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# AN EMPIRICAL INVESTIGATION INTO SOME SELECTED FACTORS INFLUENCING SECONDARY SCHOOL TEACHERS' EFFECTIVENESS IN ONDO, SOUTH NIGERIA

Dr. Bada, Steve Olusegun PhD\*

&

Dr. Aliyu, Yaya Aliyu PhD\*\*

## Abstract

*The study is an empirical investigation into some selected factors influencing teachers' effectiveness in secondary schools in Ondo South senatorial district of Ondo state. Fifty (50) teachers were randomly selected, a self-designed questionnaire items was used as instrument for data collection. The frequency count and simple percentage were adopted for the analysis of the data collected from the respondents. The study revealed that there is security of job but no prospect for regular promotion and most principal's leadership style in use are detrimental to teachers' effectiveness. Based on these findings, it is recommended that teachers need to be adequately remunerated and that school administrators must be trained and retrained in order to know that no single pattern or style of managing teachers exist. Furthermore, the best patterns are those that relate to the peculiar situation at hand.*

**Keywords:** Investigation, Teachers' Effectiveness, Job satisfaction, Teaching profession, etc.

## Introduction

Education is generally accepted as an essential tool for human and societal development and various means such as

schools, seminars and workshops have been put in place to extend the benefit of education to all. In Nigeria, education is seen as the most important instrument for national

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development. This in effect means that the entire ability, might strength and status of the nation is determined by her level of literacy. In view of this, one of the major themes articulated in the National Policy of Education (NPE) is qualitative education. Hence, the National Policy on Education blue print (1981) clearly stated that the success and progress of Nigeria's educational goals depends on the availability of teachers, their quantity, quality and readiness to work emphasizing the importance to teachers in the education of a child.

The National Policy on Education (1981) stated clearly that educational system cannot rise above the quality of its teachers. This point out the fact that teachers occupy a very important part in educational system and society desiring a higher standard of education, quality and effectiveness must ensure the quality of its teachers are kept consistently high. The productivity and effectiveness of workers however depend largely on job satisfaction. A good teacher possesses some qualities, such as orderliness, parental care, empathy, sympathy, readiness to learn and honesty. Basically, it is a known fact in the education sector that the teaching profession has been neglected. This hinder the above quality mentioned to expressed and implement in many teachers attitude to his/her given profession. Expression of dissatisfaction is easily noticed on teacher's face.

Teacher's behaviour must be such that can enhance students learning outcome and that desirable behaviour makes good teachers. The rational for such teachers

behaviour therefore is how he is motivated, the chances provided for him to demonstrate his ability and type of personnel services rendered among others (Jiboku & Adepe, 2005). But what one observes in schools today does not appear to support good behaviour of a teacher in the classroom. This is the nagging crises that have beset the nation's educational system. It is therefore pertinent, to study specifically, the influence that certain factors have on the behaviour that characterized today's teachers in the classroom (Nworgu, 2009). Oluche (2002) opined that teachers' performance is a measurement of his/her teaching performance measurement of teaching effectiveness. Awomolo (1983) defined dimension of teaching effectiveness as "Classroom administration, organization, of teaching materials, interpersonal relationship, interests in the job as well as teachers/student participation in the teaching and learning process" (pg 15).

Okunola (1990) opined that government should provide the teachers and their families medial facilities when sick, pay for transportation from home to work, play for accommodation give them loan, grants, pay their salaries on time, grant leave bows or allowance, organize seminary/workshops or refresher course, provide recreational facilities, prepare them for retirement through counseling and provision of relevant facilities and when they die, announce their obituaries with funfair and give them befitting burial and ensuring that their dependents do that these are part of motivation in the working place though they are expensive.

Ogunsaju (1990) observed that the attitude of the teachers towards the students and their academic work is dependent on the feelings, concern and commitment of the school administration leadership style and type of relationship that exist between the principal and his subordinate staff. Thus, effective school management which transforms into effectiveness in Nigerian teachers is a function of the administrative style of the leadership. Therefore, this study is an attempt to investigate some selected factors influencing secondary school teacher in Ondo South Senatorial District of Ondo State.

### **Purpose of the Study**

The purpose of the study is to investigate:

1. the influence of motivational factors on the teachers' effectiveness.
2. the influence of leadership styles on teachers' effectiveness.

### **Research Questions**

To attain the purpose therefore, the following questions were raised:

1. Do motivational factors have an influence on teachers' effectiveness in secondary schools in Ondo South senatorial district?
2. Do principal leadership style have an influence on teachers' effectiveness in secondary schools in Ondo South senatorial district?

### **Methodology**

The casual comparative approach was adopted for this study. It involves the

collection of data whereby the cause effect relationship is established. The sample of this research was secondary schools and teachers in Ondo South senatorial districts. The selection of schools and teachers (respondents) for this study was done by purposive sampling techniques. A total number of five (5) secondary schools were selected taking into consideration their years of establishment, which is more than 10 years. A total number of fifty (50) secondary schools teachers who have taught for more than five years were selected in the senatorial districts. A self-designed questionnaire consisting of two sections was used for the research. Section 'A' asks about the respondents (school teachers) year of experience, name, year of establishment and school. Section 'B' states the items on different levels of factors influencing teacher's effectiveness was investigated. The instrument was validated by experts in the field of education. The reliability of the questionnaire was obtained using test-retest technique, twice within three weeks. Pearson's product moment correlation formula was used to calculate the two scores to establish the reliability of the questionnaire. The obtained test-retest reliability coefficient is 0.81. This implies that the instrument is reliable. The data were collected analyzed with the use of frequency count and simple percentage procedure was employed to analyze various issues generated in the study.

**Research Question One:** Do teacher's motivation factors have any influence on teachers' effectiveness in secondary schools?

Table 1

*The response of teachers on influence of motivational factors on teachers' effectiveness*

Sln.	Items	Agree(A)	Disagree(D)	Total
1.	Teacher's salary is very attractive and regular which motivate me to be more effective in my job.	19 (38%)	31 (62%)	50(100%)
2.	Teacher's job is permanent and no imminent loss of job this encourage me to work harder.	35 (70%)	15(30%)	50(100%)
3.	Teaching job has prospects for regular promotion which inspires me to be more creative.	26 (52%)	24(48%)	50(100%)
4.	Teachers have high prestige in the society which makes me love to remain in the job.	12(24%)	38 (76%)	50 (100%)
5.	Teachers are provided with the opportunity to reach the peak of their career which inspires me to be more creative.	26(52%)	24(48%)	50(100%)
6.	Teacher's work is interesting as teaching aids are readily available which makes teaching an enjoyable task.	17(24%)	33(76%)	50(100%)
7.	A single teacher is allocated too much work which makes the job very stressful.	31(62%)	19(38%)	50(100%)
8.	School facilities such as textbook, seating and writing materials are provided for teacher which make the job easy to do.	20(40%)	30(60%)	50(100%)
9.	Cordial relationship is promoted among teachers which have helped me to share my ideas with others.	43(96%)	7(14%)	50(100%)

From table 1, it is revealed that the respondents favoured strongly that there is no imminent loss of job with 35(70%) but 26(54%) of respondents are not really sure if there is prospect for regular promotion as well as opportunity for teacher to reach the peak of their career. There exist a situation where too many lessons are given to a single teacher to teach daily as 31(62%) of respondents agreed with item 7. Item 9 has 43(96%) of respondents agreed.

On the other hand, teacher's motivation is believed by respondents not to include attractive and regular payment of salary as 31 (62%) of respondents are not agreed with item 1. this undoubtedly seen in low prestige as item 4 has 38(76%) of the respondents agreed and facilities such as textbooks, seating and counting materials are not provided a 30(60%) of respondents disagreed with items 8.

**Research Question Two:** *Do principal leadership styles have any influence on teachers' effectiveness in secondary schools?*



Table 2

*The response of teachers on principal leadership style factors on teachers' effectiveness*

<i>Sln.</i>	<i>Items</i>	<i>Agree(A)</i>	<i>Disagree(D)</i>	<i>Total</i>
10.	Decision making is shared by principal and teachers in my college. Hence, I am motivated to work harder.	18 (36%)	32 (64%)	50(100%)
11.	New ideas and challenges are welcome by the principal hence the feelings of sense of belonging exist in me.	24 (48%)	26(52%)	50(100%)
12.	Feeling of responsibility exist in the school which encourage me to work harder.	26 (52%)	24(48%)	50(100%)
13.	Principal has little trust and faith in teachers work in the school hence I am extra cautious in my work.	22(44%)	28 (56%)	50 (100%)
14.	Principal do sometime blame nobody for poor academic performance of student which makes me feel unhappy in my job.	13(26%)	37(74%)	50(100%)
15.	Principal do set goal to be achieved for teachers hence I always set a standard to be achieved.	31(62%)	19(38%)	50(100%)
16.	Principal do show interest in teacher's personal needs, hence I am motivated to work harder.	20(40%)	30(60%)	50(100%)
17.	Principal is more concerned about the school activities which has make me to punctual in my class.	27(54%)	23(46%)	50(100%)
18.	Principal do give the impression of listening to the followers but his own decision always prevails. Hence, I am discouraged from putting in my best.	27(54%)	23(46%)	50(100%)
19.	Principal command unchallenged because of adoration teachers have for him/her. This has helped me to discuss all pending problems with him.	25(50%)	25(50%)	50(100%)
20.	Principal do give the impression of listening to the followers but his own decision always prevails.	26 (52%)	24 (48%)	50(100%)

There is no single best style for school principal to make teacher work but principals nature and characteristics of behaviour, if appropriate, it would help teachers feel

responsible as it could be seen from table 2 where respondents agreed with items 12 with 26(52%). This may not be far from the respondents believe in item 15 with 31 (62%)

that principals do set goals for teachers to be achieved, undoubtedly, this is an indication that principals are more concerned about the school activities as shown in item 17 with 27(54%) of respondents agreeing that principals do not show interest in teachers personal needs as item 16 has 30 (60%) of respondents agreed. Thus, the attitude of doing it alone with deception that teachers are involved is adopted by principal to achieve the school goal as item 18 with 27 (54%) of respondents agreed. This is also supported as item 10 with 32(64%) of respondents disagreed that decision making is jointly made as well as the disagreement recorded with item 11 that has 26(52%) of respondents believed that new ideas and challenges are not welcomed by the principal. Despite the principal style stated above is not challenged as the respondents equally agreed and disagreed with item 19 with 25(50%) on either side, which is as a result of adoration teachers have for the principal.

Moreover, the respondents agreed with items 13 and 14 in which 28(56%) and 37(74%) respectively are in strong support of the belief of the principal in that the principal has little trust and faith in teachers work and not surprise, principal do not blame anybody for teachers inability to produce result of good performance of student academically.

## **Discussion**

The research is specifically come up with some factors that without them, teachers may not function effectively. First and foremost, it has been claimed that human behaviour is usually motivated by the desire for certain needs, necessary for the survival

of man, since the principal work with and through the teachers to accomplish school goals. It becomes necessary to be aware of the factors influencing teachers to function effectively (Ogunsanju, 1989). As was found in this study, teacher are motivated by providing job security, prospect for promotion, opportunity for advancement, workload that provide for effective use of time and materials.

Moreover, payment of salary when due will surely spark teachers' interest and efforts at his/her ends, then teacher function effectively. The most influential person in school is the principal, who is charge with the responsibility of providing direction and who guides the school's activities. He is in a vintage position to show the way for others (Adeoye, 2001). A principal therefore, do adopt different leadership styles and the extent to which his skillfully use these style has its far-reaching effects on teachers' effectiveness (Salami, 2000). There are time when principal allows freedom of thought and action and another time he do it alone. This research revealed that most of the styles adopted by the principal strive teacher initiative lead to low morale amongst teachers and sometimes this is a root cause of strikes, riots and teachers poor turnover. The principal behaviour is that of not showing interest in teachers personal needs, believes in doing it alone, put on I don't care attitude, which do not help teachers to achieve its preferred objectives and has tremendous negative effects on teachers' effectiveness.

## **Conclusion**

This research investigated some selected factors influencing teachers'

effectiveness in secondary schools and from data collected the percentage of frequency count for “Agree” and “Disagree” options shows that factors influencing teachers’ effectiveness are as follows:

1. Respondents are of opinion that there is no imminent job loss but prospect for regular promotion and opportunities to reach the peak of their career are not so sure either.
2. Respondents are of the opinion that too many lessons are given to a single teacher to teach daily, despite this teachers are willing to work collectively.
3. Respondents are of the opinion that salary gives are not good enough, not pay regularly, which may not be unconnected with low prestige experienced by teachers.
4. Respondents are of opinion that the school principals do not set goals despite his/her concern about the schools, which may be judged by slows no interest in teacher personal needs.
5. Respondents are of opinion that the school principal behaviour is that of doing alone, I don’t care attitude, which is reflected in poor performance of the students.

### Recommendations

The teachers’ effectiveness can be attained when their needs are met. Since work does provide a means of livelihood and teacher wish to work when his needs are not threatened. Therefore the following recommendations were made:

1. The school principal needs to identify those needs that can easily motivate teachers for them to enhance their

effectiveness. Some needs such as professional prospect and career opportunities will make teachers to work effectively if provided.

2. The issue of remuneration where salary paid to teachers must be such that it attracts the best available brain, paid in time, as and when due.
3. The schools’ principal should assign to teachers work to be done and for assignment to be fruitful, principal should adopt a technique known as job description of the work which thereby help to reduce overload of a single teacher among others.
4. Teachers’ effectiveness require a good leader that believed that no single best pattern of managing school rather the best styles are those that relate to the peculiar situation. Thus, in a secondary school setting, the principals consider several patterns in a given time bearing in mind the ultimate objectives of the school.
5. The leader of the school should be considerate, kind and responsive to the welfare of teacher, decision should be jointly made on teachers’ work among other patterns that affect teachers’ effectiveness.

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## DEVELOPMENT AND VALIDATION OF PEDAGOGICAL CONTENT KNOWLEDGE TEST FOR PROSPECTIVE TEACHERS

Dr. V P Joshith\*

Renjith J S\*\*

### Abstract

*Pedagogic content knowledge was first proposed by Shulman (1986) and developed with colleagues in the knowledge growth in teaching project as a broader perspective model for understanding teaching and learning. Pedagogic content knowledge identifies the distinctive bodies of knowledge of teaching. It represents the blending of content and pedagogy into an understanding of how particular topics, problems or issues are organized represented and adapted to the diverse interests and abilities of learner, and presented for instruction. The PCK test has 3 dimensions namely content knowledge, curriculum knowledge, and pedagogical knowledge. The initial tool consists of 60 items and final tool has 42 items. It is a objective type questions. The reliability and validity of the tool was also found out.*

### Introduction

Pedagogic content knowledge identifies the distinctive bodies of knowledge of teaching. It represents the blending of content and pedagogy into an understanding of how particular topics, problems or issues are organized represented and adapted to the diverse interests and abilities of learner, and presented for instruction.” Pedagogic content knowledge is the category most likely to distinguish the understanding of the content specialist from that of the

pedagogue.” (Shulman, 1987). Pedagogic content knowledge was first proposed by Shulman (1986) and developed with colleagues in the knowledge growth in teaching project as a broader perspective model for understanding teaching and learning(e.g., Shulman & Grosman, 1988).This project studied how novice teachers acquired new understandings of their content, and how these new understandings influenced their teaching.

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These researchers described Pedagogic content knowledge as the knowledge formed by the synthesis of three knowledge bases: subject matter knowledge, pedagogical knowledge, and knowledge of context. Pedagogic content knowledge was unique to teachers and separated, for example, a science teacher from a scientist.

Out of the discussion with the experts the investigator identified three dimension of Pedagogic Content Knowledge Test. They are

- i. Content Knowledge
- ii. Curriculum Knowledge
- iii. Pedagogic Knowledge

### **Content Knowledge**

Content knowledge refers to the knowledge in the particular content. For example if a high school physics teacher teaches a topic teacher should be aware of the what all content is there in the topic and should have a deep knowledge in the topic concerned. This knowledge is a primary need for teaching because it is a base of teaching. Without a sufficient knowledge in the content a teacher cannot succeed in his/her teaching carrier.

### **Curriculum Knowledge**

Curriculum knowledge is the knowledge about the science curriculum. The knowledge of curriculum is another important aspect. It includes the method of teaching, number of hours required for teaching topic. The knowledge of curriculum help the teacher to plan the time. If some lesson requires large number of periods she/he can understand that it is a important chapter.

### **Pedagogical Knowledge**

Pedagogical knowledge is deep knowledge about the processes and practices of teaching and learning, encompassing educational purposes, goals, values, strategies, and more. This is a generic form of knowledge that applies to student learning, classroom management, instructional planning and implementation, and student assessment. It includes knowledge about techniques or methods used in the classroom, the nature of the learners' needs and preferences, and strategies for assessing student understanding. A teacher with deep pedagogical knowledge understands how students construct knowledge and acquire skills in differentiated ways, as well as how they develop habits of mind and dispositions toward learning. As such, pedagogical knowledge requires an understanding of cognitive, social, and developmental theories of learning and how they apply to students in the classroom.

### **Construction of the PCK Test**

The steps in the construction of the test are listed below:

- I. Planning of the test
- II. Preparation of the test
- III. Item analysis
- IV. Finalization of the test

### **Planning of the test**

For any task to be successful, careful planning is an important step. For the development of the test the investigator planned to construct an objective type test with all items an objective type questions. The numbers of the test item were fixed as 60.

## Pilot testing

A pilot test was conducted to examine the time required for the test to see whether there exists any ambiguity in the item construction. The test was administered to 25 prospective teachers of ISS Training College Perinthalmanna. All were given sufficient information about the test and were asked to follow the instruction carefully and accurately. They were allowed to ask any doubt while answering. The investigator was able to rectify and correct the errors and also the difficulties found by the prospective teachers through careful study of the response sheet. So the investigator was able to identify certain drawbacks of test items and corrected them. The average time taken by the prospective teachers was fixed 1 hour to complete the response sheet. Thus the test was ready for try out and printed on a booklet form along with the necessary instruction. A separate response sheet was also printed.

## Tryout and finalization of the test

The draft test consist of 60 objective type test item were tried out on a representative sample of 100 prospective teachers from palakkad district. The sample was purposefully selected from the prospective teachers.

After obtaining the permission to collect data required for try out the investigator contacted the head of the different colleges. The purpose of the test is to assess the pedagogic and content knowledge of prospective teachers. The chapters of 8<sup>th</sup> and 9<sup>th</sup> standard physics were selected for the test. Eventhough test was provided with all the necessary guide lines about the test, additional oral information was given by the

investigator so that prospective teachers may respond to the test properly. The investigator then collected filled up response sheets from the respective teacher.

Scoring was done with the help of the scoring key. For the correct response a score of '1' was given for the wrong response a score '0' was given. The score of the individual items were summarized to give total score of the prospective teachers. For the tryout session incomplete response sheets were rejected

## Item analysis

According to Ebel (1972) the analysis of the teachers response to total items is called item analysis. It was done to know whether each item prepared by the investigator has the required quality. The following steps were done as suggested by Ebel and Frisble (1991). The quality of a test depends upon the individual items of which it is compared so it is necessary to analyze whether each item useful for the purpose to which it is being constructed. It is done as per procedure suggested by Ebel and Frisble (1991). Garret (1976) is in the view that "the adequacy of the test whether its purpose depends on the case with which an item of the test has been chosen.

### *a. Determining upper and lower group of the sample*

The investigator arranged the selected 100 response sheets in the order of high to low. Then separate two such, an upper group consisting of 25% of the total group who received the highest score on the test and lower group consisting of an equal number from those who received lowest scores. In the present test 25 subjects on the top and

25 on the lowest were taken as upper and lower group for item analysis.

### ***b. Determining the difficulty index***

The difficulty index (DI) of the test affects the ability of the group responding to them. Item difficulty has a profound effect on both the variability of test score and the precision with which test scores discriminate among different groups of examinees. The effect of difficulty on the variance of the test score is partially obvious when DI values are extreme.

The test item with difficulty value '0' and '1' may affect the test mean, but have no effect on the test reliability and validity or no decision that are based upon test scores.

The DI of an item is the percentage of students, who responded to it correctly. The following formula suggested by Ebel (1972) was used to calculate the difficulty index of each item

$$\text{Difficulty index } DI = U + L / 2N$$

U=the number of correct response in upper group

L= the number of correct response in lower group

N=the number of students in either group

### ***c. Determining the discriminating power***

The discriminating power (DP) of an item analysis is its power to discriminate the upper and lower groups. The difference between the correct responses in the two groups will be an indication of how far it can discriminate between the two groups. The value of  $DP > 0.5$  indicates that the item can

discriminate between the members of a group. So all those items having  $DP > 0.5$  is selected for the final test.

$$DP = U - L / N$$

U=the number of correct response in upper group

L= the number of correct response in lower group

N=the number of students in either group

Table 1  
*Item Analysis*

Sl. No.	U	L	DP	DI	Selected/omitted
1	28	14	0.467	0.7	S
2	26	17	0.3	0.717	S
3	24	3	0.7	0.45	S
4	16	7	0.388	0.583	S
5	7	8	-0.033	0.25	O
6	27	18	0.385	0.75	S
7	24	19	0.167	0.717	O
8	27	22	0.167	0.817	O
9	15	6	0.54	0.65	S
10	27	17	0.53	0.73	S
11	18	1	0.56	0.81	S
12	17	3	0.46	0.73	S
13	16	11	0.167	0.45	O
14	21	10	0.367	0.517	S
15	24	8	0.533	0.533	S
16	19	12	0.233	0.217	O
17	27	17	0.33	0.73	S
18	17	6	0.467	0.583	S
19	15	1	0.467	0.767	S
20	25	9	0.533	0.567	S
21	26	19	0.233	0.75	O
22	25	12	0.433	0.617	S
23	30	19	0.367	0.817	S



24	6	6	0	0.2	<b>O</b>
25	30	18	0.4	0.8	<b>S</b>
26	27	14	0.433	0.68	<b>S</b>
27	7	9	-0.067	0.267	<b>O</b>
28	24	15	0.3	0.65	<b>S</b>
29	29	13	0.533	0.7	<b>S</b>
30	4	1	0.1	0.083	<b>O</b>
31	28	22	0.2	0.633	<b>O</b>
32	23	13	0.33	0.6	<b>S</b>
33	30	21	0.3	0.85	<b>S</b>
34	1	3	-0.067	0.067	<b>O</b>
35	2	2	0	0.067	<b>O</b>
36	3	2	0.033	0.083	<b>O</b>
37	1	2	-0.033	0.05	<b>O</b>
38	18	6	0.4	0.644	<b>S</b>
39	26	14	0.4	0.667	<b>S</b>
40	23	14	0.3	0.617	<b>S</b>
41	23	14	0.3	0.617	<b>S</b>
42	13	3	0.433	0.867	<b>S</b>
43	14	13	0.033	0.45	<b>O</b>
44	16	0	0.53	0.626	<b>S</b>
45	21	4	0.567	0.417	<b>S</b>
46	18	3	0.5	0.635	<b>S</b>
47	7	7	0	0.233	<b>O</b>
48	21	12	0.38	0.55	<b>S</b>
49	25	8	0.567	0.55	<b>S</b>
50	24	6	0.6	0.52	<b>S</b>
51	30	17	0.43	0.78	<b>S</b>
52	26	16	0.33	0.7	<b>S</b>
53	4	2	0.067	0.1	<b>O</b>
54	28	24	0.133	0.667	<b>O</b>
55	16	5	0.4	0.667	<b>S</b>
56	20	10	0.33	0.5	<b>S</b>
57	29	13	0.53	0.7	<b>S</b>
58	27	18	0.3	0.75	<b>S</b>
59	17	4	0.433	0.35	<b>S</b>
60	22	7	0.5	0.483	<b>S</b>

### Validity of the test

The most important quality of the test is its ability to measure what it intend to measure, the attainment of objectives for which it is designed. Validity of a test is the accuracy with which the test is able to measure the ability or trait that the test is supposed to test. There is no such thing as a test having no validity at all or having complete validity. A test may be valid for a particular purpose but may not be valid for another. Therefore the question of validity is a relative factor. To what extend a test is valid a point of reference is to be verified and thus the validity of a test is established. By item analysis each item was validated. Hence what remained was to determine statistical validity of the test by correlating with another standardized test in the same subject of proven validity.

### Reliability of a test

Throughout the history of psychometrics, various concepts and methods have been formulated to represent and estimate the degree of inter-connectedness between the corresponding item scores. While the various methods of reliability estimation are associated with conspicuous differences, all forms of test score reliability may be argued to be based on the notion of repeated measurements (Brennan, 2001). The most well known are “parallel forms reliability” and “test-retest reliability”. Within the context of reliability estimation via a single-testing session the most well-known reliability methods are “split-half reliability” and “Cronbach’s alpha” (a). Less well-known methods of estimating internal consistency reliability are

based directly upon latent variable model solutions. The well-established method of estimating the internal consistency reliability of a composite score via a latent variable model solution is known as “McDonald’s omega” (O).

The reliability of the test used in the study was calculated using Split-Half method. The correlation between the scores was calculated using Pearson’s product moment coefficient of correlation. The reliability of the test was calculated using Gutman’s split half method and the score obtained for the Pedagogical content knowledge test was found to be 0.68. Cronbach Alpha method was used to find out the reliability and the value obtained was 0.72.

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## FEASIBILITY OF DISCOVERY LEARNING METHOD IN SMART CLASSROOM FOR HIGH SCHOOL PHYSICS STUDENTS – EXPERIMENTAL ANALYSIS

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### Abstract

*Students who are studying would be working tomorrow. These students would be the pillars on which the country would be standing on. Government of Kerala announced the launch of the mission, Hi-Tech Education, to take steps to raise the academic environment of schools to international standard. Education takes place under the guidance of educators. An excellent teacher can motivate students in the learning process. Considering the level of students in the learning process, to improve quality of children, and to make a developed nation Discovery Learning method surpasses other methods of teaching.*

**Keywords:** *Feasibility, Discovery Learning Method, Smart class room, Hi-Tech Education, etc.*

### Introduction

Education is the most important component for progress and development of an individual. Through education the knowledge, skills, values, beliefs and habits are transferred from one generation to the next through discussion, teaching, training, experimenting and research. “Every child in the age group of 6-14 has the right to

*free and compulsory education in a neighborhood school, till the completion of elementary education (Right to Education Act-2009).* Gandhi defined “Education as the all-round drawing out of the best in man and child-body, mind and spirit”.

