; Nikken & Jansz, 2014; Plowman et al., 2012).

SCREEN TIME AND DIGITAL DEVICES

Screen Time is defined as the viewing or using anything with a screen, including televisions, smart phones, video games and computers/Laptops. Prolonged periods of screen-time among toddlers and pre-schoolers result in less opportunity for active outdoor and creative activities. It naturally results in poor healthy eating habits and disturbance in cognitive, language, and social skills developments. Screen time exposure is more likely to happen in those children who watch television while eating, houses having a number of digital devices and when parents spend more time on these devices.

TECHNOLOGY AND CHILD GROWTH

According to Murray and Murray's (2008) article about the uses and effects of television on children's social and emotional development, stated that the social, face-to-face interactions that occur during infancy are monumental as they set the ground-work for individuals to build meaningful relationships throughout their lives. Play is a fundamental part of

children's lives and encourages growth in all areas of development (Vygotsky, 1966). Through play, children are provided with a platform to experience and express a wide range of emotions, practice their conflict resolution skills, manage their impulses, as well as interact with adults and peers in a variety of meaningful ways (Sumaroka & Bornestein, 2007).

Excess screen time exposure in early childhood is associated with harmful effects such as increased sedentary behavior, disruptive behaviors, obesity, disturbed sleeping habits, and reduced cognitive developments. World Health Organization has recommended no infants less than one year should be exposed to electronic screens. Young children should not spend more than one hour a day watching television, playing computer games or watching videos. WHO also reiterated the fact that children between one and four years old should spend at least three hours in a variety of physical activities spread throughout the day.

ROLE OF PARENTS IN CHILD'S DIGITAL EXPOSURE

Parents play a critical role in developing and shaping their children's physical activity and sedentary behaviours, particularly in the early years of life. Findings suggest that parents' encouragement and support can increase children's physical activity. Reducing parents' own screen time can lead to decreased child screen time. Improving parenting practices, parental self-efficacy or changing parenting style may also be promising approaches to increasing physical activity time and decreasing screen time of young children.

Parents should ensure their children spend time for active play and get better quality of sleep. Improving child's physical activity and ensuring quality sleep will improve their physical, mental health and emotional well-being. Parents should spend quality time with their wards and engage them in activities like storytelling reflecting the day's happenings. Significance is to be given to physical activities for at least an hour in a day. Good quality sleep for 10-13 hours is always recommended. Parents can engage their children with more traditional games which can develop their physical balance, hand-eye coordination and most importantly keep them fit.

This study in particular will examine the home digital environment of Indian parents and their children (aged 2 to 5 years). Parents responded to a questionnaire which includes their perception on digital devices and the time spent on them. Also, they responded to the items which focus on the influence of digital devices on their wards. They opined how increase in screen time affected the overall physical and sleep activities of their wards.

The parameters of this particular research focussed on elements such as

- Parental Attitude on Screen Time usage
- Screen Time Effects
- Child Physical Activities

- Child Sleep Habits
- Overall Parental Beliefs

NEED AND SIGNIFICANCE OF THE STUDY

The present research study has its own significance in a way that parents and educators do have a right to trustworthy information including the benefits of play, recommended daily screen time exposure allotments, and the negative and positive outcomes of screen time use on children's development. This, in turn, is important because it allows parents and educators the opportunity to make informed decisions about screen time, and the effects of incorporating it into their children's lives. With the influx of screen-based media at home and within the school systems, it is important that parents and educators have access to strategies that can help them make screen time more meaningful for their children's social, emotional and cognitive development.

OBJECTIVES OF THE STUDY

1. To study whether the students belonging to different groups based on Gender, Age, Locality, Whether school going, Order of birth, Caretaker, Parents' Educational Qualification and Family Income differ significantly in their.
   a) Parental Attitude
   b) Child screen time effects
   c) Child physical activities
   d) Child sleep habits
2. To study the Overall parental beliefs and screen time of young children.
3. To study the correlation of Overall parental beliefs and screen time of young children with the research variables Parental Attitude, Child screen time effects, Child physical activities and Child sleep habits.

