

ISSN – 0973 – 5895

VOLUME – 12, August 2020

A Journal of Education  
(Peer-Reviewed)



**RAMAKRISHNA MISSION**  
**BRAHMANANDA COLLEGE OF EDUCATION**

## ABOUT OUR COLLEGE

Inspired by the life and teaching of his illustrious Master, Shri Ramakrishna Paramahansa Deva, the prophet of Love and Peace, Swami Vivekananda, the Patriot-Saint of India, deeply felt that man is the best manifestation of God on earth, and therefore, service to mankind is the best form of God-worship. With a view to propagating this glorious message to the world and demonstrating its truth in practical life he founded the Ramakrishna Mission in May 1897.

In course of time the Mission developed into an organization of international fame and importance, and extended its activities all over the world through a large number of Branches. The Ramakrishna Mission Boys' Home, Rahara, is one such Branch which was established on 1st September, 1944 as an orphanage with 37 boys who were rendered orphan by the great Bengal Famine of 1942-43. The Home also extended its activities to the field of education and built a big educational complex around it with a number of institutions for general, technical, vocational as well as teacher education.

Brahmananda Post-Graduate Basic Training College was an integral part of this educational complex. The college was established on 17th February, 1961 after the holy name of Swami Brahmananda, the first President of Ramakrishna Math & Mission.

The college has already made its distinguished mark in the teacher-training programme of the state. The college plan comprises a well-equipped library, a play-ground and a three storied hostel building. Laboratory facilities for the study of Physical Science, Life Science and Geography, workshop facilities for Work Education projects, efficient teaching staff, exceptionally good result year after year and good discipline have all combined to earn reputation for the college. Facilities of computer, internet, generator, xerox machine, educational kits, projectors, T.V., V.C.R., D.V.D., Epidiascope and multi-gym. are also available.

Since the session 1999-2000 this college has been renamed Ramakrishna Mission Brahmananda College of Education (A unit of Ramakrishna Mission Boys' Home, Rahara) after being affiliated to Calcutta University to introduce B. Ed. Course in place of P. G. B. T. course. Now this college is affiliated to WBUTTEPA (The West Bengal University of Teachers' Training Education Planning and Administration) Barasat. The college is fully residential and recognized by the NCTE.

**ISSN- 0973-5895**

**Volume - 12**

**August 2020**

# **Anwesa**

**A Journal of Education**  
**(Peer-Reviewed)**

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**Rahara, Kolkata - 700 118**

**West Bengal, India**

# **Anwesa**

**A Journal of Education**

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*Printed by:*

**Unique Printing**

Phone : +91 90384 53449



## **FOREWORD**

There is no doubt that after independence a large number of people have become highly qualified and successful in their professional life. In the 21st century, knowledge-based education has become a commodity. A commodity cannot be a panacea for all round development of the pupils. It is undeniable that in spite of the spectacular progress in various fields of our material life a section of our society is being swept by the storm of western hedonism due to globalization. People of this category are alienated from the rest of the people of our country. Rampant corruption in the society is denying the basic needs to the downtrodden people.

It is very much true that owing to some lacunas in the field of Education these maladies are overflowing our country. To put the society on the right track we are badly in need of, as Swami Vivekananda said, “man making and character building education”.

Educated people can not deny their accountability to the society. The mission of our journal is to sensitize the educated people, specially the in-service and pre-service teachers so that they can cope with the various problems in the field of education without disowning our heritage.

The ‘Anwesa’ has tried to explore different aspects of education in an innovative way. We hope its endeavour will be the fountain of inspiration to those who are concerned with education.

**August, 2020**

**Swami Kedaratmananda**

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## **From the Editor's Desk**

Dear readers,

We are happy to bring out the 12<sup>th</sup> volume of *Anwesa: A Journal of Education*. Research is a strenuous work, especially when it comes to the organization, documentation and synthesis part. Here starts the journey of an editor. The journey has started one and half year earlier to till date and we have come out with this fruitful result. This journal attempts to explore changing educational scenario of India as well as World.

The first article by Samrat Bisai and Shubhrojit Misra discuss the concept of translanguaging and learner autonomy in a multilingual classroom. They emphasize on the view that language is a fluid system and criticized the strict boundaries of languages. They talk in favour of negating boundaries between and among languages. Their article endeavors to discuss on learner autonomy through translanguaging in a multilingual classroom.

The second article by Souravi Ata talks about mind mapping, a technique which provides a Universal key to unlock the potential of the brain. She has used this powerful graphic organizer to develop students' reflective thinking.

The third article by Dr. Subimal Kumar Chatterjee talks about various recent trends and objectives of education for future generation. He also discusses how these trends can bring a dynamic change in our education system.

The article by Dr. Sukdeb Das talks about the effectiveness of integrating technology with education and how it is yielding positive results among students.

The next article by Dr. Ajoy Ghosh discusses on the issue of teacher education in Bengal with reference to great thinkers like - Tagore, Vivekananda, Aurobindo and Nivedita.

The article by Biswajit Goswami shows the life & struggle of Kora Tribes in West Bengal and reveals how modernization and sanskritization influence their lives.

The article by Sanjoy Mitra excavates the effect of hatha yoga and aerobic dance programme to improve the performance of systolic blood pressure and diastolic blood pressure of adolescent girls.

The next article by Chattu Mondal discusses about the prevalence of anxiety, depression and stress among secondary school teachers and how it is affecting their mental health.

The article by Chiranjit Dutta and Kamal Krishna De describes how different branches of Science are integrated in the curriculum of Environment & Science at Secondary level and how it is influencing students' achievement in school.

The article by Sandip Mandal and Biswajit Jana has assessed mathematics anxiety among the secondary students in West Bengal. Their Study also explored that mathematics anxiety has no effect on students' academic achievement.

The last article by Dr. Nizamuddin Ahmed, Biswajit Goswami and Swami Tattwasarananda describes the religions beliefs and practices among the Kora Tribes of West Bengal and how it influences their lives.

These eleven papers explore various dimensions in the field of education such as - languaging, yoga, ICT, mind- map, mathematics anxiety and so on. I hope this journal will help you positively to enhance your knowledge.

Rahara  
August, 2020

**Samrat Bisai**  
Assistant Professor

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A Journal of Education

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## **Promoting learner autonomy through translanguaging: A theoretical perspective**

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### **Abstract**

India is a multilingual and multicultural country. In this country, students come from diverse linguistic backgrounds with diverse resources. But, their linguistic resources often remain unutilized as minority students are imparted education in dominant languages only. Though various educational commissions and policies (NPE 2016, NCF 2005, POA 1992 etc.) recommended to impart education in mother tongue of the students, their recommendations are not implemented at grass root level. In this scenario, translanguaging can be promoted to address the issues of linguistic diversity in Indian classroom. Translanguaging is the strategy which can fulfil these needs. Using this strategy, a teacher can deliver his instruction in one language, can conduct task in indigenous languages and gives the students flexibility to switch from one language to other in a constructive way (Garcia, 2009) This theoretical study aims to find out how translanguaging can promote learner autonomy in a multilingual classroom.

**Keywords:** multilingualism, translanguaging, strategy, learner autonomy

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## **Introduction**

The classroom scenario in India has changed in the twenty first century. It has become heterogeneous with its diversified needs and challenges since a considerable number of students belong to different linguistics backgrounds. Therefore, the classroom interaction should be focused on paying attention to fulfill these diversified needs of the students. However, the traditional classroom system often accepts the monopoly of a single dominant language by denying the possibility of a multilingual classroom (Dua, 1990). Even in many cases, the classroom teachers deliver their lecture in the dominant language only. Therefore, it becomes a problem to the minority language speakers who attend the school with little knowledge of the dominant language (Cenoz & Gorter, 2011), and as a result they face much difficulty to comprehend and correlate the lessons with their personal lives. Education gradually becomes a burden to them and they start quitting the school (Feldman & Babu, 2011). In this context, if translanguaging can be adopted as a strategy to promote autonomy of the learners (Garcia, 2009), it will equip them with freedom to use various languages in a single classroom and provide them the opportunity to freely switch from one language to another. The learners will be able to correlate their learning experience with their personal lives, which in turn will enhance learner involvement and participation inside the classroom.

Translanguaging is said to be “an act performed by bilinguals of accessing different linguistic features or various modes of what are described as autonomous languages, in order to maximize communicative potential. . . It is an important educational practice – to construct understandings, to make sense of the world and of the academic material, to mediate with others, to acquire other ways of languaging” (Garcia, 2009). Gutierrez et al. (2001) have termed translanguaging as a “systematic, strategic, affiliative, and sense-making process”. It is also found to be a very common phenomenon and the reality of our everyday life, though modern classroom teachers pay considerably little attention to it and most of the time they consider translanguaging to be unscientific or unnatural (Otheguy, 2015, Gazula et al, 2016). They fail to take into account that translanguaging is necessary for understanding the linguistic diversity of a classroom. It provides learners the space to put forth their ideology where they will be able to include their linguistic resources in the curriculum. It also breaks the traditional concept of language hierarchy and puts the language on linear space (Creese & Blackledge, 2015). The phenomenon of translanguaging presents the learners with opportunity to take active part in the classroom, to voice their views through debate, discussion and other decision



making processes. It creates a mutually cooperative classroom by giving space to every individual learner, since it lets them share a social space where they can bring together their personal history, experiences, beliefs, attitudes and ideology into the classroom. This strategy in turn helps the learners to make meaning from the classroom context, shape their experience through the classroom discourse and gain knowledge and understanding through the use of various languages in the classroom. In addition, it makes the learners autonomous by giving them the opportunity to think, reflect and construct their own knowledge in the classroom.

Learner autonomy rejects the traditional teacher-centric classroom boundaries and advocates a new discourse where learners take the learning process as a self-regulated and self-inductive activity, thus taking charge of their own learning experience (Holec, 1981); it allows them “to plan their own learning activities, monitor their progress and evaluate their outcomes” (Benson, 2003). Learner autonomy has been classified into four different perspectives, namely technical, psychological, socio-cultural, and political-critical (Benson, 1997; 2006). The socio cultural perspective emphasizes on the interaction of communication between learners and their environment, which generates a new discourse in the classroom.

Learner autonomy requires the learners to control their learning condition in numerous forms, like learners’ involvement, learners’ reflection and appropriate language use. They set up their learning goals or objectives, select their own learning content and evaluate the whole learning outcome all by themselves. This kind of classroom helps the students to interact with each other, take part into debate, discussion and decision making process. It makes the learning process more humanistic and goal oriented. Here, the teacher facilitates varieties of classroom activities which give the learners the opportunity to interact with their peers. It maximizes their learning capacity (Vygotsky, 1978) and gives them a two-fold chance of interaction – 1. in interpersonal level, 2. in intrapersonal level. The teacher also helps the learners to maximize the use of target language and initiate various modes of interactive discourse. He encourages the students to evaluate themselves from time to time and keep a record of these activities. Furthermore, the teacher helps the learners in setting up their learning targets and skillfully helps them to facilitate the learning activity. Here, he acts as a manager, an observer as well as an adviser for the learning discourse. The teacher thus plays a vital role in creating and monitoring learning groups and constructing a learning space for the students where the latter can accommodate themselves comfortably with a spontaneous mindset.

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

Kothari Commission (1964 – 1966) has discussed about implementing ‘three language formula’ in the country’s education curriculum. But, Mohanty (1990) said that this concept has mostly been abused rather than being utilized properly. The National Curriculum Framework (2005) has addressed to the issue and opined in favor of promoting multilingualism in classroom. It has admitted that the government should provide adequate facilities to impart education in vernacular languages, but talked significantly less about the procedure of practical classroom implementation. Even a report on Multilingual Education Orissa (2011) by NCERT has felt the urgency of multilingual education to bring quality and equality in the education system. It used multilingualism as a tool to uplift the socio economic status of the deprived class and talked of incorporating multilingual curriculum in the school system. D. P. Pattanayak (1984) once said in multilingual countries like India speaking in more than one or two languages is a common fact in daily life and restriction to this choice is unnatural. He also stated that a single language dominance is uneconomic as well as absurd. Rama Kant Agnihotri (2010) once talked about the need of multilingualism in Indian schools and said that multilingualism should be the center of a classroom discourse. Our modern classroom should adopt an approach to deal effectively with the diverse linguistic resources that are already present in the classroom. Article 350A of the Indian Constitution has given an emphasis on providing adequate facilities of mother tongue instructions in the primary stages of schooling. Indian classrooms are heterogeneous in nature and different language speakers assemble in a single classroom, and hence implementing multilingualism in Indian scenario is the dire need of this century and translanguaging is one effective strategy to deal with these multilingual pupils in the classroom.

### **Literature Review**

Translanguaging has the potential to transform the multicultural education system positively. It optimizes the use of students’ native language in the classroom and strengthens the process of socialization. It allows space for learners to go beyond the boundaries of a fixed linguistic system and destroys the traditional language hierarchy by creating an equitable society and classroom (Garcia & Kleyn, 2016). Garcia & Sylvan (2016) opined that translanguaging is an effective strategy which helps the students and teachers to build the sense of learning in a constructive way. They describe it as a medium to bring heterogeneity in the classroom by creating a sense of collaboration among students and giving them opportunity to integrate the content with their own language, thus

promoting experiential learning among them. Moreover, translanguaging imparts broader thinking and knowledge among students and engages them into complex discursive practices that enable the learners to develop a standard academic way of language use. Creese and Blackledge (2015) stated that translanguaging creates a sense of identity among the speakers, especially in a linguistic complex society. This strategy refutes the conventional fixed territory of language by conceiving it as a fluid process; hence igniting the process of socialization as it helps in negotiating the identity among its speakers. Garcia & Wei (2014) opined that translanguaging creates a socio-educational process in the classroom where students construct their own language and identity by combining different modes and media across different social contexts. It brings criticality and creativity among its users by eliminating boundaries, norms and rules of the traditional language framework and creates a new system where language emerges from social interactions. Furthermore, it uses different linguistics, political and social phenomena critically to question or problematize the existing situation through reasoned responses. Heuge (2015) identified translanguaging as a potential tool to encourage multilingualism in classroom that can also be used to bridge the epistemological gaps in the curriculum. Martinez et al. (2015) in their study on elementary students of Southern California have explored how translanguaging can be helpful in moving fluidly from one language to another. Though the process of translanguaging is complex in a classroom situation, it represents the actual reality of a multilingual classroom as it breaks the traditional notions of linguistic barrier and provides space to the learners to communicate freely in the classroom in different languages. It is a powerful strategy which helps the teachers to deliver his instruction in a productive and generative way. The aforesaid authors also attempted to prove it a legitimate discourse in the classroom situation.

Palmer et al. (2014) too discourage the act of language separation. In their study on a public school in Texas, they have suggested translanguaging as an important instructional strategy to use various linguistic resources in the classroom. It gives the students space to discuss the sensitive and important issues in the classroom. As students speak in various languages, minority languages also get space in the classroom discourse. It helps the minority students to create a sense of belonging in the classroom, which makes them more productive. It also helps the teachers to draw on various skills in the classroom, which enriches the academic learning. Wei (2010) in his research on three Chinese youth in Britain have explored that translanguaging gives an individual the opportunity of cultural translation among various traditions. It provides them with a space for creativity and criticality. It gives an individual a social space where multilingual speakers can incorporate various dimensions

of languages by combining personal history and experiences together. It enables an individual to combine different linguistic structure; helps him to go beyond a traditional concept of language boundary and gives a transformative power which makes an individual's experience come alive.

Developing learner autonomy in a classroom is a substantial challenge for teachers since it requires various skills of thought, reflection and analysis. The students are motivated to learn intentionally and intrinsically by engaging themselves with the content and the process of learning. Hence, it helps them to bring out the creativity to develop their metalinguistic, metacognitive and cognitive strategy as it initiates independent interaction in the classroom. (Little, 2004). Bensen (2011) in his paper has admitted that autonomy is multidimensional and takes various forms in separate dimensions. He mentioned three perspectives of autonomous learning – implications of sociocultural autonomy, teacher autonomy and new technology. While talking about sociocultural autonomy, he has made a shift towards socially acceptable ways of language use, thinking, learning and teaching. It gives emphasis on the idea that autonomy is a social construct, hence, we learn languages when we interact with each other in a meaningful way. Negari and Donyadery (2013) in their study have found out a significant correlation among learner's autonomous belief, self-efficacy and language performances. This belief in self-efficacy plays a pivotal role in learners' functioning in the classroom and they are found to accomplish their tasks in an innovative way. The aforementioned authors have also found out that autonomous learners are mostly self-efficient and they possess the capabilities to perform better in different challenging situations.

### **Research Gaps**

Previous literatures have discussed several issues on translanguaging and autonomous learning. But very few literatures have attempted to discuss on the issues how translanguaging enhances the learning ability of the students by enabling learner autonomy in the classroom. The present paper attempts to discuss how translanguaging allows learners with the autonomy to switch 'between, among and across' languages and help an individual become an independent learner.

### **Translanguaging as a Strategy to Build Learner Autonomy**

In the Indian classroom scenario, translanguaging is a legitimate discursive practice (Gracia 2009, Creese & Ledge 2010) as it addresses the heterogeneity of the multilingual classroom. It gives the learners opportunity "to move freely within, between and among languages" (Shohamy 2013). The following is an example of translanguaging in Oriya, India:

T (Teacher): (Showing the picture side of the flash card)

Keteta ambaachhi?

“How many mangoes are there?”

S1 (Student 1): Aboy

“One”

T: (the teacher did not mention the Oriya name for one, that is, eka,

But went on to show the flash card for three) Ethireketetaambaachikahila?

“How many mangoes are there?”

S2: Yagi

“Three” (in Saora)

T: (Showing another flash card with picture of five mangoes)

Ethira keteta acchi kahia?

“Say, how many are there in this card?”

Ss: (Children started counting in Saora)

Unji

“Five” (in Saora, in Chorus).

(Adopted from Mohanty et al. 2010)

It is a general norm of interaction in the Indian context and is also very necessary in order to understand the linguistic diversity in a multilingual classroom. In the translanguaging process, languages break the traditional boundary of the classroom as learners draw resources from various other languages by removing linguistic barriers. They often make use of the dominant (widely spoken)

language to develop the weaker languages and promote a multilingual identity through negotiation of meanings in the classroom. They share information and discuss content in various languages and at the same time they get the chance to participate actively in the classroom, to voice their views and raise questions independently. It also gives them the opportunity to shape experience, gain understanding and knowledge through the use of various languages. Furthermore, it makes them creative as well as critical since it provides them with a space to think, imagine, and develop their ideas independently. The process of translanguaging thus enhances the learners' cognitive skills and eventually they engage themselves in mutually respectful ways to learn from each other.

In a translanguaging process, one language is used to reinforce the other in order to better understand the activities among different languages (Garcia 2009, Lewis, Jones and Baker 2012). In this respect when students navigate between and among various dialects and the structure of language systems, they feel a sense of belongingness in the classroom. This strategy helps them to activate their prior knowledge so that they can bring together different dimensions of personal history, experience and environment into the classroom. It also gives them the chance to value and exercise their own ideas and as a result bridges the gaps among different linguistic systems by creating a new social space for students in the classroom. In this way, translanguaging shapes a new experience and creates an understanding among different languages; it provides a new platform to students where they share and discuss ideas in various languages. Gradually they learn to accommodate and assimilate new information in their minds, produce knowledge which is rich in its nature. Furthermore, translanguaging provides a new context to invent a new ideology, negotiate and reconstruct it in the classroom and creates an opportunity of metalinguistic scaffolding by going beyond the traditional classroom framework. It creates a situation where social, political and cultural contexts are merged together, generating a new discourse in the classroom. On the other hand, it also creates an opportunity of socialization among the students involved.

### **Conclusion**

Translanguaging engages students in complex discursive practices within a multilingual classroom which enable the learners to develop standard academic ways of learning and language use. It capacitates them to make sense of the multilingual classroom and provides the students opportunity to implement their ideas and actions which in turn helps them in developing literacy among themselves. When students from various linguistic backgrounds are engaged into a various classroom activity,

they overcome the norms of the traditional classroom system and take into account various linguistic and semiotic resources into a single classroom discourse. It creates a space for broader thinking and knowledge-building among the learners by making them autonomous, and also has the potential to resolve dynamic tensions among languages for nurturing a space for various languages in a single classroom. Hence, the prevalent multilingual education framework should include translanguaging as a strategy to strengthen the education system in India.

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## **Developing creative thinking of children by mind mapping technique**

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### **Abstract**

Mind mapping is a learning technique that was developed by Tony Buzan (1970). A Mind Map is a powerful graphic technique which provides a universal key to unlock the potential of the brain. It harnesses the full range of cortical skills — word, image, number, logic, rhythm, colour and spatial awareness—in a single, uniquely powerful manner. Application of mind map is to construct “Divergent Thinking” in the brain. While applying mind mapping, the ability of logical analysis, reasoning of left brain, creative thinking and memory of right brain can be maximized. Thus, this study reviews related researches to figure out whether mind mapping can be applied by children to develop their creative thinking.

**Keywords:** Mind Mapping, Children, Creativity.

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### **Introduction:**

In so doing, it gives an individual the freedom to roam around the infinite expanses of an individual's brain. Through mind maps, one's attention, coordination ability, logic, reasoning, thinking, power of analysis, creativity, imagination, memory, ability of planning and integration, speed reading, character, number, visuality, hearing, kinesthetic sense, sensation, etc. can be enhanced significantly. “Picture” is not limited by nationality and language and it is the best tool for young children to explore new things and learning. The Mind Mapping can be applied to every aspect of life where improved

learning and clearer thinking will increase human performance. Mind mapping is a technique for delivering effective and creative thinking (Buzan, 1989; Mento, Martinelli & Jones, 1999; Buzan & Buzan, 1996; Buzan, 2005). The technique helps in arranging and presenting research concepts visually around a central keyword or idea (Borchardt, 2011; Burgess-Allen & Owen-Smith, 2010; Buzan, 1995, Kern, Bush & McCleish, 2006; Crowe & Sheppard, 2012; Meier, 2007; Mueller, Johnston & Bligh, 2002; Wheeldon, 2011). This visual presentation helps to organise thoughts (Mattos, Mateus Junior & Merino, 2012), create ideas (Cheng, Hu & Chen, 2012), focus discussions (Chang & Chen, 2015), solve problems (Buzan, 2005), make decisions (Borchardt, 2011) and achieve learning (Mattos, Mateus Junior & Merino, 2012).

It takes some practice in defining locations and placement of topics and details. It has been noted that the use of colors and symbols can positively influence the information retention of the presented information. If the maps are to be shared, the photocopying or scanning must be used which can slow the transfer of the map to others. It also makes the maps a reference document, not a living document for changes. Cain (2001/2002) found that Mind Maps also promote active learning, foster motivation, improve confidence, and support a diverse range of learning styles and levels of ability – all in a fun way. Goodnough and Long (2002) found that Mind Mapping is a useful strategy for introducing new concepts, providing a whole-class focus for a large research project, assessing learning of individuals and offering greater choice in how people choose to complete assignments and projects. It is easy to recall multi coloured, multi-dimensional mind maps rather than traditional linear notes (Buzan & Buzan, 2006).

Creativity is one of the most significant human activities. It is a dynamic concept exceptionally complex and undergoing transformations. It is a mental process through which one comes to accurate, unique and innovative results. Torrance (1974) suggested four components of Creativity,

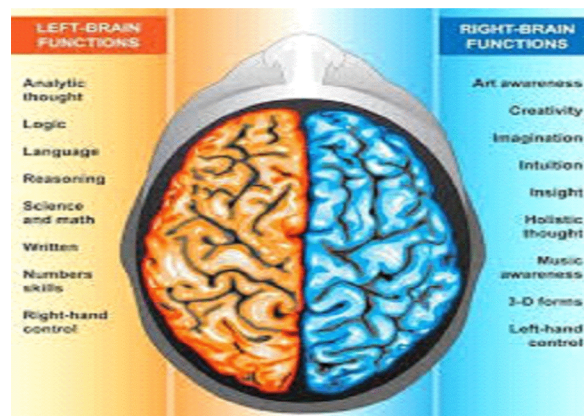
- A. Fluency – the continuity of ideas, flow of associations and use of basic and universal knowledge;
- B. Flexibility- changing ideas, approaching a problem in various ways and producing a variety of solutions;
- C. Originality– this is at the heart of all creative thinking, and represents your ability to produce ideas that are unique, unusual, and ‘eccentric’, literally ‘away from the centre’. Although

many people think such a person is ‘uncontrolled’, exactly the opposite is true: originality often results from a great deal of directed intellectual energy, and it generally shows a capacity for high levels of concentration.

- D. Elaboration – the ability to describe, illuminate and generalize ideas. Creativity can be general or specific. General creativity as explained by Leikin (2009) is associated with using problem solving patterns from one field, in solving problems in another field and specific creativity brings about creativity in a particular field by taking into account the logical deductive nature of the field.

The creative thinker is able to build up, develop, embroider, embellish, and generally elaborate and expand upon ideas.

**Creative thinking involves the use of the full range of left-brain and right-brain mental skills, which is shown in the following picture. If the total brain of an individual functions at the same time then it will be termed as mind mapping.**



Education systems tend to focus on left-brain skills and place less emphasis on right-brain skills, which immediately impacts on our capacity to think creatively. Academic background tends to develop one’s verbal, mathematical, and analytical abilities but neglects skills such as drawing, painting, and music. But there are chances for tapping into a fraction of one’s creative capabilities. What do we get when we combine the skills of left and right hemisphere of the brain? A Mind Map! A Mind Map includes each aspect of the left and right cortex and is therefore a superb whole-brain thinking tool.

Mind Maps are an excellent tool for strengthening ability of an individual to make associations and create images in the Mind Maps of individual's thoughts. Mind Maps encourage creativity. If an individual wants to come up with brilliant ideas, find inspired solutions to any problem or find new ways to motivate himself and others, he needs to set his imagination free with Mind Maps.

Furthermore, mind maps present information and data in an organic and visual format that many of the proponents of the technique claim can increase the ability to retain informations (Buzan, 1976; Meier, 2007; Buzan, 1993; Buzan, 2005). When originally developing the technique, research attempted to gain an understanding of how people learn and remember resulting in gaining insights on how the brain operates (Mento, Mantinelli & Jones, 1999). For instance, Zampetakis, Tsironis and Moustakis (2007) convey that the brain works by focusing on a central point from which outward ideas can be added and organised. Additional research uncovers the brain's division into two hemispheres which are connected together facilitating different intellectual functions (Buzan, 1991; Buzan & Buzan, 1995;

Buzan & Buzan, 1996; Buzan & Buzan, 2006). By using both hemispheres, humans are able to think effectively and creatively (Mento, Mantinelli & Jones, 1999; Nast, 2006). Buzan and Buzan (1995, 2006) demonstrate this creativity by providing examples of the working notes of great thinkers such as Leonardo da Vinci and Picasso which reflect the use of the mental capabilities which exist in both hemispheres. Leonardo da Vinci realized the power of using images and associations in order to unleash his brain's infinite capacity.

It is a skill to develop the whole brain, applying characters, images, numbers, logics, rhythm, colors and unique observation method, providing a limitless and free imaginary space to the brain. Briefly, mind map is a map for the brain (Buzan & Buzan, 1996). Application of mind map is to construct "Divergent Thinking" in the brain. While applying mind mapping, ability of logical analyzing and reasoning of left brain and creative thinking and memory of right brain can be maximized. Mind maps are considered to be a type of spider diagram.

**Objectives:**

1. To explore the theoretical concepts and functions of mind mapping.
2. To describe how to develop creative thinking in children by mind mapping technique.

**Functions of mind map:**

1. Build a concept or viewpoint in a broader scope or topic.
2. It provides a direction while planning or making decisions, helping users to collect and organize large amount information.
3. It encourages users to solve problems by a new and creative way and thus enhances the effectiveness.
4. It attracts and controls one’s attention and thinking.
5. It makes observation, reading, thinking or memorizing interesting.