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Government of Kerala announced the launch of the mission, to take steps to raise the academic environment of schools to international standard. "This project aims to make Kerala a fully digitalized state in education sector," said Minister for Education C. Raveendranath. "Under this programme, all schools would be equipped with digital content besides the classrooms would be equipped with computers, multimedia projector, sound system and high speed internet connection which every student and teacher could make use of," said the college professor turned CPI-M politician. Researchers, policy makers, and practioners increasingly recognize the role of school children in developing high performing schools. With a national focus on raising achievement for all students, there has been growing attention to the pivotal role of children, in improving the quality of education.

Science has been man's greatest friend since the dawn of civilization. With invention and discoveries, science has been explored and experimented to gratify certain human needs and desires. Disinterested curiosity has been the greatest motive power of scientific research. Achievement in science refers to the level of attainment of knowledge about scientific facts, concepts, principles etc. The success of Science Education is determined by the level of attainment in science

### **Statement of the Problem**

The investigator states the problem as, Feasibility of Discovery Learning Method in smart classroom for High School Physics students.

### **Objectives of the study**

1. To compare the means of pre-test scores on Achievement in Physics

among the Students of Standard Eight of Experimental and Control groups.

2. To compare the means of post-test scores on Achievement in Physics among the Students of Standard Eight of Experimental and Control groups

### **Hypotheses of the Study**

1. There exists a significant difference between the Means of the Pre-test Scores on Achievement Test in Physics among the Students of standard Eight of the Experimental and Control groups.
2. There exists a significant difference between the Means of the Post test Scores on Achievement in Physics among the Students of standard Eight of the Experimental and Control groups

The purpose of interpretation is essentially stating what the results or findings show, what they mean, or what their significance is. Thus the analysis and interpretation are closely tied up with the whole research. Research data become meaningful in the process of being analyzed and interpreted. So it is very important in a research study. The investigator used SPSS statistical package for the statistical analysis and calculations of the obtained data. The investigator used the t-test (Test of significance difference between means for large independent group to compare pre and post test scores in inferential statistics) between two independent groups to analyze these objectives.

### **Methodology**

Methodology is the systematic, theoretical analysis of the methods applied to a field of study. It comprises the theoretical analysis of the body of methods and principles associated with a branch of knowledge. In the words of

Good (1945) "Methodology is the totality of the procedures followed by the investigators to make the study scientific and valid to the maximum possible extent. It is the description of the procedures and techniques adopted in a research study of interest". *Quasi experimental design* provides less satisfactory degree of control, used only when randomization is not feasible (Best & Khan, 2003).

Keeping this in mind, the investigator selected Quasi-experimental design for the present study. These designs provide control of when and to whom the measurement is applied, but because random assignment to Experimental and Control treatments have not been applied, the equivalence of the groups is not assured. That is in Quasi-experimental design there is no random selection of individuals to the group. But random assignments of the individuals to Experimental and Control groups have not been applied, the equivalence of the groups is not assured (Best & Khan, 2008). Therefore the investigator decided to conduct the experiment in intact non equated classroom groups and statistically equate the groups by controlling the effect of the pretest-scores. Two intact groups were selected randomly from the groups available.

The main objective of the study was to analyze the Feasibility of Discovery Learning Method in smart classroom for High School Physics students. The investigator selected two divisions of Standard Eight of St. Joseph's H.S.S Vilakkumadam in Kottayam district for the Experimental study. Then randomly selected two groups and assigned one group as Experimental and the other group is Control group.

## Variables of the Study

Variables are conditions or characteristics that the experimenter manipulates, controls, or observes (Best & Khan, 2003). In order to meet the objectives of the study, the investigator selected the following variables namely Independent and Dependent Variables.

### a) Independent Variables

The independent variables are the conditions or characteristics that the experimenter manipulates or controls in his/her attempt to ascertain their relationship to the observed phenomena. In the present study the investigator selected independent variables called treatment variables. The treatment was based on eight lesson plans using Discovery Learning as a learning tool to the Experimental group and instruction based on the Existing Method to the Control group.

### b) Dependent Variables

The dependent variables are the conditions or characteristics that appear, disappear, or change during the experiment (Best, 1980). The dependent variables are the measured changes in pupil's performance attributable to the influence of the independent variable. In this study the investigator selected Achievement in Physics as the dependent variable.

## Tools Used for the Study

Research tools are instruments used for collecting evidences or data for the project or study. In the present study the investigator used the following tools.

### Facilitative tools

- Lesson transcripts based on Discovery Learning Method

- Lesson transcripts based on the Existing Method prepared by the investigator

### **Evaluative tools**

Achievement Test in Physics of Unit Force on Eighth standard students prepared by the investigator.

### **Population and Sample of the study**

The population for the present data covers all students of standard Eight of Kottayam district following Kerala state syllabus. Sampling is the process of selecting a sample from a population. The investigator used cluster sampling method to select the school. From this school investigator selected two classes randomly as Experimental and Control group. The sample of the study was divided into two groups each of with Thirty five students.

### **Procedure for data collection**

The investigator did the present study with the following phases:

#### ***Phase 1: Administration of Pre-test.***

The investigator conducted a pre- test in both Experimental and Control groups.

#### ***Phase 2: Treatment:***

The investigator provided the Experimental group instructional material based on Guided Discovery Learning method and teach the control group through Existing teaching materials.

#### ***Phase3: Administration of post-test***

Here administrator administered the post test on Achievement test in physics to both the Experimental and Control group, by the same test used for pretesting.

### ***Phase 4: Analysis***

Answer sheet will be analyzed according to the scoring key and the data is analyzed using statistical measures.

### **Results and Conclusion**

#### ***(A) Comparison of Means of the Pre test Scores on Achievement in Physics among the Students of Standard Eight of Experimental and Control groups***

The first objective was to compare the Means of Pre test Scores on Achievement in Physics among the students of Standard Eight of Experimental and Control groups. For this the investigator formulated research hypothesis which states that “There exists a significant difference between the Means of the Pre test Scores on Achievement in Physics among the Students of Standard Eight of Experimental and Control groups” The investigator formulated the null hypothesis in order to test the research hypothesis. The null hypothesis is stated here,

$H_0$ : “There exists no significant difference between the Means of the Pretest Scores on Achievement in Physics among the Students of Standard Eight of Experimental and Control groups”.

The investigator administered the Pre test on Achievement in Physics for both Experimental and control groups and thus obtained the data needed for testing the null hypothesis. The difference in the Mean Scores on Pre test of both groups was found out. The investigator tested the hypothesis using the test of significance of difference between two independent groups. The level of significance was fixed at 0.05 levels with degrees of freedom 67. Detailed description of analysis is presented in the table 1:1

Table 1:1

*Test of Significance of the Difference between the Means of the Pre test Scores on Achievement in Physics of Experimental and Control groups.*

Group	N	Maximum Scores	Mean	Standard Deviation	T value	df	p Value
Experimental group	35	40	13.94	2.91	1.86	67	0.067
Control group	35	40	12.74	1.96			

\* Not Significant at 0.05 level

From the table 5.7 the investigator observes that the Means of Pre test Scores on Achievement in Physics among the Students of Standard Eight of Experimental and the Control group are 13.94 and 12.74 and Standard Deviation 2.91 and 1.96 respectively. The calculated value is 1.86 which is less than 2 at 0.05 levels. Therefore the null hypothesis "There exists no significant difference between the Means of the Pretest Scores on Achievement Test in Physics among the Students of Standard Eight of Experimental and Control groups" is accepted and therefore the research hypothesis is not accepted. The investigator found that there is no significant difference between Experimental and Control groups on Achievement in Physics at 0.05 level of significance.

### **Conclusion**

From the above result the investigator concluded that there exists no significant difference between the Means of the Pretest Scores on Achievement in Physics among the students of Standard Eight of the Experimental group and that of Control group.

### ***(B) Comparison of Means of the Post test Scores on Achievement in Physics among the Students of Standard Eight of Experimental and Control groups.***

The second objective was to compare the Means of Post test Scores on

Achievement in Physics among the students of standard Eight of Experimental and Control groups. For this the investigator formulated research hypothesis which states that "There exists a significant difference between the Means of Posttest Scores on Achievement in Physics among the students of Standard Eight of Experimental and Control groups" The investigator formulated the null hypothesis in order to test the research hypothesis. The null hypothesis is stated here,

$H_0$ : "There exists no significant difference between the Means of Post test Scores on Achievement in Physics among the Students of Standard Eight of Experimental and Control groups".

The investigator administered the Post test on Achievement in Physics for Experimental and Control groups and thus obtained the data needed for testing the null hypothesis. The investigator found out Scores of Post-test of both the groups and calculated the Mean and Standard Deviation. The investigator tested the hypothesis by using the test of significance of difference between the means of two independent groups. The level of significance was fixed at .05 levels with theoretical value 2.00 with degrees of freedom 68. Detailed description of the analysis is presented in the following table.

Table 1:2

Test of Significance of the Difference between the Means of the Post test Scores on Achievement in Physics of Experimental and Control groups

Group	N	Maximum Scores	Mean	Standard Deviation	T value	df	p Value
Experimental Group	35	40	27.91	3.17	7.29	68	< .001*
Control group	35	40	21.42	4.19			

\* Significant at .05 level

From the table 5.8, the investigator, observes that the Means of Post-test Scores on Achievement in Physics among the Students of Standard Eight of Experimental and Control groups are 27.91 and 21.42 and the Standard Deviations are 3.17 and 4.19 respectively. The calculated 't' value is 7.292 which is more than 2.00 at .05 level of significance. Therefore the null hypothesis "There exists no significant difference between the Means of Posttest Scores on Achievement in Physics among the Students of Standard Eight of Experimental and Control groups" is not accepted and hence the research hypothesis is accepted. The investigator interpreted that the Post-test Scores of Experimental and Control groups differ significantly at 0.05 levels of significance.

### Conclusion

From the above result the investigator concluded that there exists a significant difference between the Means of Post test Scores on Achievement in Physics among the Students of the Experimental and Control groups. It is observed that the Mean of the post test scores of Experimental group significantly differ from the Mean of the Post-test Scores of the Control group. It is concluded that the Mean of the Post-test Scores on Achievement in Physics of the

Experimental group is significantly greater than that of the Control group. Hence the application of Discovery learning in smart classrooms improves the learning ability of the students.

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## RELATIONSHIP BETWEEN EMOTIONAL INTELLIGENCE AND MORALE OF SELF FINANCING COLLEGE TEACHERS WITH SPECIAL REFERENCE TO KERALA STATE: A CONCEPTUAL FRAME WORK

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### Abstract

*Emotional intelligence and morale of an individual will have a direct influence on the personal effectiveness and determines the quality of performance he contributes to the organisation or the society in which he dwells. So keeping this, the study aims in knowing about the EI and morale of college teachers, which is assessed using relevant tools. Low morale sucks energy out of organization; drains productivity and increases staff turnover and resentment. Low morale is associated with a whole range of emotions which are destructive to the society, organization, to the health of employees and associated with rising absenteeism. This makes it imperative for organizations to fix its low morale with more emotional intelligence. If there is an emotional layer of destruction in an organization then working to enhance the emotions is the most logical and prudent step. This paper examines the Relationship between Emotional Intelligence and Morale of self financing college teachers in Kerala, in order to find new ways and means to improve emotional intelligence and morale of them.*

**Key words:** Emotional intelligence, morale, college teachers, Productivity

### Introduction

The key concept of this study is emotional intelligence. Aristotle is perhaps the first person who considered the importance of feelings in humanistic actions. According to him, getting angry is so easy, everybody is

able to become angry, but becoming angry at the correct person and to the correct degree, in correct time, for correct reason, and in the correct way is not easy (Goleman, 1995). In 1985, a PhD student in Arts in an

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American university accomplished a thesis on emotional intelligence (Hein, 2004). The merging of emotion and intelligences as a cognitive ability under the caption of emotional intelligence was proposed by Yale psychologist Peter Salovey and John Mayer (1990) of University of New Hampshire. Even though the term emotional intelligence has received considerable attention recently, earlier psychologists and philosophers had already laid down the foundation. In 1990, Salovey and Meyer used the term “emotional intelligence” with their knowledge about the works carried out on the non-recognition part of the intelligence (Cherniss, 2000).

The investigations carried out on emotional intelligence addresses the abilities of this structure, involving emotional conception, emotional adjustment, emotional recognition, and emotional facilitating relevant to psychological adaptation (Salovey, Mayer, 1990, Mayer & Salovey 1995), and have introduced emotional intelligence as a better predictor of success and social adaptation, compared with the traditional structure of intelligence quotient (Goleman, 1995).

Caruso (1999) found that EI results in people being more effective in the workplace environment largely because those people are more aware of their emotions and the emotions of others, which is the key to working with people. Creative ideas also result from the ability to generate a mood or an emotion for oneself or for other people (Caruso, 1999). Understanding emotions provides another advantage, as people are able to understand the point of view of others and handle team interaction better. Good management of emotions assists people in

being aware of their emotions and using them to guide problem solving.

Carl Rogers in his “Freedom to learn” (1983) said that the teachers who are genuine, empathetic and accepting with their learners would, by that fact alone, bring about change in their learners as they have a genuine desire to create a climate in which there is freedom to learn. He saw procedures and techniques as less important than attitudes. Emotional Intelligence development serves two broad purposes. One is to recognize and respond to the feelings of the teachers and that of students in the classroom. The other is to encourage the emotional state in the learners that is conducive to learning (M.Surya Kumar 2015).

Morale is defined as the professional interest and enthusiasm that a teacher displays towards the achievement of individual and group goals in a given job situation. It is a state of mind of the teacher with respect to his work which may be affected by the factors such as degree of participation in policy making and administration, opportunities for advancement, work load, school facilities, community support, tenure, working conditions, etc. Teacher morale is important not only for the educational organization, but for the students and the teachers themselves. The areas in which teacher morale is important are: student learning, student achievement, teacher productivity, and teacher health.

Miller (1981) notes that teacher morale “can have a positive effect on people attitudes and learning. Raising teacher morale

level is not only making teaching more pleasant for teachers, but also learning more pleasant for the students. This creates an environment that is more conducive to learning”.

Low morale is associated with a whole range of emotions which are destructive to the society, organization, to the health of employees and associated with rising absenteeism. This makes it imperative for organizations to fix its low morale with more emotional intelligence. If there is an emotional layer of destruction in an organization then working to enhance the emotions is the most logical and prudent step.

### **Literature review**

Teachers' role in education requires many various abilities. One of such fundamental capacities in the contemporary world is emotional intelligence. Emotional aspects in the teaching process influence overall student performance, which has been proved in many studies (Edannur, 2010; Ni-colini, 2010; Brackett and Katulak, 2007; Kremenitzer, 2005, and others).

Mushin Atta, Muhammad Anther and Dr Maher Bane, (2013) Emotional Intelligence and Personality Traits among University Teachers: Relationship and Gender Differences, *International journal of Business and Social Science*, Vol. 4, Issue 17, December 2013. The aim of this study is to examine the relationship pattern between personality traits and emotional intelligence, besides exploring the gender differences. The sample size of the study is 163. The statistical packages used were Alpha coefficients and descriptive analysis, correlation and T-test. The study resulted that

female teachers are high on conscientiousness when compared to males. The study suggested using other sources rather than self-reporting method.

P. Canada's (2006) in his research entitled 'Morale among teachers of Government aided and Self-financing colleges in Madurai region, Tamil Nadu' has found out that there exists significant difference in the level of morale between both the groups and self-financing college teachers have higher morale and they give priority for monetary benefits and scope for career advancement. Government aided college teachers give high priority for research, training and development in appropriate work environment. Further, the finding shows that there is a positive relationship existing between organizational climates with morale.

Sharma (2009) in a study on teachers' morale as related to organizational climate reported that there was a positive and high significant relationship between teachers' morale and organizational climate of total sampled schools.

### **Conclusion**

Teachers are a vital part of the educational system. They provide the motivation and support that students need in order to succeed. Yet, teachers also need to be motivated and supported in order to be productive. The recognition and management of emotional intelligence (EI) by classroom teachers may be the edge necessary to make effective and relevant connections with students of varying backgrounds and educational expectations. Teacher morale could suffer due to the constant stress of

trying to meet educational goals, or due to a change in leadership or policies.

Improving teacher emotional intelligence and morale has many benefits in that it can help teachers to maintain a positive attitude and be happier at work. This paper is an attempt to explore the relationship between Emotional intelligence and morale of teachers of self financing colleges of Kerala, in order to find new ways and means to improve emotional intelligence and morale of them.

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## EFFECTIVENESS OF FLEMING'S VARK MODEL ON ACHIEVEMENT IN BIOLOGY OF SECONDARY SCHOOL STUDENTS

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### Abstract

*Students receiving education today should be competent to face the realities of tomorrow. Therefore, the educational system imparted is to be strengthened to meet the challenges of the modern world. The research evidences show that conventional method of teaching of different subjects at various levels was found to be less effective than various innovative teaching patterns including "Models of teaching". The major objective of the study is to find out the effect of Fleming's VARK Model on Achievement in Biology when compared with existing method among secondary school students of Kerala. The experimental method used in this study is the pre-test post-test non equivalent group design. The findings of the study showed that there is significant effect of Fleming's VARK Model on Achievement in Biology of Secondary School Students and significant effect is also noticed under the categories of objectives: Knowledge, Understanding, Application, Analysis, Synthesis and Evaluation. This study revealed the fact that the school curriculum should include provisions and activities that may enrich the Fleming's VARK model in classrooms.*

**Key words:** Fleming's VARK Model, Modeling, Achievement.

### Introduction

In the contemporary world, man is confronted with the reality of globalization exponential growth of knowledge and an unprecedented rate of change. As per the need of the hour, new strategies are evolved

in the educational arena also. The older concept of education is no more relevant in meeting the challenges of the present century. Education ensures the proper development of the individual and the society

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at large or in other words progress of the nation depends mainly upon the educational system of the country.

The goal of education is not to increase the amount of knowledge, but to create the possibilities of a child to invent and discover. Teaching is the basis of objectives guiding teaching education programme as well as process by which those objectives are attained and the main outcome by which the success of the programme is judged. The quantity of education is largely dependent on the quality of instruction we provide in our classroom. We should pay proper attention to change the strategy of instruction. Efforts should be made to introduce new methods and evolve new techniques of instruction suiting to our national needs.

Joyce and Weil (1992) in 'Models of Teaching' say, "It is necessary that teacher should aim at improving strategies of learning and intellectual ability". Models of teaching help to achieve goals set for students to realize aims and aspirations. Models of teaching are one of the latest areas of innovation in instructional process or teacher effectiveness. Mc Keachie (2001) reported in the study "Learning Styles Can Become Learning Strategies" that it is important for both teachers and students to realize that learners always encounter many situations that are not adapted to their own preferences. What we teachers need to do is to help students to develop the skills and strategies needed for learning effectively from teachers who do not match the student's preferred learning style. David and Ryan (1999) conducted a study on Comparing Student Learning Styles in an Online Distance Learning Class and an Equivalent On-

Campus Class. Educators have, for many years, noticed that some students prefer certain methods of learning more than others. Studies reveal the importance of teaching models in the field of education.

### **Fleming's VARK Model**

This model is developed by Neil D. Fleming (Fleming, 2001). Learning style is a distinctive and habitual manner of acquiring knowledge, skills or attitudes through study or experience. Fleming & Mills (1992) suggested four modalities that seemed to reflect the experiences of the students and teachers. VARK model is based on 4 learning styles and they are Visual, Auditory, Read/Write and Kinesthetic. This model helps to be aware of one's own learning style preferences so that one can make necessary adjustments to maximize one's own learning.

Visual group create concept maps, draw diagrams, models, flow charts, project computer animation, use videos, slides, photographs to explicate, to clarify or as discussion triggers. Aural/Auditory group use audiotapes have class debates; engage students in discussions, think – pair – share, small groups, large group, guided lecture, responsive lecture, group presentations, brainstorming. Read/Write group use one-minute write, summaries, case studies, journals, create examination questions, formative quizzes, round table response, have students review each other's notes. Kinesthetic group use role play, take character parts and act out a situation, represent parts of the body, government, etc

The syntax of Fleming's VARK model consists of five phases of activity and they are, Dividing phase, Preliminary phase,

Activity phase (Visual, Auditory, Read/Write and Kinesthetic) and Evaluation phase. The first step is dividing phase, where the teacher divides the children into Visual, Auditory, Read/Write and Kinesthetic groups according to their learning styles which were discovered by VARK Learning Style Inventory. The second step is preliminary phase, where the teachers assess the student's previous knowledge. The third phase is the activity phase and which includes Visual Activity, Auditory activity,

Read/Write activity and Kinesthetic activity. In the activity phase the teacher provide concrete experiences, to the students about the contents according to the learning style of each group. The last phase is the evaluation phase. Here the students express their knowledge or performs in the class. They do the follow up activities given by the teacher and related other activities. Steps involved in the Fleming's VARK Model is given in the following table 1

Table 1

*Steps in Fleming's VARK Model*

Syntax/ Phases	Activity
Dividing Phase	Divide the students into Visual, Auditory, Read/Write and Kinesthetic groups according to their learning styles.
Preliminary Phase	Here the teacher asks certain simple questions in order to assess the ideas of students, checks the previous learning of the students etc.
Activity Phase	Here the teacher provides concrete experience, to the students about the contents to each group such as Visual, Auditory, Read/Write and Kinesthetic.
Evaluation Phase	This is the last phase in the model. Here students practice at home or class. Feedback is delayed and the practice extends over an extended time.
Social system	The teacher gives appropriate learning experiences to the students according to their learning styles. The students solve the problem by following the direction of the activity card and teacher.
Principles of reaction	Here the teacher helps the students in solving the problem, give necessary directions and clarify their doubts.
Support system	In VARK model the support system includes graphs, pictures, PowerPoint, handouts, experiments, discussions etc.
Instructional effects	Instructional effects of the VARK Model include, Mastery of Academic Content and Skills, Student Motivation, Creativity, Usage of preferred learning style by the students to learn.
Nurturant effects	Nurturant effects by the VARK model include Cooperation, Self esteem, and Long term retention of content.

The best way for a person to learn depends on the person, of course it is well known that people have different learning styles that work best for them. The best approach for an instructor to take is to address a variety of learning styles with their teaching Plan. It is also helpful to encourage students to understand their preferred learning style. Teachers should make students aware of the various learning styles and encourage them to consider their preferred style as they complete their studies.

### **Significance of the study**

In traditional teaching method the main purpose of teaching is to prepare students for examination. Generally, pupils memorize the content and reproduce the same in the examination. In such an environment, creative thinking, interest in inquiry activities and other skill like problem solving skills, cooperative skills etc. can't be developed among them. Today there is a new perspective to consider leaning as experienced by the learner and not as perceived by the learner. Thus different types of teaching strategies were evolved.

In observing the best of teachers apparently there is no single best way to teach but teachers who cater for the different needs of students by using a variety of teaching approaches are rewarded with improved learning. We have known for a long time that people learn in different ways. Research indicates that students may have preferences for the ways in which they receive information. One of the most common and widely used categorizations of the various types of learning style is Fleming's VARK model which expanded upon earlier

Neuro-linguistic programming models. Fleming claimed that visual learners have a preference for seeing, Auditory learner's best learn through listening, Tactile/ Kinesthetic learners prefer to learn via experience-moving, touching and Read/write learners learn from reading, writing summaries, one-minute writing, creating examination questions etc.

### **Objectives of the study**

1. To compare the Effectiveness of Fleming's VARK Model and the Conventional activity oriented method on Achievement in Biology of Secondary School Students.
2. To compare the Effectiveness of Fleming's VARK Model and the Conventional activity oriented method on Achievement in Biology of Secondary School Students with respect to the instructional objectives viz.

- 1.Knowledge
- 2.Understanding
- 3.Application
- 4.Analysis
- 5.Synthesis
- 6.Evaluation

### **Hypotheses of the study**

1. Achievement in Biology among secondary school students taught through Fleming's VARK model will be significantly higher than that of those taught through Conventional activity oriented method.
2. Achievement in Biology among secondary school students taught through Fleming's VARK model will be



significantly higher than that of those taught through Conventional activity oriented method with respect to the instructional objectives viz.

- 1.Knowledge
- 2.Understanding
- 3.Application
- 4.Analysis
- 5.Synthesis
- 6.Evaluation

## Methodology

### *Design of the study*

The investigator adopted an experimental method to find out the effectiveness of Fleming's VARK Model of learning. The design selected for the present study is pre-test post-test non equivalent group design. Two groups of students of class IX th were selected for the study and one group was selected as experimental and other as control group. Experimental group was exposed to Fleming's VARK Model of learning and control group was taught by Conventional Activity Oriented Method. The duration of experiment was one month with twenty lessons of 45 minutes duration.

### *Sample of the study*

The sample selected for this experiment was purposive sample. The investigator selected two IX th standard classes from M.T seminary H. S. School, Kottayam district of Kerala State. Among the two classes one was assigned as experimental group and the other as control group consisting of 34 students each. Thus a group of 68 students from two classes was treated as sample.

## Tools and Techniques

For the present experiment, the following tools were used for treatment in the experimental and control groups.

### *a) VARK Learning Style Inventory*

VARK Learning Style Inventory is used to assess the learning styles of the students. Students learn through different learning styles. This VARK Learning Style Inventory contains 16 questions. According to the score obtained the preferred learning style (Visual, Auditory, Read/Write and Kinesthetic) of each student can be identified.

### *b) Lesson transcripts based on the Fleming's VARK Model*

Lesson transcripts based on the Fleming's VARK Model for the topic 'Circulatory Pathways' in Biology were prepared by the investigator to cover the contents in the unit, in the prescribed Biology Curriculum of standard IX of Kerala State Syllabus.

### *c) Lesson transcript based on conventional activity oriented method*

Same unit was selected and lesson transcripts were prepared using Conventional Activity Oriented Method. The normal techniques and explanations followed by the teachers were included in this. These lesson transcripts were used to teach the control group only.

### *d) Achievement Test in Biology*

The Achievement test in Biology on the topic 'Circulatory Pathways' was developed by the investigator and was used as a pre-test and post-test.

## Variables of the study

In the present study independent variable are Fleming's VARK Model and Conventional Activity Oriented Method; and dependent variable is Achievement in Biology of Secondary School Students.

## Procedure of the study

Two groups of students of class VIII were selected for the study. One division was selected as the experimental group and the other as the control group. VARK Learning style Inventory administered in experimental group to find out the Learning style of students and classified them to Visual, Auditory, Read/Write and Kinesthetic Groups according to their learning style. The Achievement test is given in both the groups as Pre-test. The experimental group was taught with lesson transcripts based on Fleming's VARK Model. The control group was taught with lesson transcripts based on Conventional Activity Oriented Method of

teaching. The duration of experiment was one month with twenty lessons of 45 minutes duration. When all the classes were over, the same achievement test was administered to the experimental group and the control group as Post -test.