HYPOTHESES OF THE STUDY

1. Male and Female children differ significantly in their (a) Parental Attitude (b) Screen time effects (c) Physical activities (d) Sleep habits and (e) Overall Parental beliefs.
2. Young children differ significantly in their (a) Parental Attitude (b) Screen time effects (c) Physical activities (d) Sleep habits and (e) Overall Parental beliefs with respect to their age.
3. Young children belonging to different locality differ significantly in their (a) Parental Attitude (b) Screen time effects (c) Physical activities (d) Sleep habits and (e) Overall Parental beliefs.
4. School going and non-school going children differ significantly in their (a) Parental Attitude (b) Screen time effects (c) Physical activities and (d) Sleep habits and (e) Overall Parental beliefs.
5. Young children differ significantly in their (a) Parental Attitude (b) Screen time effects (c) Physical activities (d) Sleep habits and (e) Overall Parental beliefs with respect to order of birth.
6. Young children differ significantly in their (a) Parental Attitude (b) Screen

time effects (c) Physical activities (d) Sleep habits and (e) Overall Parental beliefs with respect to caretakers at home.

7. Young children differ significantly in their (a) Parental Attitude (b) Screen time effects (c) Physical activities (d) Sleep habits and (e) Overall Parental beliefs with respect to their parents' educational qualification.
8. Young children differ significantly in their (a) Parental Attitude (b) Screen time effects (c) Physical activities (d) Sleep habits and (e) Overall Parental beliefs with respect to their family income.

METHOD OF THE STUDY

In the present study, Normative Method is employed to describe and interpret what exists at present. The sample included seventy (70) children in the age group between 2 to 5 years selected at random from the Coimbatore district of Tamil Nadu.

Research Variables

1. **Parental Attitude** refers to the attitude of parents toward the screen time of their children.
2. **Child screen time effects** refers how parents perceive the screen time effects on their children.
3. **Child physical activities** refers to the parents' opinion on child physical activities in comparison with screen time.
4. **Child sleep habits** refers to the influence of screen time on child's sleep habits.
5. **Overall parental beliefs** refer to the parental attitudes and perception of parents towards the screen time effect on their children.

TOOLS USED

The following tools were used for the study.

1. Parental Beliefs and Screen Time of Young Children Questionnaire developed by the Investigator.
2. Personal Data Sheet developed by the Investigator.

For the purpose of the present investigation the above said tools were developed.

The tools were subjected to reliability (Cronbach Alpha Coefficient, r = 0.89) and validity ($\sqrt{r} = \sqrt{0.89} = 0.94$) parameters like expert evaluation, pre-tryout and item analysis in the initial stages of the research work. The data collected was tabulated, analysed with suitable statistical tests before interpretation.

STATISTICAL TECHNIQUES USED FOR DATA ANALYSIS

The data collected were analysed with respect to the objectives and hypotheses of the study. The SPSS (version 23.0) was used for the analysis. In the present study following statistical techniques were adopted to analyse the Pilot and Final study data.

1. Item Analysis – Pilot Study.
2. Descriptive Analysis (Mean and Standard Deviation).

3. Differential Analysis (t-values and F-ratios).
4. Correlation Analysis.

FINDINGS OF THE PRESENT STUDY

Findings based on Parental Attitude, Child Screen time Effects, Child Physical Activities and Child Sleep Habits towards the Overall Parental Beliefs with respect to Gender

Male and Female children differed significantly in Overall Parental Beliefs where girl children had higher mean values.

There exists significant difference in all the dimensions except two, namely Child Screen Time Effects and Child Sleep Habits in which the Male and Female children did not differ significantly even at 0.05 level. In the significant dimensions, Female children had better Parental Attitude and Child Physical Activities than Male children.

Findings based on Parental Attitude, Child Screen time Effects, Child Physical Activities and Child Sleep Habits towards the Overall Parental Beliefs with respect to Locality.

None of the research variables (Parental Attitude, Child Screen Time Effects, Child Physical Activities and Child Sleep Habits) or the dependent variable (Overall Parental Beliefs) differed significantly even at 0.05 level.

Findings based on Parental Attitude, Child Screen time Effects, Child Physical Activities and Child Sleep Habits towards the Overall Parental Beliefs with respect to School Going.

None of the research variables except Child Physical Activities differed significantly even at 0.05 level with respect to children going to school and not going to school. In the variable Child Physical Activities, children at home had higher mean value than the children going to school.

Findings based on Parental Attitude, Child Screen time Effects, Child Physical Activities and Child Sleep Habits towards the Overall Parental Beliefs with respect to Order of Birth.