**Benefits of Mind Maps:**

- Help students brainstorm and explore any idea, concept, or problem
- Facilitate better understanding of relationships and connections between ideas and concepts
- Make it easy to communicate new ideas and thought processes
- Allow students to easily recall information
- Help students take notes and plan tasks
- Make it easy to organize ideas and concepts

1. Mind mapping



### **Related works on application of mind mapping in developing creativity of children:**

Goodnough and Woods (2002) discovered that Mind Mapping is a fun, interesting and motivating approach to learning. Several of these participants attributed the fun aspect to the opportunity to be creative when creating Mind Maps through lots of choice in colour, symbols, key words and design. Research by D'Antoni and Pinto Zipp (2005) found that, from a pool of 14 physical therapy students, 10 out of 14 agreed that the Mind Map technique enabled them to better organise and integrate the material presented in their course. A study conducted at New Church Community Primary School in Warrington showed a variety of improvements in pupils' learning after Mind Mapping was introduced. Evidence includes improved concentration, staying on task for longer periods of time, improved questioning and answering during class discussions and improved independence. According to Dalke (1998), young 3 years old children showed some ability to make and use maps but performed poorly on the false belief tests. Children were more likely to use an incorrect map to predict behavior if the represented object was missing instead of in a wrong location. Many children were also able to predict that someone who used an incorrect map would not "Find" the object. In particular, it would be useful for at least two individuals to go through the mind map independently to help ensure objectivity when reporting the number and strength of the relationships and connections listed (Cresswell, 1998). Mundy and Gilmore (2009) used a novel task to assess children's mapping ability. They showed that children can map in both directions between symbolic and nonsymbolic numerical representations and that this ability develops between 6 and 8 years of age. Chen (2007) examined the role of experience on 2.5- to 5-year-old children's discovery of spatial mapping strategies. With experience 3- to 4-year-olds discovered a strategy for mapping corresponding locations that shared both featural and spatial similarities. When featural and spatial correspondences were placed in conflict, requiring children to negotiate both object-centered and location-centered mapping possibilities, 4- to 5-year-olds proved capable of discovering a novel mapping strategy, abandoning an ineffective strategy, and generalizing the acquired strategy across analogous tasks. It has been successfully used in community serving programs and could be similarly applied in youth serving agencies (Wells & Arthur-Banning, 2007).

### **Conclusion:**

Mind Maps are therefore the best way to express our brain's infinite creative potential. Mind mapping is a thinking method which stimulates thinking and helps to integrate thoughts and

information, and it is also a strategy of thinking visualizing concepts (Buzan & Buzan, 1996). This mind mapping utilizes lines, colors, characters, numbers, symbols and pictures to quickly record information and thoughts. It clearly and easily record large amount of information or ideas which originally require magnitude of words to record on a mind map. The structure becomes open and organized, allowing one to organize a variety of information and evoke more new ideas. Finally, we propose some guidelines for later researches to improve course design of information education for young children. This allows one to find that picture is helpful for young children on learning and interaction. However, there are still some unanswered questions such as: how to implement mind mapping in teaching, how to train the teachers to become master on this method, etc., that needs further investigation.

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## Education for the Future Generations

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### Abstract

Education in the 21<sup>st</sup> century and beyond will be more and more dynamic and technology based. Students and educationists of the future should learn to use technology correctly and efficiently. Side by side, they should not give up the traditional method of teaching learning system. They should be able to give leadership, have strong creative ability, believe in teamwork, must be dynamic, should have critical thinking ability, problem solving ability, agility and such other skills required for effectively handling the educational arena. This paper aims to discuss various trends and objectives of education for future generation.

**Keywords:** *Technology, Leadership, Creative ability, Agility, Problem solving, Teamwork.*

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### Introduction

Education is seen as one of the ways to upward social mobility, a stepping stone to high-flying career. On this date we are about to cross 72 year border of post-independence period and have covered one fifth (almost) of the 21<sup>st</sup> century. We are not sure that during this period, we have made sufficient progress in education sector, the pass outs from different educational institutions are skilled enough to meet not only the challenges of 21<sup>st</sup> century but also different hurdles of the future.

The purpose of education is to empower students to find the paths to their own dreams, to create lifelong learners who are prepared for both the modern world and the future; and to empower individuals to make a positive impact in the world. A group of educators raised a question amongst

themselves about the process of preparing students for the future especially when the future is unknown as also the needs for future. The answer also cropped up from amongst their discussion: creation of personal educational opportunities is necessary to prepare students as world citizens who will be able to change the world of education by their multifarious activities. To make these efforts successful, the specific steps to be taken are:

1. the programme should be student-centered
2. learning should be mastery based
3. hitting the target at the end
4. forward learning, dynamicity
5. accepting newer technological support
6. life-long learning
7. promotion of creativity and critical thinking
8. teachers' guidance to promote student development
9. to identify cause and effect relationships

### **Importance of Education of Future Generations**

Towards the end of twentieth century, educationists and policy makers started thinking about the shape of educational structure that will be essential for twenty first century and thereafter. To be more precise, future of education for future generations was also considered by them. To chalk out future plans they considered and analyzed Indian scenario, thought of global demands, and outcome of National Education Policy (1986) and its programme of action (1992), international conference on secondary education (1993) in New Delhi, WTO conference (1994) in Uruguay and international conference on higher education (1998) in Paris. Taking into account all the decisions taken and recommendations forwarded in the referred policy pack and conferences, future plans were chalked out in this format : education for future generations must be very dynamic, student centered and very much related to societal, environmental, ecological, industry related. Creation of learning society, lifelong learning system, increased employability and honest accountable and technologically competent manpower who can meet and tackle future challenges was found essential.

**Trends defining the Future of Education**

In view of the fact that future educational planning will be different from the present conventional type, a paradigm shift was noticed in the teaching–learning system. Newer avenues were opened to keep pace with the dynamicity and diversity of the educational system as a whole. To meet the global demands in the educational market suitable driving forces or trends defined are:

1. Practical learning strategies are the ways by which students practically demonstrate what they have assimilated before taking up subsequent learning topics. This will not only consolidate their knowledge but also help them to master their subject.
2. Focus on student's choice and preferences will allow the students to adopt flexible learning system. This will strengthen mindset of the learners who will be able to easily pick up quality education.
3. Education has surpassed geographical boundaries as well . This powerful tool of sharing paves ways for better communication between students around globe for improvement of their competencies and skills.
4. Edutainment – a novel concept of blending entertainment with learning is likely to open new avenues to think ahead. Media learning like educative podcasts, videos and recorded audio-video lessons are the latest educational trends which will be more effective in changing the traditional teaching-learning system.
5. A great holistic change emerges in the classroom based traditional teaching-learning system when teachers also learn from discussion with students. Online learning comes as a handy tool to excite participation of introvert students. Permitting students to get introduced to global educative patterns, assigning quizzes in class and home situations along with flipped classroom sessions will certainly widen the scope of learning across the boundaries.
6. Skill based training paves ways for trained professionals who will be able to seek suitable berths in job market more easily than others. They will also be able to prove their merit in the work sector. In the process, the gap between demand and supply of educated skilled professionals will be bridged.

7. Mobile learning is very popular now a days. From internet connected smart phones students can learn anywhere and anytime to enrich their knowledge.
8. Appreciating the competencies of students through award of academic credits is better option than award of grades. Feedback is another vital tool in this context.
9. Internship is another promising tool when educated or trained students are allowed to face the real situation in suitable workplaces. In-house training workshops can improve their social skills and students can gain technical knowledge from practical field. Working power and maturity will also be enhanced.
10. Adaptive learning platforms will gain prominence where teachers can improve student engagement. It is a personalized learning which helps students to work on instant feedback given out by their faculty. This competency-based educational pattern will thus lay the foundation of a curriculum that will keep in mind the fundamental interests and individual needs of the students.

### **How to prepare students for Future**

In schools, the students learn about lots of subjects, face challenging situations but they rarely have any chance to apply their knowledge in practical work places. Their success most of the times are based on class examinations. They are rewarded by their parents for scoring good results and their parents rarely inspire them to prove their merit. Sense of responsibility and skill for application of knowledge in the areas are tested very rarely. As a result, a brilliant student with strong theoretical background fails to come out as a successful person in the world working arena. To meet the challenges of 21<sup>st</sup> century and beyond, only students with functional knowledge and skill will be essential. A question spontaneously cropped up towards the methods of preparing such students. A group of educationists suggested five methods to follow at the beginning. The methods are:

**a) Encourage Teamwork:**

Nearly all jobs now are a team effort. Students need to understand how to communicate, compromise and share credit so that they can be a valuable contributing member to projects.

**b) Be Future-focused:**

Beside learning in institutions, students should learn to think about the application and utilization of their knowledge.

**c) Teach Complex Teaching Skills:**

Decision making and problem solving skills are very important for students or future manpower so that they can reach the target at right time by the best path.

**d) Round out the Curriculum :**

Students of today need an all round education including humanities, science, technology, Engineering and Math (STEM); History and Communication courses. Even Music and the arts encourage creativity and innovations.

What we have discussed till now are the essential basics which the students of present day should learn in high schools and colleges. But as their target is to dominate the future beyond 21<sup>st</sup> century, they should internalize the skills, or rather the survival skills with which they can tackle the hurdles and challenges of 21<sup>st</sup> century. After interviewing educationists, business giants and entrepreneurs, Tony Wagner of Harvard University identified seven survival skills as basic needs. The skills are –

**1. Critical Thinking and problem solving:**

Students need to develop their skills and apply those to solve problems. Whatever be their field of specialization, most problems have multiple dimensions. Students should try different ways to find out multiple solutions and pick up the best one to solve perfectly in minimum time.

**2. Collaboration Across Networks and Leading by Influence:**

A born natural leader is rare. To complete any job successfully, it is necessary to work harmoniously with others. During this group working, leadership develops from within of those persons who are willing to lead, believe in division of labour, can encourage others and complete the work efficiently. Sometimes these people act as ‘manager’, sometimes as ‘organizer’ or as ‘graphic designer’.

**3. Agility and Adaptability:**

A particular work may not be completed in a definite way. Working situation may change desired raw materials may not be available always and working manpower may not be the best. So the leader must be agile, dynamic and sufficiently capable to adapt himself in the changing workplace and guide the co-workers accordingly.

**4. Initiative and Entrepreneurship:**

The students need to take initiative, incredibly creative and interested in shaping their knowledge and experience. While working, failure may come. It is necessary that a student for the future must take steps to find out the real cause of failure and mend it in time. They should never be afraid of failure and afraid of trying.

**5. Effective Oral and Written Communication:**

In spite of the fact that communication technology is dominating today, effective oral and written communication is still a necessity to many persons. Confident speaking about a project viability and/or detail clear write-up of the matter often touches intimately the understanding level of an assessor. Speed of delivery, gesture, voice of the speaker and eye contact with the audience is of much importance than a technology dependent information sheet. So, students in the future generation should not solely depend on technology leaving the traditional communication system.

**6. Accessing and Analyzing Information:**

Educationists and students of today are getting lots of information from internet. In near future also with improvement of technology flow of academic documents and information will continue to reach students and researchers from all corners of the world. To get benefit in future, it is necessary to learn today the process of selection of the best materials. It is essential to learn accessing the most suitable materials from the text site and the correct answers from answer sites.

**7. Curiosity and Imagination:**

Curiosity and imagination are two vital features of student's mind which provoke them to explore. Educationists of today should encourage them to develop these two skills so that they can creatively and purposefully apply them.

## **Conclusion**

Technology and education together are changing the global learning scenerio. Changes in future will be much more for obvious reasons. Supply of education related information through smart phones has already gained strong ground in the educational set up. It is necessary to believe that students of the future should learn the correct use of technology handing and should not reject the traditional methods of teaching-learning system. They must learn to lead others in such a way that they can keep pace with the dynamic changes of the education dynasty.

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## **Impact of Digital Learning in Equalizing Educational Opportunities**

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### **Abstract**

(Purpose) This article describes two current trends in Educational Technology: Distributed learning and electronic databases. (Findings) Topics addressed in this paper include: (1) Distributed learning as a means of professional development; (2) Distributed learning for content visualization; (3) Usage of distributed learning for educational purposes within other fields; (4) Electronic databases and their effect on education; (5) Emergence of blended learning and knowledge management as educational fields; (6) issues in the implementation of educational technology; (7) Future trends in distributed learning and electronic databases; (8) Classroom applications of each technology; (9) Future recommendations for the use of distributed learning and electronic databases. (Conclusions) Further development and use of educational technology for both teachers and students should be pursued as a worthwhile investment for educational achievement.

**Key words:** Technology, classroom, digital learning

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### **Introduction:**

Education plays a significant role in the life of an individual. The modern world is confronting two general problems which are not only affecting the pattern of human life, but also inflicting their full impact on education. These two problems are called “information explosion” and the “population explosion.” They are like two horns of dilemma in education-more things to learn and more people to be taught.

The term “information explosion” really means an explosion of knowledge. We all know, new frontiers of knowledge are opening day by day and the horizon of human knowledge and understanding is expanding very fast. Now, knowledge has become cumulative in most of the subjects. Especially in arts subjects, new facts and figures take their place along with the old. In sciences although new knowledge or information often supersede the old, the students and scientists have to learn both. Besides, closer relation among countries of the world resulting from wide international communications make information explosion more acute and complicated.

The second problem is “population explosion” which is immensely affecting traditional pattern of education. The problem of population explosion is more serious in the developing countries than the developed ones. For example, in India population has been increasing in geometrical progression. India now has more than 1000 million people.

Michael J. Apter (1968 P. 10) has rightly observed, “The increase in population has of course tended to occur fastest in the developing countries. For this reason, the problem it poses for education is the greatest in these countries. Conversely information explosion has the greatest immediate effect on the technologically advanced countries. Fortunately, no country has experienced the full effects of both at the same time. Nevertheless, there is a fair degree of overlap between the effects of the two.” The developing countries like India are facing serious difficulties both from population as well as information explosion. Because they have to provide education to a larger population year by year and cover more technical and scientific ground for making up the deficiency. Since most of the countries are confronted more or less with the problem of more persons to be taught and more information to be learnt, this general problem is called “Education Explosion.”

A document published by the Ministry of Education “Challenges of Education: A Policy Perspective” has mentioned, “Teacher performance is the most crucial input in the field of education. Whatever policies may be laid down by Governments at the national and State levels, in the ultimate analysis, these have to be interpreted and implemented by teachers as much through their personal example as through teaching-learning processes” (198 P. 54). Further, we have reached the threshold of the development of new technologies which are likely to revolutionize the classroom teaching. Unless capable and committed teachers are in service, the education system cannot utilize them for upbringing the desired national development. Teachers should be professionally well-equipped in order to make education a potential instrument of social change. The National Policy on (1986) Education (1986) has aptly observed,

*“The status of the teacher reflects the socio-cultural ethos of a society; it is said that no people can rise above the level of its teachers. The Government and the community should endeavour to create conditions which will help motivate and inspire teachers on constructive and creative lines. Teachers should have the freedom to innovate, to devise appropriate methods of communication and activities relevant to the needs and capabilities of and the concerns of the community” (p.25)*

The NPE (1986) has suggested that the entire system of teacher education should be overhauled and the new programmes of teacher education would emphasize continuing education and the need for teachers to meet the thrusts envisage in the policy. It has also added that educational technology should be employed, inter alia, in “the training and retraining off teachers, to improve quality, sharpen awareness of art and culture, inculcating abiding values etc., both in the formal and non-formal sectors.” Thus, teachers should be provided with pre-service and in-service education by means of various media, methods and materials constituting educational technology.

The role of technology in a traditional school setting is to facilitate the knowledge and skills of the learners. In order to fully examine this thesis, we must first define several terms. Efficiency will be defined as the quickness by which we obtain knowledge, while the term effectiveness is associated with the amount of imparted knowledge that is operationally mastered. When technology is directly applied to an educational setting, such as a school, both students and teachers can be considered as learners. Thus, we can operate under the assumption that any increase in teacher knowledge and utilization has the impact of increased learning in students. Ultimately, technology should serve to increase students is achievement in schools.

Technology can aid in educational achievement through two primary methods: the removal of physical barriers to learning and the transition of focus from the retention of knowledge to its utilization. Each of these methods must be examined in the context of their relation to both the student and the instructor in order to see their value and effect in educational settings.

The removal of physical barriers has allowed teachers greater accessibility in regards to professional development and graduate education. Before the age of the internet and the advent of distance learning, engaging in a learning community, such as a workplace network or a school, required a close degree of physical proximity amongst community members. Presently, there are multiple examples of the use of distributed learning technology in the educational field. First, many graduate schools have begun transitioning into programs that allow for distance education. No longer is it a necessity that teachers have geographical proximity to a university in order to pursue

higher education and certification. This trend towards online classes and educational opportunities has even become so prevalent that there are universities which consist of only online classes, allowing a teacher to complete an entire course of study through distance learning (Dempsey & Van Eck, 2007). Second, the use of distance learning is not limited to the university setting, but also found in school site, district, and state levels of professional development for teachers, with the emergence of web-based conferences and seminars.

In addition, internet based technology allows teachers to form their own learning communities that are not confined to the local school site. For example, science teachers may use a wiki or content delivery system to network and share information with teachers at other schools both within and beyond their local school district. Even more exciting is the premise that teachers not only receive information and training from a central authority such as district or state personnel, but that teachers may develop content and share their information amongst their peers. This leads to situations of reciprocal teaching and mentorship that are part of a larger informal learning community. In terms of design, online learning communities allow several discussions and socialization that adhere to a constructivist learning principle, in which people effectively learn information when experiencing and defining knowledge through social contexts (Dempsey & Van Eck, 2007).

Students also benefit from the removal of physical barriers through distance learning technology. In contrast with their teachers, who are focused on professional development related to their job performance, students are often learning new content and that content is often removed from their daily lives. This separation between the content being disseminated and the students' daily interactions and prior knowledge is even more prevalent in lower grade levels. For example, students may learn basic math to balance a budget, before they even get their own checking account or have a checkbook.

However, technology can assist students in the visualization of previously unfamiliar content in a manner which assists in learning. For example, multimedia presentations, which utilize multiple formats of media, such as images, narration, and text, can be used to assist students in concept visualization. Other formats, such as simulations and games can add an extra level of interactivity between the student and the content, which turn the educational process from a passive to an active process. Proponents of multimedia adhere to a cognitive learning philosophy and view the primary advantage to multimedia learning as the usage of multiple learning channels, under the assumption that any one sensory channel can only process a limited amount of information at once (Driscoll, 2007).

Even more beneficial is the use of educational technology, in particular multimedia and simulations, to remove physical barriers such as location and financial limitations. For example, students can view images, which may even consist of videos, of distant landmarks and geographical locations, in lieu of physically traveling to the site. All students with access to the internet can use three dimensional and geographic programmes. The cost of this aforementioned geographical technology is one of its great advantages, as this technology can be readily accessed for no cost through technology provided by the corporation of Google and their web based map tools.

Besides the visualization of content in which they have low prior knowledge, students can also get benefit from distance learning, much like their counterparts in the teaching profession. Technology can be used for classes to communicate with other school sites and/or allow multiple classes to attend hosted web conferences and seminars. For example, students studying other cultures may have the opportunity to directly speak with individuals of another nation.

Thus, by removing physical barriers such as financial costs and geographical restraints, technology can allow more opportunities for both teachers and students to participate in learning process or to explore content on a level that is inaccessible within their immediate environment. By not only increasing the amount of learning opportunities, but by providing even more enriching learning opportunities through simulation and multimedia we can increase the assimilation of knowledge.

The second impact of technology is one with long lasting effects on the future of education. Technology, through the development of searchable databases that are now even accessible on remote handheld devices, will change the way we define learning objectives. Specifically there is a transition from the memorizing and recitation of facts and information to the utilization of skills and the development of skills that allow for improved research and the evaluation of other sources, such as online databases.

The mass collection of knowledge leads to an evolving technological field known as knowledge management. Rosenberg (2007) defines knowledge management as “the creation, archiving, and sharing of valued information, expertise, and insight within and across communities of people and organizations with similar interests and needs, the goal of which is to build competitive advantage”(p. 157). Knowledge management is the basis for an instructional method known as blended learning, where individuals are taught within traditional means such as the classroom, but also through technological means (Rosenberg, 2007). As we develop a greater reliance on technology and the advantages that come with its usage, we can expect traditional learning for both students

and teachers, to achieve a blended status, with increased reliance on technological repositories of knowledge. For teachers, technology, in accordance with knowledge management principles, can be used to develop databases that will alter professional development. One emerging database technology is known as the electronic performance support system (EPSS). An EPSS provides professional development and job related assistance whenever an individual may need such information (McKay & Wagner, 2007). An EPSS goes beyond the simple information storage functions of a database, and can also provide case studies, templates, and situational examples for use by the individuals (McKay & Wagner, 2007). For example, if a teacher has a question on how to write lesson plans in accordance with school district requirements, they could go to an EPSS provided by the district and find instructions and information on how to perform their task. This support system allows the teacher to receive help in a very time efficient manner, as the teacher is not required to find an individual who has the specific knowledge and the time required to instruct the teacher. In addition, the higher the sponsor of the EPSS, such as a federal government sponsored EPSS, greater the numbers of individuals that can be served by a single database and adhere to the same standards of job performance.

With the increasing prevalence of the EPSS and other such information databases that are focused on job performance, professional development will undoubtedly be changed. With information being readily available, there would be little need to mandate professional development that is primarily focused on content delivery. Cost saving methods can be utilized when a professional development activity, such as the delivery of new standards, laws, rules, or procedures, can be placed into an electronic database and a memorandum be sent regarding the updated information in lieu of the time and financial costs of requiring personnel to attend an off-site meeting. Ideally, online databases can be used to assist teachers with professional development that is primarily based on skill usage derived from content knowledge. Given that there is only so much time that is able to be devoted to professional development, this focus on the use of knowledge rather than simply its obtainment will ultimately increase the effectiveness of professional development sessions. With more time effective professional development and the ability for teachers to quickly receive job assistance, technology can increase student's achievement through the development of a highly skilled teacher.

In terms of databases and their direct impact on students, changes can be expected, as educational standards begin to focus less on the memorization of knowledge, but more on how to find and evaluate knowledge. For example, an assignment that has students recite definitions from

memory on an assessment could instead have students choose the correct definition for a certain context from an electronic source which may contain multiple definitions. Students may also be asked to perform tasks that require a high level of skill, such as setting up and running a complex experiment, by utilizing support from a database to assist in the process. Thus, content leaders can develop highly complex tasks for students, knowing that the students have information available to assist them if needed. These types of activities are much more realistic, as outside of school, individuals such as engineers are not faulted if they need to reference a statistic or mathematical constant from a database. Given how expansive the world's knowledge has become, we as educators should not lead our students into inefficient endeavors aimed at creating human databases, but teach students the skills to utilize existing knowledge in their learning tasks.

Thus, in regards to the effect of technology on the field of education, technology will continue to have an impact, in terms of both how we train our teachers and how those teachers instruct their students. Specifically, technology can remove physical barriers of learning, such as geographic proximity and financial costs, through technology that facilitates distance learning. In addition, the increasing prevalence of databases can be used for job performance assistance as well as changing the way we teach students by giving a new focus on skill based performance over knowledge retention.

### **Major Issues in the Use of Technology**

However, to truly understand the future of technology in education, and in order to give any recommendations for the future usage of technology, we must come to an understanding of the major issues pertaining to the use of technology. Primarily, the major issues in technology can be divided into three main areas: the integration of modern technology into existing learning theory, the evaluation of the effectiveness of technology within instructional settings, and the trials of successful technology integration into similar fields. Unless technology can be supported by previous learning theories, then technology is merely a distraction to the educational process and will ultimately be costly in terms of both time and finances.

Historically accepted learning theories have a great deal of research and design principles exploring their assumptions and tenets. It is of great importance to the validity of its use that technology is compatible with previous learning theories and methodologies. Learning theories provide insight into how individuals learn and thus provide methods for designing effective lessons. Thus, technology can be used most effectively for educational purposes if it is compatible with previously developed learning theory frameworks.

Traditionally, behaviorism, cognitive learning theory and constructivism have been recognized as the three primary learning theories in education. Each theory, respectively, focuses on learning as a change in behavior, learning as an internal process followed by an application, and learning as information constructed by the learner (Driscoll, 2007). As previously mentioned during the discussion on the role of technology in an educational setting, technology, through the facilitation of social interaction, can be used in both cognitive and constructivist methods. For example, multimedia projects, simulations, and technology assisted lessons can be used to overcome the assumed cognitive load limitations addressed under cognitive learning theory (Driscoll, 2007). Furthermore, the use of online social experiences as a learning community, such as wikis and discussion boards, helps achieve the social requirements associated with learning, as designated by both cognitive and constructivist learning theory (Ravenscroft, 2011).

It should be noted that one possible limitation of previously developed learning theory is that those theories may not keep up with the increasing technological developments of our modern age. However, as long as technology serves the educational purpose, then any new developments in technology should be compatible with existing learning theories. It is only when technology fails to serve an educational purpose that technology would fail to meet the standards and principles of all established learning theories. Thus, learning theory can provide an important tool for determining if technology is being used merely for the sake of technology or for an educational purpose.

However, just because the use of technology can be justified in terms of current learning theory, we cannot merely assume that the use of technology immediately and solely brings about an increase in effective learning. The use of technology within the framework of education, specifically instructional design, must be evaluated using certain empirical methods. One such method is an evaluative method focused on training programs, known as the Kirkpatrick Four Level Model. This model consists of four broad phases of a training program: reaction, learning, behavior, and results (Kirkpatrick, 1996). When faced with a new educational program, for example, one aimed at the professional development of teachers, we can analyze its effectiveness in changing the teachers' behaviors and related job performance, through Kirkpatrick's model. Much of Kirkpatrick's model focuses on the difference in training subjects before and after the training sessions. Thus if technology is used in an effective manner within a training program, there should be quantifiable differences in terms of the knowledge learned and behavior exhibited by trainees in comparison to experimental control groups (Kirkpatrick, 1996).



The final major issue in the use of technology for educational purposes pertains to the use of technology within the educational endeavors of other fields. It should be noted that education in our world is not the sole monopoly of our primary, secondary, and university educational systems. Education is a lifelong process and much like our teachers who must attend professional development, other professionals in fields often unrelated to the educational world must develop and attend educational seminars, professional development, and training sessions to improve their job performance, advance their careers, or learn important new information.

The military constantly faces the challenge of delivering educational resources and training during warfare or to students with schedules and locations incompatible with traditional classroom instruction. Thus, the use of technology within the military has had to adapt to the point where there is a great degree of focus on the use of distance learning. In fact, the military has pioneered an initiative known as the Advanced Distributed Learning Initiative, which has served to increase the development and delivery of education for soldiers and staff regardless of their location (Bratton-Jeffery, Hoffman, & Jeffery, 2007).

Within the business field, the use of educational technology is focused within training and staff development programs and is following two trends: the increased use of technology in training and the global use of training (Richey, Morrison, & Foxon, 2007). The increased prevalence of technology within training programs is often associated with the need for fast development and delivery of training sessions in the business world (Richey, Morrison, & Foxon, 2007). In addition, as many companies have branches in different regions or countries, technology is allowing the development of customizable lessons that are edited to fit into and be effective within local cultures (Richey, Morrison, & Foxon, 2007). In terms of healthcare education, which primarily takes place in medical schools, medical education has seen an increasing use of technology designed for educational purposes. For example, technology databases, such as those hosted by the National Institute of Health, allow for easy access and communication between students and an evolving research field. As Locatis (2007) notes, “the knowledge explosion in medicine mandated the use of information systems to teach problem solving, to keep physicians current, and to facilitate lifelong learning” (p. 200). There are also reports, such as *Physicians for the Twenty-First Century*, that recommend the use of technology within the classroom setting in order to further facilitate the development of problem based learning techniques (Locatis, 2007). Thus, when examining these three fields for trends in educational technology which may be reflective upon the use of technology in traditional educational settings, such as a K-12 schools, certain similarities emerge. The first

similarity is the focus of the military to meet the needs of its professional staff through distributed learning. The advantage of distributed learning in both the educational and military fields is a reduction of physical barriers, such as geographical proximity to a training center. The business world and medical schools are also following similar trends to that of the educational field, such as an integration of technology into the classroom and training sessions, as well as a reliance upon databases to facilitate a transition from information based learning to problem based learning.

### **Future Prospects of Educational Technology**

Given how much impact has already occurred from existing technology in a multitude of fields, further successful developments and applications of educational technology can be expected. These developments will serve to benefit any field which has incorporated technology into their educational mission. In fact, giving the aforementioned existing trends, recommendations can be made regarding the future use of technology, in order to ensure the next wave of development and innovation.

The first recommendation relates to distance learning for professional development. While it has been mentioned that distance learning may result in cost saving, especially when teachers are no longer required to travel to receive additional training, such savings may be nullified if multiple agencies are responsible for the same training content. The leaders of our profession need to establish a single entity for training delivery. For example, in the case of an EPSS, it would be both redundant and inefficient for each school, district, or state to have their own EPSS. In particular, the educational field should look to the military for structural and organizational guidance in the assignment of responsibility regarding professional development content. The military does not assign each individual unit of troops the responsibility of developing their own professional development. Instead, there is a higher authority devoted to the development of training, so that those in the field are not burdened by responsibility, and also to avoid the inefficiency that comes with having each unit develop similar, if not the same, content to be delivered. Utilizing technology allows one entity to develop content and training exercises and then distribute that information to all individuals who require it. The federal government, perhaps through the Department of Education, should take the initiative to develop internet based training and databases that individuals across the country can access.

Second, educators should develop assessments where the utilization of technology by student is not considered an unfair advantage or academic dishonesty. Much like how many professionals have access to computers and internet databases at their workplaces, students should be free to

access such information during exams and assessments. This would require those responsible for developing exams to focus more on the synthesis and application of readily available knowledge than simply the memorization and recitation of specific facts and figures. However, by instituting this change in assessment focus, students can be presented with more authentic and relevant assessments.