## Statistical Techniques

The investigator used t – test and analysis of co-variance (ANCOVA) for the analysis of the data pertaining to the study.

## Results

### 1. Comparison of Effectiveness of Fleming's VARK Model over the Conventional Activity Oriented Method

To find out effectiveness of Fleming's VARK Model on Achievement in Biology of Secondary School Students the pre-test and post-test scores of experimental and control groups were compared using 't' test. The results are presented in Table 2.

Table 2

*Comparison of Achievement in Biology of Experimental and Control Groups*

Test	Groups	Number of pupils	Mean	Standard deviation	Critical ratio
Total Pre-test	Experimental	34	1.85	1.018	0.14
	Control	34	1.82	0.90	
Post-test	Experimental	34	17.62	2.32	11.43**
	Control	34	9.85	3.2	

Remarks:

\* significant at 0.05 level

\*\* significant at 0.01 level

The t values (post test) is found to be 11.43 ( $t=11.43 > 2.58$  at 0.01 level). This indicates that Fleming's VARK Model is more effective than Conventional Activity Oriented method.

The pre-test and post-test scores of the Experimental and Control groups were subjected to the statistical technique ANCOVA to determine the effectiveness of Fleming's VARK Model on Achievement

over the Conventional Activity Oriented Method. The result of analysis of variance revealed that the values obtained for  $f_x$  and  $f_y$  ratios are 0.02 and 131.02 respectively and are tested for significance at 0.05 level for  $df$  1/66. The table value of  $F$  ratio for  $df$  1/66 is 3.96 at 0.05 level. So the obtained  $F_x$  is not significant even at 0.05 level ( $F_x=0.02<3.96$  at 0.05 level). Since the  $F$ -test applied to the initial ( $x$ ) scores  $F_x$  falls for short of significance at 0.05 level, it is clear that the  $x$  mean do not differ significantly. The table value of  $F$ -ratio for

$df$  1/66 is 3.96 at 0.05 level. So obtained  $F_y$  is significant ( $F_y = 131.02>7.08$  at 0.01). Since the  $F$ -test applied to the final ( $y$ ) scores  $F_y$  falls beyond the 0.05 level of significance, it can be tentatively concluded that there is significant difference between the  $y$  means of the two groups. The final  $y$  scores were adjusted for differences in initial  $x$  scores. The summary of analysis of covariance of pre-test and post-test scores of students in experimental and control groups is given in the following table.

Table 3

*Summary of ANCOVA of Pre-test and Post-test scores of pupils in Experimental and Control groups*

Source of variation	df	SSx	SSy	SSxy	SSyx	MSy( $V_{yx}$ )	SDyx
Between means	1	0.01	1024.9	3.88	1015.56	1015.56	2.58
Within Groups	65	61.21	516.3	72.21	431.11	6.63	

$F_{yx}=1015.56/6.63 = 153.12$

The obtained  $F_{yx}$  ratio was tested for significance. Since the table value of  $F$  for  $df$  1/65 is 7.08 at 0.01 level, the obtained  $F_{yx}$  ratio is significant ( $F_{yx}=153.12>7.08$  at 0.01 level). It is clear from the significant  $F_{yx}$  ratio that the two final means. Which depend upon the experimental and control variables differ significantly, after they have been adjusted

for initial differences on  $x$ . The adjusted mean of Post-test scores ( $y$  means) of pupils in the Experimental and Control groups were computed. The difference between the adjusted  $y$  means was tested for significance. The data for adjusted means of Post-test scores of pupils in Experimental and Control groups are given in the table 4

Table 4

*Data for Adjusted Means of Post-test scores of pupils in the Experimental and Control groups*

Group	N	Mx	My	Myx(adjusted)
Experimental group	34	1.85	17.6	17.60
Control group	34	1.82	9.9	9.87
General means		1.84	13.74	

SEm between any two adjusted means = 0.62

Calculated  $t$ -value =  $17.60-9.87=7.73$

Adjusted y-means for Post-test scores were tested for significance of df 1/65. The calculated value of 't' is 7.73. The table value for significance at 0.01 level for df 1/65 is 2.65. So the obtained 't' value is significant at 0.01 level ( $t=7.73 > 2.65$  at 0.01). The significant difference between the adjusted 'y', means indicate that the pupils of Experimental and Control groups differ significantly in their Achievement in the Post-test. Since the adjusted means of Experimental group is significantly greater than that of pupils in the control group, the Experimental group is superior to the Control group Biology Achievement. It may therefore be concluded that pupils who were given teaching based on Fleming's VARK Model have better

academic achievement than those who were taught in the present method.

## 2. Effectiveness of Fleming's VARK Model on Achievement in Biology at Secondary Level under each category of objectives: Knowledge, Understanding, Application, Analysis, Synthesis and evaluation.

To find out effectiveness of Fleming's VARK Model on Achievement in Biology of Secondary School Students under the category of objectives (Knowledge, Understanding, Application, Analysis, Synthesis and Evaluation) the pre-test and post-test scores of experimental and control groups were compared using 't' test. The results are presented in Table 5.

Table 5

*Comparison of Achievement in Biology of Experimental and Control Groups under the category of objectives- Knowledge, Understanding, Application, Analysis, Synthesis and Evaluation*

	Test	Groups	Number of pupils	Mean	Standard deviation	Critical ratio
Knowledge	Pre-test	Experimental	34	0.91	0.49	0.3
		Control	34	0.85	0.52	
	Post-test	Experimental	34	2.4	0.47	5.6**
		Control	34	1.65	0.67	
Understanding	Pre-test	Experimental	34	0.06	0.166	0
		Control	34	0.05	0.09	
	Post-test	Experimental	34	2.99	0.96	7.86**
		Control	34	1.26	0.85	
Application	Pre-test	Experimental	34	0.176	0.29	1.6
		Control	34	0.10	0.21	
	Post-test	Experimental	34	2.29	0.47	7.75**
		Control	34	0.74	0.98	
Analysis	Pre-test	Experimental	34	0.51	0.45	1.33
		Control	34	0.67	0.53	
	Post-test	Experimental	34	3.49	0.94	5.27**
		Control	34	2.11	1.12	

Synthesis	Pre-test	Experimental	34	0.0294	0.0817	0
		Control	34	0.0280	0.1023	
	Post-test	Experimental	34	3.46	0.54	5.90**
		Control	34	2.16	1.17	
Evaluation	Pre-test	Experimental	34	0.169	0.159	0.07
		Control	34	0.161	0.149	
	Post-test	Experimental	34	3.12	0.69	5.22**
		Control	34	1.92	1.12	

Remarks:

\* significant at 0.05 level

\*\* significant at 0.01 level

The t values (post test) are found to be 5.6 ( $t=5.6>2.58$  at 0.01 level); 7.86 ( $t=7.86>2.58$  at 0.01 level); 7.75 ( $t=7.75>2.58$  at 0.01 level); 5.27 ( $t=5.27>2.58$  at 0.01 level); 5.90 ( $t=5.90>2.58$  at 0.01 level); and 5.22 ( $t=5.22>2.58$  at 0.01 level) respectively. This indicates that Fleming's VARK Model is more effective than Conventional Activity Oriented Method with respect to the objectives Knowledge, Understanding, Application, Analysis, Synthesis and Evaluation.

### Findings of the study

1. Fleming's VARK Model is more effective than the Conventional Activity Oriented Method on Achievement in Biology at Secondary level.
2. Fleming's VARK Model is more effective than Conventional Activity Oriented Method with respect to the objectives: Knowledge, Understanding, Application, Analysis, Synthesis and Evaluation.

### Conclusion

Achievement in biology of secondary school students who taught with Fleming's

VAR K Model is higher than that of the achievement in biology of secondary school students who taught with Conventional Activity Oriented Method. Achievement in biology of secondary school students who taught with Fleming's VARK Model is higher than that of the achievement in biology of secondary school students who taught with Conventional Activity Oriented Method under the categories of objectives: Knowledge, Understanding, Application, Analysis, Synthesis and Evaluation. The study revealed that Fleming's VARK Model is superior to the Conventional Activity Oriented Method in biology achievement. The study reveals the importance of learning style preferences of students in learning process. We all learn through different learning styles and prefer some of them. The learning becomes more effective when we learn through the preferred learning style. Visual learners prefer learn through videos, visual photographs, slide shows etc. Aural/Auditory group prefer to learn through lectures, audiotapes, debates etc. Read/Write group learn from summaries, case studies etc. and Kinesthetic group prefer activities,

experiments, field trips etc. The teachers should know about the learning styles of the students. This can be found by administering a learning style inventory. In Fleming's VARK Model the teacher gives different appropriate learning experiences to the students. Thus the teaching learning process become more effective and it leads to long retention of the learned things. So in our class rooms teaching learning process become more successful and fruitful.

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## **CORRUPTION: THE ROOT OF NIGERIA PROBLEMS; ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGY**

Asifat Shuaib Akintunde\*

### **The Concept of Corruption**

Corruption is an abuse of entrusted power for private gain. It can also be seen as any form of dishonest or unethical conduct by a person entrusted with a position of authority, often acquire personal benefit. It may include many activities including bribery and embezzlement.

A number of things causes corruption may include, greed, poor youth empowerment, poverty and unemployment. Corruption is the genesis of most of Nigerians problems. It takes many forms and infiltrates all political institutions and economic.

In 2003, transparency international deemed Nigeria as one of the most corrupt nations in the world, making it as 144<sup>th</sup> in corruption perception index out of the 177 countries measured.

Mathematically, it shows that, Nigeria was the 33<sup>rd</sup> most corrupt country in 2013. In the year 2012 a Gallup poll found that 94%

of Nigerians thought corruptions was widespread in their government. The spoils of political corruption billions of US dollars are stashed in foreign bank accounts. The Abacha administration in the 1990's notoriously looted upwards of 13 billions. Since then, government institutions like the economics and financial crimes commission and the former president Goodluck Jonathan have vowed to eradicate corruption. Even, as recently as 2013, the central banks of Nigeria reported the 16% of the country's crude oil revenue intended for the bank was unaccounted for.

The current president, president Mohammed Buhari is putting his own efforts to bring corruption in the country to the principal level. This made few who looted in the past regime to bring back some of the money they embezzled. Despite the effort of the current administration, technological involvement should also be allowed.

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Moreover, election-rigging is not unheard of Nigeria, the citizens of Nigeria are tired of coming out to cast their votes on the election day only to feel their votes on election day will not be counted.

Corruption does not only exist in government, but is pervasive in society. For example, what happens in some companies with a male CEOs when a woman applies for a job? Unless they already known them, some of the CEOs demands special and at times do not hire them in the end. Those at the top adopt an attitude of “if I do not already known you. I’m not going to hire you, “and exploit their power. Those who do not have connection to top officials or executives remain jobless even if they are university graduates with top marks, this is a concrete example of how systemic corruption perpetuates a host of problems in Nigeria.

### **Concept of Information and Communication Technology**

ICT is an umbrella term that includes any communication devices or application, encompassing Radio, Television, cellular phone, computer and networks hardware and software, satellite systems and so on as well as the various services and applications associated with them such as video conferencing and distance learning.

Information and communication technology can be defined as the tools and the processes to access, retrieve, store, organize, manipulate, produce, present and exchange information by electronic and other automated means. These include hardware, software and telecommunications in the

forms of personal computers, scanners, digital cameras, phones, faxes, modems, CD and DVD players and recorders, digitized video, radio and TV programmes, database programmes and multimedia programmes (Asifat, 2016). Any kind of technology can be understood as a tool or technique for extending human capacity. In this sense, ICTs extend our human capacity to perceive, understand and communicate. The mobile phone enables us to speak from wherever we are to others thousands of kilometres away; television permits us to see what is happening on the other side of the planets.

Information and Communication Technology (ICT) is a technology in Nigeria that can be aimed to develop and sustain individual. Though, Information and Communication Technology deals with the use of electronic computers and computer software to convert, store, and protect; process, transmit, and securely retrieve information, despite all these, it can go a long way in aiding quick success of an entrepreneur. It has changed the environment in which students are developed, impacted, acquire entrepreneur skills and learn (Asifat, 2016).

ICTs are increasingly being recognized by government as powerful tools in the quest to rid the public sector of corrupt practices website, mobile phone apps, auditing tools, etc can be used to promote transparency and accountability by encouraging the reporting of corruption, improving access to information and making it possible to track illegal activities known as e-governance.



The application of ICTs for delivering government services these tools changed the face of public administration and it has become easier than ever for government to engage with their citizens (Asifat & Kehinde, 2015).

### **Statement of the Problem**

It has been generally observed and obvious that corruption is at the root of many of Nigeria problems in totality. Corruption has taken many forms and infiltrates all political institution and economics sections which has ruin the country to a reasonable doubt, this research work therefore examine the role of Information and Communication Technology on the issue and how it can be used to reduce its spread drastically.

### **Scope of the Study**

This study is limited to the selected respondents at the two local governments choosing in Oyo, Oyo state.

### **Objective:**

The research work aimed at finding out the role of Information and Communication Technology to reduce the rampant corrupt altitude among the Nigerian.

### **Research Question**

1. Do ICT have any role to play in reducing the rate of corruption in Nigeria?
2. Do those who involve in corrupt attitude know that ICT can reveal them?
3. Can the adoption of ICT in reducing corruption will be fruitful.

## **Methodology**

### **Research design**

The approach used in carry out the research on the role of information and communication technology in reducing corruption in Nigeria was descriptive survey method, using chi-square method for the analysis.

### **Population and simple**

The target population for this study are undergraduate students, political appointees and civil servants, Private Executive officers and National Certificate on Education Students. Random sampling technique was used to select the sample for the study. One hundred people were selected for the study comprising twenty university undergraduate, twenty political appointees and twenty civil servant twenty Private Executive Officers and twenty NCE students as abbreviated below;

Undergraduate: U = 20

Political appointees: P = 20

Civil servant: C = 20

Private Executive Officer: E=20

N.C.E Students: N =20

### **Data analysis**

Data collected were analyzed to determine the role of information and communication technology in reducing the rampant spread of corruption in Nigeria using, chi-square method.

## Result

**Research Question 1:** Do ICT has any role to play in reducing the rate of corruption in Nigeria

Table 1

Item	Agreed	Disagreed	Total
1	12(60%)	08(40%)	20
2	18(90%)	2(10%)	20
3	17(85%)	3(15%)	20
4	16(80%)	4(20%)	20
5	15(75%)	25(%)	20
Total	78	22	100

$$H_o: X_A = X_D$$

$$H_{o1}: X_A > X_D$$

Level of significant: 0.05

Test statistic is chi-square ( $X^2$ )

Critical value ( $x^2_{tab}$ ) =  $x^2(5-1)(4-1)$ ,  
 $0.05 = X^2_4$ ,  $0.05 = 9.488$ .

Table 2

*Contingency Table*

Agreed	Expected (Observed)	Disagreed	Expected Observed
12	15.6	8	4.4
18	15.6	2	4.4
17	15.6	3	4.4
16	15.6	4	4.4
15	15.6	5	4.4

## Hypothesis Testing

**Ho<sub>1</sub>:** There is no significant difference in the output when using ICT to reduce corruption and when not used

**Ho<sub>2</sub>:** There is significant different in output when using ICT to reduce corruption and when not used.

Table 3

*Decision Table*

Group	Size	Degree of freedom	$x^2_{cal}$	$x^2_{tab}$	Remark
Agreed	82	4	31.01	9.488	Reject the Null hypothesis and accept the alternative hypothesis
Disagreed	18				

## Interpretation

From the table above, since the alculated value of 31.01 is greater than the tabulated value of 9.448 ( $X^2_{cal} > X^2_{tab}$ ), therefore, we reject the null hypothesis  $H_o$  and retain the alternative hypothesis, this implies that, the adoption of information and communication technology has significant role to track down the rate of corruption in Nigeria. This means

that, several corrupt attitude practicing in all sectors would be drastically reduced when employ the use of information and communication devices.

**Research Question II:** Do those who involved in corrupt attitude know that ICT can reveal them

Table 4

Item	Agreed	Disagreed	Total
6	15(75%)	5(25%)	20
7	13(65%)	7(35%)	20
8	12(60%)	8(40%)	20
9	18(185)	2(10%)	20
10	12(60%)	8(40%)	20
Total	70	30	100

**Hypothesis Testing**

**Ho<sub>1</sub>:** ICT can not reveal those that involved in corrupt attitude.

Table 5

*Decision Table*

Group	Size	Degree of freedom	$\chi^2_{cal}$	$\chi^2_{tab}$	Remark
Agreed	70	4	4.30	9.488	Reject Ho and
Disagreed	30				accept the H <sub>1</sub>

**Discussion****Interpretation**

Since  $\chi^2_{cal} > \chi^2_{tab}$ , we reject the null hypothesis Ho and retain the alternative hypothesis that is, information and communication technology can reveal those that involve in corrupt attitude.

**Research Question III**

Can the adoption of ICT in reducing corruption will be fruitful.

Table 6

Item	Agreed	Disagreed	Total
6	12(60%)	4(40%)	20
7	15(75%)	5(25%)	20
8	14(70%)	6(30%)	20
9	15(75)	5(25%)	20
10	18(80%)	2(10%)	20
Total	74	26	100

**Ho<sub>2</sub>:** ICT can reveal those that involved in corrupt attitude

$$H_o: X_A = X_D$$

$$H_1: X_A > X_D$$

Level of significant: 0.05

Test statistical is chi-square ( $\chi^2$ )

Critical value ( $\chi^2_{tab}$ ) =  $\chi^2$  (5-1) (2-1),

$$0.05 = \chi^2_{4}, 0.05 = 9.488$$

**Hypothesis Testing**

**Ho<sub>1</sub>:** Adoption of ICT to reduce corruption will not be fruitful.

**Ho<sub>2</sub>:** Adoption of ICT to reduce corruption can be fruitful.

$$H_o: X_A = X_D$$

$$H_o: X_A > X_D$$

Level of significant : 0.05

Test statistical is chi-square ( $\chi^2$ )

Critical value ( $\chi^2_{tab}$ ) =  $\chi^2$  (5-1) (2-1),

$$0.05 = \chi^2_{4}, 0.05 = 9.488$$

Table 7

*Decision Table*

Group	Size	Degree of freedom	$\chi^2_{cal}$	$\chi^2_{tab}$	Remark
Agreed	74	4	4.85	9.488	Reject Ho and accept the $H_1$
Disagreed	26				

**Interpretation**

Since  $X^2_{cal} > X^2_{tab}$ , we reject the null hypothesis  $H_0$  and retain the alternative hypothesis that is, the adoption of ICT to reduce corruption can be fruitful

**Discussion of Result**

The study generally investigated the role of information and communication technology in reducing the level of corruption in Nigeria. Three research questions were used for the analysis of the gathered data. The findings of the result were discussed hypothesis by hypothesis as discussed below.

The responses from table I show that, information and communication technology has significant role to play in reducing the level of corruption in Nigeria, since 78% of the respondents agree with the stated item why only 22% of the respondents disagree with the item.

The research question two said, do those involved in corrupt practice aware that, information and communication technology device can reveal them when they were used. From the table that summarized this, 70% of the respondents agree why 30% of the respondents disagree with the item, those used to involved in corrupt practice aware that they can be revealed by information and communication technology devices.

On whether the adoption of information and communication technology will fruitful in reducing corruption in Nigeria. 74% of the respondents agree with it and 26% of respondents disagree with the item.

**Summary**

This research reveal that, information and communication technology will play a significant role in drastically reducing the wide spread of corruption in Nigeria. Although it may involved a lot of fund to be in-cure by both the government and stake holder before they efficiently make use of it. In the case of research question II that asked that, do those involved aware that, they can be reveal by the ICT. It was observed that, those people involved in that attitude engaged themselves in corrupt attitude because they know that no ICT devices has been using to track them.

**Conclusion**

This research examined the role of information and communication technology in drastically reducing the level of corrupt attitude in Nigeria. The suggestion for the adoption of information and communication technology was made and the necessary recommendation were made.

## **Recommendation**

Based on the result of the analysis, the following recommendations were therefore made:

- There should be orientation for students at all level on the evil effects of corruption on the nations economy
- The general populace should be aware of the penalty when caught wit corrupt attitude.
- The school curriculum should include teaching ICT to students, especially toward using it to prevent any act that is not legal according to the law of the nation
- Government should made adequate provision for ICT devices in all government agency need to be using it to avoid corruption

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## EMOTIONAL MATURITY OF SECONDARY TRIBAL STUDENTS IN NILGIRIS DISTRICT

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### Abstract

*Emotional maturity is the result of healthy emotional development. The term Emotional maturity essentially involves emotional control. Emotional support and secure relationships build a student's self-confidence and the ability to function as a member of a group. Hence the investigators took the study "Emotional Maturity of Secondary Tribal Students in Nilgiris District". The objective of the study was to find out whether there is any significant difference in Emotional Maturity of secondary tribal students with respect to gender and size of family. A descriptive survey method was adopted by the investigators to conduct this study. The investigators selected 100 secondary tribal students from Nilgiris District; the tool used in the study was Emotional Maturity Scale, developed and validated by Singh and Bharagava (2011). The data was organized and statistically analyzed by using Mean, SD and 't' test. The investigators found that the secondary tribal students are emotionally matured.*

### Introduction

In the present busy world youth as well as children are facing many difficulties which are giving rise to many psycho-somatic problems such as emotional upsets in their daily life. The study of emotional life is now emerging as a descriptive science, comparable with anatomy. As emotions do play central role in the life of an individual, one is expected to have higher emotional maturity in order to lead an effective life. It is also true that our behaviour is constantly

influenced by the emotional maturity level that we possess. Especially, the adolescents who are observed to be highly emotional in their dealings need to be studied. Emotional maturity is not only the effective determinant of personality pattern but also helps to control the growth of individual development. Hence, the investigators realized the importance of emotional maturity for the happy, successful and healthy life and made an attempt to study Emotional Maturity of secondary tribal

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students Tribal Students in the Nilgiris District.

### **Statement of the Problem**

In years past, it has been noticed that tribal students' academic achievement is very poor in Nilgiris district; they are not enjoying an equal level of success as their more advantaged peers. They are suffering from a number of barriers which may hinder their progress and discourage them from continuing their study any further. For some time now, the tribal students have been bedeviled by number of problems which affect their overall academic performance. It is the concern of this study, therefore, to look into how emotional maturity affects the overall performances of tribal students in Nilgiris district, and the investigators have taken up this study on "Emotional Maturity of secondary tribal students in Nilgiris District".

### **Operational Definition**

Emotional maturity is the development in which an individual regularly attempts for emotional strength. It also refers to an individual who has control over his/her emotions.

**Emotion:** Emotion is a state of feeling that results in physical and psychological changes that influence one's behaviour. It is a state of mind.

**Maturity:** Maturity is the ability to respond to the environment in an appropriate manner. This response is generally learned rather than instinctive.

**Emotional Maturity:** Emotional maturity refers to one's ability to understand, and manage, his/her emotions. Emotional maturity enables one to create the life he/she desires.

**Secondary Students:** Student studying between upper primary and higher secondary school and that usually offers general or higher secondary preparatory curricula. IX and X Standards students are called Secondary Students. Usually, students from ages 14 to 17 study in this section. Typically beginning at ages 14–16 and ending at 16–18.

**Tribal Students:** Students belong to a unit of sociopolitical organization consisting of a number of families, clans, or generations together with slaves, have the same occupation or interest or a common character, dependents, or adopted stranger and relatives who have the same language, customs, and beliefs or other groups who share a common ancestry and culture and among whom leadership is typically neither formalized nor permanent.

### **Need and Significance**

Learning to balance negative and positive emotions with thoughts and actions is a lifelong task and a difficult challenge to young teens. To attain emotional "maturity" they need to hone their control over socially discouraged emotions and express emotions in a more acceptable manner. Children, who gained more insight into their emotional lives, were better able to cope with distress and anxiety, to the extent that they gained insight into the causes of those emotions (Harris, 1989). Schools must take responsibility for the emotional education and allow for the range of emotions that kids experience will enhance self-acceptance and propel the maturity process forward. However, in reality, on the one hand, schools are designed to keep student busy learning about the outer

world and not about themselves, and on the other hand, families are not taking responsibility for the emotional development of their children, and they do not afford time to listen to their young ones, or they just don't know how to handle them. With this background the investigators made a study on emotional maturity of secondary tribal students.

### Objectives of the Statement

The present study focused on Emotional maturity of secondary tribal students in Nilgiris district. It has the following specific objectives:

1. To find out the significant difference in the emotional maturity of male and female secondary tribal students.
2. To find out the significant difference in the emotional maturity of IX and X secondary tribal students.
3. To find out the significant difference in the emotional maturity of X male and female secondary tribal students.
4. To find out the significant difference in the emotional maturity of IX male and female secondary tribal students.
5. To find out the significant difference in the emotional maturity of IX and X male secondary tribal students.
6. To find out the significant difference in the emotional maturity of IX and X female secondary tribal students.
7. To find out the significant difference in the emotional maturity of secondary tribal students with respect to house hold size.
8. To find out the significant difference in the emotional maturity of IX and X secondary tribal students with respect to house hold size.

### Methodology

A descriptive survey method was adopted by the investigators to conduct this study.

**Population & Sample Size:** The population of the present study comprises of tribal students studying in standard and X in high schools and higher secondary schools in rural area of Nilgiris District, Tamil Nadu. The sample consists of 100 tribal students. The investigators selected 100 tribal (male and female) students of standard IX and X, among them 50 are boys and 50 are girls. The sample was stratified based on gender and size of family.

**Research Tool:** Emotional Maturity Scale developed and validated by Singh and Bharagava (2011) was adopted by the investigators. The investigators established and validity and reliability of the tool on the population of the present study and used to assess the emotional maturity of rural tribal students studying in high schools in Nilgiris.

**Statistical techniques:** The statistical techniques applied for data analysis were Mean, SD and t-test.

### Analysis of Data

Table 1

*Emotional Maturity of Secondary Tribal Students*

N	Mean
100	153.45

The above table-1 reveals that the secondary tribal students in Nilgiris have high positive emotional maturity.



## Hypothesis Testing

**H<sub>0</sub> 1:** There is no significant difference in the emotional maturity of male and female secondary tribal students.

Table 2

*Significant Difference in the Emotional Maturity of Male and Female Secondary Tribal Students*

Gender	N	Mean	S,D	t-value	*S/NS
Male	50	151.00	29.86	0.30	NS
Female	50	155.90	20.96		

\*Significant at = 0.05 level.