The first born and second born children differed significantly in Overall Parental Beliefs at 0.05 level where second born children had highest mean values.

Out of four research variables, two variables (Parental Attitude and Child Physical Activities) differed significantly at 0.05 level where, female children had better mean scores than the male children. Variables Child Screen Time Effects and Child Sleep Habits did not differ significantly even at 0.05 level.

Findings based on Parental Attitude, Child Screen time Effects, Child Physical Activities and Child Sleep Habits towards the Overall Parental Beliefs with respect to Caretakers at Home.

The t-value (0.285) calculated for the Overall Parental Beliefs revealed with respect to Caretakers at Home did not differ significantly at 0.05 level.

Out of four research variables, only one variable (Child Sleep Habits) differed significantly at 0.001 level where, male children had better mean scores than the female children. Variables Parental Attitude, Child Screen Time Effects and Child Physical Activities did not differ significantly even at 0.05 level.

Findings based on Parental Attitude, Child Screen time Effects, Child Physical Activities and Child Sleep Habits towards the Overall Parental Beliefs with respect to Age.

The F-ratio (95.763) calculated for Overall Parental Beliefs with respect to age of children revealed that there exists significant difference between groups at 0.001 level. The F-ratios calculated for the four dimensions based on age of children revealed that in all the four dimensions namely Parental Attitude, Child Screen Time Effects and Child Sleep Habits the groups differed significantly.

Further analysis of Overall Parental Beliefs with respect to age of children tested through Tukey-HSD revealed that the groups belonging to Two years & Three years, Two years & Four years, Two years & Five years, Three years & Four years and Three years & Five years differed significantly, where the children whose age was Two years had the highest Overall Parental Beliefs and the same was the lowest for children who have completed Three years.

In the research variable Parental Attitude, all the groups differed significantly at 0.01 level. The groups also differed significantly in variables Child Screen Time Effects, Child Physical Activities and Child Sleep habits.

Findings based on Parental Attitude, Child Screen time Effects, Child Physical Activities and Child Sleep Habits towards the Overall Parental Beliefs with respect to Parents' Educational Qualification.

The F-ratio (1.387) calculated for Overall Parental Beliefs with respect to Parents' Educational Qualification revealed that there exists no significant difference between groups even at 0.05 level. The F-ratios calculated for the four dimensions based on Parents' Educational Qualification revealed that two dimensions namely Child Physical Activities and Child Sleep Habits differed significantly.

Further analysis of Overall Parental Beliefs with respect to Parents' Educational Qualification tested through Tukey-HSD revealed that the groups belonging to Undergraduate and Postgraduate & Above differed significantly in the two dimensions namely Child Physical Activities and Child Sleep Habits where, Undergraduate parents had better mean scores than the Postgraduate & Above parents. In the research variables Parental Attitude and Child Screen Time Effects, the groups did not differ significantly.

Findings based on Parental Attitude, Child Screen time Effects, Child Physical Activities and Child Sleep Habits towards the Overall Parental Beliefs with respect to Family Income.

The F-ratio (14.233) calculated for Overall Parental Beliefs with respect to Family Income revealed that there exists a significant difference between groups. The F-ratios calculated for the four dimensions based on Parents' Monthly Income revealed that all dimensions differed significantly.

Further analysis of Overall Parental Beliefs with respect to Parents' Monthly Income tested through Tukey-HSD revealed that the groups whose income was Upto Rs.20000 and income between Rs.20000 & Rs.40000 and the groups whose income was between Rs.20000 & Rs.40000 and Above Rs.40000 differed significantly. The groups differed similarly in the dimensions Parental Attitude, Children Screen Time Effects and Child Physical Activities. In the variable Child Sleep Habits, the groups whose income was Upto Rs.20000 and Above Rs.40000 differed significantly.