Already in some educational settings, such as medical schools, we can see a trend towards devaluing information, which can be readily accessible through technology, and instead placing focus on problem based learning. This trend shifts the responsibility of a student from that of merely regurgitating information to that of an individual who is responsible for the use of knowledge in a real world scenario. Hopefully, through the use of technology in this manner, we can arrive at a situation where students are being evaluated on their mastery of skills. Once this trend has developed into a concrete framework and has been demonstrated as a successful method of educating our nation's medical personnel it may be brought into earlier levels of education. With this integration of technology, as modeled by its use in medical education, we can expect to increase the skills and problem solving ability of our students in elementary and secondary education.

By following these recommendations, the aforementioned present-day trends in technology can see their effects on the field of education accelerated. This in turn may lead to new unforeseen developments and truly take our field to the next level in terms of effectively having our students learn and utilize knowledge. If present technology, such as distributed learning and informational technology systems, are to realize their potential impact in the future, we must continue to develop and support those technologies.

### **Conclusion**

In terms of its present status and use for educational purposes, technology is fulfilling an ever increasing role in both the traditional education field, and in other fields which are utilizing technology for educational purposes. Within the educational field we can see technology as a means of removing barriers among students and teachers. First, technology can remove financial and geographical barriers through distributed learning. This allows students and teachers to experience educational opportunities that they might have otherwise never been able to encounter. Second, technology is bringing about a new focus on problem and skill based learning. Information databases, such as EPSS, are being used to assist teachers in the acquisition of new knowledge and provide professional support outside of the traditional professional development seminar. In addition, information databases are assisting students in making the transition from knowledge retention to real world problem solving.

Furthermore, technology has shown to have sound theoretical foundations within the educational field. Various learning theories have been shown to be compatible with the usage of technology in education, especially those that attribute social interaction and simulation to forms of learning. Evaluative frameworks, normally reserved for traditional training programs, have also been successfully applied to technology based training. In other words, while providing benefits to the students, the use of technology does not detract the effectiveness of education or violate long standing educational principles. Technology can work within the educational system and does not need to be viewed as the creator of conflict with the historical precedence of the field.

As further evidence of the educational effectiveness of technology implementation, other fields have adopted technology for their own educational and training programs. Corporations are integrating their training sessions with technology. The military has served a large role in advancing distance learning technology and delivering training to those far removed from the classroom setting. The healthcare field is using technology to prepare doctors for a future in an age of excessive information, where skills related to research and knowledge application are valued at a higher level. Each successful implementation of educational technology into other fields only serves the argument for integrating technology at every level of the traditional educational process. If technology is successful in assisting the continued development of our doctors, soldiers, and business leaders then it is certainly able to assist the development of more effective teachers and more skilled and knowledgeable students.

Thus, from examining the present usage of technology, both within the educational field and in other fields, we arrive at a need for future recommendations. In regards to future action, we should continue to utilize the successful trends in education as a means to fulfill their developmental potential and see increased impacts on our field. In particular, we should continue the use of distance learning as a means of professional development for teachers, by providing more opportunities aimed at improving their job related performance. Distance learning for students should also be an area of focus by providing software that allows for increasing authenticity in simulations, multimedia content, and social connections. We should continue to focus on technology that allows students to interact with other students and environments located outside of their current environment, locality, and culture. Information systems are also in need of continual investment. Information systems perform two important roles for the educational system: performance support for teachers and knowledge support for students. Given the large amounts of information and continuing focus on problem based learning and assessment, an increased reliance on information systems to assist in

tasks is justified as a means of assistive technology. Through continued usage and development, information systems may be accepted on the level of calculators, a technology tool designed to remove excessive memorization and lengthy calculations.

In conclusion, technology has already served an important role in education in multiple fields. Specifically, technology has been of great use to the educational field in terms of its focus on improving the effectiveness and efficiency of the educational experiences of both students and teachers. Continued use and development of technology can serve to further benefit the educational field and recommendations based on the development of existing trends in education should be pursued for great gains in educational achievement.

Through its training programme, a training/resource pack is being developed to enable teachers and trainers to use information technology in their teaching or those responsible for training teachers and trainers, it should enable the user to set up one-day IT awareness sessions, as well as longer courses, catering for particular areas of interest. Pack modules will include a glossary and case studies to illustrate current good practice. The user should gain some appreciation of the new information technology, some of the practical skills needed to use new technology aids, and constructive ideas for incorporating IT in teaching and training.

Teachers have gaps in understanding the appropriate uses of technology in a learning environment. Similar to learning a new task or trade, special training is vital for ensuring the effective integration of classroom technology. The current school curriculum fails to guide teachers in training students to be autonomous problem solvers. This has become a barrier of effective training because the traditional methods of teaching have failed. Today's students in the workplace are increasingly being asked to work in teams, drawing on different sets of expertise, and collaborating each other to solve problem. These experiences are not highly centered on in the traditional classroom, but are twenty first century skills that can be attained through the incorporation and engagement with technology. Changes in instruction and use of technology can also promote a higher level of learning among students with deferent types of intelligence. Therefore, since technology is not the end goal of education, but rather a means by which it can be accomplished, educators must have a good grasp of the technology being used and its advantages over more traditional methods. If there is a lack in either of these areas, technology will be counted as a hindrance and not beneficial to the goals of teaching.

The evolving nature of technology may unsettle teachers who may experience themselves as perpetual novices. Marc Prensky discusses the idea that teachers are digital immigrants, and

students are digital natives. Teachers must continuously work at learning this new technological language, whereas students were born into retrieving information, problem solving, and communicating with this technology. The ways in which teachers are taught to use technology is also outdated because the primary focus of training is on computer literacy, rather than the deeper, more essential understanding and mastery of technology for information processing, communication, and problem solving. New resources have to be designed and distributed whenever the technological platform has been changed. However, arranging quality material to support classroom objectives after such changes is often difficult. Random professional development days are inadequate. Learning is an ongoing process, which takes time and a strong commitment among the community of educators. Teachers may not feel the need to change the traditional education system because it has been successful in the past. This does not necessarily mean it is the right way to teach for the current and future generations. However, learning styles and the methods of collecting information have evolved, and “students often feel locked out of the worlds described in their textbooks through the depersonalized and abstract prose used to describe them”. Even though technology can provide a more personalized, yet collaborative, and creative, yet informative, approach to learning and it may be difficult to motivate the use of these contemporary approaches among teachers who have been in the field for a number of years.

Inevitably with information technology, there is a need to be concerned with the development of the technology itself to keep up to date with the facilities it has to offer. In the not too distant future lies the promise of developments in artificial intelligence and the possibility of knowledge-based systems of practical use in education. Of course it is what you can do with the technology that is important, rather than the technology itself. Open learning has been a major interest of CET for some time and the combination of developments in this area, together with the powerful tools that information technology gives to the individual, make possible new opportunities for learning for many people. Helping to create these opportunities is the real issue of importance to CET.

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**FEW ERUDITE POSITIONS ON TEACHER & TEACHER TRAINING IN  
COLONIAL BENGAL**

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**Abstracts**

Teacher education is an integral component of any educational system. It is intimately connected with society and is conditioned by the ethics, culture, and character of a nation. Teacher education in the modern period was characterized by the British in India. Different committees were instituted to look into the system of teacher education and training. In the present section, an attempt has been made to shed light on eight erudite positions on Teacher & Teacher Training in Colonial Bengal. Basically, the philosophical basis of teacher education has been discussed from the Indian perspective. Mainly an attempt has been taken to discuss the opinion of great persons of India regarding teacher education. Few of them later came to be acknowledged afterward as pioneering educators amongst whom the name of Tagore, Vivekananda, Aurobindo, and Nivedita are worth mentioning. Exploration of the documents will be the first phase of the study which will be followed by the qualitative content analysis and in the second phase historical research criticism, both internal and external, will be used. It would describe why and when teacher training had been established as a system of education in India. It would identify and clarify the opinion, thoughts of a great person, and their role in that historical context.

**Keywords:** Development, Teacher education, Teacher training, Bengal, Normal school, Erudite Positions

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### Introduction

In the present section, an attempt has been made to shed light on eight erudite positions on Teacher & Teacher Training in Colonial Bengal. Few of them later came to be acknowledged afterward as pioneering educators amongst whom the name of Tagore, Vivekananda, Aurobindo, and Nivedita are worth mentioning. Though Nivedita was born in Ireland and brought up mostly in England, she gave away her all for India, and whatever educational ideas she had to offer to the world were deeply grounded and got their vigor and vitality from Indian soil. Hence, the present researcher had no hesitation to discuss about her in the present section. Others about whom some discussion has been rendered here are Bhudev Mukhopadhyay, Somnath Mukhopadhyay, Gopal Chunder Bandyopadhyay, and Benoy Kumar Sarkar.

Here in this Section, the contribution of Mary Carpenter (1807-1877) who visited India in 1866 could have been discussed separately but, since her strong belief that ‘Christian and moral teaching had to run in parallel with learning a trade’ does not match with the spirit of this section, her pedagogical position has not been dealt with here separately. However, Carpenter had an ambition of hers as regards the spreading of Girls’ education in India since her meeting with Raja Ram Mohan Roy in 1833. She visited Calcutta, Madras, and Bombay, finding that for the most part girls were not educated past the age of twelve years, mainly due to a lack of educated female teachers. During her visit, Carpenter met Keshab Chandra Sen, the leader of Brahma Samaj. Sen asked her to form an organization in Britain to improve communication between British and Indian reformers, which she did in 1870, establishing the National Indian Association. She visited many schools, hospitals, and gaols and encouraged both Indian and British colonial administrators to improve and fund these. She was particularly concerned that the lack of good female education led to a shortage of women teachers, nurses, and prison attendants. The Mary Carpenter Hall at the Brahma Girls school in Calcutta was erected as a memorial to this work.

Again in the present Section, the philosophical positions of the prominent Brahma Leaders have not been dealt in detail since most of them were in favor of imitating the pedagogy as well as contents prevalent in the then West only with a little tint of Upanishadic flavor. In this context we may quote from Rammohun Roy:

*“We now find that the Government is establishing a Sanskrit school under Hindoo Pundits to impart such knowledge as is already current in India. This Seminary (similar to those which existed in Europe before the time of Lord Bacon) can only be expected to load the minds of youth with grammatical niceties and metaphysical distinctions of little or no*

*practical use to the possessors or to society. The pupils will there acquire what was known two thousand years ago, with the addition of vain and empty subtleties since produced by speculative men, such as is already commonly taught in all parts of India.*

*The Sanskrit language, so difficult that almost a lifetime is necessary for its perfect acquisition, is well known to have been for ages a lamentable check on the diffusion of knowledge; and the learning concealed under this almost impervious veil is far from sufficient to reward the labor of acquiring it.*

*If it had been intended to keep the British nation in ignorance of real knowledge the Baconian philosophy would not have been allowed to displace the system of the schoolmen, which was the best calculated to perpetuate ignorance. In the same manner, the Sanskrit system of education would be the best calculated to keep this country in darkness, if such had been the policy of the British Legislature. But as the improvement of the native population is the object of the Government, it will consequently promote a more liberal and enlightened system of instruction, embracing mathematics, natural philosophy, chemistry, and anatomy, with other useful sciences which may be accomplished with the sum proposed by employing a few gentlemen of talents and learning educated in Europe, and providing a college furnished with the necessary books, instruments and other apparatus" (Bureau of Education, 1920, Pp. 98-101).*

### **Ishwar Chandra Vidyasagar (1820-1891):**

Born in a more obscure village in Medinipur District on 26 September 1820, Vidyasagar started his teaching career at the age of 21 in Fort William College, Calcutta, and later joined Sanskrit College as its principal but career was never important to him. His vision was set beyond.

Vidyasagar felt that mass education, irrespective of caste, creed, and sex, was the necessity of the day to bring about a real change in the society, and to ensure it, the spread of education among women was very much essential. Then the Bengali society was still holding on to medievalism. Besides the commoners, many highly educated men too were averse to any change in women's status, particularly to their education. Before 1850 the government was not too keen on the education of Indian women. In his Report on The State of Education in Bengal (1836) William Adam wrote: "A superstitious feeling is alleged to exist in the majority of Hindu families, principally cherished by the women and not discouraged by the men, that a girl taught to read and write will soon after marriage become a widow."

Vidyasagar's well-documented protestations against Education department officials of the day testify to the degree of intensity with which he pursued the course of education reform (Sen, 1962. P - 26):

- ❑ He favored English and Bengali as a medium of learning alongside Sanskrit.
- ❑ He wanted to offer to students a wider range of subjects and thus broaden their horizons in examining European and Indian concepts and practices side by side so they could apply their judgment in discovering the truth for themselves.
- ❑ He was not afraid of discarding erroneous beliefs of Indian *shastras* and in preferring European science in its place where appropriate.
- ❑ Similarly, he did not accept everything that Europe had to offer. His mind was open only to discover the truth and reality.
- ❑ In these matters his determination was unmistakable and his resolve unshakable.
- ❑ In his famous "Notes on the Sanskrit College" Vidyasagar put forward a comprehensive scheme through which he aimed at creating an elegant Bengali style based on a combination of a sound knowledge of both Sanskrit and English languages.
- ❑ He laid equal stress on learning the three branches in English- History, Mathematics, and Natural Philosophy.
- ❑ He prevailed upon the government to select as deputy magistrates some of the graduates of this college and established the Normal School for training Bengali teachers at the College thereby broadening the prospect of career opportunities as well as the range of academic interests that could be pursued on its campus. Vidyasagar took several such measures to expand enrolment and strengthen student commitment to Sanskrit College. In this way, he rescued classical education from medieval scholasticism.

#### **Bhudeb Mukhopadhyay (1827-1894):**

Bhudeb Mukhopadhyay (1827-1894) who served in the then Bengal Presidency in various capacities including a Teacher, a Headmaster, a District Inspector of Schools, wrote extensively on various modalities of content knowledge as well as pedagogic knowledge including a handy manual for school teachers. The whole manual which was the first book by him, was written in Bengali under the title "*Siksha Bidhayak Prastab*" (Mukhopadhyay, 1856) and while writing it he was the Headmaster of one School in the Howrah District.

In the Preamble of the said manual, Sri Mukhopadhyay wanted the then school teachers to reflect upon some serious issues as if involving them in pursuing self-introspection in the following manner:

Firstly, the teachers need to ask themselves the basic question so as to why they have chosen the profession of teaching; is it for any financial benefit or is it for intensely loving teaching? If there remains anybody who took it for any monetary benefit he needs to leave this profession immediately because it won't serve his intended purpose.

Second, a prerequisite of teaching is to get joy in helping the tender-hearted students in conceptualizing *Vidya* and inoculating in them the basic values of life.

Third, while being engaged in teaching teachers need to inspire students to make their minds go beyond four walls of the classroom and beyond only textbooks.

Fourth, we need to impart such type of socially relevant knowledge that would help students to be self-reliant and self-dependent in all practical senses.

Fifth, besides philosophy, our students are to be made well adept in Geography, Physics, Economics, and History, etc. and,

At Last, just after the completion of their studies, our students hanker after getting governmental jobs, but, they need to be enticed towards running independent businesses and the education system needs to be instrumental in this regard.

In the next few chapters of '*Siksha Bidhayak Prastab*', Bhudeb Mukhopadhyay dealt with the following important issues:

**Table No. 3. '*Siksha Bidhayak Prastab*' at a Glance**

2 <sup>nd</sup> Chapter	Special instructions to the teachers teaching in the <i>Pathshalas</i> .
3 <sup>rd</sup> Chapter	Developing reading and writing style – Use of wooden plate in this regard.
4 <sup>th</sup> Chapter	Mathematics Teaching – Abacus – Counting etc.
5 <sup>th</sup> Chapter	Demonstration lessons – some examples from textbooks.

6 <sup>th</sup> Chapter	Teaching physics – Topic: Glass
7 <sup>th</sup> Chapter	Teaching Bengali grammar – morphology and syntax – citation from textbooks
8 <sup>th</sup> Chapter	Perimeter – height and distance – rectangular perimeter and pentagon
9 <sup>th</sup> Chapter	Oral teaching – oral test related to natural sciences
10 <sup>th</sup> Chapter	The teaching of Geography and history using maps
11 <sup>th</sup> Chapter	The necessity of making <i>Dharma</i> (Moral and spiritual education) and physical education mandatory in schools and how to impart it

In the 11<sup>th</sup> Chapter what Bhudev Mukhopadhyay presented in Bengali can be translated into English in a summary form as follows (English translation is rendered by the present researcher):

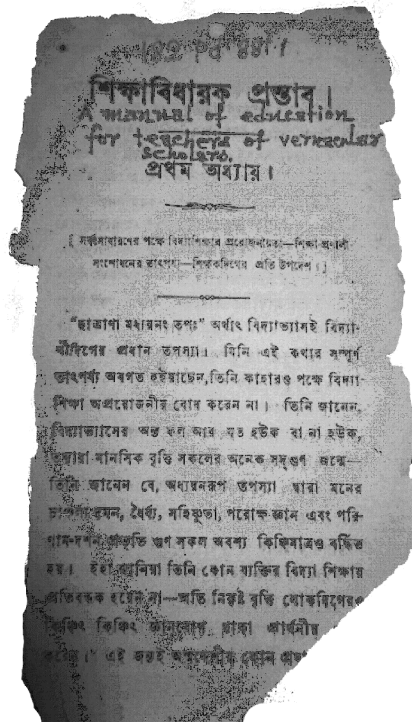
“Whatever has been hitherto told is all related only to bringing changes at the cognitive domain and chiseling the intellectual faculty of our students, but chiseling the intellectual faculty is not holistic development and hence, is not sufficient. The moral qualities remaining dormant in a student, it is impossible for him to become perfectly happy in life. Such instances are plenty where even a person not as much of being learned but then again endowed with righteousness of high standard is leading a commendable life and an unethical person incurring disrespect and distrust of everybody in the society. Hence, it is the bounden duty of every teacher to impart value education to every student.

The schools also need to frame some regulations so that students are seriously involved in physical exercises of indigenous nature. Some feel that for this we need to introduce such games and sports which are popular in western countries, but we sincerely feel that even the indigenous sports and games are sufficient to make the physique of our students strong and steady.

But, whatever is done within school-hours, will remain all fruitless unless our children don't get a good education from their parents. Everyone knows that a child suffers from malnutrition unless he/she gets mother's milk in his/ her childhood; likewise, a person all through the life suffers for his/ her ill character if he or she does not get good moral education from his/ her mother in the early days. This is a very wrong notion that the learning of a child begins at the age of five years. Actual learning of a child starts at the age when he or she is 2/3 months old. ....”

Thus the above-discussed manual is astonishing in the sense that at one hand it gave stress upon ‘learner-centric pedagogy’ as if under the influence of western pedagogic models but on the other, it did not deny the importance of pedagogic tradition followed in India during ancient times, moreover, it went on justifying making *Dharma* (Moral and spiritual education) mandatory in schools (Barik, 2016).

**Figure No. 4. Copy of the First page of ‘Siksha Vidhayak Prastab’**

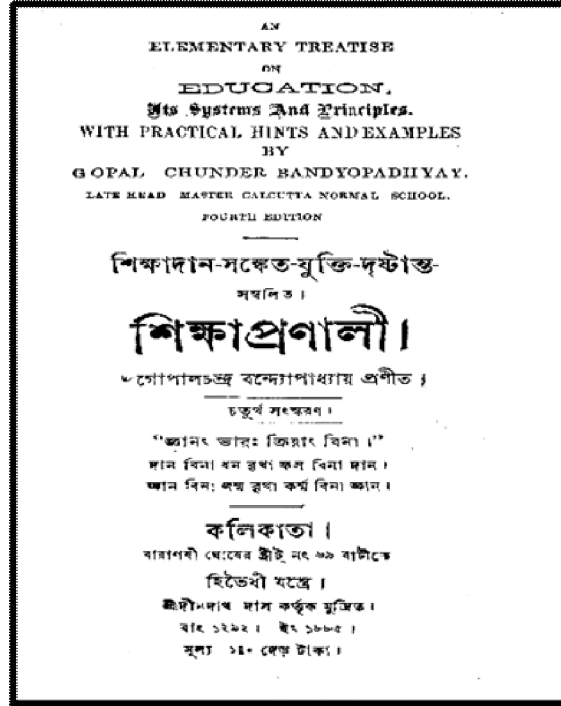


As regards the preceptor-disciple relationship Mukhopadhyay opined, “The behavior between the Guru and his students should be the same as between fathers and sons. But in this country, there is very little effort to encourage mutual affection and understanding between fathers and sons” (Sengupta, 2011, p. 81). In our contemporary context, the utterances of Bhudev Mukhopadhyay is proven to be a genuine prophecy.

#### **Gopal Chunder Bandyopadhyay:**

Gopal Chunder (Spelling unchanged) Bandyopadhyay, Headmaster of renowned Calcutta Normal School and writer of several textbooks as well as Treatise on Education, can claim the fame of teaching ethos in colonial Bengal.

**Figure/ Photo No.5.**  
**The first page of Gopal Chunder Bandyopadhyay's Elementary Treatise on Education**



In his treatise on Education, Gopal Chandra had firstly acknowledged teaching to be a difficult but glamorous as well as joyful task. According to him in grooming up a child the responsibilities of the parents are in no way less important, rather those parents are the enemies of the children who do not take care to impart good education in their childhood. According to Gopal Chandra Bandyopadhyay, a good teacher should have possessed the following qualities:

1. Teachers should incline to teaching.
2. Teachers should not be engaged in any other profession.
3. Teachers need to be affectionate towards the students like their own parents.
4. Teachers need to be the real well-wisher of the students.
5. Teachers should have the capability to judge the character, personality and skill of the students.
6. Teachers should have real passion for learning.

7. They should have mastery over multidisciplinary subjects.
8. They should have proper communication skills.
9. Teachers themselves should always be morally upright.
10. Besides subjects, they are the disseminators of moral education amongst their students.
11. They need to be initiated in the dictum of plain living and high thinking.

□ **Annexure of the Elementary Treatise include in details the followings:**

- a. Modalities of reading, writing and speaking and teachers' role in those activities.
- b. List of words - synonyms, antonyms, and homophones.
- c. List of low cost no and cost learning-teaching materials.
- d. Pedagogical sequences following minute micro-teaching skills.
- e. Demonstration of teaching following question-answer method.
- f. Demonstration of teaching science following the demonstration method.
- g. Modalities of imparting value education through reciting relevant poems and rhymes.
- h. Modalities of teaching mathematics through verbal interaction.
- i. Modalities of using the knowledge of geography while teaching history and vice versa.
- j. The utility of reflective application of mind while memorizing text.
- k. Modalities of using black board/ Maps/ Charts/ Globes.
- l. The utility of reading history – biographical approach.
- m. Significance of composition, translation and grammar in language learning and their appropriate methodology.
- n. Content and modalities of imparting Ethics.

**Rabindranath Tagore (1861-1941):**

Most of the technical discussions on the educational philosophy of Rabindranath Tagore endeavor with the proposition that Tagore's educational philosophy was a culmination of the harmonized synthesis of idealism, naturalism, and pragmatism. According to those theorists, he was an idealist as he laid great emphasis on self-realization as the aim of human life and a true seeker after 'Tranquility (*Shantam*), Peace (*Shivam*) and Oneness (*Advaita*)' only can have the rarest joy and privilege of self-realization; moreover, there has always been unanimity of the existence of these *Shantam*, *Shivam* and *Advaitam* in the physical or phenomenal world, in human society and in human consciousness and the realization of this unanimity of existence in both the three planes at a time leads to universal consciousness or *Visva-chetana*. The uniqueness of this universal consciousness is that it enables one to unveil the unity in diversity, and not only that; it clearly shows



one's individuality to be a part and parcel of that universal unity: "*Asim kaler je hillole, joar bhatai bhuvan dole, narite more raktadharai legeche tar tan*". Educational critics use to call these types of 'abstract' ideas as 'idealism'!

Tagore is a naturalist thinker, he laid much emphasis on the harmony of education with the environment. He wanted to imbibe national cultural heritage by means of their interaction with the environment: "*Ai akashe amar mukti alloy alloy, amar mukti dhulay dhulay ghase ghase ...*"

Explaining the aim of education, Tagore said, "If we believe that the chief aim of education in India is to be initiated into this unique pursuit of India, then we must constantly remember that neither the education of the senses, nor the education of the intellect, but the education of the feeling receives the place of honor in our schools. . . . . Our true education is possible only in the forest, through intimate contact with nature and purifying austere pursuits" (Tagore, 1935/1342, p.145).

Moreover, Tagore was a pragmatist thinker, according to those theorists, as he earnestly admitted bread earning to be a necessary part of any sound goal of education and this admittance stirred him to create *Sri Niketan* even after creating *Shantiniketan*. Therefore, he said, "from the very beginning, such education should be imparted to them, i.e. village folks, that they may know well what mass welfare means and may become practically efficient in all respects for earning their livelihood" (Tagore, 1944, p. 522).

While he is critical of the British system of education which wanted to create clerks out of the Indian educated people, he emphasized that the real aim of education is to develop men and women who may be able to fulfill the needs of the country. In his own words, "one of the main aims of education is to prepare the individual for the service of the country" (Tagore, 1944, p. 517). But the main proposition of this paper is to establish that Tagore was neither influenced by idealism or naturalism nor by pragmatism though his educational thought bear semblances with those western 'isms', however, he was well aware of those educational ideas prevalent in the west. Speaking about the genesis of his school at Santiniketan, Tagore stated that it owed its origin not to any 'new theory of education but to the memory of my school days'. It is well known to all that the experiences that he had in schools – he attended more than one school – was not very pleasant. The main cause of his unhappiness was twofold: One is the relation between the teacher and the taught, which he found degrading and the other was the general atmosphere in the school, which gave him the impression of a dull prison house rather than a place of joy (Das, 2004, p.). The game he described in his autobiography in which he played the role of a teacher with a cane in hand with the wish that the wooden bars of the railings in a corner of the Verandah as his pupils is a startling instance of the

impact of the contemporary teaching method on the sensitive child: “I had decided which was the good boys and which the bad – nay, further, I could distinguish clearly the quiet from naughty, the clever from the stupid, the bad rail had suffered so much from my constant caning that they must have longed to give up the ghost have they been alive. And the more scared they got with my strokes the worse they angered me, till I knew not how to punish them enough. None remains to bear witness today how tremendously I tyrannized over that poor dumb class of mine” (Tagore, 1959, p.). No doubt, Tagore was unfortunate for not having even an ideal teacher during his childhood life, because, even in the worst time of our cultural history there were teachers who had been perennial sources to their students. However, on the reverse, Tagore was very much fascinated by the glory of the Upanishadic *Tapovana* and the green and placid civilization of the forest, his educational ideas were directly related with his poetic vision of that time:

“The life that was yours in the *tapovana*,  
The life that was yours in the abodes of kings,  
We welcome that life, free and radiant,  
Give us that mantra  
That overcomes death and conquers fear.”

In China, Tagore told his audience that he ‘tried to found a school where the boys must be free in spite of the school’ (Tagore, 1925, p. 69). He succeeded in ample measures in creating that atmosphere of freedom and joy in his school in Santiniketan. The concept of this freedom and joy didn’t come from the west but he got it in the Upanishads: “(He) knew Bliss as Brahman; for from bliss, indeed, all these beings originate; having been born, they are sustained by Bliss; they move towards and merge in Bliss” (Taittiriya Upanishad, 1998, p. ). In his many essays entitled ‘*Dharma*’ and ‘*Shantiniketan*’ Tagore exemplified these ideas of joy and freedom. His priorities of joy and freedom both in education and in work were further manifested in his concerns for rural reconstruction and his endeavor towards the empowerment of the poor and the illiterate villagers around *Surul*. One of his legendary poems in *Naivedya* can be taken as the official manifesto of his educational thought:

“Where the mind is without fear and the head is held high,  
Where knowledge is free,  
Where the world has not been broken up into fragments by narrow domestic walls,  
Where words come out from the depth of truth,  
Where tireless striving stretches its arms towards perfection:

Where the clear stream of reason has not lost its way  
Into the dreary desert sand of dead habits,  
Where the mind is led forward by thee into ever widening thought and action  
– Into that heaven of freedom, my Father, let my country awake”  
(Tagore, 1994, p. 669).

May be, thus, Tagore’s educational thought was a utopia, but it was and still remains a necessary utopia which have the potential to be instrumental in rejuvenating and reconstructing the Indian nation in a truly Indian way and to Tagore the Upanishads were the rock bed upon which he asserted his ideas of ‘fullest growth and the freedom of soul’.

Tagore felt it difficult to find a sufficient number of the ideal type of teachers for his schools (Das Gupta, 2006, p. 138). He was looking for Gurus as an alternative of Schoolmasters. The Sanskrit term *guru* means teacher, yet accentuates spiritual knowledge and practices and is connected to the ancient tradition of *brahmacharya ashrams* and *tapovans*. According to Tagore, *gurus* are “active in the efforts to achieve the fullness of humanity” (Tagore, R, 2001, p. 44) and will give their entire souls to their students instead of merely sharing the material as prescribed in the curriculum. Being a *guru* is a true calling instead of a job to earn money, and the motivation for it consists in love for children and the subject, not in love for power (Tagore, R, 2001, Pp. 44-50). Good teachers, wrote Tagore, stimulate children’s minds instead of helping them to collect information, and inspire children through their own self-development. They encourage them to work on the teacher’s own original projects and thereby travel together on their journey to more understanding (Tagore, R, 2001, p. 44).