(Table value 1.969)

The above table-2 reveals that there is no significant difference between male and female secondary tribal students in their emotional maturity. The computed t-value (0.30) is less the table values at 0.05 levels. Hence, H<sub>0</sub> 1 is accepted it can be concluded that the male and female secondary tribal students are equal in emotional maturity.

**H<sub>0</sub> 2:** There is no significant difference in the emotional maturity of IX and X secondary tribal students.

Table 3

*Significant Difference in the Emotional Maturity of Standard IX and X Secondary Tribal Students*

Standard	N	Mean	S,D	t-value	*S/NS
IX	50	156.76	213	0.20	NS
X	50	151.00	29.82		

\*Significant at = 0.05 level.

(Table value 1.969)

The above table-3 reveals that there is no significant difference between IX and X secondary tribal students in their emotional maturity. The computed t-value (0.20) is less

the table values at 0.05 levels. Hence, H<sub>0</sub> 2 is accepted it can be concluded that the IX and X secondary tribal students are equal in emotional maturity.

**H<sub>0</sub> 3:** There is no significant difference in the emotional maturity of X male and female secondary tribal students.

Table 4

*Significant Difference in the Emotional Maturity of X Male and Female Secondary Tribal Students*

Gender	N	Mean	S,D	t-value	*S/NS
Male	25	3.15	0.63	0.55	NS
Female	25	3.23	0.44		

\*Significant at = 0.05 level.

(Table value 1.969)

The above table-4 reveals that there is no significant difference between X male and X female secondary tribal students in their emotional maturity. The computed t-value (0.55) is less the table values at 0.05 levels. Hence, H<sub>0</sub> 3 is accepted it can be concluded that X male and female secondary tribal students are equal in emotional maturity.

**H<sub>0</sub> 4:** There is no significant difference in the emotional maturity of IX male and female secondary tribal students.

Table 5

*Significant Difference in the Emotional Maturity of IX Male and Female Secondary Tribal Students*

Gender	N	Mean	S,D	t-value	*S/NS
Male	25	3.15	0.63	0.20	NS
Female	25	3.27	0.44		

\*Significant at = 0.05 level.

(Table value 1.969)

The above table-5 reveals that there is no significant difference between IX male

and female secondary tribal students in their emotional maturity. The computed t-value (0.20) is less the table values at 0.05 levels. Hence,  $H_{0:4}$  is accepted it can be concluded that IX male and female secondary tribal students are equal in emotional maturity.

**H<sub>0:5</sub>:** There is no significant difference in the emotional maturity of IX and X male secondary tribal students.

Table 6

*Significant Difference in the Emotional Maturity of IX and X Male Secondary Tribal Students*

Standard	N	Mean	S,D	t-value	*S/NS
IX	25	3.15	0.63	0.45	NS
X	25	3.12	0.63		

\*Significant at = 0.05 level.

(Table value 1.969)

The above table-6 reveals that there is no significant difference between IX and X Male secondary tribal students in their emotional maturity. The computed t-value (0.45) is less the table values at 0.05 levels. Hence,  $H_{0:5}$  is accepted it can be concluded that IX and X Male secondary tribal students are equal in emotional maturity.

**H<sub>0:6</sub>:** There is no significant difference in the emotional maturity of IX and X female secondary tribal students.

Table 7

*Significant Difference in the Emotional Maturity of IX and X female Secondary Tribal Students*

Standard	N	Mean	S,D	t-value	*S/NS
IX	25	3.27	0.44	0.24	NS
X	25	3.19	0.39		

\*Significant at = 0.05 level.

(Table value 1.969)

The above table-7 reveals that there is no significant difference between IX and X female secondary tribal students in their emotional maturity. The computed t-value (0.24) is less the table values at 0.05 levels. Hence,  $H_{0:6}$  is accepted it can be concluded that IX and X female secondary tribal students are equal in emotional maturity.

**H<sub>0:7</sub>:** There is no significant difference in the emotional maturity of house hold size 2-3 and above secondary tribal students.

Table 8

*Significant Difference in the Emotional Maturity of House Hold Size 2-3 and House Hold Size above 3 Secondary Tribal Students*

House hold size	N	Mean	S,D	t-value	*S/NS
2-3	44	159.32	24.74	0.02	NS
Above3	56	3.102	0.54		

\*Significant at = 0.05 level.

(Table value 1.969)

The above table-8 reveals that there is no significant difference between House Hold Size 2-3 and above 3 secondary tribal students in their emotional maturity. The computed t-value (0.02) is less the table values at 0.05 levels. Hence,  $H_{0:7}$  is accepted it can be concluded that House Hold Size 2-3 and above 3 secondary tribal students are equal in emotional maturity.

**H<sub>0:8</sub>:** There is no significant difference in the emotional maturity of IX and X house hold size 2-3 secondary tribal students.

Table 9

*Significant Difference in the Emotional Maturity of IX and X House Hold Size 2-3 Secondary Tribal Students*

Standard	N	Mean	S,D	t-value	*S/NS
IX	17	0.50	0.55	0.36	NS
X	27	3.30	3.35		

\*Significant at = 0.05 level.  
(Table value 1.969)

The above table-9 reveals that there is no significant difference between X and IX House Hold Size 2-3 secondary tribal students in their emotional maturity. The computed t-value (0.36) is less the table values at 0.05 levels. Hence,  $H_0$  is accepted it can be concluded that X and IX House Hold Size 2-3 secondary tribal students are equal in emotional maturity.

**H<sub>0</sub>9:** There is no significant difference in the emotional maturity of X and IX house hold size above 3 secondary tribal students.

Table 10

*Significant Difference in the Emotional Maturity of IX and X House Hold Size above 3 Secondary Tribal Students*

Standard sample	mean	S.D	t-value	*S/NS	
IX	33	3.13	0.53	0.32	NS
X	23	3.06	0.56		

\*Significant at = 0.05 level.  
(Table value 1.969)

The above table-10 reveals that there is no significant difference between X and IX House Hold Size above 3 secondary tribal students in their emotional maturity. The computed t-value (0.32) is less the table values at 0.05 levels. Hence,  $H_0$  9 is accepted it can be concluded that X and IX House Hold Size above 3 secondary tribal students are equal in emotional maturity.

## Findings and Discussion

1. There is no gender difference in emotional maturity of secondary tribal students.
2. Different classes of secondary tribal students do not have an impact on emotional maturity.
3. Similar classes of secondary tribal students do not have any impact on emotional maturity.
4. Same gender study in different classes does not have any difference in emotional maturity of secondary tribal students.
5. Different House hold size of secondary tribal students does not have any impact on emotion maturity.

It can be concluded from the above findings that the secondary tribal students of Nilgiris do not differ in their emotional maturity. Neither boys nor girls secondary tribal students differ so far as the Emotional Maturity level is concerned. Emotional Maturity is not affected by the type of family. The majority of the secondary tribal students are equal in emotional maturity.

To develop emotional maturity in secondary tribal students of Nilgiris, teacher has to play significant role. In future, similar study can be taken up on University students of various states in India and Abroad.

## Education Implications

This study reveals that secondary tribal students have equal emotional maturity. Hence they can do their level of best. It is very important for the teacher to join hands with parents and the society at large in order to provide healthy atmosphere and emotional

security to adolescents both at school and home. Emotional maturity not only affects child's physical growth but also his emotional development. By providing love and affection, child feels more secure and in turns, he/she is more emotional balanced.

### **Conclusion**

The results revealed that there is no significant difference in the emotional maturity of secondary tribal students. It may be the reasons of boys are having emotionally matured as compared to girls. They have equal control on their emotion as girls. It was found that there is no significant difference in the emotional maturity of secondary tribal students with respect to size of family. The result shows that there is no significant interaction effect of gender on emotional maturity of secondary tribal students. The study has emphatically proved the relationship among secondary tribal students of Nilgiris. This study leads to a better understanding of secondary tribal students. This give clear indication for planning curricular activities meant for high school students.

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## SELF CONCEPT AND TEACHER EFFICACY OF STUDENT TEACHERS

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### Abstract

*Goal of education is to develop self-sufficiency among students in all contexts of life. This should be done by the teachers for which they should possess many qualities like self-concept, self-efficacy etc. Self-concept indicates an individual's belief about one self. It differs from efficacy as the later also considers the cognitive strategies which the individual uses to perform according to his/her belief. For a teacher his/herself-concept explains what he/she thinks about himself as a teacher. At the same time an efficacious teacher not only considers his/her evaluation about himself/herself but knows the strategies and follows it to attain the perfection expected from him/her. In the present study the investigators examined the self-concept of student teachers who were categorised based on their teacher efficacy. 200B.Ed.students were selected from the northern, southern and central regions of Kerala as the sample of study. Kerala self-concept scale developed by Nair(2002) and Test of teacher efficacy developed by the investigators were used to collect data from the sample. Statistical analysis of the data using test of significance of difference between means of independent samples showed that there exists no significant difference in the teacher efficacy of student teachers with varying levels of self-concept. The system of teacher education may think about the development of self-concept along with the teacher competencies during the course*

### Introduction

Self-concept is the belief of an individual or evaluation about herself/himself. It consists of his/her likeness towards something, physical and mental attributes, strength or capabilities, weaknesses etc. Person with positive self-concept is tending to do difficult

task and succeed in it. On the other hand person with low self-concept may not persist in difficult task. They may give up easily. The rate of failure may be more in their case.

Efficacy and self-concept are related with one's judgement of their capabilities. But

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the difference is that efficacy is the belief of one's capability of performing some acts to attain certain goals. It deals with the organisation and execution of actions. Efficacy concerns primarily cognitive judgements of one's capabilities based on mastery criteria while self-concept incorporates both cognitive and affective responses towards self (Bong & Clark, 2010). For example a teacher with high efficacy not only thinks 'I am good at student management' but also involves his cognitive abilities to organise what all things he/she need to consider to be good at certain skills and also executes those tasks well.

Various studies assert (Coladarci, 1992; Tschannen-Moran, Woolfolk Hoy, 2001) teacher efficacy as a predictor of teacher's commitment to teaching. It determines a teacher's competence in various realms of teaching from planning to attainment of goals. According to Bandura (1977), Teacher efficacy, the belief of a teacher in his abilities to instruct students and influence their performance is indicative of the instructional effectiveness of the teacher (Cerit, 2010). An effective teacher is expected to strive hard in order to achieve the set goals. He/she can motivate students to act accordingly; can convey the concepts which have to be learned by them. He/she in turn can cling to the profession even in adverse experiences. The least confident student can also get benefitted from an efficacious teacher.

As far as a student teacher is concerned the belief in the potentials, experiences from the surroundings, consequences of his/her own behaviour etc. have a place to determine his/her endurance and success in the

teaching profession. The confidence of a teacher in his/her knowledge and skills and the understanding of self is found promoting the academic performance of the students (Barco, 2007; Sherman, Rasmussen & Baydala, 2008).

### **Significance of the study**

Present study examined the self-concept and teacher efficacy of student teachers. The triadic reciprocal influence of personal reasons, actions and atmosphere results in the success or failure, gain and the psychological state of an individual (Bandura, 1977). These prior successful or failure experiences ultimately determine the efficacy and self-concept of individual which in turn are predictive of the future behaviour of an individual. Teachers are having a highest responsibility towards the society. They have to lead the least motivated student towards accomplishment. They have to be confident enough to stick on to their profession. Self-concept and self-efficacy are two of the most important motivational predictors of educational outcomes (Jansen, Scherer & Schroeders, 2015). Many investigators had studied these constructs separately but little is known about their relations. Hence in the present study the investigators intend to analyse the teacher efficacy and self-concept of student teachers.

### **Objectives of the study**

1. To study the level of self-concept of student teachers
2. To study the level of teacher efficacy of student teachers
3. To study the teacher efficacy of student teachers in terms of their self-concept

## Methodology

The study followed survey method. The data were collected from a representative sample consisting of 200 secondary school student teachers studying in various teacher education institutions in northern, southern and central Kerala through simple random sampling technique. Tools used for collecting data were test of Teacher Efficacy developed by the investigator and supervising teacher and scale of self-concept developed by Nair(2002). The scale of self-concept consists of two parts, part A and B each part has 30 items regarding self. Each statement has to be rated as strongly agree, agree, undecided, disagree or strongly disagree. The Test of Teacher Efficacy contains 30 items comprising five components of teacher efficacy namely; efficacy to influence decision making, instructional self-efficacy, efficacy to create a positive school climate,

disciplinary self-efficacy and efficacy to enlist socio familial involvement. Each items have 4 choices namely a, b, c and d. Among the choices the one which the student teacher feels representative of his behaviour in the given situation has to be selected by putting a tick mark.

## Data collection

The investigator collected data through direct administration of the tools. The tools were given to 200 student teachers studying B.Ed.in various teacher education institutions of Kerala. The sample was randomly selected from government, aided and unaided teacher education institutions of Kerala.

## Analysis of data

Data collected were scored and analysed. The descriptive analysis of data was done and the details are present in Table 1.

Table 1

*Descriptive statistics regarding self-concept and teacher efficacy of student teachers*

Variable	N	Minimum	Maximum	Mean	Standard Deviation
Self- concept	200	66	178	107.40	19.99
Teacher efficacy	200	64	109	93.43	8.54

From table 1 it can be seen that mean score on self-concept is 107.8. The maximum score possible is 300 out of which the maximum score obtained by the sample is only 178 and the minimum is 66. It indicates that majority of the B.Ed. student teachers are having average level of self-concept. From table 1 it can also be seen that mean score on teacher efficacy is 93.43. The maximum score possible is 120 out of which the maximum score obtained by the sample is only 109 and the minimum is 64. It

indicates that majority of the B.Ed. student teachers are having average level of teacher efficacy.

ANOVA is used to find out whether there exists a significance difference in the teacher efficacy of student teachers classified in terms of their self-concept. Comparison of mean scores of teacher efficacy of student teachers with high, average and low self-concept was calculated using ANOVA and the details are given in Table 2.

Table 2

*Sum of squares, df, variance and F value calculated for teacher efficacy of student teachers with high, average and low self-concept for the whole sample*

	Sum of Squares	df	Mean Square	F	Level of significance
Between Groups	17.992	2	8.996	0.122	NS
Within Groups	14505.028	197	73.63		
Total	14523.020	199			

From the Table 2 it can be found that the F value is 0.122 which is less than the table value for df (2,198). Hence it can be concluded that there does not exist significant difference in the teacher efficacy of student teachers with various levels of self-concept.

Product moment correlation between the variables self-concept and teacher efficacy was also calculated for the total sample. The details regarding correlation test is given in Table 3.

Table 3

*Product moment correlation between self-concept and teacher efficacy of student teachers*

Variables	r value	Level of significance
Self-concept and Teacher efficacy	-0.015	NS

From the Table 3 it can be found that the r value is -0.015 which is less than 0.139 the theoretical value for the sample size 200 at 0.05 level and hence it is not significant at 0.05 level of significance. Hence it can be concluded that there does not exist significant correlation between teacher efficacy of student teachers and their self-concept.

### Conclusion

Efficacy has a direct link to the performance of an individual. Specifically

saying it directs towards the capabilities required to excel or perform well in specific situations. Teacher efficacy is the belief of a teacher in his own ability to bring about a desirable behavioural change in his/her students. A highly efficacious individual will always strive to attain perfection without considering the hindrances in his/her path to perfection. He/she accepts challenges which he thinks will improve his own performance. Researches shown that high self-concept predicts an individual's future motivation, whereas self-efficacy is a better predictor of current ability. The result of the present study not in conformity with many of the reviewed studies. But there are very few studies which are in agreement with the result of the present investigation. As we know life is a process of progressive adjustment. Individual's idea about himself/herself undergo revision depending upon situations. Majority of the student teachers who join B.Ed. course, now-a-days, are not intended to become professional teachers. These students are not capable of estimating his/her merit. Individuals with a high, average and low self-concept do not differ significantly in their teacher efficacy. This is because of the fact that the student teachers are taking their training to become teachers. Majority of the student teachers are actually not fascinated or motivated to become teachers. Because of so many factors compelling them to join the course they are



turning up to do. This will make a negative impact of performance in their in-service which will affect the students attending their classes. Now the admission to B.Ed. course is only on the basis of merit. It should be changed by giving due importance to other factors also. So necessary steps may be taken by the authority to admit student teachers on the basis three components namely; competency in their subject, commitment and attitude towards teaching and aptitude tests. So the institutions of teacher education should provide correct guidance in infusing teacher efficacy on the basis of correct self-understanding. They should be made aware of their intrinsic worth and try to achieve it.

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## RELATIONSHIP BETWEEN SELF ESTEEM AND SCHOOL ADJUSTMENT OF HEARING IMPAIRED SECONDARY SCHOOL PUPILS IN KERALA

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### Abstract

*Education is a product of experience. It is the process by which and through which the experience of the race, i.e., knowledge, skills and attitudes are transmitted to the members of the community. Life involves a constant and continuous modification of experiences. Education should help the child to adjust to this changing world. The aim of education has varied from race to race and generation to generation but the main point of emphasis has been on the mental and physical growth of the individual. The child is subjected to certain experiences that are intended to modify his behaviour for proper adjustment to a changing environment. In this paper investigator studies the relationship between self esteem and school adjustment of hearing impaired secondary school pupils. Self esteem inventory and school adjustment inventory are the tools used for the study. The present study was conducted on a representative sample of 260 hearing impaired pupils of secondary school studying in VIII, IX, X drawn from Thrissur, Ernakulum and Palakkad districts.*

**Keywords :** self concept, school adjustment, hearing impaired, etc.

### Introduction

We live in a world full of diversities. Every form of living and nonliving being is quite unique and different from each other. At times we lack words to appreciate the unimaginable creativity of God when we find that no single creation of his is an exact replica of the other. As a result, a child comes

to this earth with its own unique abilities and capacities of body and mind. Some are fortunate enough to have extraordinary abilities or capacities, while others are averages or even suffer from so many deficits and deficiencies since from the birth. This gap between the abilities and capacities of

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the children related to their learning, adjustment and development found at the time of their birth, may further be widened by the nature of the environmental differences encountered by them in their nourishment and education. It results in labeling them as exceptionally superior or inferior, capable or incapable in one or the other aspects of their personality development.

Our history of self esteems as children, and follows us throughout lives. Self esteem has huge implications in our life paths. Self esteem effects all our decisions, lives a garden needs constant tending. It is a major key to success in life. The development of healthy self esteem is extremely important to the happiness and success of children and teenagers.

### **Need and Significance of the Study**

In the present study the investigator therefore, tries to establish the fact that hearing impaired pupils shall not fall behind the normal if proper education is imparted to them in correct time. The investigator has adopted and made use of two psychological variables viz. self esteem and school adjustment. Here self esteem is considered as independent variable and school adjustment used as dependent variable. According to Good self esteem is the judgment and attitude of an individual hold towards himself. So understanding self esteem has considerable practical importance in daily life. Once it is created, is very difficult to change. For the success life a positive self esteem should be developed.

### **Objectives of the Study**

The objectives of the present study are the following.

- i) To find out the nature and extent of self esteem of hearing impaired secondary school pupils in the total sample and the sub samples based on
  - a. Sex
  - b. Locale
  - c. Type of management
- ii) To study the nature and extent of school adjustment of hearing impaired secondary school pupils in the total sample and the sub samples based on
  - a. Sex
  - b. Locale
  - c. Type of management
- iii) To study the extent of relationship between self esteem and school adjustment of hearing impaired secondary school pupils in the total sample and the sub samples based on
  - a. Sex
  - b. Locale
  - c. Type of management
- iv) To compare the significant difference in relationship between self esteem and school adjustment of sub samples based on
  - a. Sex
  - b. Locale
  - c. Type of management
- v) To examine whether there exists any significant difference in self esteem of sub samples based on
  - a. Sex
  - b. Locale
  - c. Type of management

- vi) To examine whether there exists any significant difference in school adjustment of sub samples based on
- Sex
  - Locale
  - Type of management

### Hypotheses of the Study

- There is no significant relationship between self esteem and School adjustment of hearing impaired secondary school pupils in the total sample and the relevant sub samples based on
  - Sex
  - Locale
  - Type of management.
- There is no significant difference in relationship between self esteem and school adjustment of hearing impaired secondary school pupils in the total sample and the relevant sub samples based on
  - Sex
  - Locale
  - Type of management.
- There is no significant difference in the mean scores of self esteem of hearing impaired secondary school pupils in the relevant sub samples based on
  - Sex
  - Locale
  - Type of management.
- There is no significant difference in the mean scores of school adjustment of hearing impaired secondary school

pupils in the relevant sub samples based on

- Sex
- Locale
- Type of management.

### Methodology in Brief

#### Sample

The present study was conducted on a representative sample of 260 hearing impaired pupils of secondary school studying in VIII, IX, X drawn from Thrissur, Ernakulam and Palakkad districts. The sample was selected using stratified sampling technique giving due representation to factors like sex, locality and type of management of school.

#### Tools used for the study

The investigator used the following tools to measure the extent of relationship between self esteem and school adjustment.

- Self esteem inventory. The investigator adopted this inventory which was developed and standardized by University of Calicut (Usha and Suchitra 2000).
- School adjustment inventory. This tool was developed and standardized by the investigator with the assistance of supervising teacher.

#### Data Collection Procedure

After fixing up the sample the investigator contacted the heads of the schools seeking permission to administer the tool concerned. A time schedule was fixed for the administration of tools.

In the present study the investigator has drawn a representative sample of the

population giving due weightage to sex, locale and type of management. Three revenue districts viz.. Thrissur, Eranakulam and Palakad were taken as the representation of the state. A sample of 260 hearing impaired secondary school students studying in VIII, IX and X were taken as the sample for the study.

### **Major Findings of the Study**

The major findings of the study are given briefly in this section.

Relationship between school adjustment and self esteem for the total sample and sub samples.

#### ***a) Relationship between school adjustment and self esteem for the total sample***

There exists significant positive relationship between self esteem and school adjustment for the total sample. The obtained 't' value shows that this relationship is significant at 0.01 level of significance. This shows that there is a relationship between self esteem and school adjustment for the total sample.

#### ***b) Relationship between school adjustment and self esteem for the girls sub sample***

There exists significant positive relationship between self esteem and school adjustment for the sub sample girls. The obtained 't' value shows that this relationship is significant at 0.01 level of significance. This shows that there is a relationship between self esteem and school adjustment for the girls sub sample.

#### ***c) Relationship between school adjustment and self esteem for the boys sub sample.***

There exists significant positive relationship between self esteem and school adjustment for the sub sample boys. . The obtained 't' value shows that this relationship is significant at 0.01 level of significance. This shows that there is a relationship between self esteem and school adjustment for the boys sub sample.

#### ***d) Relationship between school adjustment and self esteem for the sub sample government school students.***

There exists significant positive relationship between self esteem and school adjustment for the sub sample government school students. The obtained 't' value shows that this relationship is significant at 0.01 levels of significance. This shows that there is a relationship between self esteem and school adjustment for the sub sample government school students.

#### ***e) Relationship between school adjustment and self esteem for the sub sample private school students.***

There exist significant positive relationship between self esteem and school adjustment for the sub sample private school students. The obtained 't' value shows that this relationship is significant at 0.01 level of significance. This shows that there is a relationship between self esteem and school adjustment for the sub sample private school students.

***f) Relationship between school adjustment and self esteem for the rural sub sample .***

There exists significant positive relationship between self esteem and school adjustment for the sub sample rural school students. The obtained 't' value shows that this relationship is significant at 0.01 level of significance. This shows that there is a relationship between self esteem and school adjustment for the sub sample rural school students.

***g) Relationship between school adjustment and self esteem for the urban sub sample.***

There exists significant positive relationship between self esteem and school adjustment for the sub sample urban school students. The obtained 't' value shows that this relationship is significant at 0.01 level of significance. This shows that there is a relationship between self esteem and school adjustment for the sub sample urban school students.

**Suggestions for improving Educational Practice**

Hearing impaired children need education like normal peers for their academic growth as well as for the development of their all round personality. A suitable school environment should be created where the students must get due recognition. Make use of the advanced technology, to retain interest of the pupil. Try to exploit to the maximum physical as well as mental working capacity of the children. For that provide more co-curricular experiences.

The class room activities should be designed in such a way that students must get maximum group interaction. Moreover good teacher pupil relations must be established. Both parents and teachers avoid criticisms that take the form of ridicule or shame. Instead be generous with praise. Teachers and parents should behave empathetically to the child. Training to teachers and parents of the hearing impaired children is to provided.

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# THE IMPLEMENTATION OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) FOR STUDENTS' ENROLLMENT INTO TEACHER EDUCATION IN COLLEGES OF EDUCATION IN NIGERIA

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## Abstract

*Teacher education is a type of education that refers to as a professional education of teachers towards acquisition of attitudes, skills and knowledge considered desirable so as to make them efficient and effective in their work, in accordance with the need of a given society at any point in time. The teacher education is robust with the integration of ICT for easy flexibility, and with wide range of ICT applications in education sector like online registration for both registration, screening for admission, lecture delivery, assignments posting, online payments and others related works. It states the functions of ICT and its impacts of e- education in the Colleges of education. It contains some of features associated with ICT usage in Colleges of education in Nigeria. It lays more emphasizes on the problems and prospects of ICT usage in Colleges of education in Nigeria. Finally, it contains the conclusion and recommendations which serve as a way out for the problems encountering in the ICT application in Nigerian Colleges of education.*

## Introduction

Teacher education refers to professional education of teachers towards attainment of attitudes, skills and knowledge considered desirable so as to make them efficient and effective in their work, in accordance with the need of a given society at any point in time. It includes training and education occurring before commencement of service (pre-service) and during service (in-service or on-the-job). Every society

requires adequate human and material resources to improve its social organization, preserve the culture, enhance economic development and reform the political structures. Teacher education is often seen as a prerequisite for quality manpower development and creation of wealth, a sure path to success in life and service to humanity. Thus, teachers have important role to play to adequately prepare the young ones

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for their roles in the society in order to achieve the set national objectives.

There are some institutions established for train-the-trainers, where teacher education programmes are been understudied. The categories of institutions that are established for teacher education are Grade II or NTI (National Teacher Institute), Colleges of education (NCE), where National Certificate in Education is awarded and University Degree in Education (B.Ed), where degree certificate in education is awarded. This discussion is mainly focused on the integration of ICT in the enrollment of students in College of education in Nigeria.