CORRELATION ANALYSIS

RESULTS OF CORRELATION ANALYSIS BETWEEN RESEARCH VARIABLES

Sl.No	Variables	r- value	Level of Significance	Remarks
1	Parental Attitude Vs Overall Parental Beliefs	0.97	P<0.01	High Positive correlation
2	Child screen time effects Vs Overall Parental Beliefs	0.96	P<0.01	High Positive correlation
3	Child physical activities Vs Overall Parental Beliefs	0.95	P<0.01	High Positive correlation
4	Child sleep habits Vs Overall Parental Beliefs	0.35	P<0.01	Low Positive correlation

The table reveals that,

i) The Correlation between Parental Attitude and Overall Parental Beliefs is highly positive (0.97).

ii) The Correlation between Child Screen Time and Overall Parental Beliefs highly positive (0.96).

iii) The Correlation between Child Physical Activities and Overall Parental Beliefs Teacher is highly positive (0.95).

iv) The Correlation between Child Sleep Habits and Overall Parental Beliefs is low (0.35).

CONCLUSION

Parenting styles have strong associations between certain practices and positive child outcomes. Parents have the ability to promote nutrition and physical activity; they help in developing cognitive, emotional, behavioural and social competence among their wards. Considerable numbers of children begin watching television and using digital devices at a very early age and the number of hours keeps on increasing. Also, these early viewing patterns persist into childhood disrupting the normal development and behaviour. Parents have the home environmental control and practice the routines. They will have to be informed and trained about the mindful approaches in keeping their children from spending too much time on digital devices. Parents can motivate the child to engage in productive activities and insisting disciplinary practices.

DISCUSSION

In the present study, Gender, Birth order and Parents educational qualification had occasional effects on the variables under study. Age had the most significant effects on the variables. Family income had occasional influence on the variables since the income decides the purchase of modern gadgets at home. This is in accordance with the study carried out by Anand & Krosnick (2005) titled "Demographic Predictors of Media Use among Infants, Toddlers, and Preschoolers"

The results of the present study reveal that increased television viewing develops irregular sleep schedules of young children. This result is substantiated with the study from Thompson and Christakis (2005) in their study "The association between television viewing and irregular sleeps schedules among children less than 3 years of age".

Parents' own screen time is strongly associated with child screen time which is given in the findings of the present study. Further analyses indicate that child screen time use appears to be the result of an interaction between child and parent factors and is highly influenced by parental attitudes given in the study by Lauricella et al. (2015) titled "Young children's screen time: The complex role of parent and child factors".

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A STUDY ON INTEREST IN MATHEMATICS AMONG HIGH SCHOOL STUDENTS IN THIRUVALLUR DISTRICT

7

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INTRODUCTION

The main goal of mathematics education in schools is the mathematisation of the child's thinking. Clarity of thought and pursuing assumptions to logical conclusions is central to the mathematical enterprise. There are many ways of thinking and the kind of thinking one learns in mathematics is the ability to handle abstractions and an approach to problem solving. Universalisation of schooling has important implications for mathematics curriculum. Mathematics being a compulsory subject of study, access to quality mathematics education is every child's right. We want mathematics education that is affordable to every child, and at the same time, enjoyable. Mathematics is significant for both a scholar and a layman though their perceptions may differ. A scholar may find in it the purest form of abstraction and a layman may look at it as a tool for solving numerical problems.

STATEMENT OF THE PROBLEM

Formally the problem can be stated as "A study on Interest in Mathematics among high school students in Thiruvallur District"

OBJECTIVES OF THE STUDY

1. To find out the level of Interest in Mathematics among high school students.
2. To find out significant difference between the High school students' interest in Mathematics based on their Gender.
3. To find out significant difference between the High school students' interest in Mathematics based on their Location.
4. To find out significant difference among the High school students' interest in Mathematics based on their Type of Management.
5. To find out significant difference between the High school students' interest in Mathematics based on their Medium of Instruction.
6. To find out significant difference between the High school students' interest in Mathematics based on their Family types.

7. To find out significant difference among the High school students' interest in Mathematics based on their Father's Qualification.
8. To find out significant difference among the High school students' interest in Mathematics based on their Mother's Qualification.
9. To find out significant difference between the High school students' interest in Mathematics based on their Family Income.

HYPOTHESES OF THE STUDY

1. There is no significant difference in the High school students' interest in Mathematics based on their Gender.
2. There is no significant difference in High school students' interest in Mathematics based on their Location.
3. There is no significant difference among the High school students' interest in Mathematics based on their Type of Management.
4. There is no significant difference in the High school students' interest in Mathematics based on their Medium of Instruction.
5. There is no significant difference in the High school students' interest in Mathematics based on their Family types.
6. There is no significant difference among the High school students' interest in Mathematics based on their Father's Qualification.
7. There is no significant difference among the High school students' interest in Mathematics based on their Mother's Qualification.
8. There is no significant difference in the High school students' interest in Mathematics based on their Family Income.