“A teacher can never truly teach unless he is still learning himself. A lamp can never light another lamp unless it continues to burn its own flame. The teacher who has come to the end of his subject, who has no living traffic with his knowledge, but merely repeats his lesson to his students, can only load to their minds. He cannot quicken them. Truth not only must inform, but also must inspire. If the inspiration dies out and the information only accumulates then truth loses its infinity. The greater part of our learning in the school has been a waste because, for most of our teachers, their subjects are like dead specimens of once-living things, with which they have a learned acquaintance, but no communication of life and love” (Tagore, R, 2002, p. 187).

Tagore argues that teachers would be strengthened through a higher status that, in India, might come through the title “guru.” He also says that the teacher’s education needed to improve

and that it should include a thorough understanding of children's psychology (Tagore, 2006, 507). Their teaching would additionally be of higher value if teachers were given more freedom regarding their teaching methods and, to a certain degree, regarding the content of what they teach.

In general, Tagore is convinced that education "is not a matter of 'teaching', of methodology or of 'educational equipment' (Tagore, Rabindranath, 2001, p. 44) but depends upon the personality of the teacher and the relationship to the student. He said to one of the teachers at his school: "*Do not be preoccupied with the method. Leave your instincts to guide you to life. Children differ from one another. One must learn to know them, to navigate among them as one navigates among reefs. To explore the geography of their minds, a mysterious instinct that is sympathetic to life is the best of all guides*" (Tagore, Rabindranath, 1946, p. 9).

#### **Somnath Mukhopadhyay:**

Very little is known about Somnath Mukhopadhyay, the first Headmaster of the Dacca Normal School but his '*Siksha Paddhati*' - 1870 (Pedagogical science of Teaching) was an astonishing amalgamation of epistemological, ontological and axiological standing of pedagogy particularly in the arena when colonial philosophy was about to eat up the vitality of Indianness in education in all respect (Mukhopadhyay, 1870).

#### **Swami Vivekananda (1863-1902):**

"Swami Vivekananda's relevance depends not on the nature of the problems we face but on the spirit with which those problems have to be tackled," Wrote Swami Lokeshwarananda in "The Message of Swami Vivekananda." True it is that Swamiji's stress was on man himself, for, given the right kind of man, no problem need be daunting. "Man-making is my mission" - he used to say; there is no denying the fact that any country can produce one or two men of inhuman or superhuman acumen but unless the common masses are 'empowered' in the truest sense of the term to play their role in tackling national problems, the fate of that country to be branded as belonging to the 'Third and Undeveloped World' could never be overcome and here comes the significance of Swami Vivekananda's deep concern for the warning people of India, who had long been neglected and had had no access to education, should now receive special attention so that they could quickly overcome their initial drawbacks.

A pioneer in education for all time and all places for one and all, Swami Vivekananda's Philosophy of Education and teacher preparation is very significant for excellence and ascent of man. As a firm believer of the self by the self and for the self, he draws our attention to the role of the teacher as a sincere and devoted taskmaster in enabling the learning to justify his/ her perfection already in him/ her as best as possible (Chakrabarti, 2014, p. 103). Vivekananda's explanation is explicit in the following well-known utterances:

“A child teaches itself. But you can help it to go forward in its own way. What you can do, is not positive, but of the negative. You can take away the obstacles, but knowledge comes out of its nature. Loosen the soil a little, so that it may come out easily. Put a hedge round it; see that it is not killed by anything, and there your work stops. You cannot do anything else. The rest is a manifestation from within its own nature.”

“No one can teach anybody. The teacher spoils everything by thinking that he is teaching. Thus Vedanta says that within man is all knowledge — even in a boy it is so — and it requires only an awakening, and that much is the work of a teacher.”

“No one was ever really taught by another; each of us has to teach himself. The external teacher offers only the suggestion which rouses the internal teacher to work to understand things.”

“Negative thoughts weaken men. Do you not find that where parents are constantly taxing their sons to read and write, telling them they will never learn anything, and calling them fools and so forth, the latter do actually turn out to be so in many cases? If you speak kind words to boys and encourage them, they are bound to improve in time.”

“If you can give them positive ideas, people will grow up to be men and learn to stand on their own legs.”

“In language and literature, in poetry and in arts, in everything we must point out not the mistakes that people are making in their thoughts and actions, but the way in which they will gradually be able to do these things better. Pointing out mistakes wounds a man's feelings.”

“(Another) condition necessary in the teacher is that he must be sinless. The question was once asked me in England by a friend, “Why should we look to the personality of a teacher? We have only to judge of what he says, and take that up.” Not so. If a man wants to teach me something of dynamics or chemistry or any other physical science, he may be of any character, he can still teach dynamics or any other science. For the knowledge that the physical sciences require is simply intellectual and depends on intellectual strength; a man can have in such a case a gigantic intellectual power without the least development of his soul. But in the spiritual sciences it is impossible from first to last” (Vivekananda, 1986, p. 43-56).

### **Sister Nivedita (1867-1911):**

Nivedita (previously Miss Margaret Noble) was a Scots-Irish social worker, author, teacher and a disciple of Swami Vivekananda. She spent her childhood and early days of her youth in Ireland. From her father, and her college professor, she learned many valuable lessons like – service to mankind is the true service to God. She worked as a school teacher and later also opened a school. She was committed to marry a Welsh youth who died soon after their engagement. She carried on her life.

Sister Nivedita met Swami Vivekananda in 1895 in London and traveled to Calcutta (present-day Kolkata), India in 1898. Swami Vivekananda gave her the name *Nivedita* (meaning “Dedicated to God”) when he initiated her into the vow of *Brahmacharya* on 25 March 1898. In November 1898, she opened a girls’ school in Bagbazar area of Calcutta. She wanted to educate those girls who were deprived of even basic education.

Nivedita knew very clearly the kind of education she would like to give to the girls in her school. She had considerable experience in teaching and was familiar with the new ideas of education of the West but she felt the task she faced in Calcutta was different. For she had to succeed in attracting Indian girls to her school and she felt she had to reject the kind of education that was systematized and gave all students a prescribed uniform dose of instruction. For the girls in her charge she had to provide an education that took into account their existing knowledge.

The girls she would teach would know stories from the two Indian epics: The Mahabharata and Ramayana which were written to teach people “dharma “or right conduct and the aims of life.

This was a deep culture. She felt it was important to make a reverent and patient study of the lives of the girls, what they knew, and the conditions in which they lived before she could proceed to firm up the details of instructions she would provide. Her thoughts on why a “reverent” study was necessary are explained in the following quote “Of all the creations of a people-their art, their sciences, their customs, their buildings, and the like-the highest and most spiritual is their language. In it is the left the impress of their love and hope, their ideas of achievement and their criticism of the world...as language holds the soul of a nation, so in like fashion its literature holds the soul of the language... First there are the philosophical ideas that give its tone to the dream-world of the race. Then there is the great gallery of ideal characters of which every Indian child by his birth is made a freeman, that gallery in which a man may wander all his life without one excursion into formal history: the dramatic background, as it were, of each generation of the national struggle. Then there are the proverbs and fables innumerable, village-legends, quaint stories and metaphors, beggars’ songs, ancestral hero-tales, cherished memories of saints and leaders, and all the floating literature that makes so large a part of the spiritual home of man without even incarnating itself in letters:

“Gradually it dawns upon one that behind all this there is some central source of thought and strength, a fountain of authority, a standard of correctness that gives dignity and assurance. This academic authority lies in Sanskrit...” (Sen, 2018, p. 40).

This deep analysis of the roots of Indian culture and the true nature of education we have quoted shows the way Nivedita approached any task: there had to be well thought out principles in place, there had to be the time set aside to familiarize oneself to the environment in which the task had to carry out, and then a well thought out method had to be drawn up which was then to be followed and modified if necessary (Sen, 2018, Pp. 40-50).

Nivedita’s entry into political work was helped by the fact that both of the two major political movements of 1905 had an educational dimension. The first was the reaction of educated Indians to the University Commission report which led to the Universities Act of 1904 and the second was the popular agitation against the Bill for the Partition of Bengal in 1905. The Universities Act was strongly criticized because it gave the government full control over all educational institutions and as stressed by Nivedita there was no provision for science education or research. She expressed her strong reservations regarding the Act, through letters, articles and speeches, which established Nivedita as an ardent supporter and a strong voice for the cause of India. She was an important voice supporting the setting up the National Council of Education and later the Bengal National College (Sen, 2018, p. 50).

The educational vision and the teachers' task as was envisaged by Nivedita can be put in her own words as follows,

“Education! Ay, that is the problem of India. How to give true education, national education; how to make you full men, true sons of *Bharatvarsha*, and not poor copies of Europe? Your education should be an education of the heart and the spirit, and of the spirit as much of the brain; it should be a living connection between yourselves and your past as well as the modern world!

“Have the Hindu women of the past been a source of shame to us that we should hasten to discard their old-time grace and sweetness, their gentleness and piety, their tolerance and childlike depth of love and pity, in favor of the first crude product of Western information and social aggressiveness?... An education of the brain that uprooted humility and took away tenderness, would be no true education at all.

“The question that has to be solved for Indian women, therefore, is a form of education that might attain this end of developing the faculties of soul and mind in harmony with one another.

“And in this particular respect there is perhaps no other country in the world so fortunately placed as India. She is, above all others, the land of great women. Whenever we turn, whether to history or literature, we are met on every hand by those figures whose strength she mothered and recognised, while she their memory eternally held sacred.

“There can never be any sound education of the Indian woman which does not begin and end in the exaltation of the national ideals of womanhood, as embodied in her own history and heroic literature”.

### **Sri Aurobindo (1872-1950):**

Sri Aurobindo's thoughts on education have a philosophical basis, which mingles the spiritual framework with a pragmatic approach. His thoughts reflect upon the learner's world - from within and without. They direct teacher educators to develop a significant viewpoint towards the pupils. This is necessary to promote lifelong learning and bring about transformation in the pupils.

Sri Aurobindo believes in the evolution of the human mind which passes through four stages



where he discovers himself/ herself as firstly, a rational individual, an individual with a particular national identity, an individual with international citizenship, and an individual who is one with infinity respectively. The education which ensures this process of evolution is integral education that is composed of 5 components as follows:

- a. Physical education – Games and sports, Yoga, Athletics, Freehand exercises, Swimming, First aid training.
- b. Mental Education – Language learning, Competency in Mathematics, Getting test in Social Sciences.
- c. Vital Education: Sense Training, Life and Physical Science, Aesthetics.
- d. Spiritual Education – Reading of the lives of the Great people, Singing Bhajans.
- e. Psychic Education – Meditation.

Some of these thoughts on education with reference to teachers and teacher educators as interpreted by Sri Aurobindo are mentioned below:

- i) “The first principle of true teaching is that nothing can be taught. The teacher is not an instructor or a task-master. He is a helper and a guide. His business is to suggest and not to impose.

Sri Aurobindo focuses also upon the education of the heart apart from the education of the mind. He considers the education of the heart as a necessary aspect of life. The education of the heart is beneficial to the teachers as well as to the pupils. This can bring about meaningful transformation amongst the learners (Vaidya, 1955, p. 21).

From the following utterances of Sri Aurobindo we can have his ideas about Teacher and Teacher education:

“The first principle of true teaching is that nothing can be taught. The teacher is not an instructor or taskmaster; he is a helper and guide. His business is to suggest and not to impose. He does not actually train the pupil’s mind, he only shows him how to perfect his instruments of knowledge and helps and encourages him in the process. He does not impart knowledge to him; he shows him how to acquire knowledge for himself. He does not call forth the knowledge that is within; he only shows him where it lies and how it can be habituated to rise to the surface. The distinction that

reserves this principle for the teaching of adolescent and adult minds and denies its application to the child is a conservative and unintelligent doctrine. Child or man, boy or girl, there is only one sound principle of good teaching. The difference of age only serves to diminish or increase the amount of help and guidance necessary it does not change its nature” (Aurobindo, 1966, p. 20).

“The discovery that education must be a bringing out of the child’s own intellectual and moral capacities to their highest possible value and must be based on the psychology of the child-nature was a step forward towards a more healthy because a more subjective system; but it still fell short because it still regarded him as an object to be handled and molded by the teacher, to be educated” (Aurobindo, 1972, p. 49).

“In order to awaken the child to the understanding of the relation existing between the two worlds which he discovers almost simultaneously- the inner and the outer- he should be told how to observe carefully what happens in himself” (Pavitra, 2002, p. 31).

“The teacher becomes a guide pointing out how to become an animal, how to become a river, a cloud, an electron or a galaxy. We do not have distinguished over selves as animals, but we have to discover in ourselves that we are animals disguised as men, and at the same time men disguised as animals. We do not have to imagine ourselves being an electron, because we are electrons who imagine themselves building cells, who imagine themselves building a human being” (Artaud, 1996, p. 36).

The first result of such a continuous stimulation to identify oneself with a world, in which there is nothing strange, nothing hostile, nothing other or non-self, is that we emerge into a universe where the only possible relations are the relation of love. In such a universe even the virus which threatens the life of our physical body, as well as the lions who devour the gazelle, does it out of love. In such a vision there is no place for hatred. The only not – love is indifference, and indifference is the failure to recognize oneself in another (Artaud, 1996, p. 36).

“The first attention of the teacher must be given to the medium and the instruments, and until these are perfected, to multiply subjects of regular instruction is to waste time and energy. When the mental instruments are sufficiently developed to acquire a language easily and swiftly, that is the time to introduce him to many languages, not when he can only partially understand what he is taught and masters it laboriously and imperfectly. Moreover, one who has mastered his own language has one

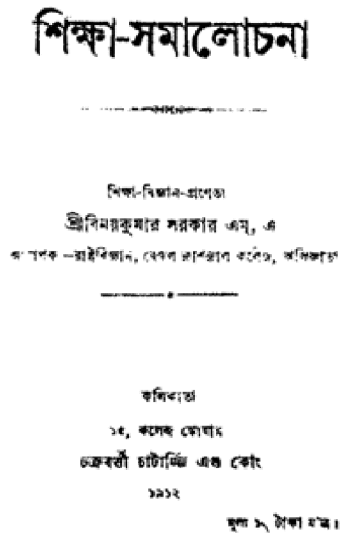
very necessary facility for mastering another. With the linguistic facilities, a satisfactory developed in one's own tongue, to master others is impossible to study science with the faculties of observation, judgment, reasoning and comparison only slightly developed is to undertake a useless and thankless labour. So it is with all other subjects" (Aurobindo, 2002, p. 3).

**Benoy Kumar Sarkar (1887–1949):**

Benoy Kumar Sarkar was a pioneering thinker who was confronting late-nineteenth-century modernity and making sense of this complex phenomenon. Sarkar was a speaker who critically engaged theories of modernity presented by those who would later be crowned the founding fathers of Sociology. Sarkar functioned with a cosmopolitan, trans-Asian frame of reference and recognized unifying forces in the space labelled 'Asia' despite the diversity and complexity within. He was writing at the turn of the twentieth century, from a non-Western locale, but deeply and critically engaged with social science concepts, theories, issues and problematic currents in the 'West.' He is exposed as an early critic of European theorizing about Asia, in general, and India, in particular, and offers alternate readings of the same.

**Figure No. 6.**

**Copy of the First page of 'Siksha- Somalochana'**



In his famous “*Siksha Samalochana*” (A Critique on Education), which was written when he was only 25 years old, Prof. Sarkar presented an expected Indian ideal of teachers and teaching which were utterly relevant during his time. The Critique starts with the following ‘Preamble’ in English:

**A. General-**

- I. *Aim and Criterion of Education twofold: the man must be (i) intellectually, a discoverer of truths and a pioneer of learning (ii) morally, an organizer of institutions and a leader of men.*
- II. *Moral Training to be imparted not through lessons culled from moral and religious text-books, but through arrangements by which the student is actually made to develop habits of self-sacrifice and devotion to the interests of others by undertaking works of philanthropy and social service.*
- III. *To build up character and determine the aim or mission of life (i) the ‘design,’ plan and personal responsibility of a single guide-philosopher-friend, and (ii) the control of the whole life and career of the student are indispensable. These circumstances provide the pre-condition for true Spiritual Education.*
- IV. *Educational Institution and Movements must not be made planks in political, industrial, social or religious agitations and propagandas, but controlled and governed by Science of Education based on the rational grounds of Sociology.*

**B. Tutorial-**

- i. *Even the most elementary course must have a Multiplicity of subjects with due interrelation and co-ordination. Up to a certain stage the training must be encyclopedic and as comprehensive as possible.*
- ii. *The mother-tongue must be the Medium of instruction in all subjects and through all standards. And if in India the provincial languages are really inadequate and poor the educationists must make it a point to develop and enrich them within the shortest possible time by a system of patronage and endowments on the ‘protective principle.’*
- iii. *The sentence, not word, must be the basis of Language-training, whether in Inflexional or Analytical tongues-even in Sanskrit; and the Inductive Method of proceeding from the known to the unknown, concrete to the abstract, facts and phenomena to general principles, is to be the tutorial method in all branches of learning.*

- iv. *Two Foreign languages besides English and at least two provincial vernaculars must be made compulsory for all Higher Culture in India.*

**C. Organisational-**

*I. Examinations must be daily. The day's work must be finished and tested during the day. And terms of academic life, as well as the system of giving credit, should be not by years or months but according to subjects or portions of subjects studied. Steady and constant discipline, both intellectual and moral, are possible only under these conditions.*

*II. The Laboratory and Environment of student-life must be the whole world of men and things. The day's routine must, therefore, provide opportunities for self-sacrifice, devotion, recreations, excursions, etc. as well as pure intellectual work. There should consequently be no long holidays or periodical vacations except when necessitated by pedagogic interests”* (Sarkar, 1912).

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## **MODERNIZATION AND SANSKRITIZATION OF KORA TRIBES IN WEST BENGAL: AN ETHNOGRAPHIC STUDY**

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### **Abstract**

The present study is about the modernization and Sanskritization at one of the distinctive tribe, the "KORA" in eastern India. As per the Indian constitution order (1950), the KORA community had been placed of twentieth number in West Bengal. KORA is a small tribal community in the eastern India. In West Bengal, the Kora tribes have rightly adopted all the religious customs and practices of Hinduism. Kora are somehow isolated from the sophisticated Hinduism through their economic background, social segregation and a general lack of direct access to literate Hindu Tradition. Certain symbolic traits at the Kora also do not support their abovementioned aspiration and pull-down their claim to the level at 'very low' castes. Therefore, this study intends to focus upon the effects of modernization and sanskritization on the Kora community in West Bengal with special reference to Bankura and Purulia district.

**Keywords:** Kora tribes, Modernization, Sanskritization

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### **INTRODUCTION**

The present study is about the modernization and sanskritization at one of the distinctive tribe, the "KORA" in eastern India. According to the constitution of India (Scheduled Tribes orders), the second amendment Bill, 2011 – "Tribal follow some specific criterion like having primitive traits, distributive culture geographical isolation, shyness at contact with the community at large and backwardness. In General usage, the word "tribe" is taken to denote a primary aggregate of peoples living in a primitive or barbarous condition under a headman or chief. The unnecessary moralistic overtones that this usage implies can be avoided or minimized by the use of the expression "tribal society," which is to be preferred to such synonyms as "primitive society" or "preliterate society." At the same time, the word "tribe" need not be discarded. Indeed, it has become a technical term denoting a territorially defined political unit, a usage that recalls the original Latin use of the word for

the political divisions or patrician orders of the Roman state. The concept “tribal society,” therefore, although having general utility as an idealized type of society, is in no sense an absolute category. Some societies are merely more or less tribal than others. In the classification of societies according to their scale, “tribal society” can be regarded at most as a loosely bounded area at the opposite end of the continuum to that of “modern society.”

As per the Indian constitution order (1950), the KORA community had placed the twentieth number in West Bengal. KORA is a small tribal community in eastern India i.e. in West Bengal. In West Bengal houses KORA tribes are found in every hook and look at the region. KORA has its habitats all over West Bengal especially in Paschim Midnapur, Bankura, Purulia, Birbhum, Burdhaman, Hoogly. Besides West Bengal KORA tribe is located in the state of Bihar, Jharkand. The KORA is also known as KHORA or CORA are indigenous tribes at the great Andaman’s people, originally living on the eastern part at north, Andaman Island (George weber, 2009). As per the 2001 census Report, the total population at the KORA community was 142,789, and 3.2 percentage at the total scheduled tribes’ population in West Bengal.

The word ‘KORA’ has got a significant meaning. It signifies earth digging. So it becomes quite obvious that the profession that this KORA is related to cultivation. “The caste (kora believes tank digging, road making and earthwork generally to be their characteristics. Profession and it may be surmised that their adoption of comparatively degraded occupations, necessarily involving a more or less wondering Manner of life may be the cause which lad to their separation from the Mundas, who are above all things settled agriculturists, conspicuous for their attachment to their original villages” (Risley: 1891, 506-507). As per the 2011 census report, in the state at West Bengal the total no. of scheduled tribes was 5,296,953 (Rural – 4,8555,115 Urban- 441,838). Literacy rates at tribes (2011) 68.2% male, 47.7% female in West Bengal.

The West- Bengal the KORA tribes have rightly adopted all the religious customs and practices at Hinduism. KORA are the same what isolated from the sophisticated Hinduism through their economic background, social segregation and a general lack of direct access to literate Hindu Tradition. Certain symbolic traits at the KORA, also do not support their above. Maintained aspiration and pull-down their claim to the level at ‘very low’ cases.

Therefore, this study intends to focus upon the effects of modernization and sanskritization on the KORA community at West Bengal which special reference to Bankura and Purulia district.

## **OBJECTIVE OF THE STUDY**

To examine the social changes in the KORA community with reference to modernization and sanskritization.

## **METHODOLOGY OF THE STUDY**

The present researchers want to study one of the most dominant tribes in West Bengal i.e. the KORA in respect of their education and how it affects their day to day lives with the help of Ethnographic methodology. Ethnography deals with the study of the diversity of human cultures in

their particular setting. This method has developed in early anthropological field research carried out in non-western culture'. Ethnography is an extremely broad area with a great variety of practitioners and methods. It is a methodology that deals with the systematic description of different cultures. According to Kathleen M. Adams (2012), Ethnographic methods fall into the broader category of qualitative methodologies and are aimed at understanding culture practices, human belief and behaviors and socio-culture changes over time. Ethnography is a branch of Anthropology.

Ethnography is a qualitative research design aimed at exploring cultural phenomena. The resulting field study or a case report reflects the knowledge and the system of meanings in the lives of a cultural group. "Ethnography literally means 'a portrait of a people.' Ethnography is a written description of a particular culture - the customs, beliefs, and behavior - based on information collected through fieldwork." (Marvin Harris and Orna Johnson, 2000). Ethnography is a means to represent graphically and in writing, the culture. The term ethnography has come to be equated with virtually any qualitative research project where the intent is to provide a detailed, in-depth description of everyday life and practice. This is sometimes referred to as "thick description" (Clifford Geertz, 1970). Ethnography, as the empirical data on human societies and cultures, is a branch of anthropology but has also become popular in the social sciences such as Cultural studies, sociology, economics, social work, education, musicology, folklore studies, religious studies, linguistics, and communication studies. The typical ethnography is a holistic study and so includes a brief history, and an analysis of the terrain, the climate, and the habitat. Ethnography may be defined as both a qualitative research process and method (one conducts an ethnography) and product (the outcome of this process is an ethnography) whose aim is cultural interpretation. The ethnographer goes beyond reporting events and details of the experience.

The present study would be geographically delimited in the area of Bankura and Purulia district in the Indian state at west Bengal. It is part of Medinipur divisions one of the five administrative divisions of West Bengal. Bankura district is situated between 22° 38' and 23° 38' north latitude and between 86° 36' and 87° 46' east longitude. As per census 2011, the total population at Bankura is 3, 596, 292, population Density (2011) 520/km<sup>2</sup> (1400/59mi). Total area 6,882km<sup>2</sup> and sex Ratio 914.

Purulia lies between 22.60 degrees and 23.50 degrees north latitudes and 85.75 degrees and 86.65 degrees east longitudes. Compass Declination 0°22'W. The geographical area of the district is 6259 km<sup>2</sup>. This district is bordered on the east by Bankura, Paschim Medinipur districts, on the north by Bardhaman district of West Bengal state and Dhanbad district of Jharkhand state, on the west by Bokaro and Ranchi districts of Jharkhand state and on the south by West Singhbhum and East Singhbhum districts of Jharkhand state. Purulia is the westernmost district of West Bengal with all-India significance because of its tropical location, its shape as well as function as a funnel.



Photo-1: Group discussion with young Kora people

**FINDINGS AND INTERPRETATIONS**

The details findings along with interpretations have shown below:

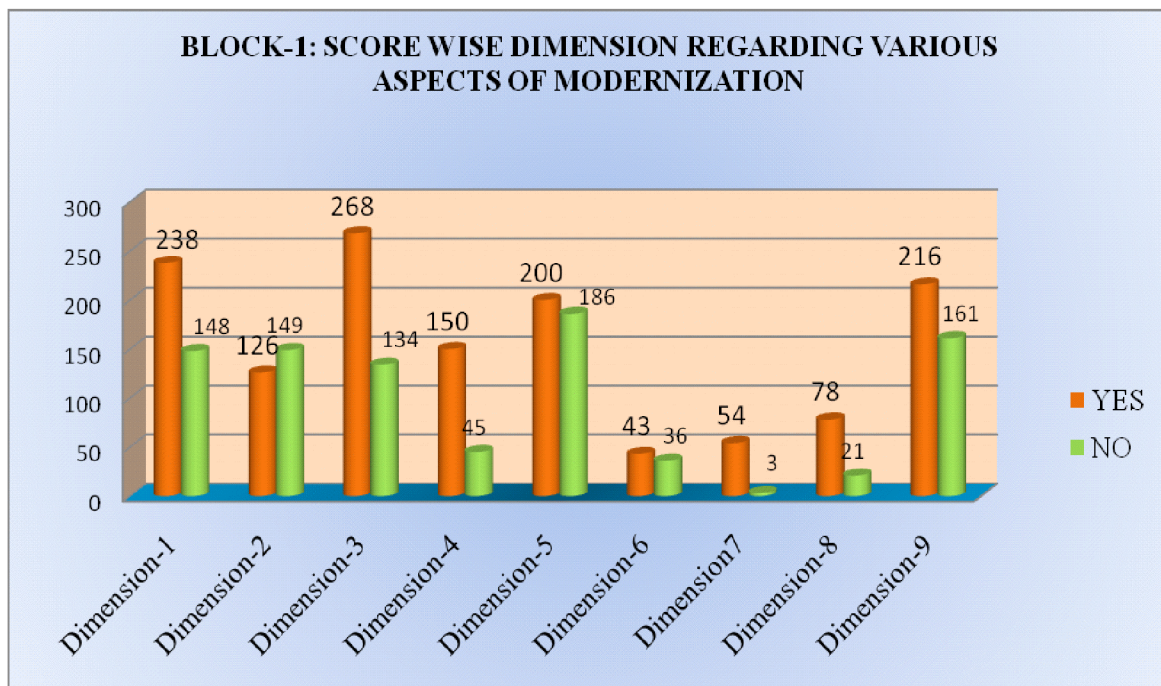
**Table 01:** Percentage of the respondent regarding the various dimension of modernization in Hirbandh block

**BLOCK-1**

<b>DIMENSION NO</b>	<b>YES</b>	<b>NO</b>	<b>DIMENSION NO</b>	<b>YES</b>	<b>NO</b>
Dimension-1	238	148	Dimension-1	62%	38%
Dimension-2	126	149	Dimension-2	46%	54%
Dimension-3	268	134	Dimension-3	67%	33%

DIMENSION NO	YES	NO	DIMENSION NO	YES	NO
Dimension-4	150	45	Dimension-4	77%	23%
Dimension-5	200	186	Dimension-5	52%	48%
Dimension-6	43	36	Dimension-6	54%	46%
Dimension-7	54	3	Dimension795%	5%	
Dimension-8	78	21	Dimension-8	79%	21%
Dimension-9	216	161	Dimension-9	57%	43%

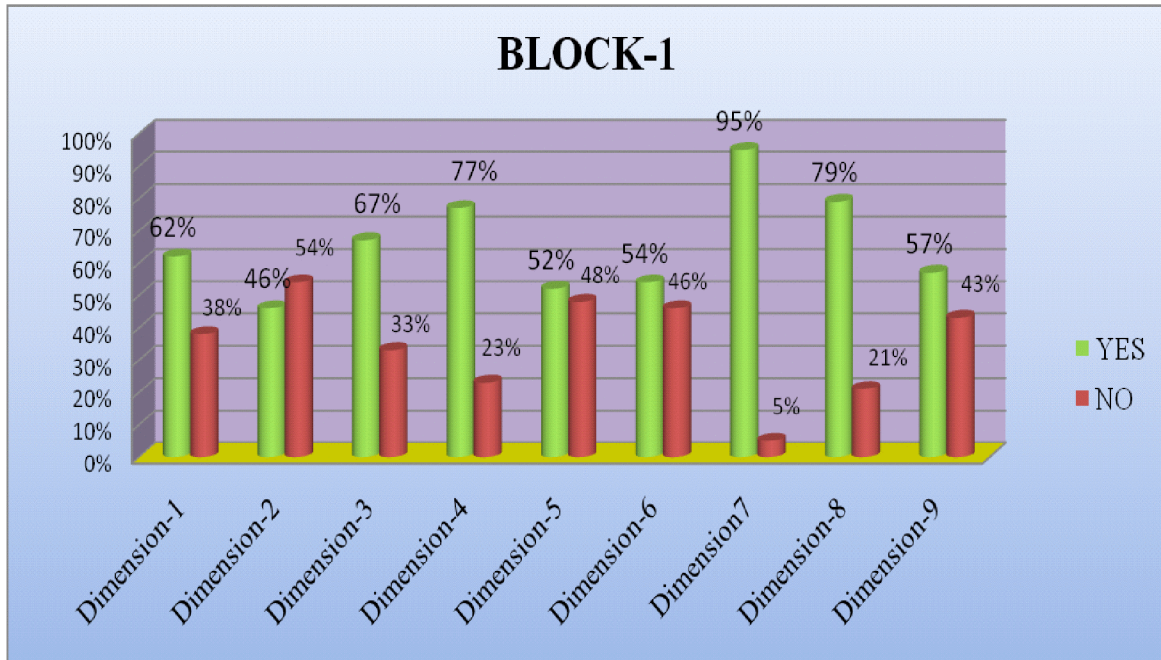
Figure-1



Source-Field Study



Figure 2



Source- Field Study

**Interpretation**

It is found that 62% of people are using technology in Hirbandh Block and less than 50% people are adopting modern devices. The majority of the houses of the Kora trib are electrified. In this segment State Govt. has employed so many projects to ensure the electrification of those interior places invaded by the Kora trib to develop their living condition. It is noteworthy that 67% of people have various sources of income and 77% of the tribes have family awareness. But, while dealing with health consciousness and communications, the result is not so much satisfactory. The house patterns seem to be good as the result (79%) indicates but for the cooking appliances, it is just 54% indicating not so much praiseworthy.