College of Education is a teacher education in Nigeria which is one of tertiary institutions established purposely for train-the-trainers, to train and equip teachers for their esteemed functions. This is the institution where training, learning and imparting skills, knowledge and attitudes, moral and habits for our young prospective and future teachers are taking place. It is a three (3) year programmes where National Certificate in Education (NCE) is been awarded. All colleges of education in Nigeria are coordinated and regulated by NCCE body.

### **Functions of College of Education**

- i) To provide full-time courses in teaching, instruction and training in Technical, Vocational, Sciences and Arts for our young prospective teachers for both secondary and primary schools
- ii) To conduct courses in education for qualified teachers
- iii) To arrange conferences, seminars and workshops related to the field of learning

for both in-house and outside for updating the knowledge of our teachers

- iv) To perform such other functions as in the opinion of the college council may serve to promote the objectives of the college

### **E-education**

E-education is simply defined as an education imparting on the learners through electronic media. The integration of computers (ICTs) into educational systems is called e-education. It is technically the same thing as regular classroom teaching except that e-teaching is presented in an electronic media. Oluwafemi (2006) asserts that the internet (component of computer) has the potentials to bring about a profound change in education for all professions. Traditional approaches to teaching, lecturing and tutoring confined to classrooms are now extended by modern approaches to teaching, using the more recent technologies of online classrooms, multimedia, courseware, distant course, online workshops, media education and video conferencing (Adako, 2006).

Kirschner and Weperies (2003) maintained that information and communication technology can make the school more efficient and productive, by organizing a variety of tools to enhance and facilitate teachers' professional activities. Yusuf and Onasanya (2004) opined that ICT provides opportunities for school to communicate with one another through e-mail, mailing list, chat room and other facilities. It provides quicker and easier access to more extensive and current information.



## E-education in Colleges of Education in Nigeria

The use of modern technologies in Colleges of education takes off from the point of involving students in taken common entrance examinations through Joint Admission and Matriculation Board. Then, it proceeds to Post Unified Tertiary Matriculation (PUTM) which is now replaced with direct online screening which are all anchored on to the e-education. All these enrollments are done online which are officially defined as a process of arranging students to join an institution of higher learning (school) for undergoing a particular course or programme. This Online Enrollment system is created using PHP/MySQL and this application can help reduce the *man power* needed to facilitate an enrollment process. The double entries on enrolling two people at the same time can eliminate human error. Admission into Colleges of Education by applying and scaling through the Unified Tertiary Matriculation Examination (UTME) conducted by the Joint Admission and Matriculation Board (JAMB).

The use of internet (computer) for students' intakes does not end there. With the use of internet services, the traditional method of disseminating information on colleges of education courses through leaflets and other print outs are becoming obsolete. The internet is offering a different approach by making the colleges of education worldwide to promote and advertise their academic programmes to much wider domestic and international audience. It is a perfect channel for distance education programme. Admission is done online now,

courses are offered on the internet and students supervised, tutored and consulted through the internet (distance learning education). Learning materials can be down loaded and instructional programme given via e-mail, facebook, twitter and other social media in turns continuous assessments are carried out. For the institutions of learning, the internet can be ideal place to store lecture notes, course materials and assignment sheets, general communication, searching for information and practicing and drilling such as foreign language learning or mathematics (Organisation for Economic Co-operation and Development (OECD, 2014)). With this recent development in Nigerian colleges of education, the internet facilities make it easy to carry out assignments and other research works. The implementation of computer in educational programmes in College of education further extends to students' course registrations online, payments of any form, documents printing, and change of course; institutions, change of state of origin and others are all possible online which make teaching and learning easier and interesting nowadays. Some institutions in Nigeria have embraced the online for students not to talk for examinations through internet. However, some tertiary institutions are now embarking on given laptops to their students with intensive training on ICT usage to facilitate e-teaching and learning process in Nigerian institutions. The development is very recent and challenging as the university was committed to be a leader in teacher education in Africa. This could be a model for other teacher training institutions to emulate in Nigeria to develop teacher education to a globally acceptable standard.

**Here are some of the following features associated with using ICTs in Colleges of Education:**

- It has entry for Students, Course, Subject, Department and Faculty.
- It has Reservation of subject during enrollment process.
- It is capable of advising of subject to student by the staff Advisor, HOD and Deans.
- It has the capability of assigning and assessment of units.
- Class Listing
- Class scheduling
- Faculty subject loading
- Query filters for different entries

**Problems of ICT applications in Nigerian colleges of education.**

The Nigerian education system is quite a robust one with many challenges facing the operations. Nigeria embraces with determination agenda to introduce ICT and its working tools into her education system. Like such other determinations agenda and proposal, the ICT agenda have no smooth run way into the education system. Like other developing countries of the world, the effort to accomplish this is challenged by many constraints in our system. Such challenges may be viewed and discussed from the following perspectives:

• ***The embarrassment of white paper policy:***

Nigeria is a country blessed and endowed with crème of intellectuals who at any time may be pooled by the government to formulate pretty policies to serve as frame work guide to the government or public bodies

in achieving collective goals. Very many policies in the education system have been formulated but the embarrassment of allowing our good policies to kiss the earth is almost a culture in Nigeria education system. In Nigeria policy making, the spirit and determination to run after the agenda of each policy made, dies soon after its conception. The ICT agenda may not be too different from others.

• ***Lack of financial backing:***

This is one of the dry challenges in developing countries. Fund in Nigeria is so scarce such that they have to be spent mostly on legislative maintenance before considering basic supplies such as infrastructure, - roads, housings, electricity, health etc. Thus, investing in ICT in the education sector might be seen as a long term issue and as such does not require urgency.

• ***General attitude of Nigeria administration to education:***

It is pertinent to point (without condemning any government past or present) that the general attitude of Nigerian government towards education is never encouraging. Unfortunately the first priority of each government is how to cling-on to power continuously, spending greater percentage of the funds on maintenance and up-keep of administration. It is almost a culture in Nigeria that before the government can think of improving the system, there must be a show-down battle between the government and any of the union bodies in our education system. There is virtually no programme, policy, agenda or projects in the education system that does not suffer from one disability or the other, each resulting from abject negligence by the administration.

- ***Limited internet access:***

Low infrastructural development especially electricity is a major problem in Nigeria. There are absolutely no access facilities of the internet in the remote parts of the country. All these make it difficult for the introduction of the ICT in all arms of the education system as well as in rural areas almost extremely difficult.

- ***Lack of trained staff:***

The most common challenge in our country, especially in the effort to adopt ICT in the education system is the lack of trained teachers. Most of the teachers in all levels of our education system are both deaf and dumb in ICT literacy. Thus, when the challenge comes to practically apply ICT, which is totally new to traditional teachers, many of the teachers may not know how to handle it and sometimes may be reluctant to embrace the application of nascent development in the classroom.

### **Prospect of ICT application in Colleges of education in Nigerian**

ICTs hold good promises for our education system. It could be both a lever and catalyst in enhancing the education sector. As a lever, the ICT will serve as a means of exerting effective power into the education system. As a catalyst, the ICT is capable of bringing about fast positive changes in the education system. There is no doubt that students exposure to ICT will exert a significant and positive impact on students' achievement, especially in terms of knowledge, comprehension, practical skills, and presentation skills in various subject areas such as science, mathematics, social studies

and business related subjects. Through ICT in education, images can easily be used in teaching and improving the retentive memories of students. Through education ICT, teachers can easily explain complex instructions and ensure students' comprehension and through education ICT, teachers are able to create interactive classes and make the lessons more enjoyable, which could improve students' attendance and concentration. Specifically, the prospects of ICT application in Nigeria education system may be discussed under the following sub-heads;

- ***Enhance the administration and management of schools:***

There is no doubt that school administration and management requires lot of paper works, documentation, records, data and information. Often, manual approach in handling these processes are tedious, time consuming and costly. With the efficiency of the ICT in education, these rigors may tremendously be reduced. For instance, management schedules of activities, paper works, school records and documentation including data and information can easily be captured with ICT. With efficient ICT software tool kits, these documents and processes can be retrieved as and when management requires them (Richmon, 2002).

- ***ICT in Education can Enhance Teaching and Learning:***

The task of teaching and learning may at best be described as the primary concern of every educational institution. In fact teaching and learning is considered the hallmark as well as the fulcrum of the essence of education. All educational activities

especially in the school system are geared towards ensuring effective and efficient teaching and learning. The impact of ICT therefore, in teaching and learning cannot be over stretched. In teaching specifically, ICT in education can enhance teacher's presentation and demonstration. Students drills and practice can equally be spurred through the use of ICT in education, teachers lesson could be prepared in power point package which will be in slides, the teacher can effectively present his/her lessons to the students (Fouts, 2010). On the other hand, students' drills and practices are better achieved through the use of ICT. Students' learning requiring stages and steps of operation (e.g. Laboratory experimentation) can best be coded in a disk plate and replayed over and over again to ensure students' understanding of the vital steps and process. With ICT in education, students may not so often need the presence of the teacher or the instructor especially during their practice hours (Fouts, 2010).

• ***ICT in Education can Facilitate Large Scale Students Assessment:***

In some public schools, students' populations are highly tremendous. Each time they organize exams, the processing as well as the marking poses a lot of challenges to administration and the teachers concerned. Above all, the education system is also characterized by public examinations like JAMB, WAEC, NECO and such other related public examinations. The manual processing of these types of public examinations most often has been challenged with many setbacks. Nonetheless, ICT in education can facilitate the smooth conduct

of such large scale students' assessment. Ideally, students data and records can easily be captured despite the geographical distance and location, such data are collated at the central exam data Bank and further codified based on location, (state) and name (i.e., of schools). Again, the question paper and exam questions may be structured and configured using appropriate ICT tool kit to enhance both students' response and the marking and processing tasks. With ICT in education, these tedious and strenuous processes are handled with less time and cost (Hawkins, 2002).

• ***ICT can Increase Access to Education:***

In developed world, many education programmes exist to serve the convenience of the recipients or beneficiaries. In such environment, access to education can easily be gained despite your geographical location. In Nigeria, the same may be possible if the education system is adequately garnished and networked with ICT. With ICT in education, people in remote part of the country can gain access to education with special ICT enable teleconferencing and telecollaborative teaching and learning. The basic requirement here is that both facilitators and resources persons, including beneficiaries need to be computer literate. Above all, ICT like the Radio and the Television could equally be used by many to gain access to education if these gadgets are properly married to the education system. To be effective and properly serve the purpose, ICTs in education require functional networking or strong inter-connectivity.

• ***ICT can Enable Education Delivery to Overcome Geographical and Social Barrier:***

Distance, remoteness and poor road infrastructure have all joined to deepen inequality in education access in Nigeria. Collectively these describe the geographical challenges in education. Again, the issues of several barriers also constitute a challenge in education. With the use of ICT in education, these problems may gradually be solved in our education system. Thus, the distance in geographical locations can easily be bridged using the ICT. The promises here show that the use of ICT in education has the potential to distribute opportunities for learning more widely and equitably across the country. It can also improve the quality and variety of the resources and support available to teachers, opening up new avenue to professional development of education officials especially the teachers. ICT in education have the capacity for a large scale delivery over a wider distance.

**Conclusion**

From the above discussion, it is obvious that no country develops beyond her teachers. It is from the pool of knowledge of teachers that every country makes use to develop. Teachers acquire that skills, knowledge and experience through the teacher education they received in the educational programmes. The colleges of education in Nigeria have new innovations of ICT in their all academic activities. It is through the use of ICT students' enrollment are done, results registration, payments by the students for all types of payment that require of them, results screening (replaced PUTME), lectures and assignments are posted students and other related tasks. The

knowledge-based economy, for example, sets a new scene and new challenges for the education sector. In the first place, education is a pre-requisite of the knowledge-based economy and the production and use of new knowledge both require a more educated population and workforce. ICTs therefore are very powerful tool for diffusing knowledge and information. Effective training and usage of ICT in teaching is important since poor or improper usage and management of ICT in the classroom may result in underperformance in educational outcomes. The inefficient use of ICT-assisted instruction wastes time that could have been used for learning content and developing skills (UNESCO-UIS, 2014a). Effective usage requires quality teacher training; thus, it is important to identify clear indicators that shed light on how teachers are trained as well as how they use ICT in education.

More specifically, effective teacher training and appropriate linkage to ICT usage, which gives rise to sound pedagogy has different approaches based on different types of learning (i.e. basic education approach, knowledge acquisition approach, knowledge deepening approach and knowledge creation approach), as per the *knowledge ladder*, which is a set of complementary, alternative models or perspectives that together provides policymakers with an education reform trajectory in support development (UNESCO, 2011a). This paper suggests that teacher training needs to capture a wider range of professional development models, reflecting Ministries of Education expanding systems in order to maximise and evaluate their impact in schools (Twining and Henry, 2014). With the advanced use of ICT in the classroom, it is necessary to go beyond the mere presence

of ICT in the classroom, but also develops the teachers' specific usage patterns, as well as linking the added value of ICT usage patterns to student outcomes. ICT changes rapidly and affects both discipline knowledge and pedagogical possibilities in ways that influence teachers' perspectives for employing ICT as a constant part of the learning process (Twining et al., 2013).

### Recommendations

If education for all, is to be achieved, that is, in terms of equity of educational opportunity, and services; the provision of ICT in education in Nigeria, need to be planned in ways that will make it available, accessible, acceptable and adoptable in our education system.

#### Specifically:

- NCCE, the regulatory body for all Colleges of education should provide ICT resource centres for teachers in every colleges of education in Nigeria.
- Private partnership should be a progress in partnership with NCCE in the provision of ICT literacy for teachers throughout Nigerian Colleges of education.
- Students should equally be trained to use and appreciate the relevance of ICT in teaching and learning.
- Education administrators as well as (staff and employees) in education departments and ministries should be trained alongside teachers to be ICT literate.
- Road infrastructures should be improved upon to enhance the penetration of ICT in education to remote areas.
- Functional networking and inter connectivity of the system should be

properly configured and structured to serve the purpose.

- Education software, programmes and tool kits should be well designed to enhance teachers' training within the shortest possible time.

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## EFFICACY OF MINDFUL- BASED INTERVENTION ON EMOTIONAL REGULATION INDEX OF EXECUTIVE FUNCTIONS AMONG STUDENTS WITH INATTENTION

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### Abstract

*The objective of the present study is to explore the effectiveness of mindfulness-based practices on emotional regulation index (ERI) of executive functions among students with inattention. This study employed pre-test post-test method with the control group research design. Students with inattention were identified by administering Conners 3 rating scale, – Self-Report form, Teacher Form and Parent Form – and randomly assigned to experimental and control groups of 40 students each. After pretesting of the ERI of executive functions of both groups using Behaviour Rating Inventory of Executive Function – BRIEF2 teacher, parent and self-report forms – the experimental group was given mindfulness-based practice sessions of 45 minutes duration, thrice a week for eight weeks. Data obtained from the respondents in the post-test and 1<sup>st</sup>, 3<sup>rd</sup> and 6<sup>th</sup> months follow up phases were analyzed by repeated measures ANOVA. Results revealed that 8-week intervention programmes of mindfulness-based practices elicited a reduction in mean T score of ERI from base line to immediately after intervention programmes and the reduced mean scores were retained over a follow-up period of six months. But the students in the control group retained the same mean scores of ERI over the entire period of study. Analysis of data obtained from both parent and self report forms confirmed the results. Mindfulness-based intervention is an effective method in reducing ERI of executive functions among students with inattention.*

**Keywords:** Mindful-based Intervention, Inattention, Executive Functions, Emotion Regulation Index (ERI),

### Introduction

Learning is a process of acquiring habits, or tendencies through experience, modifications in existing knowledge, skills, practice, or exercise. For attaining a good

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learning outcome the students need to focus their attention on their studies, complete tasks despite the many distractions, and inhibit impulsive thinking and behaviour. Attention is the behavioural and cognitive process of selectively concentrating on a discrete aspect of information, whether deemed subjective or objective, while ignoring other perceivable information (Anderson, 2015). The concept of inattention refers to excessive problems with distractibility and chronic difficulties in organizing tasks and activities, attending to details, following instructions and completing tasks, and undertaking tasks that require sustained mental efforts (Faraone, 2006).

Executive function (EF) is a description of psychological activities that control behaviour, allocate cognitive resources, evaluate behaviour progress, and direct activity with goals and plans. EF refers to interrelated neurocognitive processes, which are essential for a child's appropriate academic, behavioral and social functioning (Jurado & Rosselli, 2007). Ahmed and Miller (2011) defined executive function as "higher-order cognitive processes involved in goal-oriented behaviour, such as planning and sequencing" (p. 667). One aspect of executive function is executive regulation index (ERI), the ability to allocate attention in a way that is consistent with self-established goals and plans and to regulate emotional responses, including in response to changing situations.

Brown and Ryan (2003) identify consciousness, with its attributes of awareness and attention, as a core characteristic of mindfulness. Kabat-Zinn (1994) defines mindfulness as, "paying

attention in a particular way: on purpose, in the present moment, and non-judgmentally" (p. 4). The term "Mindfulness-Based Approaches" (MBA) refers to the range of programmes and strategies aimed at the development of mindfulness like mindfulness meditations (MMs) and mindfulness-based interventions (MBIs) (Chiesa & Serretti, 2010).

### **Need and Significance of the Study**

School places constant demands on students, including increased requirements for planning, prioritizing, time management, and follow-through, what is often referred as "executive functioning" (Herbert, Strothman, & Fein, 2001). Students with inattention find it difficult to concentrate, keep his/her mind on work, makes careless mistakes, easily distracted, avoid schoolwork and have difficulty starting and/or finishing tasks (Conners, 2014). Students with inattention lack sustained, executive, and selective attention (Tsal, Shalev, & Mevorach, 2005). The broad aspects of executive functions (EF) - guiding, directing, and managing cognitive, emotional, and behavioural functions operate as the "brain's CEO," helping to manage and regulate behavior. They play an important role in performing many tasks necessary for academic success such as organizing materials, getting started on and finishing schoolwork, remembering homework, memorizing facts, writing essays or reports, solving complex mathematics problems, completing long-term projects, being on time, controlling emotions and planning for the future. Emotion Regulation Index (ERI) - a key component of EF- represents a child's ability to regulate emotional responses



according to varying situations is very important in regulating attention.

According to Napoli, Krech, and Holley (2005), the key features of mindfulness include a focus on the breath, paying attention to the events occurring within one's mind and body, and bearing witness to one's own experience. Sustained practice of mindfulness based practices enhances attention regulation, increased levels of body awareness, emotion regulation, and change in self-perspective. It gives the students the mental tools to gain perspective on their patterns of thought and emotions. Mindfulness training has been shown to positively affect students' emotional resiliency and self-regulation.

Currently, little is known about the relative contribution of inattention and executive functions of students. Only a small number of studies have conducted empirical investigations on executive function difficulties faced by adolescent students having inattention. There are only few studies regarding how mindfulness enhances executive functions (Jha, Krompinger & Baime, 2007). Hence the investigator in the present study intends to find out the efficacy of Mindful-based practices on emotional regulation index of executive functions among students with inattention.

### **Statement of the Problem**

Increased mindful attention to daily activities, including academic activities, can lead to increased self monitoring and self-regulation of attention, which can lead to an increase in task completion. Hence the problem taken up for the study has been entitled as “**Efficacy of Mindful-based**

### **Practices on Emotional Regulation Index of Executive Functions among Students with Attention Problems.”**

#### **Objectives of the study**

1. To assess the level of inattention among students
2. To compare the mean scores of inattention among control and experimental group students
3. To compare the mean scores of ERI of control and experimental group students (based on teacher, parent and self report forms – BRIEF 2) before the intervention programmes of mindfulness-based practices
4. To compare the mean scores of ERI of control and experimental group students (based on teacher, parent and self report forms – BRIEF 2) immediately after the intervention programmes of mindfulness-based practices
5. To compare the mean scores of ERI of control and experimental group students (based on teacher, parent and self report forms – BRIEF 2) on 1<sup>st</sup>, 3<sup>rd</sup> and 6<sup>th</sup> months after the end of 8-week intervention programmes of mindfulness-based practices

#### **Hypotheses of the Study**

- H<sub>1</sub>: There is no significant difference in the mean scores of inattention of control and experimental group students (based on Conners 3- Teacher, Parent, and Self Report Forms) before the intervention programmes of mindfulness-based practices
- H<sub>2</sub>: There is no significant difference in the mean scores of ERI of executive

functioning of control and experimental group students (based on teacher, parent and self report forms – BRIEF 2) before the intervention programmes of mindfulness-based practices

- H<sub>3</sub>: There is significant difference in the mean scores of ERI of executive functioning of control and experimental group students (based on teacher, parent and self report forms – BRIEF 2) immediately after the intervention programmes of mindfulness-based practices
- H<sub>4</sub>: There is significant difference in the mean scores of ERI of executive functioning of control and experimental group students (based on teacher, parent and self report forms – BRIEF 2) on 1<sup>st</sup>, 3<sup>rd</sup> and 6<sup>th</sup> months after the end of 8-week intervention programmes of mindfulness-based practices

### Methodology of the Study

The objective of the present study is to explore the inattention among students and the effectiveness of mindfulness-based practices on ERI of executive functions among students with inattention. Hence the investigator has applied survey cum experimental method. In the first phase of the study students with inattention were identified from a group of 300 students. Eighty students who scored e" 70 on inattention subscale of the Conners 3-teacher, parent, and self Rating Scales (Conners 3-P; Conners, 2008) were selected for the second phase of the study which is experimental in nature with pre-test-post-test control-group design where experimental group was subjected to mindfulness-based practices. The data was collected in three

phases; pretest phase - before the intervention formed the baseline, post-test phase - immediately after intervention and follow up phases- after one, three and six months of withdrawal of the intervention. The data obtained from the respondents were scored and analyzed using appropriate statistical techniques to draw meaningful inferences on the effect of the intervention.

### Population and Sample

The students of 13-16 age group studying in standards VIII and IX of St. Ephrem's Higher Secondary School, Mannanam, Kottayam constitute the target population of the study and 80 students of the same category form the sample.

### Operational Definition of Key Terms

**Inattention:** Students having inattention may have poor concentration/attention or difficulty keeping his/her mind on work, may make careless mistakes, may be easily distracted, may give up easily or be easily bored, may avoid schoolwork and may have difficulty starting and/or finishing tasks (Conners, 2014). This study measures inattention as the total scores obtained in the inattention subscale of all the three Conners Scales – Self-Report Short Version (Conners 3–SR), The Conners 3 – Parent Form, Short Version and The Conners 3 –Teacher rating scale, Short Version.

**Executive functions:** Collective process that are responsible for guiding, directing, and managing cognitive, emotional, and behavioural functions such as Inhibit, Self-Monitor, Shift, Emotional Control, Initiate, Task Completion, Working Memory, Plan/Organize, Task-Monitor and

Organization of Materials (Gioia, Isquith, Guyy & Kenworthy, 2015). In the present study the investigator used 10 clinical scales of The Behaviour Rating Inventory of Executive Function (BRIEF2) to measure the above Executive functions.

**Emotion Regulation Index (ERI)** represents a child's ability to regulate emotional responses, including in response to changing situations (Gioia, Isquith, Guyy & Kenworthy, 2015). This study measures ERI as the total scores obtained by summing up shift and emotional control scales of BRIEF2.

**Mindfulness:** Mindfulness is "the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of

experiences moment by moment" (Kabat-Zinn, 2003 p. 145).

**Students:** Students of 13-16 age group studying in standards V111 and 1X

### Statistical Techniques Used

The statistical techniques used in the study are percentage analysis, mean, standard deviation, independent sample t-test, repeated measures of analysis of variance and paired t-test

### Results and Discussion

#### *Assessment of the Level of Inattention among Students*

Inattention levels of 300 students were assessed using the inattention sub-scale from the Conners 3-teacher, parent and self forms.

Table 1

*Inattention Levels of Students according to the Inattention Subscale of the Conners 3-Teacher, Parent and Self Forms*

Group		T score (Teacher form)	T score (Parent form)	T score (Self form)
Very Elevated	N	103	103	103
	% of Total N	34.3%	34.3%	34.3%
	Mean	77.21	77.86	75.00
	SD	4.043	6.287	5.224
Elevated	N	50	50	50
	% of Total N	16.7%	16.7%	16.7%
	Mean	68.70	68.50	66.16
	SD	7.893	7.768	.738
High Average	N	46	46	46
	% of Total N	15.3%	15.3%	15.3%
	Mean	64.39	64.89	63.15
	SD	5.814	8.290	.698
Average	N	101	101	101
	% of Total N	33.7%	33.7%	33.7%
	Mean	60.04	62.45	54.37
	SD	12.188	12.746	4.722
Total N		300	300	300

On the basis of T scores obtained in the above rating scales 34.3% of the students fall in the category of very elevated inattention level, 16.7% in the category of elevated level of inattention, 15.3% in the category of high average level of inattention and 33.7% students are in the category of average level of inattention.

#### Comparison of the Mean T Scores of Inattention among Control and Experimental Group Students

The mean T scores of control and experimental group students based on inattention subscale of the Conners 3-teacher, parent and self rating scales were compared. The result of the independent sample t test is presented in Table 2.

Table 2

*Comparison of the mean T scores in the Inattention Sub-scale of the Conners 3-Teacher, Parent, and Self Rating Scales of Control and Experimental Group Students*

T score	Group	Mean	SD	t-test for Equality of Means		
				t	df	Sig.
Teacher Form	Experimental	77.55	3.748	.142	78	.888
	Control	77.68	4.135			
Parent Form	Experimental	78.25	7.114	.067	78	.947
	Control	78.35	6.241			
Self form	Experimental	76.48	5.496	.420	78	.676
	Control	75.98	5.147			

The results of the independent sample t test clearly indicated there is no significant difference in the mean T scores of control and experimental group students based on inattention sub-scale of the Conners 3-teacher (t value = .142;  $P > 0.05$ ), parent (t value = .067;  $P > 0.05$ ), and self-forms (t value = .420;  $P > 0.05$ ).

Hence the Hypothesis  $H_1$  which states that “There is no significant difference in the mean scores of inattention of control and experimental group students (based on Conners 3- Teacher, Parent, and Self Report Forms) before the intervention programme of mindfulness-based practices” is accepted

#### Comparison of the Mean T Scores of ERI of Executive Functioning of Control and Experimental Group Students based on Teacher, Parent and Self Report Forms – BRIEF 2 before the Intervention Programme of Mindfulness - based Practices

The mean pre-test ERI T scores of control and experimental group students based on teacher, parent and self report forms – BRIEF 2 were compared. The results of the independent sample t test are presented in Table 3.