RESEARCH DESIGN

METHODOLOGY

The study is a normative survey method of research and is the most suitable method for the present study.

SAMPLE

A stratified random sampling technique was adopted for the selection of 300 high school students as sample for the present study.

TABLE -1

Sample Distribution

	Variable	Sample	Total
Gender	Male	150	300
	Female	150	
Location	Rural	112	300
	Urban	188	

	Variable	Sample	Total
Medium	Tamil	100	300
	English	200	
Type of Family	Joint	157	300
	Nuclear	143	
Type of Management	Government	100	300
	Aided	100	
	Private	100	

FIGURE SHOWING DISTRIBUTION OF THE SAMPLE

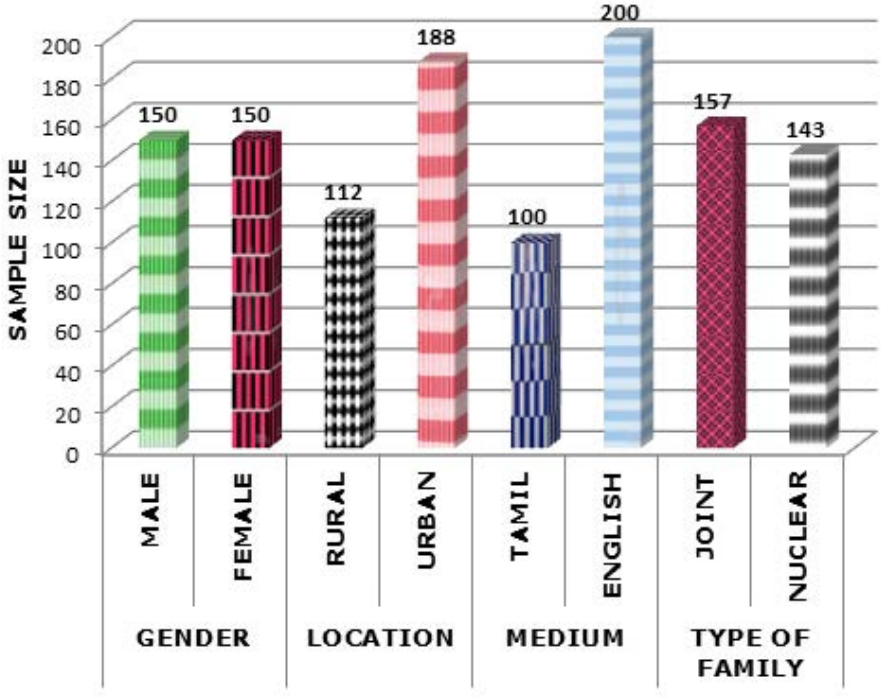

FIG -1

RESEARCH TOOLS USED IN THE PRESENT STUDY

To verify the framed hypotheses the following tool and techniques were used in the present investigation

- Interest in Mathematics by Paul Mohan Doss (2009)

STATISTICAL TECHNIQUES

Suitable descriptive and inferential statistical techniques were used in the interpretation of the data to draw out a meaningful picture of results from the collected data.

In the present study, the following statistical measures were used.

- Mean
- Standard Deviation
- t- test
- F-ratio
- Correlation

MAJOR FINDINGS

1. The level of interest in Mathematics among high school students is moderate in nature.
2. It is found that there exists significant difference in the High school students' interest in Mathematics based on their Gender.
3. The analysis shows that there is a significant difference between Rural and Urban area High school students' interest in Mathematics mean score.
4. It is clear from the calculation that there exists a significant difference in their Interest in Mathematics among High school students based on Management Type.
5. It is found that there is a significant difference between Tamil and English medium high school students' interest in Mathematics mean score.
6. It is found that there exists no significant difference between Joint and Nuclear family high school students' interest in Mathematics mean score.
7. It is found that there is no significant difference among the High school students' interest in Mathematics based on their Father's Qualification.
8. It is found that there exists no significant difference between the High school students Interest in Mathematics based on their Family Income.
9. It is found that there exists positive relationship among High school students' interest in Mathematics based on Gender and Type of Management.