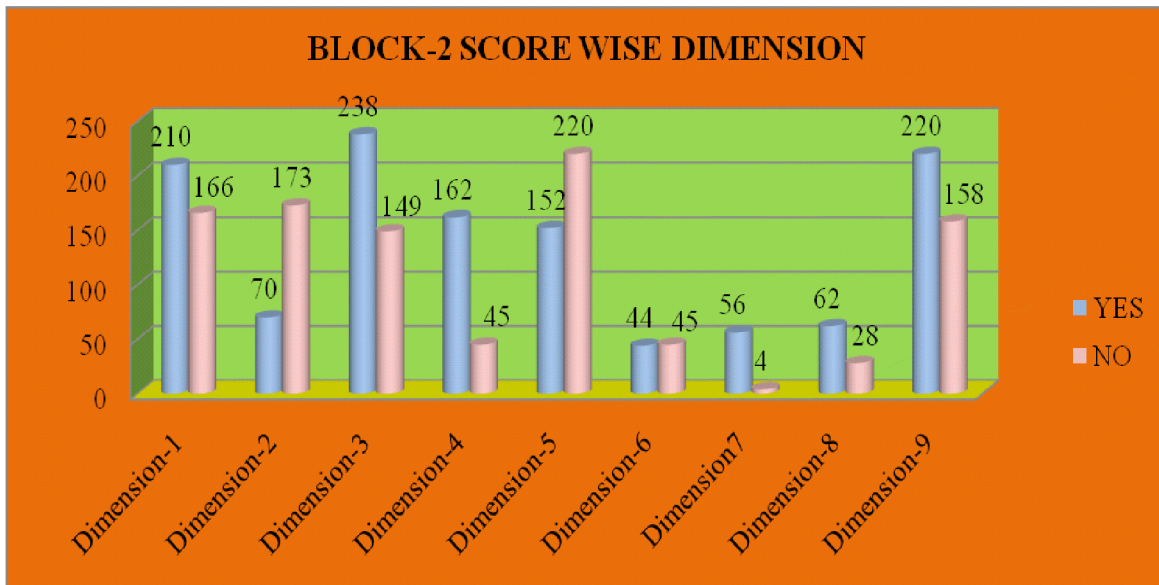
**Table-2:** Percentage of the respondent regarding various dimension of modernization in Chatna block

**BLOCK-2**

DIMENSION NO	YES	NO	DIMENSION NO	YES	NO
Dimension-1	210	166	Dimension-1	56%	44%
Dimension-2	70	173	Dimension-2	29%	71%
Dimension-3	238	149	Dimension-3	61%	39%
Dimension-4	162	45	Dimension-4	78%	22%
Dimension-5	152	220	Dimension-5	41%	59%
Dimension-6	44	45	Dimension-6	49%	51%
Dimension-7	56	4	Dimension-7	93%	7%
Dimension-8	62	28	Dimension-8	69%	31%
Dimension-9	220	158	Dimension-9	58%	42%

Source- Field Study

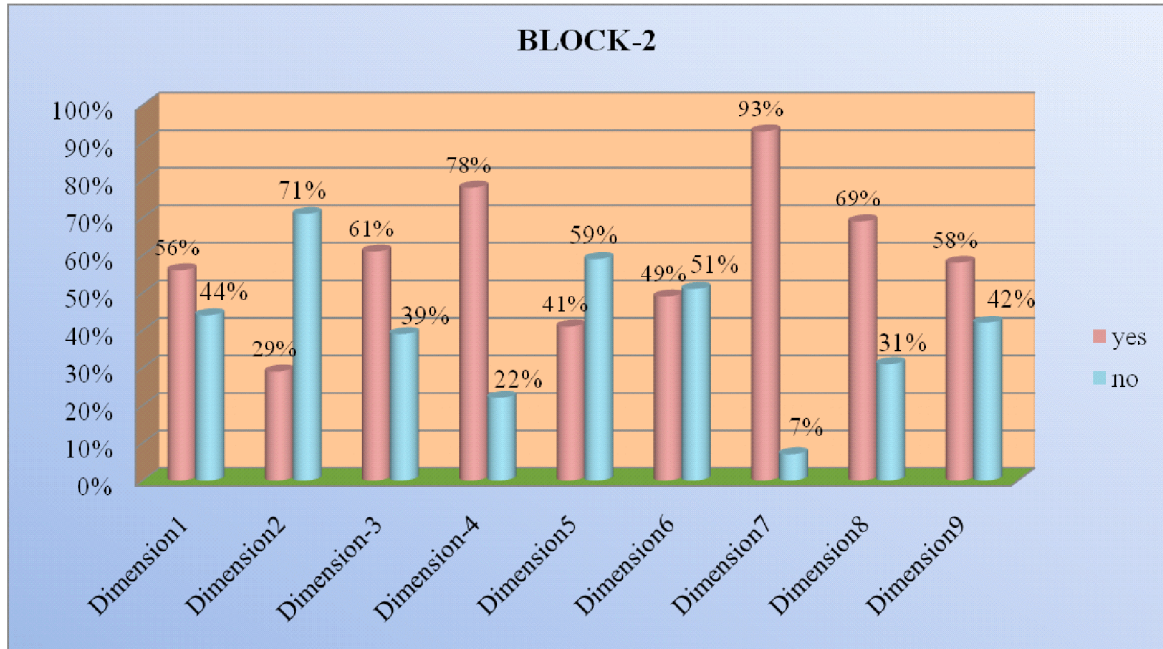
**Figure-3**



Source- Field Study



Figure-4



Source- Field Study

**Interpretation**

It is found that 56% of people of Chatna block are using technology but only 29% are adopting modern devices. 61% of people have various financial sources and 78% have family awareness. Health consciousness and communication are found to be less than 50% (41% & 49% respectively). The situation of electrification is praiseworthy and credit goes to the state government because 93% of houses of the tribal people are electrified. 69% of people have cemented houses and for the cooking appliances, 58% of people use modern cooking appliances.

Table-3

Percentage of the respondent regarding the various dimension of modernization in Puncha block

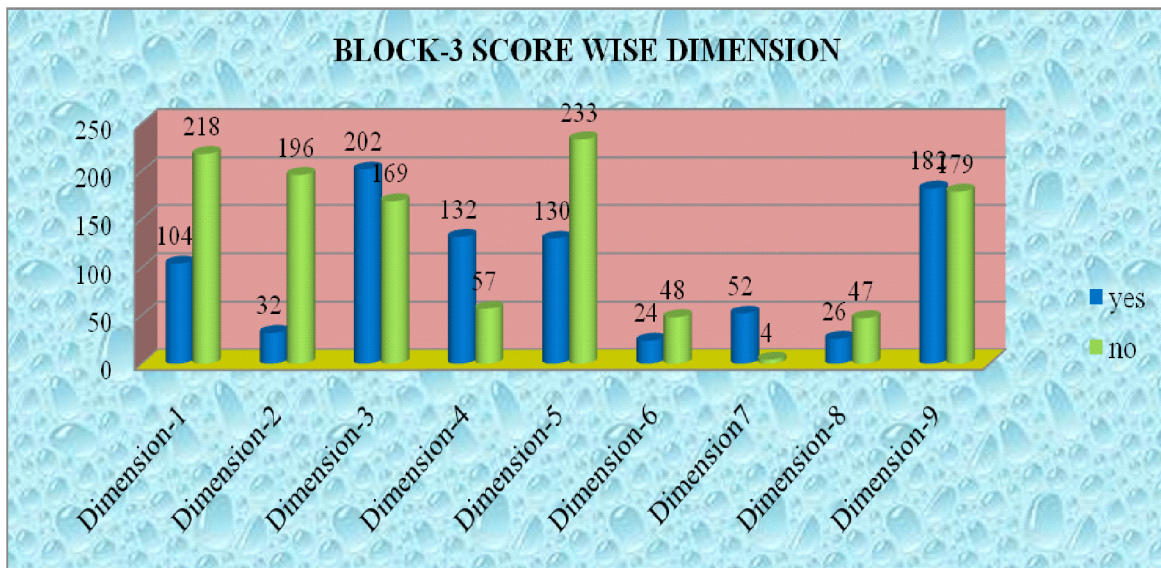
**BLOCK-3**

DIMENSION NO	YES	NO	DIMENSION NO	YES	NO
Dimension-1	104	218	Dimension-1	32%	68%
Dimension-2	32	196	Dimension-2	14%	86%

DIMENSION NO	YES	NO	DIMENSION NO	YES	NO
Dimension-3	202	169	Dimension-3	54%	46%
Dimension-4	132	57	Dimension-4	70%	30%
Dimension-5	130	233	Dimension-5	36%	64%
Dimension-6	24	48	Dimension-6	33%	67%
Dimension7	52	4	Dimension7	93%	7%
Dimension-8	26	47	Dimension-8	36%	64%
Dimension-9	182	179	Dimension-9	50%	50%

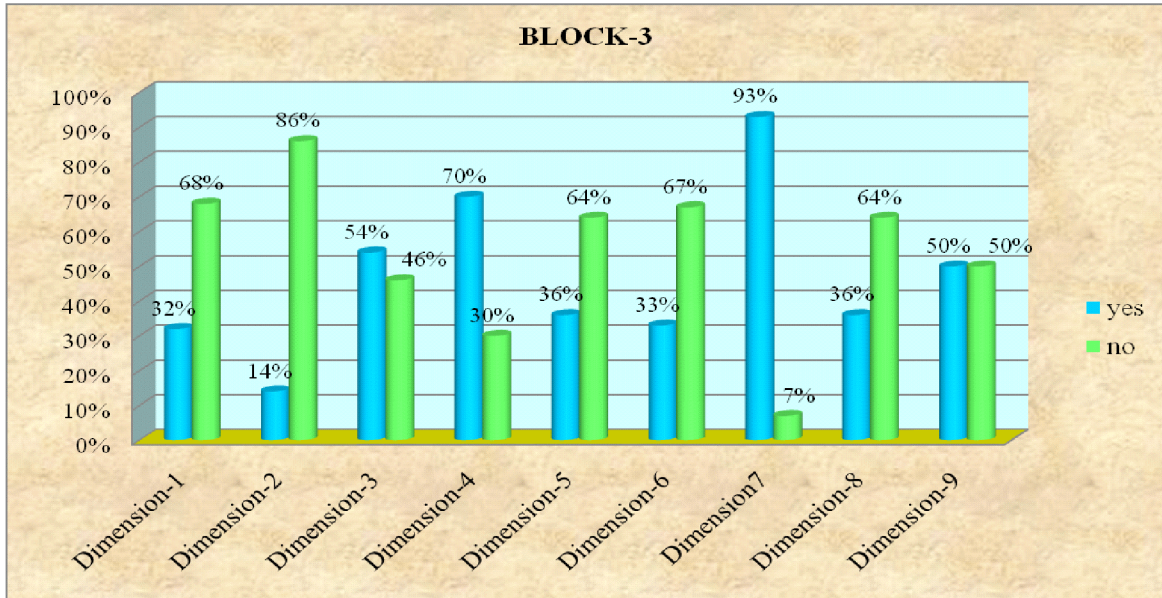
Source- Field Study

Figure-5



Source- Field Study

**Figure-6**



**Source-** Field Study

**Interpretation**

It is found that 32% of people in Pancha block are using technology and only 14% are adopting modern devices. 54% of people have various financial sources and 70% have family awareness. Health consciousness and communication are found to be pitiable-36%& 33% respectively. The situation of electrification is praiseworthy and credit goes to the state government because 93% of houses of the tribal people are electrified. 36% of people have cemented houses and for the cooking appliances 50% of people use modern cooking appliances.

**Table 04**

Percentage of the respondent regarding various dimension of modernization in Manbazar Block

**BLOCK-4**

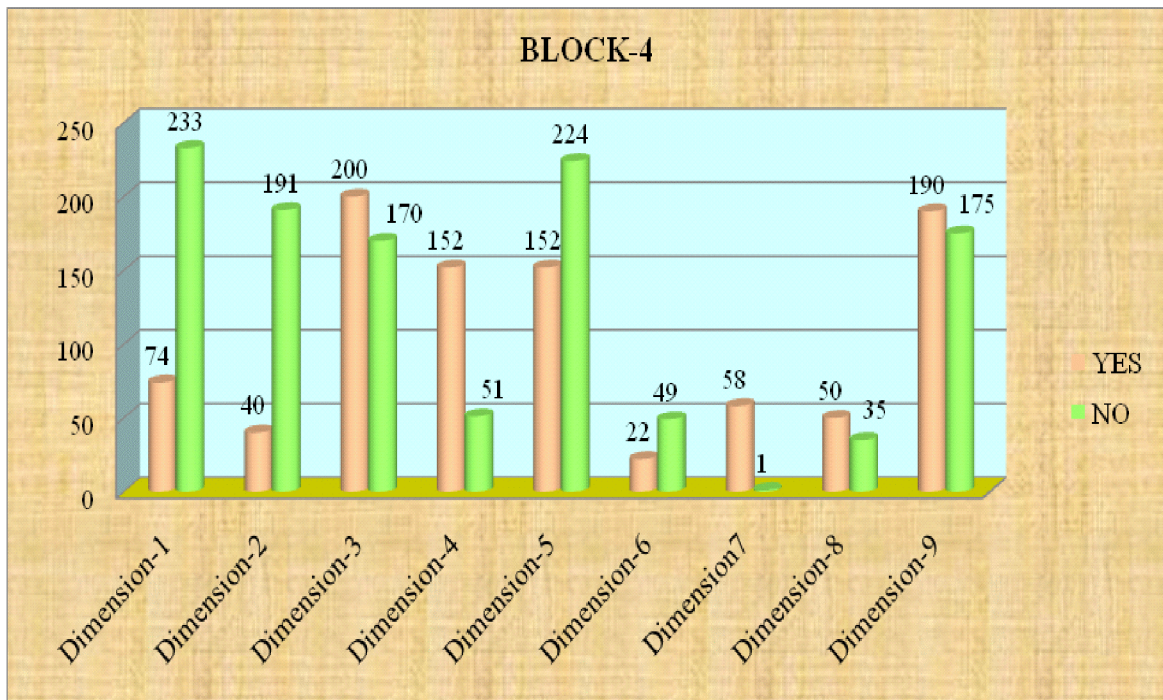
DIMENSION NO	YES	NO	DIMENSION NO	YES	NO
Dimension-1	74	233	Dimension-1	24%	76%
Dimension-2	40	191	Dimension-2	17%	83%
Dimension-3	200	170	Dimension-3	54%	46%



DIMENSION NO	YES	NO	DIMENSION NO	YES	NO
Dimension-4	152	51	Dimension-4	75%	25%
Dimension-5	152	224	Dimension-5	40%	60%
Dimension-6	22	49	Dimension-6	31%	69%
Dimension7	58	1	Dimension-7	98%	2%
Dimension-8	50	35	Dimension-8	59%	41%
Dimension-9	190	175	Dimension-9	52%	48%

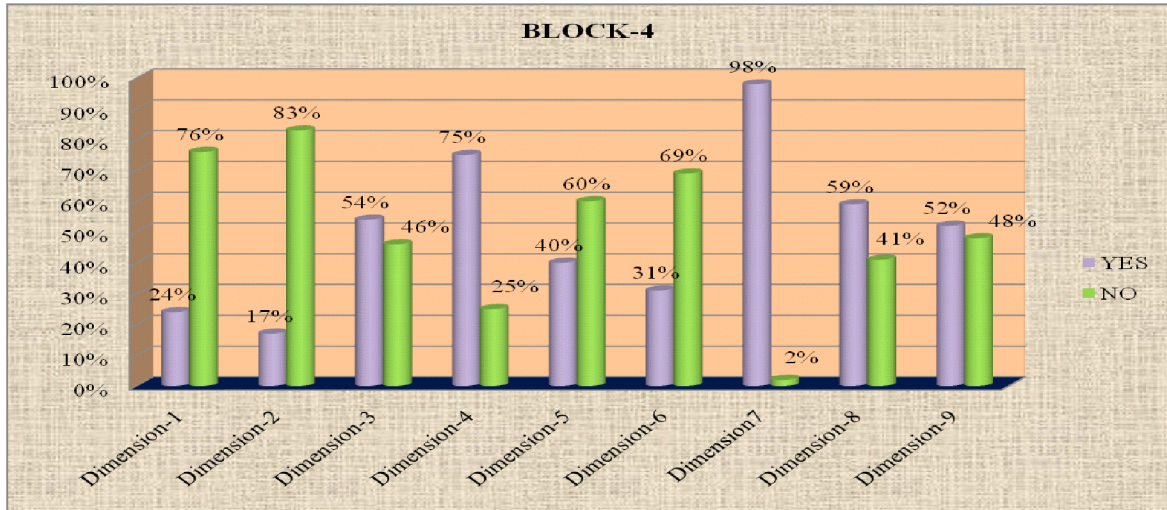
Source- Field Study

Figure-7



Source- Field Study

**Figure-8**



**Source-** Field Study

**Interpretation**

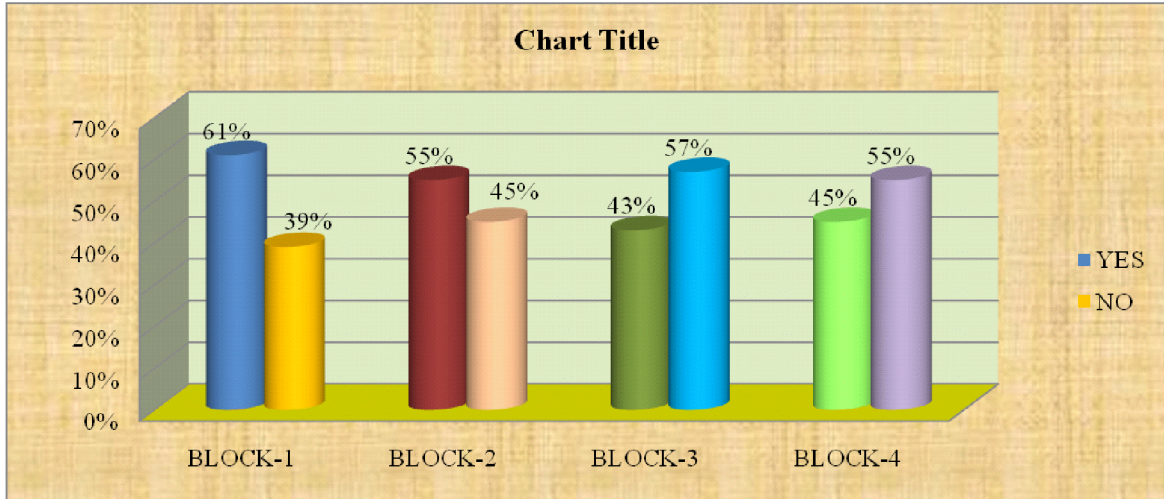
It is found that 24% of people of Manbazar block are using technology and only 17% are adopting modern devices. 54% of people have various financial sources and 75% have family awareness. Health consciousness and communication are found to be pitiable-40% & 31% respectively. The situation of electrification is praiseworthy and credit goes to the state government because 98% i.e., almost all the houses of the tribal people are electrified. 59% of people have cemented houses and for the cooking appliances 52% of people use modern cooking appliances.

**Table-5:** Percentage of respondent regarding modernization in four blocks

DISTRICT	BLOCK NO	SCORE	N	BLOCK NO	YES	NO
BANKURA	BLOCK-1	2257	30	BLOCK-1	61%	39%
	BLOCK-2	2202	30	BLOCK-2	55%	45%
PURULIA	BLOCK-3	2035	30	BLOCK-3	43%	57%
	BLOCK-4	2067	30	BLOCK-4	45%	55%

**Source-** Field Study

**Figure-9**



**Source-** Field Study

**Table-6:** Percentage of respondent in two districts regarding modernization

DISTRICT	BLOCK NO	YES	NO
BANKURA	BLOCK-1	61%	39%
	BLOCK-2	55%	45%
PURULIA	BLOCK-3	43%	57%
	BLOCK-4	45%	55%

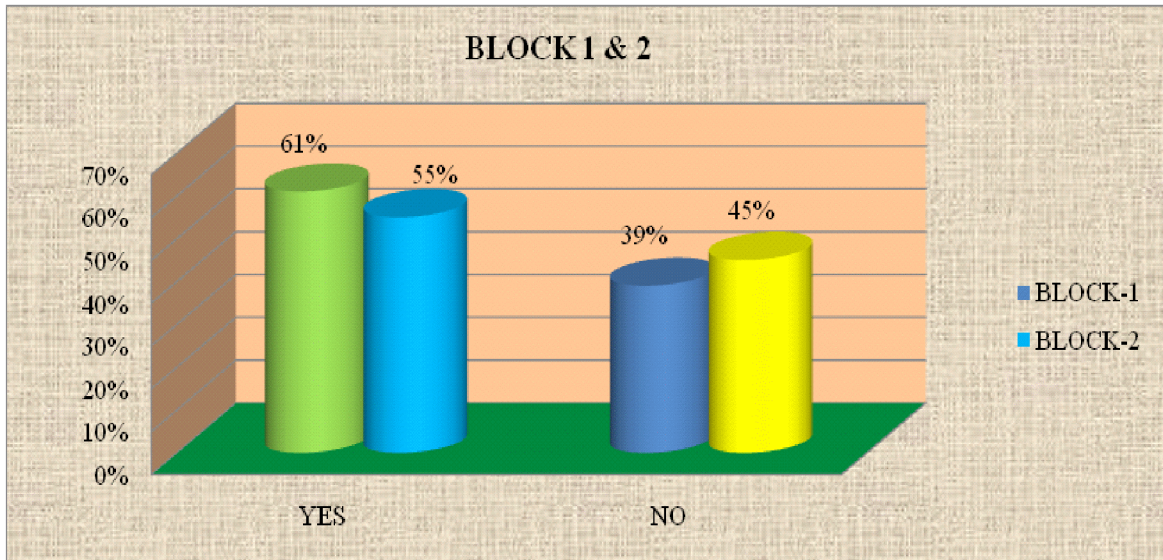
**Source-** Field Study

**Interpretation**

from the perspectives of modernization, it is found that the two blocks of the Bankura district Hirbandh and Chatna are more modernized (61% & 55%) than the two blocks of Purulia district Puncha and Manbazar (43% & 45%).

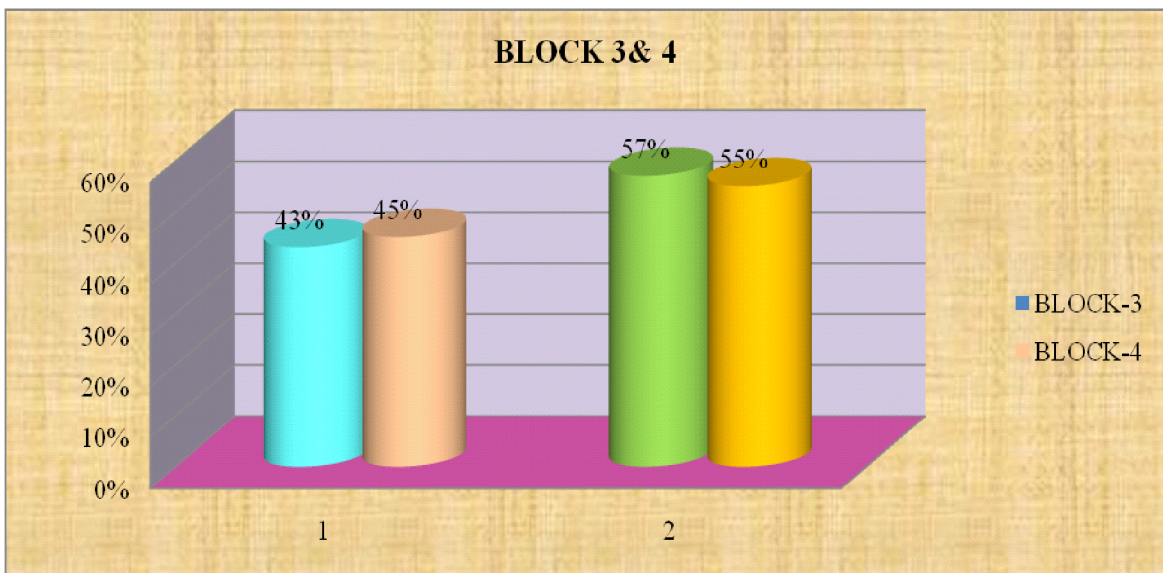


Figure-10



Source- Field Study

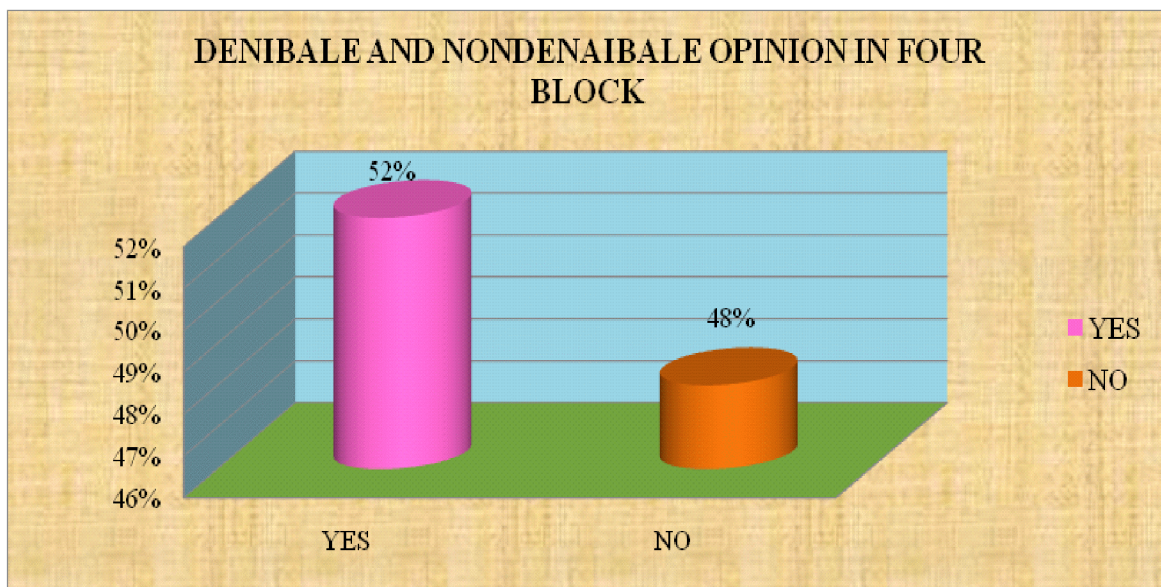
Figure-11



Source- Field Study

TOTAL BLOCK	YES	NO
	52%	48%

Figure-12



Source- Field Study

### CONCLUSION

Thus from the above findings it has found that in Hirbandh block kora peoples are increasing their lifestyle according to modernization whereas in chatna block, Health consciousness and communication are less than 50% (41% & 49% respectively). But other dimensions indicate that increasing their lifestyle in a modern perspective. It is found that 32% of people of Puncha block are using technology and only 14% are adopting modern devices. 54% of people have various financial sources and 70% have family awareness. Health consciousness and communication are found to be pitiable-36% & 33% respectively among modern indicators. It is found that 24% of people of Manbazar block are using technology and only 17% are adopting modern devices. 54% of people have various financial sources and 75% have family awareness. Health consciousness and communication are found to be pitiable-40% & 31% respectively. But other indicators focus significant change in the Kora community. Kora people of Bankura district are more than advanced than the koras of Purulia District among modern perspectives. The Koras or Khayras of Manbhumi and Bankura have well-marked totemistic sections of the same type as the Mundas, and the latter admit that some sort of affinity may at one time have



been recognized. In the matters of religion, Koras affect to be orthodox Hindus, worshipping the regular gods and calling themselves Saktas or Yaisnavas, according to as they incline to the cult of Kali, Durga, and Manesa, or to that of Radha and Krishna.