Table 3

*Comparison of the Pre-test ERI T Scores of the Teacher, Parent and Self Report Forms – BRIEF 2 of Control and Experimental Group Students*

Pre test ERI T score	Group	Mean	S D	t-test for Equality of Means		
				t	df	Sig.
Teacher form	Experimental	65.95	5.20	.338	78	.736
	Control	65.55	5.37			
Parent form	Experimental	59.03	5.28	.236	78	.814
	Control	59.30	5.14			
Self form	Experimental	65.33	10.88	.251	78	.802
	Control	64.78	8.58			

The results of the independent sample t test clearly indicated that there is no significant difference in the mean scores of ERI of executive functioning of control and experimental group students based on based on teacher, (t value = .338;  $P>0.05$ ) parent, (t value = .236;  $P>0.05$ ), and self (t value = .251;  $P>0.05$ ) report forms – BRIEF 2 before the intervention programmes of mindfulness-based practices.

Hence the Hypothesis  $H_2$  which states that “There is no significant difference in the mean scores of emotion regulation index of executive functioning of control and experimental group students (based on teacher, parent and self report forms – BRIEF 2) before the intervention programme of mindfulness-based practices” is accepted.

The mean pre-test ERI T scores of executive functioning of control and experimental group students based on teacher and self-report forms were at potentially clinically elevated level whereas according to parent form both control and experimental group students were at mildly elevated level.

#### **Comparison of the Post-test Mean T Scores of ERI of Control and Experimental Group Students based on Teacher, Parent and Self Report Forms – BRIEF 2**

The post-test mean ERI T scores of control and experimental group students based on teacher, parent and self report forms – BRIEF 2 were compared. The results of the independent sample t test are presented in Table 4.

Table 4

*Comparison of the Post-test Mean ERI T Scores of the Teacher, Parent and Self Report Forms – BRIEF 2 of Control and Experimental Group Students*

Post test ERI T score	Group	Mean	S D	t-test for Equality of Means		
				t	df	Sig.
Teacher form	Experimental	61.78	4.91	3.062	78	.003
	Control	65.35	5.51			
Parent form	Experimental	58.85	6.83	1.559	78	.123
	Control	61.35	7.50			
Self form	Experimental	58.08	10.21	2.188	78	.032
	Control	62.65	8.40			

The results of the independent sample t test indicated that there is significant difference in the mean scores of emotion regulation index of executive functioning of control and experimental group students based on teacher, t value = 3.062;  $P < 0.01$  and self, t value = 2.188;  $P < 0.05$  report forms – BRIEF 2 immediately after the intervention programmes of mindfulness-based practices. However t value = 1.559; ( $P > 0.05$ ) based on parent form – BRIEF 2 indicated that there is no significant difference in the mean scores of ERI of executive functioning of control and experimental group students immediately after the intervention programmes of mindfulness-based practices.

The mean post-test ERI T scores of executive functioning of control group students based on teacher, parent and self report forms – BRIEF 2 were at potentially clinically elevated level as in pre-test.

Whereas post-test ERI T scores of experimental group students based on teacher was reduced to mildly elevated level and parent and self report forms were reduced to not elevated average level from potentially clinically elevated level as in pre-test.

### Comparison of Executive Functioning of Control and Experimental Group Students on 1<sup>st</sup>, 3<sup>rd</sup> and 6<sup>th</sup> Months Follow Up Phases

To compare the ERI of executive functioning of control and experimental group students based on teacher, parent and self report forms – BRIEF 2 on 1<sup>st</sup>, 3<sup>rd</sup> and 6<sup>th</sup> months after the end of 8-week intervention programme of mindfulness-based practices the T scores were analyzed using repeated measures analysis of variance (ANOVA) separately. The results of the analysis are presented in Table 5.

Table 5

*Comparison of the Mean ERI T Scores of the Teacher, Parent and Self Report Forms – BRIEF 2 of Experimental and Control Group Students across the Five Phases of Testing*

<b>Experimental Group</b>						
Time (ERI T score)	Teacher Form		Parent Form		Self Form	
	Mean	SD	Mean	SD	Mean	SD
Pre test	65.95	5.20	63.27	7.17	63.27	7.17
Post test	61.78	4.91	58.85	6.83	58.85	6.83
1 <sup>st</sup> month	61.32	4.83	58.90	6.62	58.90	6.62
3 <sup>rd</sup> month	61.53	4.95	57.93	8.27	57.93	8.27
6 <sup>th</sup> month	61.68	4.97	57.73	8.12	57.73	8.12
<b>Control Group</b>						
Pre test	65.55	5.37	61.70	7.021	64.78	8.580
Post test	65.35	5.51	61.35	7.502	62.65	8.399
1 <sup>st</sup> month	65.50	5.46	61.33	7.522	63.93	8.001
3 <sup>rd</sup> month	65.60	5.35	61.25	7.355	64.60	7.441
6 <sup>th</sup> month	65.40	5.47	61.75	7.192	64.10	8.180

Results of the repeated measures analysis of variance (ANOVA) for the mean ERI T scores of experimental and control group students on the BRIEF 2 teacher,

parent and self report forms after correcting the degrees of freedom using Greenhouse-Geisser estimates of sphericity across the five phases of testing is given in the Table 6.

Table 6

*Results of Repeated Measures of ANOVA for the Mean ERI T Scores of Experimental and Control Group Students on the BRIEF 2 Teacher, Parent and Self Report Forms after Correcting the Degrees of Freedom Using Greenhouse-Geisser Estimates of Sphericity across the Five Phases of Testing*

### **Experimental Group**

ERI T Scores	Source		Type III Sum of	df	Mean Square	F	Sig.	Partial Eta Squared
Teacher Form	time	Greenhouse-	617.10	2.591	238.21	121.49	.00	.757
	Error (time)	Geisser	198.10	156	1.27			
Parent Form	time	Greenhouse-	821.13	1.384	593.32	22.33	.00	.364
	Error (time)	-Geisser	1434.07	53.97	26.57			
Self Form	time	Greenhouse	1460.45	2.814	518.99	80.182	.00	.673
	Error (time)	-Geisser	710.35	109.74	6.47			
<b>Control Group</b>								
Teacher Form	time	Greenhouse	1.720	2.021	.851	.977	.382	.024
	Error (time)	-Geisser	68.680	78.835	.871			
Parent Form	time	Greenhouse-	8.600	1.686	5.100	1.293	.278	.032
	Error (time)	Geisser	259.40	65.765	3.944			
Self Form	time	Greenhouse-	111.930	2.250	49.754	1.940	.144	.047
	Error (time)	Geisser	2249.67	87.738	25.641			

The repeated measures ANOVA of ERI of experimental Group with a Greenhouse-Geisser correction determined that mean T score ERI differed statistically significant between time five level points ( $F(2.591, 101.033) = 121.489, P < 0.01$ ) with effect size  $\eta^2 = .757$  in teacher forms; ( $F(1.384, 53.974) = 22.331, P < 0.01$ ) with effect size  $\eta^2 = .364$  in parent forms; and ( $F(2.814, 109.748) = 80.182, P < 0.01$ ) with effect size  $\eta^2 = .673$  in self report forms. Where as in control group the repeated measures

ANOVA of ERI with a Greenhouse-Geisser correction determined that mean T score ERI is not differed statistically significant between time points ( $F(2.021, 68.680) = .977, P > 0.05$ ) in teacher forms; ( $F(1.686, 65.765) = 1.293, P > 0.05$ ) in parent forms; and ( $F(2.250, 87.738) = 1.940, P > 0.05$ ) in self report forms.

Results of the post hoc test using Bonferroni correction between the mean ERI T scores of experimental group students at

the pre-test (time1), post test (time 2), 1<sup>st</sup>(time 3), 3<sup>rd</sup> (time 4), and 6<sup>th</sup>(time 5), months follow

up phases on the BRIEF 2 teacher, parent and self report forms is given in the Table 7.

Table 7

*Post hoc test using Bonferroni correction between the Mean ERI T Scores of Experimental Group Students at the pre-test (time1), post test (time 2), 1<sup>st</sup> (time 3), 3<sup>rd</sup> (time 4), and 6<sup>th</sup> (time5), months follow up phases on the BRIEF 2 Teacher, Parent and Self Report Forms*

Experimental Group Students		Teacher Form		Parent Form		Self Report	
(I) time	(J) time	(I-J)	Sig.	(I-J)	Sig.	(I-J)	Sig.
Pre-test	Post-test	4.175*	.000	4.425*	.000	7.250*	.000
	1 <sup>st</sup> Month	4.625*	.000	4.375*	.000	6.425*	.000
	3 <sup>rd</sup> Month	4.425*	.000	5.350*	.000	6.625*	.000
	6 <sup>th</sup> Month	4.275*	.000	5.550*	.000	6.575*	.000
Post- test	1 <sup>st</sup> Month	.450*	.045	-.050	.797	-.825*	.035
	3 <sup>rd</sup> Month	.250	.338	.925	.260	-.625	.087
	6 <sup>th</sup> Month	.100	.606	1.125	.175	-.675	.214
1 <sup>st</sup> Month	3 <sup>rd</sup> Month	-.200	.210	.975	.247	.200	.598
	6 <sup>th</sup> Month	-.350	.242	1.175	.167	.150	.745
3 <sup>rd</sup> Month	6 <sup>th</sup> Month	-.150	.628	.200	.372	-.050	.932

\*The mean difference is significant at the .05 level.

Post hoc tests using the Bonferroni correction revealed that 8-week intervention programmes of mindfulness-based practices elicited a reduction in mean ERI T score in teacher form from base line (mean = 65.95) to immediately after intervention programmes (mean = 61.78); in parent form from base line (mean = 63.27) to immediately after intervention programmes (mean = 58.85) and in self report form from base line (mean = 65.32; SD = 10.878) to immediately after intervention programmes (mean = 58.07) which were

statistically significant ( $P < 0.01$ ). The experimental group's mean ERI T score at follow-ups such as 1<sup>st</sup>, 3<sup>rd</sup> and 6<sup>th</sup> months did not significantly differ from scores in the post-tests in the BRIEF 2 teacher, parent and self report forms. Thus, the findings demonstrate that students in the experimental group retained the reduction in mean ERI T score over a follow-up period of six months after the end of 8-week intervention programmes of mindfulness-based practices.

The control group's mean ERI T score at follow-ups such as 1<sup>st</sup>, 3<sup>rd</sup> and 6<sup>th</sup> months did not significantly differ from scores in the



base line and post-test immediately after intervention programmes. Thus, the findings demonstrate that students in the control group

retained the same mean ERI T score over the entire period of study.

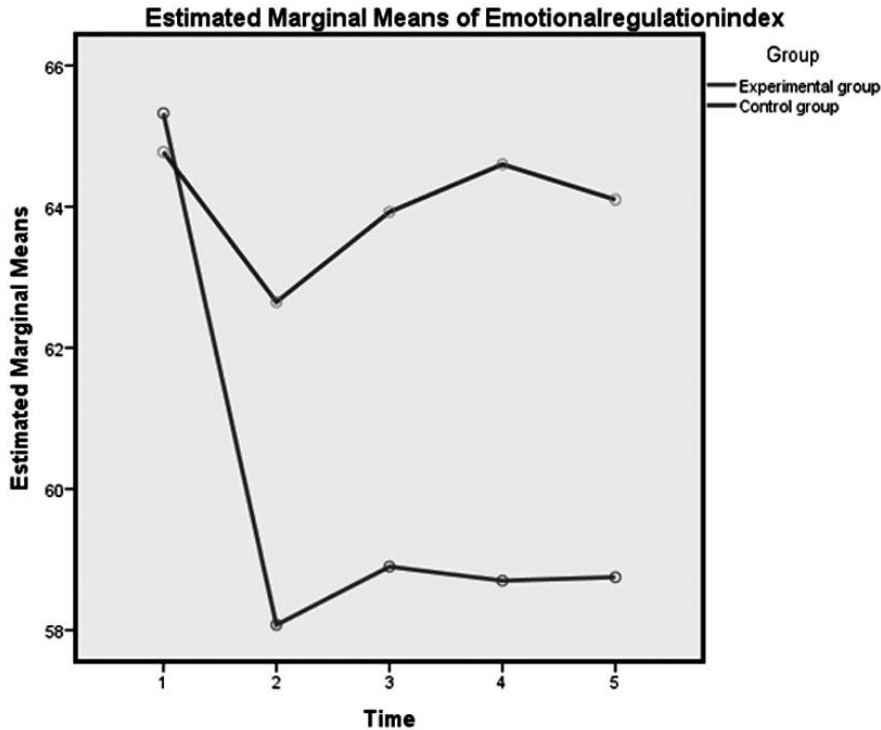


Figure 1

*Comparison of the Mean ERI T Scores of the Teacher, Parent and Self Report Forms – BRIEF 2 of Experimental and Control Group Students across the Five Phases of Testing*

Hence the Hypothesis  $H_4$  which states that “There is significant difference in the mean scores of ERI of executive functioning of control and experimental group students (based on teacher, parent and self report forms – BRIEF 2) on 1<sup>st</sup>, 3<sup>rd</sup> and 6<sup>th</sup> months after the end of 8-week intervention programme of mindfulness-based practices” is accepted.

## Conclusion

The present study regarding the efficacy of the mindfulness-based intervention on emotion regulation index of executive functioning among students with inattention has revealed that intervention programme has increased the emotion regulation including in response to changing situations. The outcomes assessed prove that there are reliable improvements in various aspects of emotion regulation index such as shift and

emotional control of students with inattention. Hence Mindful-based intervention is an effective method in reducing ERI of executive functions among school students with inattention.

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## EDUCATION FOR CULTURE IN THE VISION OF MAR IVANIOS, SERVANT OF GOD

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Dr. Sunila Thomas\*\*

### Abstract

*One of the important aims of education is to impart culture from generation to generations. Culture is a growing whole. There is no break in the continuity of culture. The cultural elements are passed on through the agents like family, school and other such associations. Mar Ivanios envisaged the effect of transmission of culture through education. He insisted upon the establishment of schools to imbibe new culture and to transmit to the coming generations. A society with good culture definitely transmit a series of good effects to others invariably. He believed in the necessity of education for culturisation. People who are having different tastes, styles, religion, traditions and taboos living in the same society can help each other by imparting values and morals each others. In order to integrate the differences of culture education is inevitable. Through education one can understand, adjust and integrate the information collected from the class rooms. All societies maintain themselves through their culture. Mar Ivanios understood culture as a set of beliefs, skills art literature, philosophy, religion, music etc which must be learned. This social heritage must be transmitted through effective schools and college systems.*

**Key words:** Education, culture, vision, discrimination, caste system, etc.

### Introduction

Mar Ivanios a great sage of the 20<sup>th</sup> century had a good educational pursuit at his credit by way of educating himself and others. Among the population only a few may shine like stars. The genius educationist Mar Ivanios envisaged an educational system based on morals and principles. He lived in a time where education was monopolized by

high class and well to do people. In Kerala, during his time existed different types of inequalities and discriminations of cast system. He has gone beyond all these limits and attempted to impart knowledge to his generation and coming generations. Being an ardent person of equality he put forward the necessity of women empowerment through

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education. He firmly believed that liberation of a person means the integral development through education. As an apostle of quality moral education he lighted the lamp of hope to different sects of people in Kerala and even abroad. It is he who made great attempts to make education become common. He addressed and represented a society having no proper educational edifice. He brought in a challenging educational contributions in the field of lower and higher levelsof quality education possible to the common and marginalized people of his country.

### **Need and Significance of the Study**

The Scientific and technological revolution of the present day has impacted only on the development of intellectualism. As our intellect increases our morale has decreased. The emotional quotient and social as well as spiritual conscience have decreased. So our country should have an adequate number of spiritual personalities in the nation's race for progress. Hence the school has to provide some opportunities, starting from the elementary classes; so that the innate capabilities of the students are to be developed. National curriculum development council and NCERT took the responsibility of improving the morale of students through imparting moral sciences, co-curricular activities, yoga, meditation, spiritual talks etc.

The investigators feel that that there is serious deterioration of moral values. The students are now a days voluntarily deviating from the social norms and do not know how to behave, rather they demolish the whole value systems. The investigator feels that

the atmosphere of home, influence of mass media, peer group, vast explosion of knowledge keeping them away from the spiritual values and personality. Culture must be strengthen in all communities without failure. To enhance culture a genuine and true basic education schools are provided to each child. The knowledge imparted to the child in his tender ages will persist in their continuing life. It is essential that primary education must be given to each child for resuming their cultural behavior. By providing proper education in due time may make a positive cultural formation in their behavior.

Hence the investigator feels very proud to be a Malankara catholic and the follower of Servant of God, Mar Ivanios. So the investigator intended to focus on the Cultural Contributions made by Mar Ivanios through education not only for Kerala society but also for the entire Indian society.

A good culture brings into notice an acceptable behavioral pattern of life. The investigator analyzes the different factors, which affects personality in the view of spirituality.

### **Objectives of the Study**

1. To study about the contribution Mar Ivanios in the upliftment of the culture of society.
2. To bring out the contribution of Mar Ivanios in empowering women through cultural education.

### **Sample**

1. Students who have been taught by Mar Ivanios
2. Students who have studied in various institutions those were established by Mar Ivniios.

3. Teachers who are teaching/aught in various institutions established by Mar Ivanios.
4. Higher religious authorities of Malankara Syrian Catholic community.

### **Methodology**

The method adopted for present study Documentary analysis cum interview method.

### **Tools used for the Study**

- i) Documentary Analysis
- ii) Interview Schedule

### **Educational Contributions of Mar Ivanios Education for Cultural Change**

The age old humanity had a raw temperament behavior when it was in the cave age and stone age periods. As time passed the animal nature of man gradually changed. Humanity has witnessed a number of generations and each one had placed remarkable signatures of their own for the coming generations. Man started learning by doing in their daily surroundings and situations. The inquisitiveness of men made him become scientists, socialist, spiritualist, educationalist etc. He expounded a number of realities through his inventions. Real educations prompted him towards achievement, development and success in his endeavours. He formed communities class groups and leaders with proper rules and regulations a new evolution of culture came up with his systematic way of education. Education has this function of cultural transmission in all societies. The curriculum of a school, its extracurricular activities and the formal

relationships among students and teachers communicates social skills and values. Through various activities in school the child initiates into an atmosphere of a pattern of behavior and relationships and it will lead him a culture. As ages passed communities became more and more complex and a number of educational philosophers came up and put forward their theories. The 19<sup>th</sup> and 20<sup>th</sup> centuries have a remarkable role in the making of eminent educationists like Sree Ramakrishna Paramahansa, Tolstoy, Rabindranath Tagore, Swami Vivekananda, Sri Aurobindo, Dr. S Radhakrishnan, SreeNarayana Guru and Servant of God Mar Ivanios. The arrival of Mar Ivanios the so called P.T. Geevarghese M A in the scenario of education opened a number of remarkable cultural changes in the society. The dazzling cultural precepts of Mar Ivanios demanded university education for his own people who had not been attained even higher secondary education since then.

The important aim of schools is to bring cultural change in the society. Each one should know how to behave with each other when he is alone or in the group. Man having enormous intelligence to imbibe and understand culture difference in the society. If these seeds of culture are sowed well in advance the fruit will be remarkable. Mar Ivanios realized this fact and started a number of schools at different places for culturisation of the communities. As an Arch Bishop, Mar Ivanios founded 78 primary, 18 middle schools, 1 training college and Mar Ivanios college at Nalanchira..

Table 1

*Educational institutions started by Mar Ivanios*

Type of Institution	Number of Schools	Approximate Number of students	Approximate Number of Teachers
Lower Primary Schools	78	2800	60
Upper primary Schools	18	8000	140
High Schools	15	4000	100
Colleges	1	1500	75
Total	112	16300	375

**Schools and culture**

Schools are the so called cradles of culture. Learning of a language itself means learning a culture. The important aim of schools is to bring culture in the society. Each one should know how to behave each other when he is alone or in the group. Man having enormous intelligence to grasp and study things easily. The very early ages of a child is the time for moulding his culture. If a boy is given proper education in an objective manner in the apt time through schooling definitely he will know the whereabouts of culture where he is living. Schools are considered as the primary place for culture development. Mar Ivanios realized this fact and started a number of schools at different places for providing culture based knowledge. He is a good teacher who really moulded the character of his pupils and been a cultural engineer who gave right direction to the society.

**Women Education and Culture**

The Social scenario of Kerala during the time of Mar Ivanios was not conducive for women. Women had not any sufficient

freedom for education. It is Mar Ivanios who started a school for girls in the label BalikaMadom at Thirumoolapuram. This school was exclusively for girls. Girls of the poor strata of the communities were chosen and given residential education in the school. The girls who studied in that school were sent abroad for higher studies. The status of women started increasing by the introducing girl schools at different parts of kerala. English education which was unknown to the women had become a possible to the common people. Mar Ivanios started certain village schools exclusively for girls to provide them good education. He believed that women are to be taught well. If a girl is properly taught she would definitely be a good mother who will nurture her off spring with proper cultural education.

**Conclusion**

There are many educational institutions in Kerala which are the result of the hard work of social leaders. As a social leader Mar Ivanios struggled too much for achieving success in his attempts to educate the

community. The greatest example of his foresight and dedication was the Mar Ivanios college in Trivandrum, he brought the land and imported the materials for construction in advance. The educational institutions that he started really changed the face of the Kerala people. Where ever he started schools or colleges people started living myriads in number near the radius of the campus. Such places remarkably improved and developed with business enterprises, hospitals, town-ships malls, IT institutions and so on. The localities have developed in education and culture. proper education enabled people to have high salaried occupations of high status inland and abroad. The communities economically and socially developed to a large extent. Socialization through education has become well accepted and people worked hard for a better future. Undoubtedly, we could comment that Mar Ivanios can be considered as the champion and pioneer of all these social changes among the Kerala people and of other people.

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## METACOGNITION AMONG THE HIGHER SECONDARY SCHOOL STUDENTS

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### Abstract

*The process of Education envisages the development of all those capabilities in the individual which will enable him to control his environment and fulfill his responsibilities (John Dewey, 1938). The most important capability to be developed among students is Metacognition. It is thinking and managing the mental skills. It has applications for many areas of school success. This study aims to assess the Metacognition among the Higher Secondary School Students of Kottayam District and to find out the difference in Metacognition among secondary school students with respect to gender, locale of residence and the type of management of school in which the students study, using descriptive survey method. The sample of the study constitutes a representative group of 400 Students of Higher Secondary Schools in Kottayam District with due representation to gender, locale and type of management of institution, selected by using stratified random sampling technique. The metacognition of students were measured by using 'Metacognition inventory' developed and standardized by Govil, Punita(2003). The major Findings of the Study are: i). There exists no significant difference in the means of scores on Metacognition between male and female students of Higher Secondary Schools. ii). There exists no significant difference in the means of scores on Metacognition between the students of Higher Secondary Schools who reside in the urban and rural areas of Kottayam District and iii). There exists no significant difference in the means of scores on Metacognition between the students in Government and Aided Higher Secondary Schools.*

The process of Education envisages the development of all those capabilities in the individual which will enable him to control his environment and fulfill his responsibilities (John Dewey, 1938). It is this process which transforms an individual into a blossoming

flower enabling him to radiate his aroma of knowledge to the society. Through education, the members of the society learn the skills to enrich, transmit and transform cultural heritage as well as utilize existing social and scientific knowledge for the continuous

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advancement of the society. It is a product viewed as the sum total of what is received through learning, which involves acquisition of knowledge, skills, attitudes, values and development of personality. In other words education is a complex concept and refers both to a process as well as a product.

Metacognition is thinking about thinking, knowing “what we know” and “what we don’t know.” Just as an executive’s job is management of an organization, a thinker’s job is management of thinking. The basic Metacognitive strategies are:

1. Connecting new information to former knowledge.
2. Selecting thinking strategies deliberately.
3. Planning, monitoring, and evaluating thinking processes. (Dirkes, 1985)

A thinking person is in charge of his behaviour. He determines when it is necessary to use Metacognitive strategies. He selects strategies to define a problem situation and researches alternative solutions. He tailors this search for information to constraints of time and energy. He monitors, controls and judges his thinking. He evaluates and decides when a problem is solved to a satisfactory degree or when the demands of daily living take a temporary or permanent higher priority.

Studies show that increases in learning have followed direct instruction in Metacognitive strategies. These results suggest that direct teaching of these thinking strategies may be useful, and that independent use develops gradually (Scruggs, T.; Mastropieri, M. A.; Monson, J.; & Jorgenson, C 1985).

Learning how to learn, developing a repertoire of thinking processes which can be applied to solve problems, is a major goal of education. The school library media center, as the hub of the school, is an ideal place to integrate these types of skills into subject areas or students’ own areas of interest. When life presents situations that cannot be solved by learned responses, Metacognitive behaviour is brought into play. Metacognitive skills are needed when habitual responses are not successful. Guidance in recognizing, and practice in applying, Metacognitive strategies, will help students successfully solve problems throughout their lives.

### **Need and Significance of the study**

Metacognition has applications for many areas of school success. The essence of Metacognition is awareness of one’s cognitive processes, as well as an ability to develop a plan for achieving a goal and evaluating one’s effectiveness of reaching that goal. Since the mid-1970’s Metacognition has become one of the major fields of cognitive and educational psychology research. However, an assessment on Metacognitive ability has been still problematic because it is difficult to distinguish between what is ‘*meta*’ and what is ‘*cognition*’, and also assessments in classroom practice normally pay attention only to students’ cognition. Numerous studies suggested that Metacognition is important for students’ learning because it affects how students apply what they had learnt to solve problems.

Students come to the Higher Secondary Schools after a period of intense physical change and formation of identity. It is a time

of intense vibrancy and energy. The ability for abstract reasoning and logical thinking is also acquired. This gives them the possibility of serious engagement with understanding, generating and evaluating various types of knowledge. A critical understanding of the self is also attained by this age. Since higher secondary education is meant for both enabling the students to choose an area of interest for their future studies or profession and giving a foundation to the area of their choice, a deeper understanding of the subject matter is quite inevitable. But the present curriculum or educational policies do not take into account the need for nurturing or promoting Metacognitive abilities at this stage of education. What happens today is that the children with self awareness perform well in the tests and others are neglected being labelled as less endowed students. The study of Metacognitive capacities among the students of this age would help to achieve the goals of Higher Secondary Education.

In science or mathematics, Metacognition looks like planning strategies to use on a word problem or to design an experiment to isolate a given element. Additionally, Metacognition means being able to evaluate several different strategies used in order to determine which ones worked, and which ones might be the best to use in a similar situation in the future. In the humanities, Metacognition teaches students to plan essays and modes of research before delivering into a large paper or term paper. Metacognition also helps students along the way to remain focused on task and ensures the end result will be a clear, concise exposition of a single topic with appropriate details included.