Table - 2

Frequency and Percentage for the variable Interest in Mathematics among high school students

Variable	No. of Samples	Range	Category	Frequency	Percentage
Interest in Mathematics	300	Below 49	Low	44	14.66%
		49-80	Moderate	198	66.00%
		Above 80	High	59	19.66%

Figure showing the frequency for the variable interest in Mathematics among High School Students

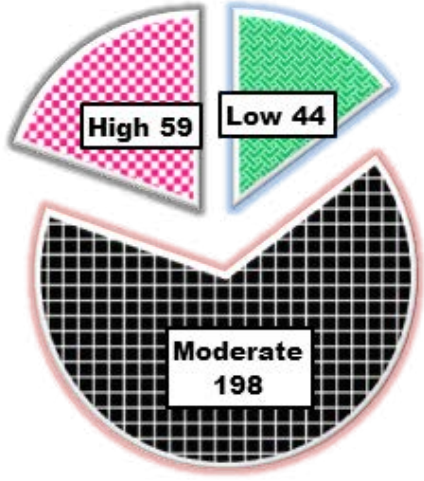

FIG -2

TABLE - 3

Table shows the significant difference between the high school students Interest in Mathematics based on their Gender.

VARIABLE	GENDER	N	MEAN	SD	t - value	L.S
Interest in Mathematics	Male	150	56.74	14.632	9.439	0.01
	Female	150	71.65	12.649		

Figure showing Mean difference between High School Students Interest in Mathematics based on Gender

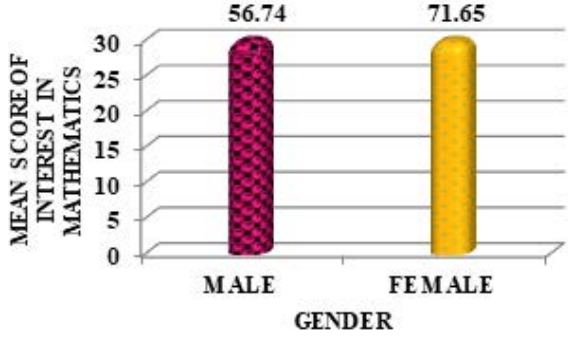

FIG -3

Table-4

Relationship between Male and Female High school students based on their Interest in Mathematics.

Variable	Number	Correlation
Male Vs Female	300	0.710

OVERALL FINDINGS OF THE STUDY

From the percentage analysis, the investigator found that majority of the high school students had moderate level of mathematics interest. The findings from the correlation analysis reveal significant positive relationship is found between the dependent and independent variables. The female mean score of mathematical interest is better than male mean score among high school students. This clearly reflects in the board examinations as the female candidates taste more success than the male students.

Mathematical interests of urban students of High schools are better than rural students. This is because of the educational awareness prevailing among the urban residing students added by additional coaching facilities. Mathematical interest of nuclear type of family, students of both government and non-government schools are better than joint family belonging students.

During the students' primary years, our focus is on learning number and operations, basic measurement, and basic understanding of data. As students move into the intermediate and middle school years, a greater emphasis is placed on the practice and reinforcement of basic math facts and operations while at the same time increasing the depth of understanding of skills in algebra and geometry.

Keeping students interested in the courses is paramount. Without interest students incline to surface level learning (Entwistle 1998; Chin and Brown 2000). With interest they are maybe likely to engage in deep level learning. The purposes of stimulating the student's interest are:

- Attract students
- Keep students active
- Increase students' enthusiasm for your course and
- Very importantly, if their study is interesting, and not always boring, then the student will be keen to study, and will be happy to study.

Therefore the main question is how to stimulate and cultivate the interest of students in studying mathematics.

CONCLUSION

It is very difficult to teach mathematical courses because they are often abstract and may be boring for

students. In addition, some teachers stress mathematical rigour excessively, so that their mathematics courses are filled with abstract formulas, theorems and proofs. On the other hand, the mathematical background of students is often not very good. Most students, who are not majoring in mathematics, are afraid of mathematics courses. They think mathematics courses are boring and not applicable. Mathematics teachers have the responsibility to develop students' interest in studying and to lead them both success and happiness at various times throughout the course. This will make the study active and efficient. Two aspects such as interests and responsibilities in learning Mathematics are to be cultivated among students even when they are faced with apparently boring or elusive courses.

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