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## **Effect of Hatha Yoga and Aerobic Dance practice on selected Systolic Blood Pressure and Diastolic Blood Pressure on Adolescent Girls**

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### **Abstract**

Yoga is an ancient Indian Philosophy. The purpose of the study was to evaluate acute physiological response, to find out the changes if any in blood pressure (S. B. P. & D. B. P.) following the Yoga and aerobic dance practices. The total subjects were 120 divided into four groups and their age ranges from 12–16 years. The duration of total practice period were 6 weeks (3 days in a week for 30 minutes). Pre test and post test data were analyzed by paired 't' test method. For obtaining the significant differences ANCOVA method was adopted. (Garrett, 1981). The organised Yoga and aerobic dance program definitely improved their performance in selected physiological potentialities.

**Keywords:** Yoga, Aerobic dance, Systolic Blood Pressure, Diastolic Blood Pressure

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### **Introduction**

Yoga is an art, a science, a philosophy, a culture and to a few, religion all in unison. Any reference to yoga must symbolize the integrated whole and not any part of it. It is a science of life which helps man to attain their highest potential and highest state of consciousness. It uses various physiological techniques involving asanas, Pranayamas etc.

The origin of hatha yoga developed in India. In Sanskrit, 'Ha' means 'Sun' and 'Tha' means Moon. 'Hatha' means 'forceful' implying that powerful work must be done to purify the body. Yoga means to yoke, or to join two things together, hence hatha yoga is meant to join together sun (masculine, active) energy with the moon (feminine, receptive) energy, thus producing balance and greater power in an individual. It is the branch of Yoga which concentrates on physical health and mental well being. Hatha Yoga uses bodily postures (asanas) with the goal of bringing about a sound healthy body and clear, peaceful mind.

Aerobic exercise, such as aerobic dance, is a fun way to get fit. Aerobic dance is a popular exercise in adolescent pupil. Aerobic exercise describes any type of exercise, typically performed at moderate level of intensity for extended period of time that increases the heart rate. In this article an attempt has been made to observe the improvement occur in the physiological variables following aerobic and yoga practices among the adolescent girls.

### **Purpose of the Study**

The purposes of the study are described below:

- i) To observe the impact of hatha yoga and aerobic dance practice of adolescent girls.
- ii) To find out the changes if any, in physiological response in systolic blood pressure and diastolic blood pressure following the Yoga and aerobic dance practices.

### **Methodology**

The total subjects were one hundred and twenty (120) selected from the school of Rabindra Vidyapith High School, Santipur, Nadia and age ranging from 12–16 years. All the subjects possessed sound physique. All the subjects were divided into four groups i.e. Hatha Yoga, aerobic dance, combined and control groups.

### **Practice Schedule**

The total period of treatments was 6 weeks and each group practiced three days in a week and duration was 30 minutes which supervised exercise program for experimental subjects and control group continued usual activity. The subjects practiced the Asanas and Pranayamas.

**Yoga Group:** Practiced Tadasana, Tratyaka, Kati Chakrasana, Surya Namaskar, Sarbangasana Halasana, Paschimotha asana and Pranayamas were Nadi Sodhana, Kapalbhathi, Bhamari, Yoga-Nidra.

**Aerobic Dance Group:** Practiced aerobic dance with music.

**Combined Group:** Practiced Yoga 15 min. / day and aerobic 15 min. / day approximately.

**Control Group:** The control group subjects were continued usual activity.

### **Criteria Measured**

The personal data age, height, weight were measured by school record, stadiometer, weighing machine respectively. On the other hand selected physiological parameters such as systolic blood pressures and diastolic blood pressure were measured by sphygmomanometer.

**Results and Discussion****Table – 1(a)****Pre-test:- (Mean, SD) of Yoga, Aerobic Dance, Combined and Control Variables.**

	<b>Yoga Gr. (Mean ± SD)</b>	<b>Aerobic DanceGr. (Mean ± SD)</b>	<b>Combined Gr. (Mean ± SD)</b>	<b>Control Gr. (Mean ± SD)</b>
<b>Personal Data</b>				
Age	13.77 ± 1.25	13.8 ± 0.81	14.67 ± 0.99	14.90 ± 0.92
Height	141.70 ± 6.10	149.37 ± 4.43	151.37 ± 9.08	150.30 ± 8.54
Weight	38.67 ± 5.96	42.23 ± 4.72	42.70 ± 7.00	40.77 ± 5.16
<b>Physiological Variables</b>				
Systolic Blood Pressure	115.33± 4.40	117.47 ± 3.97	115.90 ± 3.82	116.63 ± 6.78
Diastolic Blood Pressure	68.70 ± 3.98	69.53 ± 2.29	68.67 ± 4.82	69.27 ± 4.17

**Table – 1(b)****Post-test :- (Mean, SD) of Yoga, Aerobic Dance, Combined and Control Variables.**

	<b>Yoga Gr. (Mean ± SD)</b>	<b>Aerobic Dance Gr.(Mean ± SD)</b>	<b>Combined Gr. (Mean ± SD)</b>	<b>Control Gr. (Mean ± SD)</b>
<b>Personal Data</b>				
Weight	37.13 ± 5.48	40.20 ± 4.24	41.70 ± 6.22	41.33 ± 5.40
<b>Physiological Variables</b>				
Systolic Blood Pressure	117.30± 2.98	117.40 ± 2.18	117.73 ± 2.41	117.60 ± 5.93
Diastolic Blood Pressure	67.43 ± 2.81	67.60 ± 2.13	67.37 ± 3.06	68.90 ± 3.76

**Personal Criteria**

The age, height and weight of the subjects had been considered as personal variable.

Age: Mean scores and standard deviation of four groups of age were  $13.77 \pm 1.25$ ,  $13.8 \pm 0.81$ ,  $14.67 \pm 0.99$  and  $14.90 \pm 0.92$  years respectively in Table – 1(a).

Height: Mean scores and standard deviation of four groups of height were  $141.70 \pm 6.10$ ,  $149.37 \pm 4.43$ ,  $151.37 \pm 9.08$  and  $150.30 \pm 8.54$  cm. respectively in Table–1(a).

Weight: Mean scores and standard deviation of four groups of weight in pre-test were  $38.67 \pm 5.96$ ,  $42.23 \pm 4.72$ ,  $42.70 \pm 7.00$  and  $40.77 \pm 5.16$  kg respectively in Table–1(a) and Fig. No. 1. Post test weights mean and SD were  $37.13 \pm 5.48$ ,  $40.20 \pm 4.24$ ,  $41.70 \pm 6.22$  and  $41.33 \pm 5.40$  kg respectively in Table No. – 1(b) and Fig. 1. After completion of the training programme mean scores of weight of all experimental groups were decreased slightly.

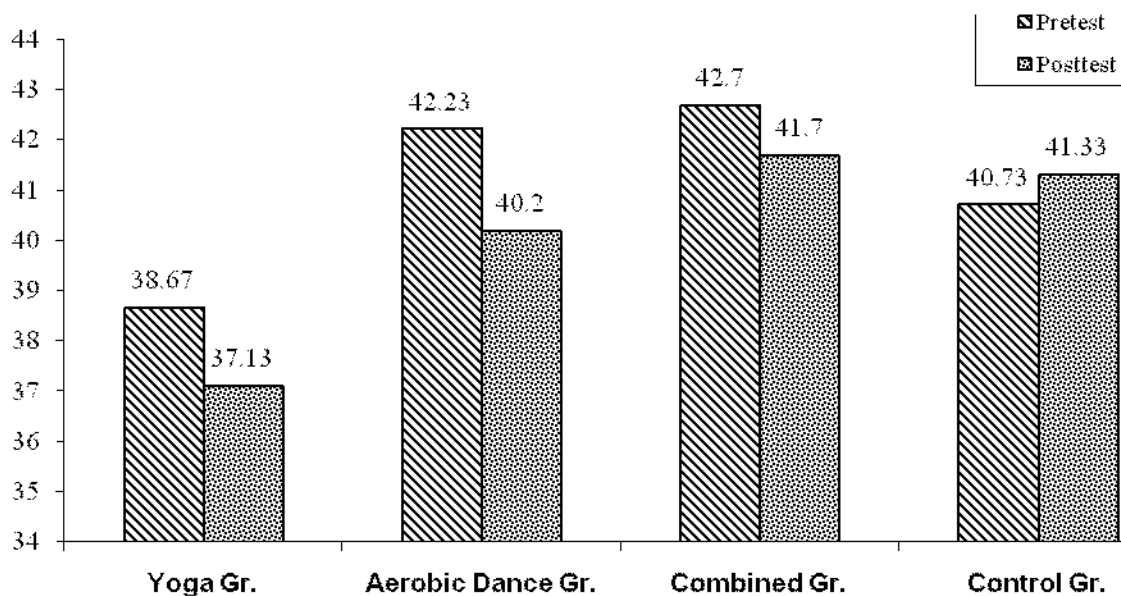


Fig. 1: Pretest and Posttest of weight of four groups

Regarding training programme body weight a great variation may be observed among the various researchers following training. McIntosh (1983), Whatley et al. (1994), Pollock et al (1975), Shome (Basu) (1998) found decrease in body weight following training.

### Physiological Variables

Physiological variables measured in this study were systolic blood pressure, and diastolic blood pressure of four groups.

Systolic Blood Pressure:

**Table – 2, Analysis of Variance (ANOVA) for SBP among the Four Groups**

	Source of variation	SS	df	MS	F
Pre-test	Between Groups	76.87	3	25.62	1.07
	Within Groups	2773.80	116	23.91	
	Total	2850.67	119		
Post-test	Between Groups	3.47	3	1.14	0.08
	Within Groups	1584.57	116	13.66	
	Total	1587.99	119		

$F_{0.05} = 2.68$ ,  $F_{0.01} = 3.96$ , F is not significant at both levels.

**Table – 3, Analysis of Covariance (ANCOVA) for SBP among the Groups**

Source of Variation	Df	$SS_{X.Y}$	$SS_{Y.X}$	$MS_{Y.X}(V_{Y.X})$	$F_{Y.X}$	$SD_{Y.X}$
Among Gr. Means	3	0.47	25.28	8.43		
Within Gr. SS	115	1516.20	755.79	6.57	1.28	2.56
Total	118	1516.67	781.07			

$F_{0.05} = 2.68$ ,  $F_{0.01} = 3.96$ , F is not significant at both levels.

**Table – 4, Significance of differences among adjusted Y means of SBP**

Variables	SED	df	Diff. Adjusted Means	Sig. at 0.05 or 0.01 level
Yoga Gr. vs. Aerobic Dance Gr.	0.66	115	1.07	NS
Yoga Gr. vs. Combined Gr.	0.66	115	0.12	NS
Yoga Gr. vs. Control Gr.	0.66	115	0.41	NS
Aerobic Dance Gr. vs. Combined Gr.	0.66	115	1.19	NS
Aerobic Dance Gr. vs. Control Gr.	0.66	115	0.66	NS
Combined Gr. vs. Control Gr.	0.66	115	0.53	NS

NS is not significant.

From Table–1(a) & 1(b) it was found that mean scores and SD of SBP before training of all the groups were  $115.33 \pm 4.40$ ,  $117.47 \pm 3.97$ ,  $115.90 \pm 3.82$  and  $116.63 \pm 6.78$  and after training were  $117.30 \pm 2.98$ ,  $117.40 \pm 2.18$ ,  $117.73 \pm 2.41$  and  $117.60 \pm 5.93$  respectively.

Participating in Yoga and aerobic programme the SBP of all the experimental groups found more or less same. Since all the mean scores of SBP were not equal, ANOVA and ANCOVA were done to find out Table–2, Table–3 and Table–4 are not significant.

According to Waltin and Schendel (1973), Dey (1990), Shome (Basu) (1998), Lotounav (1971) the SBP was not significant effect on six week training programme.

### Diastolic Blood Pressure

**Table – 5, Analysis of Variance (ANOVA) for DBP among the Four Groups**

	Source of variation	SS	df	MS	F
Pre-test	Between Groups	16.49	3	5.50	0.36
	Within Groups	1788.30	116	15.42	

	Source of variation	SS	df	MS	F
Post-test	Total	1804.79	119		
	Between Groups	47.09	3	15.70	1.75
	Within Groups	1042.23	116	8.98	
	Total	1089.33	119		

F<sub>0.05</sub> = 2.68, F<sub>0.01</sub> = 3.96, F is not significant at both levels.

**Table – 6, Analysis of Covariance (ANCOVA) for DBP among the Groups**

Source of Variation	Df	SS <sub>X<sub>Y</sub></sub>	SS <sub>Y<sub>X</sub></sub>	MS <sub>Y<sub>X</sub></sub> (V <sub>Y<sub>X</sub></sub> )	F <sub>Y<sub>X</sub></sub>	SD <sub>Y<sub>X</sub></sub>
Among Gr. Means	3	13.11	38.21	12.74		
Within Gr. SS	115	873.77	615.31	5.35	2.38	2.31
Total	118	886.88	653.51			

F<sub>0.05</sub> = 2.68, F<sub>0.01</sub> = 3.96, F is not significant at both l

**Table-7, Significance of differences among adjusted Y means of DBP**

Variables	S <sub>ED</sub>	Df	Diff. Adjusted Means	Sig. at 0.05 or 0.01 level
Yoga Gr. vs. Aerobic Dance Gr.	0.60	115	0.24	NS
Yoga Gr. vs. Combined Gr.	0.60	115	0.05	NS
Yoga Gr. vs. Control Gr.	0.60	115	1.19*	0.05
Aerobic Dance Gr. vs. Combined Gr.	0.60	115	0.19	NS
Aerobic Dance Gr. vs. Control Gr.	0.60	115	1.43*	0.05
Combined Gr. vs. Control Gr.	0.60	115	1.24*	0.05

\*Sig. at 0.05 level, NS is not significant.



From Table-1(a) & 1(b) it was found that mean scores and SD of DBP before training of all the groups were  $68.70 \pm 3.98$ ,  $69.53 \pm 2.29$ ,  $68.67 \pm 4.82$  and  $69.27 \pm 4.17$  and after training were  $67.43 \pm 2.81$ ,  $67.60 \pm 2.13$ ,  $67.37 \pm 3.06$  and  $68.90 \pm 3.76$  respectively.

Participating in Yoga and aerobic programme all the experimental groups decreases their DBP (Table 1(a) and 1(b)). Since all the mean scores of DBP were not equal, ANOVA was computed Table-5 to find out that F value was not significant. ANCOVA Table-6 was done to find out not significant. In post test DBP of aerobic dance group was lower than other three groups. After six weeks exercise programme DBP was decreased 0.05 level of confidence in all experimental groups in compare to control group which was shown in the Table-7.

Frank (1964), Lotounov (1971) found significant decrease in DBP and it was also found by Waltin and Schedel (1973), Shome (Basu) (1998).

### Conclusion

On the basis of the results and discussions, the conclusions may be drawn

1. Means scores of weight of all the experimental groups of adolescent girls were decreased in their body weight. Aerobic dance group was decreased in relatively more than other three groups.
2. No significant differences occurred in all the groups of Systolic Blood Pressure.
3. In Diastolic Blood Pressure all the three experimental groups were decreased significantly, except control group.
4. The organized yoga and aerobic dance programme in which the girls subjects participated for about six weeks definitely improved their performance in selected physiological potentialities.

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## **Depression, Anxiety and Stress among Higher Secondary School Teachers in South 24 Pargana District, West Bengal**

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### **Abstract**

Depression, anxiety and stress disorder start from early age. These disorders are common in every professions as well as teaching profession. The main purpose of this study is to investigate the level of depression anxiety and stress among higher secondary school teachers on the basis of demographic features. **Methodology:** The present study was conducted on higher secondary school teachers. For sample selection, purposive sampling technique was used. Total sample of present study were 62 sample (31 male and 31 female). Data were collected by depression anxiety stress Scale (DASS-21, Lovibond, 1995). **Result:** In the present study the result showed that no significant difference in the level of depression, anxiety and stress of higher secondary school teachers exists.

**Keywords:** Depression, Anxiety, Stress, Higher Secondary School Teachers.

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### **Introduction**

Depression, anxiety and stress are common feature in our life and our work-lives. Teaching is an ideal job beside highly stressful, responsible, man making work. Every individual Teachers are facing different problems allows in school oriented situation like classroom control, educational management and administration, relation between students and teaching stuff, effective communication, salary and other personal and family matter etc. These factors are very much related with teachers mental health. Teaching has been proved as a stressful job (Agai-demjahas, 2015). Delcor and Colleagues (2004) cite excessive workload as one of the most stressful job characteristics of teaching. In some countries, it is expected that teachers not only spend time on instructional

activities such as lesson planning, classroom teaching and grading home work, but also on tasks such as running co-curricular activities, attending or facilitating professional development activities, and engaging parents and the community. Moreover, teachers are also expected to engage in administrative duties related to teaching and learning such as filling out student report cards and tracking student attendance in class (Othman,2019).

Emotional exhaustion, high demands, low job control, high work load, and low reward are factors known to increase the risk for burnout (Aronsson, 2017). Additionally personal characteristics such as low self-efficacy and poor leadership were associated with burnout (Arvidsson, 2016). A study conducted among 580 secondary school teachers Kota Bharu found prevalence of stress (34%). The factors like age and duration of work played pivotal roles in contributing to stress in general (Hadi, 2008). Teachers who were teaching in secondary school, having less teaching experience, and married and have more than two children were more susceptible towards burnout (Mukundan, 2011).

Using salivary biomarkers of stress, the prevalence of stress in an urban setting in Malaysia was 20% among teachers of Malay ethnicity (Masilamani, 2012). In another study, only five determinants of teacher stress were identified; namely pupil's misbehavior, teacher's workload, time and resources difficulties, recognition, and interpersonal relationship. Other demographic factors such as age, length of teaching experience, and the respondents' monthly salary were not significantly correlated with stress (Ghani, 2014). Stress is the abnormal reaction that the organism displays against threatening environmental elements (Luthana, 1994). Stress, in general sense, is used for pressure that people are exposed in life (Jepson & Forrest, 2006) may be defined as the individual effort that the person displays against a stimulant which has excessive psychological and physical pressure on the person (Griffin, 1990). In addition, cultural and geographical factors such as climate and religion may shape factors of stress (Cooper & Davidson, 1987). Teacher's stress is defined as experience among teachers a unpleasant, negative emotions, such as anger, frustration, anxiety, depression and nervousness, resulting from some aspect of their work as teachers (Kyriacou, 2001).

### **Objectives of study:**

1. To know the level of depression, anxiety and stress among higher secondary school teachers on the basis of their age.

2. To know the level of depression, anxiety and stress among higher secondary school teachers on the basis of their gender.
3. To know the level of depression, anxiety and stress among higher secondary school teachers on the basis of their caste.
4. To know the level of depression, anxiety and stress among higher secondary school teachers on the basis of their habitat.
5. To know the level of depression, anxiety and stress among higher secondary school teachers on the basis of their educational qualification.
6. To know the level of depression, anxiety and stress among higher secondary school teachers on the basis of their monthly income.

**Hypotheses of study:**

The following null hypotheses were formulated,

H<sub>0</sub>1: There is no significant difference in the level of depression, anxiety and stress among higher secondary school teachers on the basis of their age.

H<sub>0</sub>2: There is no significant difference in the level of depression, anxiety and stress among higher secondary school teachers according to their gender.

H<sub>0</sub>3: There is no significant difference in the level of depression, anxiety and stress among higher secondary school teachers according to their caste.

H<sub>0</sub>4: There is no significant difference in the level of depression, anxiety and stress among higher secondary school teachers on the basis of their habitat.

H<sub>0</sub>5: There is no significant difference in the level of depression, anxiety and stress among higher secondary school teachers on the basis of their educational qualification.

H<sub>0</sub>6: There is no significant difference in the level of depression, anxiety and stress among higher secondary school teachers according to their monthly income.

**Sample:**

In the present study, the investigator selected 62 (31 are male teachers and 31 are female teachers) teachers from different govt. aided higher secondary school of South 24 pgs (West Bengal) as sample. The investigator adopted purposive sampling technique for sample selection. The distributions of sample based on their age, gender, caste, habitat, educational qualification and monthly income.

*Table 1: Demographic characteristic of the sample are shown in the following table*

VARIABLES		Total number	Percentage (%)
AGE	26-35	28	45.2%
	36-45	19	30.6%
	46 AND ABOVE	15	24.2%
GENDER	MALE	31	50%
	FEMALE	31	50%
CASTE	SC	14	22.6%
	OBC	7	11.3%
	GENERAL	41	66.1%
HABITAT	RURAL	21	33.9%
	URBAN	26	41.9%
	SEMI-URBAN	15	24.2%
EDUCATIONAL QUALIFICATION	GRADUATE	22	35.5%
MONTHLY INCOME	POST-GRADUATE	40	64.5%
	BELOW 15000	20	32.3%
	16000-35000	31	50%
	36000 AND ABOVE	11	17.7%

**Tool & technique used:**

The self-administered depression, anxiety and stress scale (DASS-21) questionnaire was used to collect data. DASS was a set of three self-report inventory developed by Lovibond & Lovibond (1995). In addition to the basic 42 item questionnaire, a short version, the DASS- 21, is available with 7 items per scale, each reflecting a negative emotional symptoms. In the present study the short (DASS-21) version of DASS was used. As recommended, the obtained scale scores are multiplied by 2, to make them comparable to the DASS normative data score. Each of these is rated on a four-point Likert scale of severity of the participant’s experience over the previous week with the intention emphasizing states over traits. Purposive sampling technique was followed to collect the data.

The rating (DASS 21) scale is as follows:

- 0 did not apply to me at all
- 1 applied to me to some degree, or some of the time
- 2 applied to me to a considerable degree or a good part of time
- 3 applied to me very much or most of the time

Table 2: Level of Depression, Anxiety and Stress according to DASS-21

	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely severe	28+	20+	34+

**Data analysis and Interpretation**

**Section: 1 (Depression category)****Table 3.1: Depression levels on the basis of age group**

AGE IN YEAR	Levels of Depression				Total	df	X <sup>2</sup> - test value	Significance value	Remark
	Normal	Mild	Moderate	Severe					
26-35	14	5	8	1	28	6	7.110	.311	Not significant
36-45	8	5	3	3	19				
46 & +	8	0	5	2	15				
Total	30	10	16	6	62				

**Interpretation:** It is observed from table 3.1 that X<sup>2</sup>value is 7.110 and significant value .311, which is not significant at 0.05 level. Thus, the null hypothesis is accepted. This shows that there is no significant difference in the level of depression of higher secondary school teachers on the basis of their age.

**Table 3.2: levels of Depression on the basis of gender**

GENDER	Levels of Depression				Total	df	X <sup>2</sup> - test value	Significance value	Remark
	Normal	Mild	Moderate	Severe					
MALE	15	5	9	2	31	3	.917	.821	Significant
FEMALE	15	5	7	4	31				
TOTAL	30	10	16	6	62				

**Interpretation:** It is clear from table 3.2 that X<sup>2</sup>value is .917 and significant value is .821, this result showed that there exists significant difference in the level of depression. There for the null hypothesis is rejected.



*Table 3.3: levels of Depression on the basis of caste*

CASTE	Levels of Depression				Total	df	X <sup>2</sup> - test value	Significance value	Remark
	Normal	Mild	Moderate	Severe					
SC	7	3	4	0	14	9	11.301	.256	Not significant
OBC	2	3	3	0	7				
GENERAL	21	4	9	6	40				
TOTAL	30	10	16	6	62				

**Interpretation:** It is observed from table 3.3 that X<sup>2</sup>value is 11.301 and significant value .256, which is not significant at 0.05 level. Thus, the null hypothesis is accepted. This shows that there is no significant difference in the level of depression of higher secondary school teachers on the basis of caste.

*Table 3.4: Levels of Depression on the basis of habitat*

HABITAT	Levels of Depression				Total	df	X <sup>2</sup> - test value	Significance / not-significance	Remark
	Normal	Mild	Moderate	Severe					
RURAL	9	5	4	3	21	6	6.115	.410	Not significant
URBAN	16	2	7	1	26				
SEMI-URBAN	5	3	5	2	15				
TOTAL	30	10	16	6	62				

**Interpretation:** According to this table, the result found that the nature of habitat is not effective matter for depress. From the table we show,  $X^2$  value is 6.115 and significant value .410, which is not significant at 0.05 level. Thus, the null hypothesis is accepted. This result shows that there is no significant difference in the level of depression of higher secondary school teachers on the basis of habitat

**Table 3.5: Levels of Depression on the basis of educational qualification**

EDUCATIONAL QUALIFICATION	Levels of Depression				Total	df	$X^2$ - test value	Significance value	Remark
	Normal	Mild	Moderate	Severe					
GRADUATE	10	5	5	2	22	3	1.118	.773	Not significant
POST-GRADUATE	20	5	11	4	40				
TOTAL	30	10	16	6	62				

**Interpretation:** Above table show that  $X^2$ value is 1.118 and significant value is .773. Thus the null hypothesis is accepted. This table shows that there is no significant difference among level of depression between graduate and post- graduate school teachers.

**Table 3.6: Levels of Depression on the basis of monthly income**

MONTHLY INCOME	Levels of Depression				Total	Df	$X^2$ - test value	Significant value	Remark
	Normal	Mild	Moderate	Severe					
BELLOW-15000	7	1	7	5	20	6	11.978	.062	Not significant
16000-35000	16	7	7	1	31				
36000 AND ABOVE	7	2	2	0	11				
TOTAL	30	10	16	6	62				

**Interpretation:** It is observed from table 3.6 that  $X^2$  value is 11.978 and significant value .062, which is not significant at 0.05 level. Thus, the null hypothesis is accepted. This shows that there is no significant difference in the level of depression of higher secondary school teachers according to their monthly income.

**Section: 2 (Anxiety category)**

**Table 4.1: Levels of Anxiety on the basis of age**

AGE IN YEAR	Levels of Anxiety				Total	Df	X <sup>2</sup> - test value	Significance value	Remark
	Normal	Mild	Moderate	Severe					
26-35	12	2	6	8	28	6	10.128	.256	Not significant
36-45	1	3	7	8	19				
46 & +	6	3	3	3	15				
Total	19	8	16	19	62				

**Interpretation:** It is observed from table 4.1 that  $X^2$  value is 10.128 and significant value .256, which is not significant at 0.05 level. Thus, the null hypothesis is accepted. This result shows that there is no significant difference in the level of anxiety of higher secondary school teachers on the basis of different age group.

**Table 4.2: Level of Anxiety on the basis of gender**

GENDER	Levels OF Anxiety				Total	df	X <sup>2</sup> - test value	Significance value	Remark
	Normal	Mild	Moderate	Severe					
MALE	9	4	8	10	31	3	1.453	.835	Not Significant
FEMALE	10	4	8	9	31				
TOTAL	198	16	19	62					

**Interpretation:** It is clear from table 4.2 that  $X^2$  value is 1.453 and significant value is .835, this show that there is no significant difference in the level of anxiety. The null hypothesis is not rejected. Gender difference is not important feature for increase or decrease of the nature of anxiety.

**Table 4.3: Level of Anxiety on the basis of caste**

CASTE	Levels of Anxiety				Total	df	$X^2$ - test value	Significance value	Remark
	Normal	Mild	Moderate	Severe					
SC	1	3	6	4	14	9	19.531	.076	Not significant
OBC	1	0	2	4	7				
GENERAL	17	5	8	11	41				
TOTAL	19	8	16	19	62				

**Interpretation:** It is observed from table 4.3 that  $X^2$  value is 19.531 and significant value 0.76, which is not significant at 0.05 level. Thus, the null hypothesis is accepted. This shows that there is no significant difference in the level of anxiety of higher secondary school teachers on the basis of caste discrimination.