Surprisingly, Metacognitive awareness is not uniformly developed in students. In reading, even college age students are unaware of how they can approach texts, plan their study, or work by facing problems that have stumped upon them. In writing, inexperienced writers may follow one procedure again and again without flexibility, even when they meet with persistent failure.

Learning to learn requires that students accurately monitor the effectiveness of their study and problem-solving behaviour. Higher-achieving students engage in more self-assessment than lower-achieving students. By encouraging self-assessment and developing monitoring skills in students, teachers can provide students with skills that will help them well after they leave the classroom.

Knowing the level of Metacognition achieved by students help the teachers, curriculum designers and text book writers to design and facilitate learning process according to the entry behaviour of students in terms of Metacognitive skills. Especially it will help the classroom teacher to provide learning experiences so as to develop the skill to manage the students own thinking by themselves. Therefore the investigators become interested in conducting the present study to assess the Metacognitive Skills among secondary school students. Moreover the investigators were interested to know whether gender, locale of residence or the type of management of school in which the students study affect their Metacognitive Skills.

## Objectives of the Study

1. To find out the distribution of scores on Metacognition among the students of Higher Secondary Schools.
2. To find out the difference in the means of scores on Metacognition between the groups of students of Higher Secondary Schools based on
  - a) Gender
  - b) Locale
  - c) Type of Management of Institution

## Hypothesis of the Study

- i. There exists no significant difference in the means of scores on Metacognition between male and female students of Higher Secondary Schools.
- ii. There exists no significant difference in the means of scores on Metacognition between the students of Higher Secondary Schools who reside in the urban and rural areas of Kottayam District.
- iii. There exists no significant difference between the means of scores on Metacognition between the students in Government and Aided Higher Secondary Schools.

## Methodology of the Study

For the present study the investigators adopted descriptive survey method. This study aims to assess the Metacognition among the Higher Secondary School Students of Kottayam District and to find out the difference in Metacognition among secondary school students with respect to gender, locale of residence and the type

of management of school in which the students study.

## Tools Used in the Present Study

The investigators used 'Metacognition inventory' developed and standardized by Govil, Punita(2003) for assessing the Metacognition of Higher Secondary School Students.

## Sample for the Study

Proportionate stratified sampling technique was used for the selection of sample. The sample constitutes a representative group of 400 Students of Higher Secondary Schools in Kottayam District with due representation to gender, locale and type of management of institution.

## Analysis and Findings

### *The Distribution of the Scores on Metacognition*

In order to find out the distribution of scores on Metacognition among the students of Higher Secondary Schools, the investigators administered the "Metacognition Inventory" (Govil, P. 2003), on four hundred students of Higher Secondary Schools selected from Government and Aided schools of Kottayam District. The collected data were analysed with the help of SPSS (20.0). The descriptives Mean (M) and standard deviation (SD) of the scores on the Metacognition among the students of Higher Secondary Schools have been presented in the table 1 and the frequency distribution is given in table 2.

Table 1

The Number (N), Mean (M) and Standard Deviation (SD) of the Scores on Metacognition among the Students of Higher Secondary Schools.

Variable	Number (N)	Minimum	Maximum	Range	Mean (M)	Standard Deviation (SD)
Metacognition	400	60.00	116.00	56.00	91.92	10.59

From the above table 1, it is observed that the means of scores on Metacognition of the 400 students of Higher Secondary Schools is 91.92 and the standard deviation is 10.59. The maximum score which can be attained for an individual is 120, and the minimum score is 30. The highest score obtained for the sample is 116 and lowest score obtained is 60. The scores are in range between 60 and 116. The range is 56.

Table 2

*The Frequency Distribution of Scores on Metacognition Inventory*

Class Interval	Frequency	Percentage
69 and below	13	3.2
70-81	54	13.5
82-94	147	36.8
95-106	165	41.3
107 and above	21	5.2
Total	400	100

From the table 2, it is observed that, the highest number of students got the score in between 95 and 106. They have high Metacognition. Twenty One students scores

above 107 and they have very high Metacognition. Thirteen students got scores below 69 and they have very low Metacognition. The number of students who scored between 82 and 94 are 147 and they have average Metacognition. Fifty Four students, those who scored between 70 and 81, have low Metacognition.

The Difference in the Means of Scores on Metacognition between the Groups of Students of Higher Secondary Schools based on a) Gender b) Locale and c) Type of Management of Institution

The investigators found out the difference in the means of scores on Metacognition between the groups of students of Higher Secondary Schools based on gender, locale and type of management of institution using the inferential statistics namely 't' test for large independent samples. The 't' value was set at 2.58 at 0.01 level of significance and 1.96 at 0.05 level of significance. The result is presented in the table3, table 4 and table5.

Table 3

*The Difference in the Means of Scores on Metacognition Based on Gender among the Male and the Female Students of Higher Secondary Schools*

Gender	N	M	SD	Mean Difference	't' value	p value	Remarks
Girls	290	92.07	10.23	.54	.456	.648	Not Significant
Boys	110	91.53	11.54				

From the table 3, the investigators observe that the obtained 't' value .456 is less than the theoretical value 2.58 at 0.01 level of significance. In the light of this, the hypothesis which states that "there exists no significant difference in the means of scores on Metacognition between male and female students of Higher Secondary Schools" is

Table 4

*The Difference in the Means of Scores on Metacognition Based on Locale of the Students of Higher Secondary Schools*

Locale	N	M	SD	Mean Difference	't' value	p value	Remarks
Rural	356	91.92	10.66	.03	.022	.982	Not Significant
Urban	44	91.89	10.16				

The table shows that the obtained 't' value 0.022 is less than the theoretical value 2.58 at 0.01 level of significance. Therefore the hypothesis which states that "there exists no significant difference in the means of scores on Metacognition between the students of Higher Secondary Schools who

Table 5

*The Difference in the Means of Scores on Metacognition Based on Type of Management of Institution*

Type of management	N	M	SD	Mean Difference	't' value	p value	Remarks
Govt.	146	93.12	10.90	1.89	1.727	1.10	Not Significant
Aided	254	91.23	10.36				

From the table 5 the investigators found that the obtained 't' value 1.727 is less than the theoretical value 2.58 at 0.01 level of significance. In the light of this, the hypothesis which states that "there exists no significant difference in the means of scores on Metacognition between the students in Government and Aided Higher Secondary Schools" is accepted. It indicates that there is no significant difference in the means of scores on Metacognition between the

accepted. It indicates that there is no significant difference in the means of scores on Metacognition between male and female students of Higher Secondary Schools. That is the Metacognition of male and female students of Higher Secondary Schools do not differ significantly.

reside in the urban and rural areas of Kottayam District" is accepted. That is the Metacognition of the students of Higher Secondary Schools who reside in the urban and rural areas of Kottayam District do not differ significantly.

students in Government and Aided Higher Secondary Schools. That is the students of government and aided Higher Secondary Schools do not differ significantly in their score on Metacognition.

### Major Findings of the Study

- There exists no significant difference in the means of scores on Metacognition between male and female students of Higher Secondary Schools.

- There exists no significant difference in the means of scores on Metacognition between the students of Higher Secondary Schools who reside in the urban and rural areas of Kottayam District.
- There exists no significant difference in the means of scores on Metacognition between the students in Government and Aided Higher Secondary Schools.

### Conclusion

The study reveals that the scores on metacognition of Higher secondary school students are medium. The scores on metacognition of Higher secondary school students are not affected by gender, locale of residence or type of management of schools. That means Metacognition of the Higher secondary school students are not differ among the male and female students, rural and urban students and students from government and aided schools. Therefore the Metacognition of students can be improved by planning and devising proper techniques and educational strategies and effective design and implementation of curriculum.

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## EFFECTIVENESS OF METACOGNITION IN ENHANCING SCIENCE INTEREST AMONG SECONDARY SCHOOL STUDENTS

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### Abstract

*The aim of the present study is to find out the effectiveness of metacognition in enhancing science interest among secondary school students. Metacognition is the sequential process that are used to control, monitor and evaluate our own thinking process. A science teacher should understand the tentative nature of science and should teach scientific facts and concepts in more effective and meaningful way. If the students should possess the ability to control and monitor their own learning in attaining scientific principles that will arouse their curiosity and interest towards science. So the present study is Experimental in nature with pretest post test non equivalent group design, on a sample of 190 IX<sup>th</sup> standard students of kerala state syllabus.*

**Key words:** Metacognition, Science interest, achievement, etc.

### Introduction

Science and technology have been central to India's developmental efforts since independence. Economic growth and social transformation of our country are highly dependent on the firm foundation of science education. It is being realized that advancement in the nation's move towards a welfare state is possible only through a scientifically literate population.

Under such a scenario it has become vital that there should be a strong science base in the country, especially in children. What has been troubling educationists is that the

number of students at the secondary and tertiary levels pursuing science has been decreasing. One of the more recent trends has been that many students have switched from science to business studies pointing out that there is not much scope here for persons with qualifications in the science field, and also that careers in the business fields are financially more rewarding. Then there is an attitudinal problem with respect to science where many students feel that science subjects are too difficult and therefore shy away from it.

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Thus, it could be seen that the issue has to be tackled on two fronts providing the incentives and motivation for the pursuit of science and changing the attitude of students. Achieving these tasks will not be easy because of the numerous difficulties and complexities involved but a good beginning would be to reform our school system to make it science friendly. Teachers are expected to devise proper methods for developing a positive attitude towards science and science related disciplines in their students. A science teacher should understand the importance of early experience in science so that students develop problem solving skills that empower them to participate in an increasingly scientific and technological world.

The construction of deep scientific knowledge results from actively practising science in structured learning environments. Learning environments should support student's active construction of knowledge. Teachers should employ teaching strategies that help learners recognize conflicts and inconsistencies in their thinking, as these experiences catalyze the construction of new, more coherent knowledge.

Different learners require different kinds of explicit instructional support and guidance to understand and do scientific inquiry and to understand the body of scientific knowledge.

Effective science learning merely doesn't imply manipulation of information, which is integrated into an existing knowledge base, but rather, directing attention to what one has assimilated, understanding relationship between new information and

what is already known, understanding the process which facilitated this and being aware that something new has actually been learnt. To successfully understand the task, a student needs tools to monitor and evaluate the learning process. Effective tools in the self learning process can be the student by himself. Students can use their self questioning abilities to regulate, evaluate, and reflect to learn the task thoroughly. The Learner can also use technology, media and text as tools to regulate, evaluate and reflect on his/her learning. This idea of controlling own thinking processes and becoming more conscious of our learning is called **Metacognition**, it is a buzzword in teacher education.

Metacognitive strategies are sequential processes that are used to control cognitive activities and to ensure that a goal has been met. Metacognitive strategies must be promoted and implemented in the high school science class room by providing time for students to engage in self reflection and to make additions, corrections and revisions to their work. These awareness is essential for successful learning which helps students use to previously known information and transfer it to new situations. The researcher assumes that an awareness regarding metacognition and practising metacognitive skills are essential to make learning more meaningful. So there is an increasing need for understanding metacognitive strategies and how they can be implemented in classroom situation to enhance science interest of each and every student. In the present study the Investigator intends to prepare a learning package in Biology by integrating metacognitive strategies to test



how effective it is in enhancing science interest among the learners.

### Statement of the Problem

The aim of the present study is to find out the effectiveness of metacognition in teaching Biology at secondary school level, and to measure its relative effectiveness with existing Activity Oriented Method of Instruction in enhancing science interest. study of this problem may provide more information on what curriculum methods can help the students in deep level understanding. This study may also provide information that can be used by secondary school teachers, education programmers, educators and those in other human service disciplines.

Hence the topic selected for this purpose is entitled “EFFECTIVENESS OF METACOGNITION IN ENHANCING SCIENCE INTEREST AMONG SECONDARY SCHOOL STUDENTS”

### Objectives of the Study

- To determine the effectiveness of metacognition in enhancing science interest among secondary school students
- To determine the effectiveness of Activity oriented method of instruction in enhancing science interest among secondary school students
- To compare the effectiveness of Metacognition with the existing Activity Oriented Method of Instruction in enhancing ‘Science Interest’ of secondary school students.

### Hypothesis of the study

The hypothesis formulated for the present study is:

- The ‘Science Interest’ of secondary school students taught through Metacognitive Process is significantly greater than those taught through the existing Activity Oriented Method of Instruction

An essential key to improving performance in any field, and to improving learning, is to become aware of how one functions and then to intentionally develop additional capacities. This is possible because at the heart of all learning is a very basic feed back loop. This is our capacity to observe our own performance while it is taking place, to assess what is happening, and to make changes mid stream, as it were. This is called metacognition.

### Methodology

- Experimental method was used to conduct the present study. The design selected was non equivalent pretest posttest design and it was conducted on a final sample of 190 students of IX th standard of kerala state syllabus where 95 each for experimental and control groups. Experimental groups was taught with the lesson transcripts prepared on the basis of metacognitive strategies and the control group taught through the existing activity oriented method. Science interest inventory was prepared and standardized, and used as both pretest and posttest and administered to both control and experimental groups.
- Tools and materials used for the study
- Science interest Inventory
- Lessons based on metacognitive strategies
- Analysis and Discussion

In order to find out whether there is any significant difference in 'science interest' in experimental and control groups, firstly the Investigator compared the pre-test scores of both groups. Then after the experiment post test scores and gain scores were calculated and subjected to analysis of Critical Ratio.

### Before Experiment

The pre-test scores of the experimental and control groups were classified and then the arithmetic means and standard deviations were calculated. The differences between the mean scores of the two groups were tested for significance by finding the Critical Ratio. The data and the results of the test of significance are given in the Table 1

Table 1

*Data and Result of the Test of Significance of the Difference between Mean Pre test scores of Experimental and Control Groups with respect to 'Science Interest'*

Group	No. of students	Mean	Standard deviation	Critical Ratio	Level of significance
Experimental Group	95	12.70	3.90	1.53	$P > 0.01$
Control Group	95	11.89	3.40		

The Critical Ratio obtained ( $CR = 1.53$   $P > 0.05$ ) is not significant even at 0.05 level. This showed that there is no significant difference between the means of pre-test scores of students in experimental and control groups. From the above observation it is clear that two groups did not differ significantly in their 'science interest' before the experiment. Thus it can be inferred that before the experiment the two groups were more or less same in their 'science interest'.

### 5.9.2 After the Experiment

After conducting the experiment on 'science interest' among students of experimental and control groups, the results were compared by testing the significance of difference between the means of the post-test scores of the two groups. The data and result of the significance are given in Table 5.35.

Table 5.35

*Data and Result of Test of significance of Difference between the Mean Post –test scores of Experimental and Control Groups with respect to 'Science Interest'*

Group	No. of students	Mean	Standard deviation	Critical Ratio	Level of significance
Experimental Group	95	28.23	4.57	24.88	$P < 0.01$
Control Group	95	13.63	3.48		

The obtained value of Critical Ratio is highly significant ( $CR = 24.88$ ;  $P < 0.01$ ). This means that there is significant difference in

the means of the post-test scores of the students in experimental and control groups. Since the mean of the post test scores of the

experimental group is greater than that of the control group, the students in the experimental group is superior to the students in the control group in their 'science interest'. So then it is inferred that instruction based on Metacognitive process is more effective than

the Activity Oriented Method of Instruction with respect to pupils 'science interest'.

### Comparison of Gain Scores

The data and results of the test of significance of gain scores given in the Table 2

Table 2

*Data and Result of Test of Significance of the Difference between the Mean Gain Scores of Experimental and Control Groups with respect to 'Science Interest'*

Group	No. of students	Mean	Standard deviation	Critical Ratio	Level of significance
Experimental Group	95	15.48	3.94	30.57	$P < 0.01$
Control Group	95	1.76	1.944		

The obtained value of Critical Ratio (CR = 30.57;  $P < 0.1$ ) is significant even at 0.01 level. This significant difference between the means of gain scores of students in experimental and control groups shows that the two groups differ significantly in their interest in science.

The details of comparison of pre-test, post-test and gain scores of students in experimental and control groups are shown in Figure 1.

Figure 1. The Comparison of the Pre-test, Post test and Gain scores of students in Experimental and Control Groups with respect to 'science interest'

### Comparison of the Effectiveness of Instruction based on Metacognitive Process and Activity Oriented Method of Instruction on Science Interest of Experimental and Control Groups

To compare the effectiveness of instruction based on Metacognitive Process and Activity Oriented Method of Instruction on 'science interest' of secondary school students the pre-test and post-test scores of the experimental and control groups were subjected to analysis of covariance. The summary of analysis of variance of 'X' (pre-test) and 'Y' (post-test) scores of students in experimental and control groups taken separately is given in Table 3

Table 3

*Summary of Analysis of Variance of 'X' (Pre-test) and 'Y' (Post-test) scores of students in Experimental and Control Groups with respect to Science Interest, taken separately*

Source of variance	df	SS <sub>X</sub>	SS <sub>Y</sub>	MS <sub>X</sub> (V <sub>X</sub> )	MS <sub>Y</sub> (V <sub>Y</sub> )
Among Group Mean	1	31.96	10237.5	31.69	10237.52
Within Group Mean	188	2552.79	3141.7	13.44	16.54
Total	189	2584.48	13379.3		

$$F_x = 2.36$$

$$F_y = 619.13$$

From table of F ratio, d for 1/86

F at 0.05 level = 3.89

F at 0.01 level = 6.76

The obtained  $F_x$  and  $F_y$  ratios were tested for significance. The table value of F ratio for df 1/86 is 3.89 at 0.05 level. So the obtained  $F_x$  is not significant even at 0.05 level, ( $F_x = 2.36$ ;  $P > 0.05$ ). Since the F test applied to the initial score (X),  $F_x$  falls far

short of significance at 0.05 level, it is clear that the means do not differ significantly.

The table value of F ratio for df 1/86 is 6.76 at 0.01 level. So the obtained  $F_y$  value is highly significant ( $F_y = 619.13$ ;  $P < 0.01$ ). So it can be concluded that there is significant difference between the post-test scores of the two groups.

### Analysis of Covariance

The analysis of the covariance of the scores of the pre-test and post-test of the experimental and control groups were computed. The data are presented in Table

Table 4

*Summary of Analysis of Covariance of 'X' (Pre-test) and 'Y' (post-test) scores of students in Experimental and Control Groups with respect to 'Science Interest', taken separately*

Among Group Mean	1	31.69	10237.5	569.56	9280.90	9280.90
Within Group Mean	188	2552.29	3141.7	1926.06	1688.53	2.998.39
Total	189	2584.48	13379.3	2495.63	10969.42	

$$F_{yx} = 1038.83$$

From table of F ratio = df for

F at 0.05 level = 3.89

F at 0.01 level = 6.76

Since the table value of F ratio for is 6.76 at 0.01 level of significance, the obtained  $F_{yx}$  ratio is highly significant. ( $F_{yx} = 1038.83$ ;  $P < 0.01$ ). The significant  $F_{yx}$  ratio shows that the means of the post-test scores of students in the experimental and control groups have significant difference. The significant  $F_{yx}$  ratio also shows that the means of the post-test scores of the students in the experimental and control groups differ significantly even after they have been adjusted for difference

in the pre-test scores. The 'science interest' of students who were taught through lessons based Metacognitive Process is significantly higher than those taught through Activity Oriented Method of Instruction.

### Comparison of Adjusted 'Y' Means

The adjusted means of the post-test scores (Y means) of students in the experimental and control groups were computed and the difference between the adjusted 'Y' means was tested for significance. The data for adjusted means of post-test scores of students in experimental and control groups taken separately is given in Table 4

Table 4

*Data for Adjusted 'Y' Means of Post-test scores of students in Experimental and Control Groups with respect to 'Science Interest', taken separately.*

Group	N	$M_x$	$M_y$	Adjusted 'Y' mean $M_{yx}$
Experimental group	95	12.71	28.2	27.93
Control group	95	11.90	13.06	13.94
General means	95	12.30	20.94	

$$S_{EM} = 0.43$$

$$'t' = 32.43$$

Table value of 't'

T at 0.05 level = 1.97

T at 0.01 level = 2.60

The table value 't' is 1.97 at 0.05 level and 2.60 at 0.01 level. The calculated 't' value (32.43) is significant at 0.01 level. The significantly greater adjusted 'Y' means of the experimental group than the control group indicates the students taught through lessons based on Metacognitive Process has greater science interest than those taught through Activity Oriented Method of Instruction.

From the analysis of covariance of 'science interest' of students in experimental and control groups it can be interpreted that the 'science interest' of students taught through lessons based on Metacognitive Process is significantly higher than those taught through Activity Oriented Method of Instruction.

### **Educational implications**

The present study envisages the effectiveness of instruction based on metacognitive process in enhancing science interest among secondary school students. Metacognitive strategies help the learner to develop problem solving capacity,

critical thinking skills, prediction skills, decision making ability and self analyzing capacities. The findings of the study can equip teacher educators, school practitioners and teacher educands in adopting reflective practices in future. It is hoped that the curriculum developers would compulsorily incorporate reflective practices in the syllabus and allocate time for practising the same on a regular basis. The findings would serve in ensuring that students gain the resilience and resourcefulness they need to continue to be lifelong learners. Work in this area should help to create pedagogically sound learning strategies, robust and well designed.

In short, the results of the study and the package prepared would be of immense help to student teachers. It is also presumed that the findings of the study will promote the use of innovative instructional strategies. The study highlights that teachers should give proper encouragement, training and support in practising such skills among students so that they become self regulators in learning. Thus it enhances learner's cognitive achievement. This will help the students to structure their schemata of conceptual knowledge and allow them become better learners as well as problem solvers. The study aims to point out that teachers should adopt innovative strategies and plans to make

the learner independent in learning. The Investigator hopes that the study would be helpful to improve curriculum transaction and evaluation.

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## EFFECTIVENESS OF BRAIN BASED LEARNING IN ENHANCING ACHIEVEMENT IN GEOGRAPHY AMONG HIGHER SECONDARY SCHOOL STUDENTS.

Dr. Suma K.O\*

### Abstract

*Brain based Learning refers to teaching methods, lesson designs and school programs that are grounded in the neuroscience of learning ie, based on the latest scientific research about how the brain learns, including such factors as cognitive development how students learn differently as they age, grow and mature society, emotionally and cognitively. The present study is an attempt to find out the effectiveness of brain based learning in enhancing achievement in geography, so it is an experimental study with pretest posttest nonequivalent group design. A total sample of 100 higher secondary school students of Trivandrum district were selected a sample among which 50 were considered an experimental and other 50 are control group.*

**Key words :** Brain Based Learning, achievement, active processing, etc.

### Introduction

The human brain loves to learn. Our survival is infact dependent on learning. We the teachers are learning catalyst our duty is to light a fire for learning, rather than someone who simply delivers information or content. Great teachers know that learning is enhanced by challenge, and which relies on memory and attention. Brain depends on interactions with other people to make meaning “the unmotivated learner is a myth, there is no such thing as an unmotivated learner. There are however, temporary

unmotivated states in which learners are either reinforced and supported or neglected and labeled. Root of the problem is not the learner, but the conditions for learning once learners are in their seats, the teachers role is to elicit their natural motivation.

Students go in and out of countless states every day, just as we do . Learning is not all in our heads, it's a mind body experience. We teachers need to read and catch undesirable student states before they get worse.

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So, if we keep using same instructional strategies and students are not engaged year after year, then who is really the unmotivated learner?

An environment which is meaningful and changing and in which the student's minds are actively engaged is necessary or here comes the importance of brain based learning.

Brain based learning is the purposeful engagement of effective strategies derived from principles of neuroscience. Brain based learning suggests that "how the brain works has a significant impact on what kinds of learning activities are most effective. Core principles of BBL are based on

- Taking what we know about the brain, about development and about learning and combining those factors in intelligent ways to connect and excite student's desire to learn.
- Combining emotional factual and skill knowledge in to a cognitive tool.  
Brain based Learning involves mainly 3 instructional strategies.
- Orchestrated immersion- creating learning environments that fully immerse students in an educational experience.
- Relaxed alertness. Trying to eliminate fear in learners, while maintaining a highly challenging environment.
- Active processing –Allowing the learners to consolidate and internalize information by actively processing it.

### Related studies

**Mc Geehan (2005).** Conducted research on brain based learning pointed out that emotion is the gate keeper to learning,

intelligence in the function of experience and the brain stores most effectively what is meaningful from the learner's perspective suggests konecki et.al (2003), the brain compatible learning will maximize learning. Limits the stress of children's ability to learn establishes immediate connection to the real world which will increase learning and development, encourages active processing needed to keep connections and foster memory.

**Van et al.(1984)** studied the effect of three types of brain based instructions on mathematics achievements and attitudes of second grade students. The study envisages the effect of a left hemispheric, right hemispheric or integrated teaching approach of student achievement and attitudes.

### Objectives of The Study

1. To find out the effectiveness of Brain Based Learning in enhancing achievement in geography among Higher Secondary School Students.
2. To find out the effectiveness of Brain Based Learning strategy in enhancing achievement in geography with respect to different objectives i.e. remembering, understanding, applying, analyzing, evaluating and creating.

### Tools Used

1. Lesson Transcripts based on Brain Based Learning
2. Achievement test in geography

### Methodology in brief

Since the main objective of the study was to find out the effectiveness of Brain Based Learning strategy in enhancing achievement. In group among Higher



Secondary School Students so the investigator selected experimental method with pretest post test non equivalent group design.

The investigator prepared lesson transcripts based on Brain Based Training by selecting the content "Natural Calamities" from higher secondary level geography.

An achievement test was prepared and administered as both pretest and post test. Experimental group was taught with Lesson Transcripts based on Brain Based Learning and control group were taught through existing activity oriented method of instruction. The collected data were analyzed using suitable statistical technique such as Mean, Median, Mode, SD, SE, coefficient of correlation, ANOVA and ANCOVA

Table 1

*Summary of Analysis of covariance of pretest and post test scores in experimental and control group with respect to total achievement in geography.*

Source of variation	DF	SSx	SSy	SSxy	SSyx	MSyx	Fyx
Among Means	1	3.21	308.81	49.51	155.79	155.79	
Within Groups	97	118.21	729.51	55.79	739.27	12.18	14.73
Total	98	201.42	1038.32	105.30	895.06	167.97	

Table 2

*Data for Adjusted means of post test scores of experimental and control group with respect to total achievement in geography.*

Groups	N	Mx	My	Myx (Adjusted)
Control	50	4.26	6.13	6.98
Experimental	50	5.87	15.24	14.13
General Means			5.12	11.17

SED between two adjusted means = .728

T value =  $14.13 - 6.98 / .728 = 9.821$

## Sample

The sample consist of 100 eleven standard students of Trivandrum District among which 50 students were experimental group and 50 were control group.