**Table 4.4: Levels of Anxiety on the basis of habitat**

HABITAT	Levels of Anxiety				Total	df	$X^2$ - test value	Significance / not-significance	Remark
	Normal	Mild	Moderate	Severe					
RURAL	3	1	10	7	21	6	18.159	.020	Not significant
URBAN	12	3	4	7	26				
SEMI-URBAN	4	4	2	5	15				
TOTAL	19	8	16	19	62				

**Interpretation:** According to this table, the result found that the nature of habitat is not effective matter for depress. From the table we show,  $X^2$  value is 18.159 and significant value .020, which is not significant at 0.05 level. Thus, the null hypothesis is accepted. This shows that there is no significant difference in the level of anxiety of higher secondary school teachers on the basis of their habitat.

**Table 4.5: Levels of Anxiety on the basis of educational qualification**

EDUCATIONAL QUALIFICATION	Levels of Anxiety				Total	Df	X <sup>2</sup> - test value	Significance value	Remark
	Normal	Mild	Moderate	Severe					
GRADUATE	6	4	4	8	22	3	3.346	.502	Not significant
POST-GRADUATE	13	4	12	11	40				
TOTAL	19	8	16	19	62				

**Interpretation:** Above table shows that  $X^2$  value is 3.346 and significant value is .502. Thus the null hypothesis is accepted. This table shows that there is no significant difference among level of anxiety between graduate and post- graduate school teachers.

**Table 4.6: Levels of Anxiety on the basis of monthly incomes**

MONTHLY INCOME	Levels of Anxiety				Total	df	X <sup>2</sup> - test value	Significance value	Remark
	Normal	Mild	Moderate	Severe					
BELLOW-15000	5	1	5	9	20	6	6.324	.611	Not significant
16000-35000	10	5	10	6	31				
36000 AND ABOVE	4	2	1	4	11				
TOTAL	19	8	16	19	62				

**Interpretation:** It is observed from the table 4.6 that  $X^2$  value is 6.324 and significant value .611, which is not significant at 0.05 level. Thus, the null hypothesis is accepted. This shows that there is no significant difference in the level of anxiety of higher secondary school teachers according to their monthly income.

**Section: 3 (Stress category)**

*Table 5.1: Stress Levels on the basis of age*

AGE IN YEAR	Levels of Stress				Total	df	X <sup>2</sup> - test value	Significance value	Remark
	Normal	Mild	Moderate	Severe					
26-35	17	7	2	2	28	6	4.239	.644	Not significant
36-45	11	4	4	0	19				
46 & +	8	5	1	1	15				
Total	36	16	7	3	62				

**Interpretation:** It is bring out from the table 5.1 that  $X^2$  value is 4.239 and significant value 644, which is not significant at 0.05 level. Thus, the null hypothesis is accepted. This shows that there is no significant difference in the level of stress of secondary school teachers on the basis of difference in age group.

*Table 5.2: Levels of Stress on the basis of Gender*

GENDER	Levels of Stress				Total	df	X <sup>2</sup> - test value	Significance value	Remark
	Normal	Mild	Moderate	Severe					
MALE	20	7	3	1	31	3	1.171	.760	Not Significant
FEMALE	16	9	4	2	31				
TOTAL	36	16	7	3	62				

**Interpretation:** It is clear from the table 5.2 that  $X^2$  value is 1.171 and significant value is .760, this show that there is no significant difference in the level of stress. The null hypothesis is accepted. Therefore, Gender difference is not an important feature for increase or decrees the nature of stress

**Table 5.3: Levels of Stress on the basis of Caste**

CASTE	Levels of stress				Total	df	X <sup>2</sup> - test value	Significance value	Remark
	Normal	Mild	Moderate	Severe					
SC	7	5	2	1	15	9	9.696	.376	Not significant
OBC	4	2	1	0	7				
GENERAL	25	9	4	2	40				
TOTAL	36	16	7	3	62				

**Interpretation:** It is observed from the table 5.3 that X<sup>2</sup> value is 9.696 and significant value .0376, which is not significant at 0.05 level. Thus, the null hypothesis is accepted. This shows that there is no significant difference in the level of stress of higher secondary school teachers on the basis of caste.

**Table 5.4: Levels of Stress on the basis of Habitat**

HABITAT	Levels of stress				Total	df	X <sup>2</sup> - test value	Significance value	Remark
	Normal	Mild	Moderate	Severe					
RURAL	15	3	3	0	21	6	11.125	.085	Not significant
URBAN	17	6	1	2	26				
SEMI URBAN	4	7	3	1	15				
TOTAL	36	16	7	3	62				

**Interpretation:** According to this table, the result found that the nature of habitat is not effective matter for stress. From the table we show, X<sup>2</sup> value is 11.125 and significant value .085, which is not significant at 0.05 level. Thus, the null hypothesis is accepted. This shows that there is no significant difference in the level of stress of higher secondary school teachers on the basis of habitat.

**Table 5.5: Levels of stress on the basis of educational qualification**

EDUCATIONAL QUALIFICATION	Levels of Stress				Total	df	X <sup>2</sup> -test value	Significance value	Remark
	Normal	Mild	Moderate	Severe					
GRADUATE	10	9	2	1	22	3	4.100	.251	Not significant
POST GRADUATE	26	7	5	2	40				
TOTAL	36	16	7	3	62				

**Interpretation:** Above table show that X<sup>2</sup> value is 4.100 and significant value is .251. Thus the null hypothesis is accepted. This table shows that there is no significant difference among level of stress between graduate and post- graduate school teachers.

**Table 5.6: Levels of Stress on the basis of Monthly Incomes**

MONTHLY INCOME	Levels of stress				Total	df	X <sup>2</sup> - test value	Significance value	Remark
	Normal	Mild	Moderate	Severe					
BELLOW-15000	13	4	2	1	20	6	1.829	.935	Not significant
16000-35000	17	8	4	2	31				
36000 AND ABOVE	6	4	1	0	11				
TOTAL	36	16	7	3	62				

**Interpretation:** It is observed from table 5.6 that X<sup>2</sup> value is 1.829 and significant value .935, which is not significant at 0.05 level. Thus, the null hypothesis is accepted. This shows that there is no significant difference in the level of stress of higher secondary school teachers according to their monthly income.



## **Findings and discussion:**

### **Section: 1 (Depression)**

In the present study, it is noted that 48.4% sample possess normal level of depression, 16.1% possess mild depression, 28.5% possess moderate depression and 9.7% possess severe depression. It is also noted that a significant difference exists between the male and female sample teachers when their level of depression were considered. In the study of Othman & Sivasubramaniam (2019) noted that a significant difference exists between male and female sample with respect to their depression. In the study of Baure & Unterbrink (2007), it was also noted that about 30% teachers suffered from significant mental health problem in Germany.

### **Section: 2 (Anxiety)**

Overall anxiety was more common among all teachers. In the present study, no important variance between male teachers and female teachers was found. Out of 62 sample, level of anxiety on the different variables basis 30.6% normal, 12.9% mild, 25.8% moderate, 30.6 severe levels. Kyriacou (2001) studied on teachers stress and anxiety noted that teachers possess higher level of anxiety when comparing with other professions. In the present study, it is noted that younger teachers possess more anxiety than the elder teachers.

### **Section: 3 (Stress)**

The present study examined the level of stress among higher secondary school teachers in south 24 PGS. From the result of this study (stress), it is clear that no significant difference in level of stress was found among secondary school teacher.

This finding supports the past research that there is no significant difference in the levels of occupational stress of male and female school teachers. When the level of stress was compared between male and female teachers, differences were found in the overall stress. In normal level of stress, male teachers were 55.6%, female teachers were 44.4%; mild level of stress among male teachers

43.8% and female teachers 56.2%; moderate level of stress among male teachers 42.9% and female teachers 57.1%. On the basis of caste, important difference was moderate (SC teachers 14.3% and OBC teachers 14.3%, GEN teachers 57.1%). In habitat category, significance difference was moderate 'level', stress level of rural teachers were 42.9%, urban teachers were 14.3% and semi-urban teachers were 42.9%. In educational qualification, mild stress level was found between graduate teachers(56.2%) and post graduate teachers(43.8%). According to monthly income, 25.0% were suffering from mild level of stress, of where salary is below 15k salary holder teachers, suffering from 50.0% were mild level of stress of 16-25k salary holder teachers and 25.0% were suffering from mild level of stress of 36k & above salary holder teachers. In the present study, it was also noted that the elder teachers possess less severe stress than the younger teachers. Higher level of stress is common among the female teachers then male teachers, and teachers from urban and semi-urban were possess severe level of stress then the teachers from rural areas. But very less number of teachers possess severe level of stress.

Other the findings are at not variance to Chan, Chen & Chong (2010) who revealed no significant difference between their male and female respondents. These finding are at variance to those reported in previous studies (Mokhtar, 1998, Nwimo, 2005) among secondary school teachers. For intense a group of teachers Nwimo (2005) studied in a neighboring enough state had a low level stress. Though this revelation was made many years ago, it was not surprising that the teachers in the present study reported a high level of stress for obvious reasons.

Other highly stressful occupation include the police, Nurse (Ang, 2016), and doctor (Clough, 2017) who are also suffering from stress. The prevalence of stress among the police in Kula Lumpur city was high where the overall stress was 38% with 5.9% severe, 14.9% (moderate) and 18.0% (mild). Higher ranked officers like the inspectors were more likely to suffer from severe stress compared to junior officers (Masilamani, 2013).

## **Conclusion**

From this study it is noted that maximum number of teachers possess mild level of depression, anxiety, stress and very less number possess severe level of depression, anxiety and stress. Late,

those who possess severe level of depression, anxiety and stress, need immediate medical and therapy intervention. But the teachers are not aware about their mental health condition. They do not know about their mental unhealthy situation and what they can do as they have no idea about where they can go for referral services. In abroad, the teachers regularly test their mental health condition. Because the teachers who possess mental ill health may reflect a severe bad impression on the students. So, the teachers and the taught, both need a regular test of mental health and suitable intervention.

The prevalence of depression, anxiety and stress were moderate among secondary school teachers. Proper steps should be taken to improve the mental health of teachers. Thereby ensuring good quality education. Stress management including spiritual coping strategy could be incorporated into their teaching module during their training course (Osman, 2017). Future study should focus on modifiable factors such as the school environment, leadership, school administrative, nature of communication between school and locality, technology used in method of teaching, teaching experience, relation between teacher and learner etc. There is a significant relationship between teacher's stress level and structural and consideration dimensions of the principals' leadership style (Yusof, 2016). Apart from modifiable factors, we should also look into factors such as personality, notably neuroticism as it has been associated with depression in students (Kelvin, 2013).

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## **Integration of Different Branches of Science in the Curriculum of Environment & Science under WBBSE**

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### **Abstract**

Recent trends have shown that integrated science has gained popularity and it is being accepted for the first ten years of schooling or at least for the first eight years of schooling. The application of an integrated curriculum is the most powerful way to communicate and transfer scientific knowledge. The purpose of this study was to find out, integration of different branches of science in the curriculum of 'Environment & Science' under WBBSE. To achieve the purpose of the study, a self-made tool was used constituting 45 items which were constructed from Physical science, Life Science & Environmental Science equally (15 each) from the book 'Paribesh O Bignan' (in Bengali) & 'Environment & Science' (in English) of class VIII. For conducting the research, the data were collected from five randomly selected schools from randomly selected five districts of West Bengal. The tool was distributed to the class VIII students providing general instruction; after the completion of stipulated time as mentioned in the tool the answer sheets (data) were collected from students; from each school twenty (20) students were selected randomly. After collecting the data, the answers of the students were evaluated. The evaluated scores (i.e. achievement in- Physical Science, Life Science & Environmental Science) were put in MS Excel and through descriptive statistics the data were analyzed. The result showed that 'Environment & Science' of the upper primary stage under WBBSE involves integration. It was also found that the students have higher achievement in Environmental Science in comparison to Physical Science and Life Science.

**Keywords:** Integration in Science, Correlation, Curriculum, Environment & Science.

## INTRODUCTION

### **Development of Science curriculum, down the ages in schools in India with particular reference to WB**

In colonial India there was hardly any scope of science teaching-learning in school in India and, not to speak of Bengal. The science education was in a mess even in the 19th century in England which was then a lighthouse for Indian scientific culture. School science in UK was then shaped to cater the necessity of technicians. In Bengal, science education started with a few elective subjects from the Intermediate stage (now +2 stage). So science education was neglected in secondary and lower stages. It took almost a decade to start science as general science in a secondary school as a half paper. In HS schools, the common science course was designated as core science which comprised activities and some descriptive topics on physics, chemistry and life science devoid of any intellectual fervor. Thereafter WB & India have come across different types of science courses in upper primary and secondary levels. In West Bengal, especially Junior High Level, the science curriculum was evaluated and reformed in this way: General Science (1952), Physical science (integration of Physics and Chemistry) & Life science (1974), Environment & Science (Paribesh O Bignan) (2011).

In 1998, NCERT published the book 'Science' for class VI of CBSE Board where it is described, "We have also tried to give you several connections between what you read in science textbooks and what you observe around you in nature. Many of the processes you see in nature are not classifiable as chemistry alone, or only physics or purely biological. They are at once all of these. When the polar bear hibernates in the Arctic winter, its action is biological. During this act, it must be surely thankful for the stored fat and its properties! For the physical property of the fat – that fat is a bad conductor of heat – which aids the bear in keeping warm; for the chemical property of the fat – its lower oxygen content makes it an energy-rich fuel, better than carbohydrates; and for the biology of being able to make and store the fat in its tissues." Learning a subject will be fruitful when its ideas will be integrated with the ideas of other subjects. As for example, Chemistry is an important part of studying Anatomy and Physiology. The cells of our body are composed of chemicals and in all of our body's movements and cycles, chemical reactions are involved (Zamboni, 2017). Integrating biology with physics and chemistry is essential as they are inter-dependent. Physics and chemistry influence the field of biology very much; so the biology teachers should integrate physical science into the lessons of biology (Mitchell, 2017). The mathematical problems related to science and



technology are to be given in abundance in the content of mathematics so that the integrated method of teaching may be more interesting and attractive (Chel, dnf). Connecting more than one subject is not only important but it's possible too. The teachers usually convey their strong convictions about the importance of connecting mathematics and science instruction and comment about the natural overlaps in mathematics, science and real-world events (Frykholm, & Glasson, 2005). The new TL method of integrated teaching was found to be more effective than the traditional one in the field of the medical curriculum also (Kate, Kulkarni, Supe, & Deshmukh, 2010). A contingency table analysis confirmed substantial changes in teaching and learning processes when the topics studied were outside the teacher's specialist discipline area. It was concluded, for the sample studied, that informational approaches were twice as likely to be encountered when the teacher was teaching outside his discipline area and that this increase was at the expense of more effective problem-solving and inquiry approaches (Hacker, & Rowe, 2007). Teaching-learning will be meaningful when it is integrated with the ideas of other fields of subjects (Bigge, 1962). Recent trends have shown that integrated science has gained popularity and it is being accepted for the first ten years of schooling or at least for the first eight years of schooling (Sood, 1989). Application of an integrated curriculum is the most powerful way to communicate and transfer scientific knowledge (Harrel, 2010).

### **Construction of Science Curriculum**

Arrangement of the content may be broadly divided into two ways: logical and psychological. The logical arrangement is followed when the students are at the formal level of operation. At the sensorimotor stage, it would be the better if curriculum is organized psychologically. Among the psychological arrangement, the most favorite is the integrated science curriculum.

**Bigge. (1962)** mentioned the term 'non-teachable subjects'. In his idea, a subject is non-teachable if it cannot be correlated with other subjects or with some alien ideas. When a Teacher teaches a subject e.g. Language, Mathematics, Science etc., teaching-learning will be meaningful when it is correlated with the ideas of other fields of subjects or even of Life. When the subject matters are correlated in this way they can be enclosed in a common enclosure. This enclosure indicates Integration. If there is no correlation, there can be no Integration.

An untrained science teacher or a teacher specialized in one subject may not be always able to present lessons with correlation. Similarly, if the science curriculum is not sufficiently correlated,

teachers as well as the students can't integrate knowledge. So correlation and integration are the two sides of the same coin (i.e. curriculum). If the environmental issues and the corresponding scientific principles go hand in hand, many problems of life can be solved easily.

### **Types of Integration**

NCERT, Dept. of Education in Science and Mathematics (DESM) suggested three types of integration in Science – i) Integration in Content, ii) Integration in Process & iii) Integration in Objectives. **Content Integration** means the capture and movement of content between systems, applications and processes; regardless of the form. To enable the movement of content, transformation is often required. In **Process Integration**, subjects having similar processes of acquiring knowledge can be integrated; e.g. Life science & Chemistry based on the style of experiment, observation & inference. **Integration in Objectives**- Physics and Chemistry have similar aims & objectives, so are liable to be integrated. This integration was followed in the erstwhile curriculum of Physical Science under WBBSE.

Environmental Education as infused in NCERT Syllabus for classes I to XII as per NCF 2005: “The topics related to environment were suitably infused with different science and social science subjects at all school stages. Understanding of the environment in its totality, both natural and social, and their interactive processes, the environmental problems and the ways and means to preserve the environment were one of the General Objectives of Education as per National Curriculum Framework 2000.”

### **Correlation**

The word correlation means a close or mutual relation of two subjects related to each other. As for example, we can say that teaching Physics is highly related to Chemistry, Mathematics, Biology etc. So many new areas are coming nowadays which are highly correlated with their main subjects e.g. Biochemistry, Biophysics, Biotechnology correlate Biology and Physics or Chemistry or Technology. The important point is that subject boundary have no meaning and while discussing one subject it needs examples from different subjects. As a science teacher, we should see a correlation among the various school subjects and at different stages in education.

### **Emergence of the Problem**

Under the orders of the apex court (2002) of India, Environmental Education was introduced in the schools of India right from Primary school. It was introduced as a separate subject claiming separate teacher, separate time, separate classroom and thus loading the school bag of the children. The consequence of the inclusion of environmental education could not fetch the superior result in the scenario of school education because it was treated as a burden in the existing load of the curriculum. In the revised curriculum with effect from 2011, science i.e. both Physical and Life science were integrated with Environmental Education and thus three subjects- Physical Science, Life Science and Environmental Science were converged into a single subject under the title “Paribesh O Vignan” (in Bengali) and, “Environment & Science” (in English) in upper primary level. It was published as a single subject in a single book. Whether the quality of curriculum, science textbooks developed and teaching techniques followed conforms integration is yet to be ascertained.

In the year 2011, the new science curriculum merged the two separate science subjects under one umbrella i.e. ‘Environment & Science’. The books were prepared by 2013. A question is inevitable in this connection that what the degree of correlation is and hence the scope of integration in the science curriculum, over the years. Since no report is yet officially available, it might be incumbent upon the science teachers to verify the extent to which the correlation (and hence integration) has taken place among the science subjects and environment in the present science curricula. Moreover, the spirit of UEE demands that an upper primary must meet the demand of the students who will leave the school at the end of upper primary. So upper primary science curriculum should cater to the needs of a layman. The science curriculum up to class VIII should be integrated. With this point of view, a study might be arranged to estimate the correlation and hence integration among the science curriculum. This may be done in two ways:

1. to compare the content of the total syllabus with component science subjects,
2. to find the correlation between the achievement of the upper primary school students in different science subjects and science subjects in totality.

The extent of integration would be estimated by the correlation among the understanding of the concept of Physical Science, the concept of Life Science & the concept of Environmental Science.

The bivariate correlations will show the necessary integration.

### **Statement of the Problem**

In the arena of science teaching, the domination of disciplinary approach and integration have been in different times and places. In the school curriculum at the secondary level sometimes disciplinary approach and sometimes integrated approach have been recommended in curriculum revisions after the independence of India. But up to upper primary stage integration is given priority in most of the situations. At present WBBSE has introduced Environment and Science under the same cover. The decision regarding the inclusion of science subjects has not yet been ascertained beyond doubt. The different science subjects included in the school curriculum have similarities in (i) objectives of teaching-learning, (ii) content area, and (iii) method of acquiring knowledge. Now it is incumbent upon us to verify the extent to which the integration has been taken place. Out of different science subjects we consider here three disciplines like Physical Science, Life Science and Environmental Science to find their correlation and subsequent integration to explain the daily-life experiences and life-problems. For the present study, the investigators considered the integration among Physical Science, Life science and Environmental Science portion of the above subject (i.e. Environment & Science) and their integration with the daily experience of WB people. The topic for the investigation may, therefore, be stated in the form, Integration of different branches of Science in the curriculum of Environment & Science under WBBSE.

### **Objectives of the Study**

The following objectives were taken for the present inquiry:

**O<sub>1</sub>** : To study the integration between Physical Science and Life Science by correlation of scores achieved by the students in those branches of science.

**O<sub>2</sub>** : To study the integration between Life Science & Environmental Science by correlation of scores achieved by the students in those branches of science.

**O<sub>3</sub>** : To study the integration between Environmental Science & Physical Science by correlation of scores achieved by the students in those branches of science.

### **Hypotheses**

*(Null hypotheses)*

**H<sub>0</sub>1**: No significant correlation is achievable between Physical Science & Life Science.

**H<sub>0</sub>2:** No significant correlation is achievable between Life Science & Environmental Science.

**H<sub>0</sub>3:** No significant correlation is achievable between Environmental Science & Physical Science.

### **Significance of the Study**

The findings of the study will help,

- i) to know whether there is integration among different branches of science in the curriculum of 'Environment & Science' at the upper primary level under WBBSE or not.
- ii) to review the existing curriculum under implementation and develop a new curriculum.
- iii) to provide information to the curriculum developers in Continuous improvement of the education system.
- iv) in social changes and social development, as today's children are the future's citizen.

### **Definitions of Integration & Operational Definition**

#### ***Definitions of Integration:***

Integrated science presents the essential unity of science in truly unified courses, it presents science as a whole.

Integrated Science teaching can be said to cover all those approaches to science teaching in which (a) concepts and principles of science are presented in such a way as to express the fundamental unity of scientific thought, (b) which emphasizes the processes and methodology of the scientific outlook and (c) which presents a scientific study of the environment and the technological requirements of everyday life.

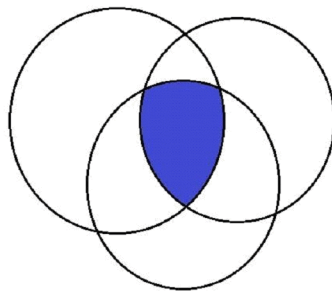
Similarly, integrated science has been defined as those approaches in which the concepts and principles of science are presented to express the fundamental unity of scientific thought and to avoid premature or undue stress on the distinctions between the various scientific fields.

According to another definition, integrated science has been taken as an attempt to bring all science subjects together in a single course in which scientific concepts are approached uniformly in spirit and method. -**Sood. (1989)**

***Operational Definition:***

Integration among different subjects:

Two or more subjects might be integrated if there is a significant correlation among the ideas of those subjects. These subjects therefore may not be taught separately but as an integrated subject with any suitable name.



***Fig. 1:*** *The common area of the three circles indicate an effective integration*

Two school subjects might be termed as integrated if there is a significant correlation among the concepts, processes, and objectives of those subjects (or experiences).

**Delimitations of the Study**

The study is delimited to-

- *Location:* West Bengal (only), a state of India
- *No. of Schools:* Five schools only (from five districts of West Bengal selected randomly)
- *No. of Students:* 100 only
- *Class:* VIII only
- *Medium of Instruction:* Bengali medium only
- *Component Subjects:* Physical Science, Life Science & Environmental Science only.

Test of integration among the subjects is based on the inter-correlation among the achievement scores of the students.

### **Identification of the Research gaps & Critical appraisal**

From the review of related literature, the following research gaps were identified:

i) No study at the state level is known to have been done to find the inter-correlation among Physical Science, Life Science & Environmental Science.

(ii) No report was available as to the opinion of the teachers and guardians regarding the curriculum, textbooks and teaching-learning techniques.

So a study is necessary to find the extent of integration in curriculum, textbooks and science teaching in the upper primary stage where the integration of science is the gateway to the disciplinary approach in secondary level and higher secondary level.

### **METHODOLOGY OF RESEARCH**

To achieve the purpose of the study, quantitative research (explanatory study) was done, where Science Education was identified as the broad area of the research and integration of different branches of science (Physical Science, Life Science & Environmental Science) was selected as the specific area.

### **Population and Sample**

The present researchers considered the Bengali medium school-students of class VIII under the West Bengal Board of Secondary Education (WBBSE) as population. To constitute the sample, the researchers selected one hundred students from five schools from five districts of West Bengal randomly.

### **Variables**

Three variables were selected for the study,

- Achievement in Physical Science,
- Achievement in Life Science,
- Achievement in Environmental Science.

## **Tools**

To conduct the study, a self-made 'Tool' was used constituting of 45 items. Each item contained four options, among them one was most appropriate. Each item carried one (1) mark for the correct answer and no negative marking was there. Those items were constructed from Physical science, Life Science & Environmental science equally (15 each). The items of different areas were kept in the 'Tool' in a heterogeneous manner.

## **Standardization of the Tool**

*Validity & Reliability:* For the validity and reliability of the 'Tool', the researchers formulated 56 items. To check the content validity of the items, the expert rating was done. The experts were asked to rate each item concerning three categories viz. perfectly suitable, nearly suitable, and not suitable. Three experts were selected for the rating purpose. Those items were rejected which were rated as not suitable by anyone of the experts or rated as nearly suitable by any two of the experts. Through this process, 45 items for the 'Tool' were made ready.

## **Procedure of Data Collection**

For conducting the quantitative study, the data were collected from five randomly selected schools from randomly selected five districts. First, the 'Tool' were distributed to the students providing general instruction. After the completion of the stipulated time as mentioned in the 'Tool', the answer sheets (data) were collected from students. From each school twenty (20) students were selected randomly.

## **ANALYSIS AND INTERPRETATION**

### *Presentation of Data:*

All the raw data were tabulated in MS excel.



**Table: 1 - Descriptive Statistics of Achievement scores of the students, in  
“Physical Science”**

<b>Achievement in Physical Science</b>	
Mean	6.88
Median	7
Standard Deviation	2.840116657
Kurtosis	-0.328523349
Skewness	0.391270307

**Table: 2 - Gradation of Achievement scores of the students, in  
“Physical Science”**

<b>Achievement</b>	<b>Marks</b>	<b>Percentage</b>
Low Achiever	0-5	32
Moderate Achiever	5-10	57
High Achiever	10-15	11

**Table: 1** shows that the mean achievement score in Physical Science of the students is 6.88 (out of 15). It is also found that Median is 7, SD is 2.84, Kurtosis is -0.33 & Skewness is 0.39, from the descriptive statistics of achievement scores in Physical Science. **Table: 2** reveals that 11 students (out of 100 students) are high achievers in Physical Science.

**Table: 3** - Descriptive Statistics of Achievement scores of the students, in  
“Life Science”

Achievement in Life Science	
Mean	7.43
Median	7
Standard Deviation	2.543579757
Kurtosis	-0.089901522
Skewness	0.451452691

**Table: 4** - Gradation of Achievement scores of the students, in  
“Life Science”

Achievement	Marks	Percentage
Low Achiever	0-5	22
Moderate Achiever	5-10	65
High Achiever	10-15	13

**Table: 3** shows that the mean achievement score in the Life Science of the students is 7.43 (out of 15). It is also found that Median is 7, SD is 2.54, Kurtosis is -0.089 & Skewness is 0.45, from the descriptive statistics of achievement scores in Life Science. **Table: 4** reveals that 13 students (out of 100 students) are high achievers in Life Science.

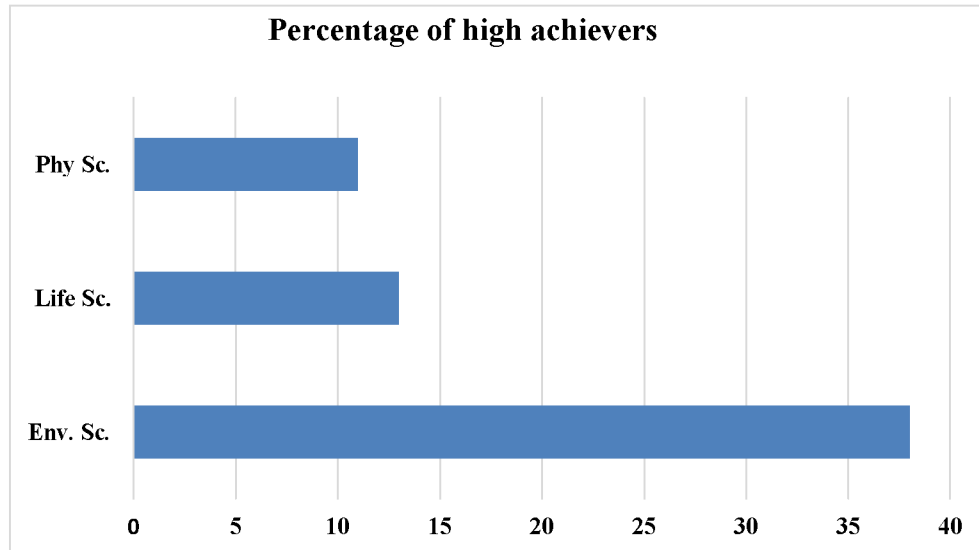
**Table: 5** – Descriptive Statistics of Achievement scores of the students, in “Environmental Science”

<b>Environmental Science</b>	
Mean	9.26
Median	10
Standard Deviation	2.638564042
Kurtosis	0.57606135
Skewness	-0.8367962

**Table: 6** - Gradation of Achievement scores of the students, in “Environmental Science”

<b>Achievement</b>	<b>Marks</b>	<b>Percentage</b>
Low Achiever	0-5	9
Moderate Achiever	5-10	53
High Achiever	10-15	38

**Table: 5** shows that the mean achievement score in the Environmental Science of the students is 9.26 (out of 15). It is also found that the Median is 10, SD is 2.64, Kurtosis is 0.58 & Skewness is -0.84, from the descriptive statistics of achievement scores in Environmental Science. **Table: 6** reveals that 38 students (out of 100 students) are high achievers in Environmental Science.