## Conclusion based on Findings.

The major conclusions that emerged out of the analysis of data are classified in to the following leads.

1. Instruction based on Brain Based Learning is more effective than existing Activity oriented method of instruction in enhancing achievement in geography among Higher Secondary School Students.

The analysis of covariance of pretest scores and post test scores of pupils in experimental and control groups showed that there is significant difference between the two groups. ( $F_{yx}=14.73$ ;  $P<0.01$ ). This implies that the experimental group excels control group in total achievement in geography. The significant difference between the adjusted y means  $t = 9.821$ ;  $P<0.01$  also shows that total achievement in geography of students taught through Brain Based Learning is better than those of students taught through Activity Oriented Method of Instruction.

2. Instruction based on Brain Based Learning is more effective than Activity oriented Method of Instruction in enhancing achievement in geography

with respect to different categories of objectives, ie remembering, understanding, applying analyzing, Evaluating and creating.

Table 3

*Consolidated Result of analysis of covariance of achievement in geography under each category of objectives ie remembering, understanding, applying analyzing, Evaluating and creating.*

Categories of objectives	Source of variation	Df	SSx	SSy	SSxy	SSyx	Msyx	SDyx	Fyx	Level of significant
Remembering	Among Means	1	1.21	42.23	1.42	56.23	56.23	2.11	51.28	P<0.01
	Within groups	97	46.28	79.28	3.48	70.93	70.93			
Understanding	Among Means	1	.323	22.14	1.28	20.18	1.28	1.34	14.55	P<0.01
	Within groups	97	48.19	118.23	7.67	1.10	1.79			
Applying	Among Means	1	.6	118.7	2.8	11.19	12.36	1.26	7.8	P<0.01
	Within groups	97	53.2	111.08	4.6	113.68	1.89			
Analysing	Among Means	1	5.3	125.26	2.9	1.83	1.28	2.13	56.7	P<0.01
	Within groups	97	56.9	111.18	4.9	48.3	1.93			
Evaluating	Among Means	1	.7	376.9	4.1	1.73	11.93	1.81	13.29	P<0.01
	Within groups	97	49.2	84.24	12.1	317.28	1.82			
Creating	Among Means	1	5.71	278.9	12.81	1.89	312.9	1.42	17.9	P<0.01
	Within groups	97	48.3	73.2	113.29		12.36	2.26		

Table 4

*Consolidated Result of analysis of Adjusted Means of the post test scores of achievement under different objectives ie remembering, understanding, applying analyzing, Evaluating and creating.*

Categories of objectives	Source of variation	N	Mx	My	Myx	T value	Level of significance
Remembering	Experimental	50	1.62	3.48	3.398	7.26	P<0.01
	Control	50	1.43	1.73	1.534		
Understanding	Experimental	50	1.12	3.96	2.864	4.12	P<0.01
	Control	50	1.01	1.68	1.323		
Applying	Experimental	50	1.23	2.98	3.298	2.96	P<0.01
	Control	50	1.14	1.23	1.618		
Analysing	Experimental	50	1.48	3.87	2.460	3.84	P<0.01
	Control	50	1.21	1.74	1.581		
Evaluating	Experimental	50	1.62	3.45	2.86	2.98	P<0.01
	Control	50	1.02	1.76	1.678		
Creating	Experimental	50	1.12	2.86	3.96	3.61	P<0.01
	Control	50	1.01	1.93	2.118		

The consolidated result of analysis of covariance of the pretest and posttest scores of control and experimental groups for total scores and scores under each category of objectives shows that experimental group taught through Brain Based Learning was found to be superior to the control group through the existing Activity oriented Method. So the result clearly reveals the effectiveness of Brain Based Learning in enhancing achievement in geography among Higher Secondary School Students.

### **Educational Implications**

We can strengthen the brain by presenting Sensory, rich, challenging situations in a safe environment that promotes risk taking. The more complex the challenge and the safer the social and psychological environment, the greater the learning. The present study envisages the effectiveness of brain Based Learning strategies in enhancing achievement among the learner. So teachers must immerse learners in complex, interactive experiences that are both rich and real. Educators must take advantage of the brain's ability to parallel process.

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## EFFICACY OF MINDFUL- BASED INTERVENTION ON HOPELESSNESS AMONG B.ED. STUDENTS WITH SUICIDAL IDEATION

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### Abstract

*Suicide among the youth has emerged as an alarming global public health problem. Theoretical models of suicidal ideation have posited that hopelessness is an important mediating variable related to youth suicide. The objective of the present study is to investigate the effectiveness of mindfulness-based interventions on hopelessness among B.Ed. students with suicidal ideation. Students having suicidal ideation were identified by administering Suicidal Ideation Scale (SIS-SDBV, 2011). This study employed pre- test post-test the control group research design. The students having suicidal ideation were randomly assigned to experimental and control groups of 40 students each. Beck Hopelessness Scale was administered both in the experimental group and control group as pre test. After the pre-test the experimental group was given mindfulness based intervention programme of 1 hour, thrice a week for eight weeks. Data obtained from the respondents in the post-test and follow up phases - after 1<sup>st</sup>, 3<sup>rd</sup> and 6<sup>th</sup> months of the completion of the intervention programme - was collected using the same tool. The collected data were analyzed by repeated measures ANOVA. Results revealed that 8-week intervention programmes of mindfulness-based practices elicited a reduction in mean score of hopelessness in the experimental group from base line to post-test and the reduced mean scores were retained over a follow-up period of six months. But the students in the control group retained the same mean scores of hopelessness over the entire period of study. Mindful-based intervention is an effective method in reducing hopelessness among B.Ed. students with suicidal ideation.*

**Keywords:** *Mindful- based Intervention, Suicide, Suicidal ideation, Hopelessness, etc.*

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## **Introduction**

During the past quarter-century, suicide among the young has emerged as a significant global public health problem. According to World Health Organization's (WHO, 2014) first global report on suicide prevention, every year, more than 800 000 people die by suicide – one person in every 40 seconds. The number of suicides in India during the decade (2004–2014) has recorded an increase of 15.8%. It is estimated that, for each suicide, there are likely to have more than 20 suicide attempts (WHO, 2013).

Suicidal behaviour can be viewed as an umbrella term which incorporates varying degrees of self-destructive or self-harming acts, which result from emotional distress (Schlebusch, 2005). It includes suicidal ideation (frequent thoughts of ending one's life), suicide attempts (the actual event of trying to kill one's self), and completed suicide (death occurs). Suicidal ideation involves a hierarchy of feelings from the thought that "Life is not worth living" to the more serious articulation of a thought-out plan (Kirby, Bruce, Radic, Coakley & Lawlor, 1997). Research findings have shown that suicide is a multi-faceted phenomenon that includes a wide range of personal, contextual, coping, demographic, and health-related factors. These factors originate either from within the individual or from environmental circumstances as well as from the interaction between the individual and contextual factors that will influence behaviour.

Treatment of suicidal behavior is a challenging problem. Many forms of therapy have been developed and evaluated, but results to date are extremely mixed. There

is a need for other treatment approaches, in particular those that fall somewhere between simple and intensive interventions and hence are applicable to a broad range of suicidal behaviour. Mindful based practices based on Buddhist philosophy can be an effective means for the development of psychological health through the eradication of latent tendencies and habits associated destructive behavior and to the increase of "positive" emotions (Chambers, Gullone, & Allen, 2009). Baer (2003) proposed several mechanisms to explain how mindfulness skills reduce symptoms, including: cognitive change, improved self-management and exposure to painful experiences leading to reduced emotional reactivity.

## **Need and Significance of the Study**

Suicide is a serious preventable public health problem all over the world (WHO, 2005). Suicide rates among young people appear to be rising in both developed and developing countries more quickly than all other age groups (WHO, 2014). According to Reynolds (1991) suicidal ideation is a continuum of thoughts about death ranging from mild to severe, and including thoughts about death, hurting one's self, or the "planning, conduct and outcome" of one's own suicide. Suicidal ideation alone is considered an important factor in the development of serious suicidal behaviours (Bonner & Rich, 1991). It is estimated that between 22% and 38% of adolescents have thought about suicide at some point in their lives and young people experiencing persistent, severe suicidal ideation are at increased risk of attempting suicide (Nock, Borges, Bromet, et al., 2008).

The majority of young people who experience suicidal ideation will not go on to take their lives, yet one cannot ignore any report of suicidal ideation. Even when it is mild, and is only reported on one occasion, suicidal ideation has been found to be associated with clinically significant symptoms of depression and hopelessness (Evans et al 2005). Furthermore, young people experiencing persistent, severe suicidal ideation are at increased risk of attempting suicide. Evidence suggests that the relationship between suicidal ideation and suicide attempts is mediated by the burden of psychosocial risk factors such as a previous suicide attempt, mental health and substance use disorders, family history of suicide, alcoholism and/or other psychiatric disorders, a history of abuse: sexual, physical or emotional, social isolation and/or living alone, bereavement in childhood, hopelessness and rejection by a significant person (Fergusson, & Lynskey, 1995). Young people experiencing suicidal ideation in the absence of other risk factors are at a relatively low-risk, whereas those experiencing suicidal ideation in addition to exposure to multiple risk factors are at high-risk. The great tragedy about youth suicide is that it takes place despite the suicidal youth giving out distress signals (Gould & Kramer, 2001). Young people are typically reluctant to seek professional help for mental health problems and as suicidal ideation increases, their intention to seek help decreases further.

Cognitive theories suggest that suicidal ideation, and other psychological symptoms, can occur as a result of dysfunctional self-schemas and thus negative self-focused thinking (Ellis, 2006). Therefore a dynamic

association may exist such that negative self-concept and suicidal behaviors are mutually reinforcing over time whereas positive self-referential thinking inhibits suicidal thinking/behaviors. Automatic self-associations are another important facet of self-referential thinking. The association between dysfunctional automatic self associations and suicidal ideation therefore suggests that these self-associations may contribute to the onset and maintenance of suicidal ideations as well as the difficulty of controlling these thoughts. Rumination, a style of thinking that has a repetitive and recurrent self-focus in particular around symptoms, their causes and consequences leads to greater negative future thinking which might also contribute to suicidal ideation (Lavender & Watkins, 2004).

Mindfulness approaches helps many people who are on automatic pilot much of the time to be aware of themselves. In addition mindfulness focuses on ways in which people can learn to maintain the focus of their attention in the face of the tendency for the mind constantly to wander. This aspect of the approach is very important because of the need to teach people a way to handle skillfully those times when their mind is ruminating on negative themes. The aim is to notice, without judgment, where the attention is gone when the mind wanders, and make a deliberate decision about whether this is where one want the mind to be. Thus mindfulness may mitigate factors such as hopelessness that have been shown to contribute to suicidal behaviour, and, mindfulness approaches, has the potential to help people having suicidal ideation. Hence the investigator intended to study efficacy

of mindful- based intervention on hopelessness among B.Ed. students with suicidal ideation

### Statement of the Problem

Greater knowledge of the factors which influence suicidal ideation could lead to more effective treatment and prevention approaches. Hence the problem taken up for the present study has been entitled as **“Efficacy of Mindful- based Intervention on Hopelessness among B.Ed. Students with Suicidal Ideation”**.

### Objectives of the Study

1. To assess suicidal ideation among B.Ed. students
2. To compare the mean scores of suicidal ideation among control and experimental group students
3. To compare the mean scores of hopelessness of control and experimental group students before the intervention programme of mindfulness-based practices
4. To compare the mean scores of hopelessness of control and experimental group students immediately after the end of 8 week intervention programme of mindfulness-based practices
5. To compare the mean scores of hopelessness of control and experimental group students on 1<sup>st</sup>, 3<sup>rd</sup> and 6<sup>th</sup> months after the end of 8 week intervention programme of mindfulness-based practices

### Hypotheses of the Study

H<sub>1</sub>: There is no significant difference in the mean scores of suicidal ideation of control

and experimental group students before the intervention programme of mindfulness-based practices

H<sub>2</sub>: There is no significant difference in the mean scores of such as hopelessness of control and experimental group students before the intervention programme of mindfulness-based practices

H<sub>3</sub>: There is significant difference in the mean scores of hopelessness of control and experimental group students immediately after the end of 8 week intervention programme of mindfulness-based practices

H<sub>4</sub>: There is significant difference in the mean scores of hopelessness of control and experimental group students on 1<sup>st</sup>, 3<sup>rd</sup> and 6<sup>th</sup> months after the end of 8-week intervention programme of mindfulness-based practice sessions

### Methodology of the Study

The present study is an attempt to explore the efficacy of mindful- based intervention on hopelessness among B.Ed. students with suicidal ideation. In the first phase of the study students with suicidal ideation were identified from a group of 300 B.Ed. students. Eighty students who scored e” 46 on Suicidal Ideation Scale (SIS-SDBV, 2011) were selected for the second phase of the study which is experimental in nature. Pre-test post-test control group design is used to find out the impact of mindfulness-based practices on suicidal ideation. The students having suicidal ideation are randomly assigned to experimental and control groups of 40 students each. The data was collected in three phases; pre-test phase -before the intervention formed the baseline, post-test phase - immediately after intervention and

follow up phases- after one, three and six months of withdrawal of the intervention. The data obtained from the respondents before and after administration of mindfulness-based intervention program were scored and analyzed using appropriate statistical techniques to draw meaningful inferences on the effect of the intervention.

### Population and sample

The B.Ed. Students of Kottayam district constitutes the target population of the study and 80 B.Ed. Students with suicidal ideation form the sample.

### Operational Definition of Key Terms

**Suicidal Ideation:** Suicidal ideation is defined as thoughts serving the agent of one's own death. It may vary in seriousness depending on the specificity of suicide plans and the degree of suicidal intent (American Psychiatric Association, 2010). This study measures suicidal ideation as the total scores obtained while administering the suicidal Ideation Scale (SIS-SDBV, 2011).

**Hopelessness:** Hopelessness is defined as a negative perspective of the future or a set of negative expectancies toward the future (Rózsa, 2010). This study measures hopelessness as the total scores obtained by the administration of the Beck's Hopelessness Scale (Beck, 1988).

**Mindfulness:** Mindfulness is "the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experiences moment by moment" (Kabat-Zinn, 2003 p. 145).

### Statistical Techniques Used

Mean, standard deviation, independent sample t-test, repeated measure analysis of variance

### Results and Discussion

Assessment of suicidal ideation among B.Ed. Students

Suicidal ideation (SI) of 300 B.Ed. Students was assessed using Suicidal Ideation Scale (SIS-SDBV, 2011). The result of the descriptive statistics is presented in Table 1.

Table 1

*Descriptive statistics of suicidal ideation of B.Ed. Students According to Suicidal Ideation Scale (SIS-SDBV, 2011)*

	N	Minimum	Maximum	Mean	SD
Suicidal ideation	300	29	91	50.76	0.670

Table 2

*Levels of suicidal ideation of B.Ed. Students*

Suicidal ideation	Frequency	Percent
Average	199	66.3
Low	95	31.7
Very Low	6	2.0
Total	300	100.0



On the basis of scores obtained in the Suicidal Ideation Scale 66.3% of the students fall in the category of average level, 31.7% in the category of low level, 2% in the category of very low level of suicidal ideation.

Comparison of Suicidal Ideation among Control and Experimental Group Students before the Intervention Programme of Mindfulness-based Practices

Eighty students having suicidal ideation (who scored  $\geq 46$  in the Suicidal Ideation Scale, SIS-SDBV, 2011) were selected for

the experimental study and divided into experimental and control group of equal numbers (40 students) randomly. Comparison of suicidal ideation of control and experimental group students before the mindful-based intervention programme was done based on Suicidal Ideation Scale (SIS-SDBV, 2011). The mean scores of suicidal ideation of control and experimental group students based on Suicidal Ideation Scale (SIS-SDBV, 2011) were compared. The result of the independent sample t test is presented in Table 3.

Table 3

*Comparison of Suicidal Ideation among Control and Experimental Group Students before the Intervention Programme of Mindfulness-based Practices*

Group	N	Mean	SD	t-test for Equality of Means		
				t	df	Sig. (2-tailed)
Experimental	40	64.25	6.698	.167	78	.868
Control	40	64.00	6.691			

The results of the independent sample t test clearly indicated there is no significant difference in the mean scores of suicidal ideation of control and experimental group students ( $t$  value = .167;  $P > 0.05$ ).

Hence the Hypothesis  $H_1$  which states that "There is no significant difference in the mean scores of suicidal ideation of control and experimental group students before the intervention programmes of mindfulness-based practices" is accepted

Comparison of Hopelessness of Control and Experimental Group Students before the Intervention Programme of Mindfulness-Based Practices

The mean scores of hopelessness of control and experimental group students based on Beck's Hopelessness Scale (Beck, 1988) were compared. The result of the independent sample t test is presented in Table 4.

Table 4

*Comparison of Hopelessness among Control and Experimental Group Students before the Intervention Programme of Mindfulness-based Practices*

Group	N	Mean	SD	t-test for Equality of Means		
				t	df	Sig.
Experimental	40	12.25	1.891	.120	78	.905
Control	40	12.20	1.829			

The results of the independent sample t test clearly indicated there is no significant difference in the mean scores of hopelessness ( $t$  value = .120;  $P > 0.05$ ) of control and experimental group students.

Hence the Hypothesis  $H_2$  which states that “There is no significant difference in the mean scores of hopelessness of control and experimental group students before the intervention programmes of mindfulness-based practices” is accepted

Comparison of Hopelessness of Control and Experimental Group Students Immediately after the End of 8 Week Intervention Programme of Mindfulness-based Practices (Post-test)

The mean post-test scores of hopelessness of control and experimental group students based on Beck’s Hopelessness Scale (Beck, 1988) were compared. The result of the independent sample t test is presented in Table 5.

Table 5

*Comparison of Hopelessness among Control and Experimental Group Students immediately after the end of 8 week intervention programme of Mindfulness-based Practices*

Group	N	Mean	SD	t-test for Equality of Means		
				t	df	Sig.
Experimental	40	5.65	1.460	18.314	78	.000
Control	40	12.25	1.750			

The results of the independent sample t test clearly indicated there is significant difference in the mean post-test scores of hopelessness ( $t$  value = 18.314;  $P < 0.01$ ) of control and experimental group students. The mean post-test scores showed a significant reduction of hopelessness in the experimental group but not in the control-group.

Hence the Hypothesis  $H_3$  which states that “There is significant difference in the mean scores of hopelessness of control and experimental group students immediately after the end of 8 week intervention programmes of mindfulness-based practices” is accepted

**Comparison of the Mean Scores of Hopelessness of Control and Experimental Group Students on Pre-test (time1), Post-test (time 2), 1<sup>st</sup> (time 3), 3<sup>rd</sup> (time 4), and 6<sup>th</sup> (time 5) Months after the End of 8-week Intervention Programme of mindfulness-based Practices**

The mean scores of hopelessness of experimental and control group students on pre-test (time1), post-test (time 2), 1<sup>st</sup> (time 3), 3<sup>rd</sup> (time 4), and 6<sup>th</sup> (time 5) months follow up phases were compared. The results of the analysis are presented in Table 6.

Table 6

*Comparison of the Mean Scores of Hopelessness of Experimental and Control Group Students across the Five Phases of Testing*

Time	Experimental Group			Control Group		
	N	Mean	SD	N	Mean	SD
Pre-test	40	12.25	1.891	40	12.20	1.829
Post-test	40	5.65	1.460	40	12.25	1.750
1 <sup>st</sup> month	40	5.55	1.358	40	12.35	1.733
3 <sup>rd</sup> month	40	5.38	1.234	40	12.17	1.708
6 <sup>th</sup> month	40	5.45	1.260	40	12.10	1.661

Results of the repeated measures analysis of variance (ANOVA) for the mean scores of hopelessness of experimental and control group students

after correcting the degrees of freedom using Greenhouse-Geisser estimates of sphericity across the five phases of testing is given in the Table 7.

Table 7

*Results of ANOVA for the Mean hopelessness Scores of Experimental and Control Group Students after Correcting the Degrees of Freedom Using Greenhouse-Geisser Estimates of Sphericity across the five Phases of Testing*

Experimental Group							
Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
time	Greenhous	1457.02	1.778	819.58	1744.1	..00	.978
e-Geisser							
Error (time)		32.580	69.33	.470			
Control Group							
time	Greenhous	1.380	2.540	.543	1.781	.16	.044
e-Geisser							
Error (time)		30.220	99.05	.305			

The repeated measures ANOVA of mean scores of hopelessness of experimental group with a Greenhouse-Geisser correction determined that mean scores of hopelessness differed statistically significant between time five level points ( $F(1.778, 69.333) = 1744.131$ ,  $P < 0.01$ ) with effect size  $\eta^2 = .978$

In Control Group the repeated measures ANOVA of mean scores of hopelessness with a Greenhouse-Geisser correction determined that mean scores of hopelessness is not differed statistically significant between time points ( $F(2.540, 99.054) = 1.781$ ,  $P > 0.05$ ).

Results of the post hoc test using Bonferroni correction between the mean scores of hopelessness of experimental and control group students at the pre-test (time1),

post-test (time 2), 1<sup>st</sup> (time 3), 3<sup>rd</sup> (time 4) and 6<sup>th</sup> (time 5) months follow up phases is given in the Table 8.

Table 8

*Post hoc test using Bonferroni correction between the Mean Scores of Hopelessness of Experimental Group Students at the pre-test (time1), post test (time 2), 1st (time 3), 3<sup>rd</sup> (time 4), and 6<sup>th</sup> (time 5) months follow up phases*

		Experimental Group Students		Control Group Students	
(I) time	(J) time	(I-J)	Sig.	(I-J)	Sig.
Pre-test	Post-test	6.600*	.000	-.050	1.000
	1 <sup>st</sup> Month	6.700*	.000	-.150	.832
	3 <sup>rd</sup> Month	6.875*	.000	.025	1.000
	6 <sup>th</sup> Month	6.800*	.000	.100	1.000
Post-test	1 <sup>st</sup> Month	.100	.440	-.100	.440
	3 <sup>rd</sup> Month	.275*	.032	.075	1.000
	6 <sup>th</sup> Month	.200*	.034	.150	1.000
1 <sup>st</sup> Month	3 <sup>rd</sup> Month	.175	.330	.175	.176
	6 <sup>th</sup> Month	.100	.440	.250	.311
3 <sup>rd</sup> Month	6 <sup>th</sup> Month	-.075	1.000	.075	1.000

Post hoc tests using the Bonferroni correction revealed that 8-week intervention programmes of mindfulness-based practices elicited a reduction in mean scores of hopelessness from base line (mean = 12.25; SD = 1.891) to immediately after intervention programmes (mean = 5.65; SD = 1.460) which was statistically significant ( $P < 0.01$ ). The experimental group's mean scores of hopelessness at follow-ups such as 1<sup>st</sup> month (mean = 5.55; SD = 1.358,  $P > 0.05$ ) 3<sup>rd</sup> month (mean = 5.38; SD = 1.234,  $P > 0.05$ ) and 6<sup>th</sup> month (mean = 5.45; SD = 1.260,  $P > 0.05$ ) did not significantly differ from scores in the post-test. Thus, the findings demonstrate that students in the experimental group retained the reduction in mean scores of hopelessness over a follow-up period of six months (immediately after, and 1<sup>st</sup>, 3<sup>rd</sup> and 6<sup>th</sup> months after the end of 8-week intervention programme of mindfulness-based practices).

The control group's mean scores of hopelessness at follow-ups such as 1<sup>st</sup> month (mean = 12.35; SD = 1.733,  $P > 0.05$ ) 3<sup>rd</sup> month (mean = 12.17; SD = 1.708,  $P > 0.05$ ) and 6<sup>th</sup> month (mean = 12.10; SD = 1.661,  $P > 0.05$ ) did not significantly differ from scores in the base line (mean = 12.20; SD = 1.829,  $P > 0.05$ ) and post-test (mean = 12.25; SD = 1.750,  $P > 0.05$ ). Thus, the findings demonstrate that students in the control group retained the same mean scores of hopelessness over the entire period of study.

Hence the Hypothesis  $H_4$  which states that "There is significant difference in the mean scores of hopelessness of control and experimental group students on 1<sup>st</sup> 3<sup>rd</sup> and 6<sup>th</sup> months after the end of 8-week intervention programme of mindfulness-based practice sessions" is accepted

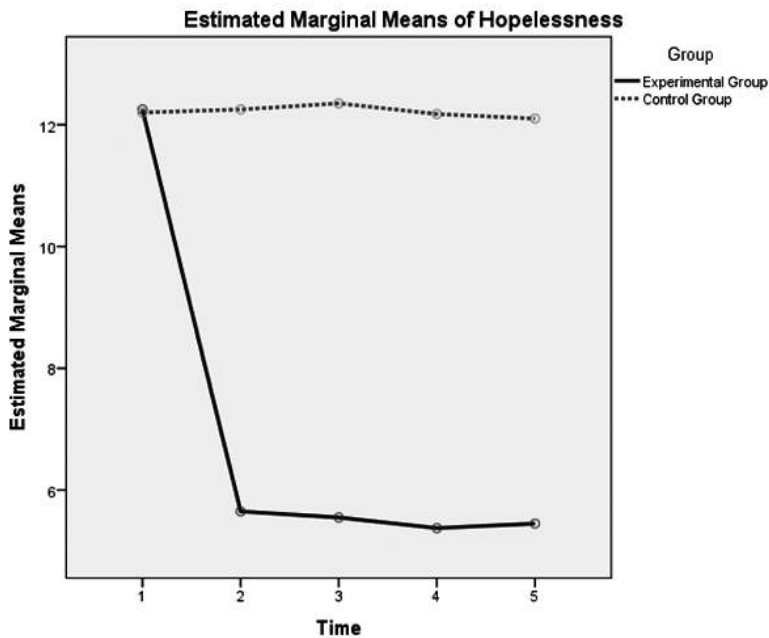


Figure 1. Comparison of the Mean Scores of Hopelessness of Experimental and Control Group Students across the Five Phases of Testing

## Conclusion

The present study regarding the efficacy of the mindfulness-based intervention on hopelessness among B.Ed. Students with suicidal ideation has revealed that this intervention programme has increased the acceptance and awareness of internal experiences such as thoughts, emotions, images, and physiological sensations and reduced the level of hopelessness. This research support the premise that mindfulness based intervention strategy enhances the subjects' ability to live a meaningful and valued life through reducing hopelessness. If the prospective teachers are equipped with mindfulness training they can promote among students the capacity for sustained moment-to-moment awareness, especially in the midst of emotional turmoil.

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