*Fig. 2: Graphical representation of high achievers of different science subjects*

From the graphical representation of high achievers of different subjects, it is observed that the decreasing order of the percentage of high achievers is- Environmental Science > Life Science > Physical Science.

**Table: 7** – Correlation coefficient at 0.05 significance level among different subjects; with degrees of freedom (df) = 98 (N-2), where Sample size (N) = 100 (no. of students)

<b>Achievements</b> (Branches of Science)	Achievement in Physical Science	Achievement in Life Science	Achievement in Environmental Science
Achievement in Physical Science	1	0.607062037	
Achievement in Life Science		1	0.407598465
Achievement in Environmental Science	0.544717504		1

### Analysis and Interpretation

The researchers took 100 samples (N) for conducting their research work.

So degrees of freedom =  $(100-2) = 98$

1. With  $df_{98}$  the calculated value of  $r$  (correlation coefficient) = 0.607 (from Table: 7) is greater than the critical value of  $r = 0.205$  at 0.05 level of significance. Hence 'r' is significant. So,  $H_01$  is rejected.

Thus, there is a significant correlation between Physical Science achievement & Life Science achievement of the students of class VIII of upper primary schools.

2. With  $df_{98}$  the calculated value of  $r$  (correlation coefficient) = 0.407 (from Table: 7) is greater than the critical value of  $r = 0.205$  at 0.05 level of significance. Hence 'r' is significant. So,  $H_02$  is rejected.

Thus, there is a significant correlation between Life Science achievement & Environmental Science achievement of the students of class VIII of upper primary schools.

3. With  $df_{98}$  the calculated value of  $r$  (correlation coefficient) = 0.544 (from Table: 7) is greater than the critical value of  $r = 0.205$  at 0.05 level of significance. Hence 'r' is significant. So,  $H_03$  is rejected.

Thus, there is a significant correlation between Environmental Science achievement & Physical Science achievement of the students of class VIII of upper primary schools.

### MAJOR FINDINGS

**Table: 8** – Findings of integration among Physical Science, Life Science & Environmental Science in the curriculum of 'Environment & Science' of the upper-primary stage under WBBSE

<b>Fate of Hypotheses</b>	<b>Statistical Test</b>	<b>Major Variable</b>	<b>Categories for comparison</b>	<b>Findings</b>
<b>H01</b> is rejected			Physical Science & Life Science	Exists significant integration
<b>H02</b> is rejected	Correlation coefficient measurement	Achievement in different science subjects	Life Science & Environmental Science	Exists significant integration
<b>H03</b> is rejected			Environmental Science & Physical Science	Exists significant integration

## **DISCUSSION**

**Cognitive Dissonance:** Through analysis of answers given by the students against the questions-set it was observed that - only 10%-15% of students can answer all the related questions (items) corresponding to these three subjects. So, a large number of students were able to answer one question of a particular subject but failed to answer the related questions set under the other two subjects. It is expected that from an integrated content if a student is able to answer a particular item of Physical science, he will also be able to do justice to other questions belonging to Life science and Environmental science.

The above trend only gives us the signal that the integration of knowledge or content in the 'Environment & Science' is only partial though the correlation among the content is significant statistically. By only integrating the content in a science curriculum we cannot always ensure the integrated knowledge among the students as found from the above pieces of evidence. The integrated

curriculum requires textbooks written among the views of integration and the teaching should be process-oriented, out of textbook activities and out of the school activities.

After getting the all quantitative findings present researchers attempted qualitative approaches to study the integration among different branches of Science in the curriculum of Environment & Science at Class VIII under WBBSE. Qualitative information was collected through the following strategies;

(a) **Content analysis:** Present researchers thoroughly analyzed the contents of the book 'Environment & Science' and found that there is enough integration among the science subjects i.e. Physical Science, Life Science & Environmental Science in most of the chapters in the mentioned curriculum.

(b) **Opinions of the Teachers (Corroboration):** It was important to discuss with the teachers also to understand their opinions regarding the integration of different branches of science in the current science curriculum of class VIII, 'Environment & Science' under WBBSE. A self-made opinionnaire was made to collect the information from them, who were taking classes on 'Environment & Science' (class VIII) under WBBSE. Taking into consideration of the teachers view the present researchers reached in these following conclusions;

i) In most of the schools, special subject teachers are taking classes on those particular separate subjects (Physical science, Life science) under 'Environment & Science' as they have no proper idea about integrated teaching.

ii) The aged teachers are not ready to accept this new integrated curriculum as they are habituated to teach in the previous manner i.e. life science teacher will teach life science and physical science teachers will teach physical science only.

iii) Of course, this new integrated curriculum of WBBSE is unique but not like the curriculum under CBSE or ICSE Board.

iv) Through the analysis of the teachers' opinions, it was found that the existing curriculum is integrated but not like the integrated curriculum of CBSE or ICSE. According to the teachers' view it was found that there are few chapters in the curriculum of 'Environment & Science' in class VIII under WBBSE, where proper integration does not exist. So curriculum evaluation and revision is essential & there must be a thorough investigation as to the integration effected in the textbooks and teaching-learning of science, in no time.

We have to prepare the teachers first to teach the learners in an integrated way. For this, teachers' training institutes have a vital role. Refreshers course, orientation course for the in-service teachers is also necessary. If teachers' views are changed towards this integrated curriculum, then only the implementation of this integrated curriculum will be easy.

Sood, K.J. (1989) in his "New directions in Science teaching" mentioned -

'The role of the Teacher is of great importance to implement the integrated science course. Integrated science teachers need not only the knowledge of the subjects but also attitudes to teach in an integrated manner and for establishing a high level of coordination and interaction among subject areas.'

### **Limitations of the Study**

The limitations of the study include

- (1) Girls could not be included in the study.
- (2) The study could be distributed over different categorical variables - sex-wise, cast-wise, and habitat-wise. But the shortage of time was the barrier.
- (3) This extensive study sample should have been larger.
- (4) The principle of randomization could not be freely used in the study.
- (5) As this study is state-based (WB), no study except some reports was available.
- (6) Books on the Nuffield series (UK curriculum of the decade of sixty, 20th century) an important document in the integration of science were not available.

### **Suggestions for further Research**

- i) The study may be conducted with increased sample size.
- ii) The study may be conducted with other classes of upper primary level under WBBSE.
- iii) The study may be conducted with Bengali, English and Hindi medium schools in West Bengal under WBBSE.
- iv) The study may be conducted with all types of schools like the schools under WBBSE, WBBME, CBSE, ICSE and all kinds of Missionary schools in West Bengal.



- v) The study may be conducted on the topic 'How much integration is essential in the upper primary curriculum?'
- vi) The study may be conducted on the topic 'Is integrated study essential at the secondary level also?'
- vii) The study may be focused on further research at the national level also.

## CONCLUSION

As there is a significant correlation among the three subjects i.e. Physical Science, Life Science & Environmental Science; it can be concluded, prima facie, that 'Paribesh O Bignan' of the upper primary stage in WB involves integration. It is also found that the students have higher achievement in Environmental Science in comparison to Physical Science and Life Science. These findings also tell us to prepare the teachers first to teach the learners in an integrated way in their classroom. Secondly, the Teachers Training Institutes have to play an active role to introduce short term training programme and orientation courses for the in-service school teachers. If teachers view is changed towards this integrated curriculum, then the implementation of this integrated curriculum will be more easy and effective for our school students.

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**IMPACT OF MATHEMATICS ANXIETY ON SECONDARY SCHOOL  
STUDENTS' ACADEMIC ACHIEVEMENT**

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**ABSTRACT**

Mathematics knowledge is necessary for secondary school students. Mathematics anxiety is a feeling of tension or fear that affects the performance of students in mathematics. The present investigation has been conducted to study Mathematics anxiety with respect to gender, locality and its relationship with academic achievement. The study employed descriptive survey method. The sample size is 105 secondary school students from Bankura district in West Bengal. The instrument (Effect of Mathematics Anxiety on Academic Performance Scale) used to measure the differences has been developed by the investigators. The data has been analyzed by using 't'-test and Pearson correlation. Analysis of the 't'-test results for gender show that there is no significant differences of anxiety towards mathematics between boys and girls students and 't'-test results for locality show that there is no significant differences of anxiety towards mathematics between rural and urban area students. Though the correlation test shows a significant and positive relationship between student's mathematics achievement and their academic achievement with correlation value  $r=0.001$ , it indicates almost no effect of mathematics anxiety on their academic achievement.

**Keywords :** Math anxiety, Academic achievement, Pearson correlation, gender, locality

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**INTRODUCTION**

Geometry teaches logical thinking and natural design, algebra gives the idea of functional dependence and generalization, arithmetic is the language of commercial activity. All these combine to produce vary valuable literature of interpretation, progress and control. Mathematics is based on understanding science, engineering, technology and economics. It is essential for participation in the knowledge economy and in public decision making. Mathematics as an expression of the human mind reflects the active will, the desire for aesthetic perfection and the contemplative reason. Its basic elements

are logic and institution, analysis and construction, generality and individuality (Courant & Robbins, 1996, p. 1). Mathematics is a language by which we can carefully defined terms and symbols. It is considered as a tool used by everyone in the course of daily life (Reys, Suyadam & Lindquist, 1995, p.2). Thus mathematical knowledge contributes to enhancing the workforce, insights and skills in a variety of situations and contexts. Long ago mathematics is considered a difficult subject. One of the attributed reasons for it is anxiety. Mathematics anxiety is distinct from general anxiety. Yee (1987) in his study founded that mathematics anxiety seems to act as a facilitator in their mathematics performance. Mohamed & Tarnizi (2010) in their study mentioned that students' performances are impacted with mathematics anxiety. It describes the states of mind developed through personal experience and individual emotional responses to these experiences. It may lead to poor achievement and avoidance of mathematics.

On the other hand, mathematical thinking is important for every individual of modern society as a habit of mind for its use in the workplace, for personal decision making and business and finance. So mathematics knowledge is necessary for secondary school students; it is very useful for higher education. Mathematics anxiety is one of the psychological barriers. Students encounter that when they are performing a mathematics task. It can negatively impact an individual's initial learning of mathematics. Kumar (2014) in his study examined the psychological stress in relation to achievement among the students. He founded that low stressed students get higher achievement than high stressed students. Math anxiety is described as "feelings of tension and anxiety that interfere with the manipulation of mathematical problems in a wide variety of ordinary life and academic situations". This indifference towards the subject is a serious problem for any school administration (Richardson and Suinn, 1972, as cited in Sherman & Wither (2003). Generally, mathematics anxiety means- it is a fear of mathematics. Furthermore that it is a negative emotion that interferes with the solving of mathematical problems and disliking mathematics leads to students avoid taking mathematics classes and avoid situations in which mathematics will be necessary. Math anxiety is an intense emotional feeling of anxiety that people who suffer from math anxiety feel that they are incapable of doing activities and mathematics in classes. Mathematics anxiety has consistently been proven to be debilitating on mathematics achievement (Foong, 1987; Hembree, 1990; Ma, 1999; Preston, 2008, as cited in Ng, 2012). Research has found it to be a learned behavior, often arising early in one's educational experience and once it lays roots, its damaging effects will last through the school years. Good (1959) defined achievement in mathematics as "knowledge attained or skills developed in the school subjects usually test scores or by marks assigned by teachers". According to Kulkarni (1970), "Mathematical achievement refers to the understanding of mathematical concepts, application of knowledge to new situations and logical reasoning as involved in interpretation of

data, interpretation of missing link, etc.” (as cited in Kundu & Kar, 2018). Mathematics achievement refers to not only to obtain excellent marks in the final examination but it also refers to the attainment of the mathematical ability and skills. Mathematics achievement is an essential part of the academic achievement in modern society. Traditionally it is believed that girls are weaker in math than boys. Şahin (2008) & Abbasi, Samadzadeh, & Shahbazzadegan (2012) in their study mentioned that no significant difference exists in math achievement with respect to gender. Students’ fear of mathematics and their study habits affects their self-confidence in the subject. Low attitude towards the subject could considerably reduce a student’s willingness to persist with a problem and this may hinder the development of good study habits. As a result of the fear and low attitude towards mathematics, secondary school students may also lose interest in the subject and think not to continue it at a higher level. This indifference towards the subject is a serious problem for any secondary school student and school administration. A limited number of research works mentioned the performance of mathematics due to math anxiety but no investigation till now found whether math anxiety differs with respect to locality and also the correlation between mathematics anxiety and academic achievements. The present investigators conducted this study with the following objectives.

### **Objectives**

O<sub>1</sub>: To find out the effect of mathematics anxiety on the academic performance of secondary school students with respect to gender.

O<sub>2</sub>: To study the effect of mathematics anxiety on the academic performance of secondary school students with respect to a locality.

O<sub>3</sub>: To assess the level of academic performance of secondary school students.

O<sub>4</sub>: To explore the relationship between mathematics anxiety and academic performance of secondary school students.

### **Hypotheses and Research question:**

For Objective 1, one hypothesis is framed;

H<sub>0</sub>1: There is no significant difference in the effect of mathematics anxiety on the academic performance of secondary school students with respect to gender.

For Objective 2, one hypothesis is framed;

H<sub>0</sub>2: There is no significant difference in the effect of mathematics anxiety on academic performance of secondary school students with respect to a locality.

For Objective 3, one research question is framed;

RQ<sub>1</sub>: What is the level of academic performance of secondary school students.

For Objective 4, one hypothesis is framed;

$H_0$ 4: There is no significant relationship between mathematics anxiety and academic performance of secondary school students.

### Method

The present study is quantitative in nature. Descriptive survey design has been employed for conducting this study. The investigators measure the anxiety in mathematics and the academic achievement of secondary school students.

### Population

Bankura district is situated in the western part of West Bengal. In this district, there are three subdivisions. Among them, the Bishnupur sub-division is selected randomly. Among the blocks of the Bishnupur sub-division Kotalpur block is selected randomly as the population of the study.

### Sample

105 secondary school students from different schools are taken as sample for this study. Two (02) schools from rural areas (Panchayet area) and two (02) schools from an urban area (Block area) are selected from Kotalpur block randomly. According to the requirement of the study, the present researchers have been used the following standardized tool. This tool has been developed by the investigators. With the help of the tool viz.,

- Effect of Mathematics Anxiety on Academic Performance Scale (EMAAPS)

data are collected from each school. Among them, 50.48 % of students are in the urban area and 49.52 % of students were in the rural area. Male and female students' percentages are accordingly 50.48 % and 49.52 %.

### Result

For  $H_0$ 1:

**Table 1: Group statistics of the effect of mathematics anxiety on academic performance of secondary school students with respect to gender**

Gender	N	Mean	Std. Deviation	Std. Error Mean
Female	52	80.48	7.54	1.05
Male	53	78.32	7.82	1.07

Table 1 shows that the mean score of girls' mathematics anxiety on academic performance ( $M=80.48$ ,  $S.D.=7.54$ ) is higher than the mean score of boys' mathematics anxiety on academic

performance (M= 78.32, S.D.= 7.82) in the secondary section. Parental educational thought, school environment, etc. may be the reason. Girls' attitude towards science group grows since their childhood.

**Table 2: Independent Samples 't'-test of mathematics anxiety on academic performance of secondary school students with respect to gender**

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig. (p)	T	df	Sig. (2-tailed) (p)	Mean Difference
mathematics anxiety on academic performance	Equal variances assumed	0.35	0.56	1.44	103	0.15	2.16
	Equal variances not assumed			1.44	102.97	0.15	2.16

From table 2, it is observed that in case of Levene's Test for Equality of Variances for mathematics anxiety on academic performance of secondary school students with respect to gender calculated F value is 0.35 and p value is 0.56 ( $p > 0.05$ ). Hence, equal variances can be assumed between the groups. For testing the significance of difference between the mean score of male and female, the calculated  $t_{(103)} = 1.44$  and  $p = 0.15$  ( $p > 0.05$ ). Therefore 't' is not significant at 0.05 level of significance. Hence,  $H_0$  is not rejected. Thus it can be concluded that there is no significant difference in mathematics anxiety on the academic performance of secondary school students with respect to gender.

For  $H_0$ 2:

**Table 3: Group statistics of effect of mathematics anxiety on academic performance of secondary school students with respect to locality**

Locality	N	Mean	Std. Deviation	Std. Error Mean
Rural	52	78.79	8.36	1.16
Urban	53	79.98	7.07	0.97

Table 3 shows that mean score of rural area students' mathematics anxiety on academic performance (M=78.79, S.D.= 8.36) are lower than the mean score of urban area students' mathematics anxiety on academic performance (M= 79.98, S.D.= 7.07) in the secondary section. Due to the school environment and also societal context rural area students fall behind urban area students.



Table 4: Independent Samples 't'-test of mathematics anxiety on academic performance of secondary school students with respect to locality

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig. (p)	t	df	Sig. (2-tailed) (p)	Mean Difference
mathematics anxiety on academic performance	Equal variances assumed	1.63	0.20	0.79	103	0.43	1.19
	Equal variances not assumed			0.79	99.59	0.43	1.19

From table 4, it is observed that in the case of Levene's Test for Equality of Variances for mathematics anxiety on academic performance of secondary school students with respect to locality calculated F value is 1.63 and p value is 0.20 ( $p > 0.05$ ). Hence, equal variances can be assumed between the groups. For testing the significance of the difference between the mean score of rural and urban area students, the calculated  $t_{(103)} = 0.79$  and  $p = 0.43$  ( $p > 0.05$ ). Therefore 't' is not significant at 0.05 level of significance. Hence,  $H_0$ 2 is not rejected. Thus it can be concluded that there is no significant difference in mathematics anxiety on the academic performance of secondary school students with respect to the locality.

For  $H_0$ 3:

Table 5: Group statistics of academic performance of secondary school students

	Mean	Std. Deviation	N
Total	79.39	7.722	105
% of marks	63.33	11.026	105

Table 5 shows that mean of academic performance ( $M=63.33$ ,  $S.D.=11.03$ ) of secondary school students is not excellent. But mean is above 60% which indicates that they are interested to access education irrespective of mathematics anxiety. It indicates that the level of academic performance of secondary school students are good.

For  $H_0$  4:

**Table 6: Correlation matrix between mathematics anxiety and academic performance of secondary school students**

	Mathematics anxiety	% of marks in final examination
Mathematics anxiety	1	0.001
% of marks in final examination	0.001	1

From table 6 it is clear that coefficient of correlation,  $r = 0.001$ . It indicates that there exist positive correlation but the value is too small. Thus it can be concluded that there is no significant relationship between mathematics anxiety and academic performance of secondary school students.

### Discussion

In the present study, major findings are based on academic performance due to the mathematics anxiety of secondary school students with respect to gender and locality and also the correlation between mathematics anxiety and academic performance.

Results revealed that no significant difference exists in academic performance due to mathematics anxiety with respect to gender and locality. Results also revealed that positive correlation exists between academic performance and mathematics anxiety, but a value of  $r$  is very low which indicates that few backward students dropped out due to low scores in the final examination. The only reason for it is not only the mathematics phobia but also lack of interest in formal education.

Yee (1987), Mohamed & Tarmizi (2010), Kumar (2014) in their study mentioned that high anxiety in mathematics creates low achievements. Lay (2012), Onwuka & Tibi (2014) in their study mentioned that teachers can eradicate the mathematics phobia with proper teaching strategy. Abbasi, Samadzadeh, & Shahbazzadegan (2013) revealed that there was not a significant relationship between the high school students' mathematics anxiety and their educational levels. Halder (2015) revealed that there was a negative significant correlation between mathematics anxiety and socio-economic status with respect to their gender and locality. No viable studies were done on academic performance due to mathematics anxiety but results showed that mathematics performance depends upon mathematics anxiety. Thus the previous studies corroborate the findings of the present study that mathematics anxiety has little bit impact on students' academic achievements. Who are basically backwards, their academic performance deteriorates due to lack of interest in education not only in mathematics. On the other hand, students who scored a comparatively lower percentage in mathematics tend to choose arts stream in the higher secondary section. So mathematics anxiety is not the barrier to success of secondary students. Appropriate teaching strategy, motivation, parental positive thought, etc. may recover this type of anxiety.

## Conclusion

Mathematics provides an effective way of building mental discipline and enhances logical thinking capacity and mental rigor. In addition to this mathematical knowledge plays a vital role in understanding the contents of other school subjects such as science, social studies, and even music, art etc. Academic achievement in students is influenced by several psychological factors. Math anxiety is a problem that can affect children's academic achievement and future employment prospects. Results reveal that gender-related factors and locality related factors do not influence mathematics anxiety. This study also shows that there exists a positive correlation between academic achievement and mathematics anxiety of secondary school students. But the poor value of correlation coefficient signifies that due to anxiety in mathematics few students score comparatively poor marks in mathematics but their attitude towards education does not hamper. From the secondary section they ambitious to continue their higher education in arts or commerce stream. In the case of a certain number of students, mathematics may be a tough subject so that they try to avoid it. But this avoidance due to anxiety of it may be eradicated for their future life. Teachers, parents may play a crucial role to reduce it. They should attempt to understand mathematics anxiety and implement teaching and learning strategies so that secondary students can overcome their anxiety. Removal of mathematics anxiety doesn't mean to score high marks in mathematics but to love mathematics. Thus, this study has implications for teachers, schools and parents. They should encourage them with a vested interest in the success to take into account math anxiety levels before determining effective and appropriate strategies when teaching and learning is carried out. It is hoped that the level of mathematics anxiety can be reduced in this way.

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**RELIGIOUS BELIEFS AND PRACTICES AMONG THE KORA TRIBES OF WEST BENGAL: AN ETHNOGRAPHIC STUDY**

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**ABSTRACT:**

Animism is a common phenomenon among the tribes. Therefore, the religious beliefs and its performances among the tribes consist of their life cycle rites, communal rites and worship practices along with their ancestral worship practices followed by their different totem and taboos. The tribes in India have been influenced by certain traditions of the communities around them. Major neighboring community in all the areas has always been Hindus. As a result from the very period there have been several points of contact between the Hindus of the area and tribal communities living within it. The nature and extent of contact the pattern of mutual participation and characteristics of revitalization movements have been different in different parts of India. In this paper, an attempt has been made to discuss the religious beliefs and practices among the Kora tribes in West Bengal.

**Key words:** Kora tribes, Religious beliefs and practices, West Bengal

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**1. INTRODUCTION:**

The religious beliefs and practices evolved as the innate intuition of regulation against the adverse environmental conditions prevails and every corner of the habitat. Usually the ecological factors and happening beyond the controlling capacity of mankind and thought (Singh, 1986). Animism is a

common phenomenon among the tribes. Therefore, the religious beliefs and its performances among the tribes consist of their life cycle rites, communal rites, and worship practices along with their ancestral worship practices followed by their different totem and taboos. Tribal people's beliefs in Gods and Goddess, witchcraft, magic and disaster is attributed to annoyance and malevolent acts of the mystic forces, malicious spirits. Although, anthropological approaches of tribal religion and appreciation of understanding it through the customs and beliefs and practices in natural objectives associated with the social parts of culture and society. The form of religious practices by the tribal people in India was regarded as 'Animism' until the middle of the century.

According to the constitution of India (Scheduled Tribes orders) second amendment Bill; 2011 – "Tribal follow some specific criterion like having primitive traits, distributive culture geographical isolation, shyness at contact with the community at large and backwardness. In general usage, the word "tribe" is taken to denote a primary aggregate of peoples living in a primitive or barbarous condition under a headman or chief.

Recent research in cultural and structural anthropology has consequently abandoned the holistic search for origins and has applied the comparative method to the functional analysis of Tribal. When tribal men move out of their native society to join, however peripherally, a larger multitribal or plural society, the tribal identity that they carry with them is that of their tribal society as a whole, irrespective of whether or not it originally represented a single political unit. An interesting example is provided by the Luapula kingdom of Kazembe in central Africa studied by Cunnison (1960). Anthropologists have differed on the question relating to tribe and caste. According to Ghurye tribal people are backward Hindus differing only in degrees from the other segments of Hindu society. Elwin argued for the recognition of the separate social and cultural identity of tribal people. The government of India gives tacit recognition to this identity of keeping alive under the constitution sanction their lists of Scheduled Tribe. According to Andre Beteille, there are certain commonly observed differences between tribes and castes. The tribes are relatively isolated as to the castes. They are a world within itself having few externalities. Tribes speak a variety of dialects that separates them from non-tribes. They follow their own religion and practices which are not common in Hinduism. Language is a criterion of difference as tribes speak their local dialect-for example Mundas and Oraons of Chota Nagpur speak different dialects but Bhumij has lost their tribal dialect and speaks the dominant language of the area. According to N.K Bose, there are many similarities in customs between tribes and castes and they are interdependent. Marriage within the clan is forbidden both in the tribe as well as in the caste. Both generally don't encourage marriage

outside the group. According to Herbert Risley, the convention of endogamy is not rigidly enforced in the tribe whereas such is the case in a caste. But this view is not acceptable since the law of endogamy is enforced with extreme rigidity in some tribes. Max Weber writes in *Social Structure* that when an Indian tribe loses its territorial significance it assumes the form of an Indian caste. In this way, a tribe is a local group whereas caste is a social group. According to D.N.Majumdar, the tribe looks upon Hindu ritualism as foreign and extra-religious even though indulging in it and the in the worship of God and Goddess whereas in the caste these are a necessary part of the religion. In caste individuals generally pursue their own definite occupations because functions are divided under the caste system. In the tribe, individuals can indulge in whatever profession they prefer as there is no fixed relation between them and occupation. According to Bailey tribe and caste should be viewed as a continuum. He seeks to make a distinction not in terms of the totality of behavior but in a more limited way to the political-economic system. Briefly, Bailey argues that a caste society is hierarchical while a tribal society is segmentary and egalitarian. But in contemporary India, both caste and tribe are being merged into a different system which is neither one nor the other.

The tribes in India have been influenced by certain traditions of the communities around them. The major neighboring community in all the areas has always been Hindus. As a result of the very period, there have been several points of contact between the Hindus of the area and tribal communities living within it. The nature and extent of contact the pattern of mutual participation and characteristics of revitalization movements have been different in different parts of India.

The ethnographic records establish that the contacts varied from semi-isolation to complete assimilation. The numerous castes among Hindus have emerged out of the tribal stratum. The recent studies of tribes of Himalayan western and middle India have left no doubt that some of the tribes are Hinduized to the extent that they have been assimilated with the different castes at different levels in the caste system.

As per the Indian constitution order (1950), the KORA community had placed of the twentieth number in West Bengal scheduled tribes' list. Kora is a small tribal community in eastern India i.e. in West Bengal. Kora has their habitats all over the West Bengal especially in Paschim Midnapur, Bankura, Purulia, Birbhum, Paschim Burdhaman, and Hoogly. Besides West Bengal kora tribes are also located in the Indian state of Bihar and Jharkhand. The kora also known as 'Khora' or 'Cora' was are at the can indigenous tribes at the great Andaman's people, originally living on the eastern part at north, Andaman Island (George Weber, 2009). As per the 2001 census

Report, total population at Kora community was 142,789, which was 3.2 percentages at the total scheduled tribes' population in West Bengal.

The word 'KORA' has got a significant meaning. It signifies earth digging. So it becomes quite obvious that the profession that this kora is related to cultivation. "The caste, kora believes tank digging, road making and earthwork generally to be their characteristics. Profession and it may be surmised that their adoption of a comparatively degraded occupations, necessarily involving a more or less wondering Manner of life may be the cause which led to their separation from the Mundas, who are above all things settled agriculturists, conspicuous for their attachment to their original villages" (Risley: 1891, 506-507). In this paper, an attempt has been made to discuss the religious beliefs and practices among the Kora tribes in West Bengal.

### **1.1. OBJECTIVES OF THE STUDY**

The objectives of this study are given below:

- § To know the religious beliefs and practices among the Kora tribal population in West Bengal.
- § To enquire about the effect of Hinduism on their traditional religious beliefs, rituals and practices.

### **2. METHODOLOGY OF THE STUDY**

The study was conducted among the Kora tribes, residing in different districts namely, Bankura, Puruliya, and PaschimMedinipur of West Bengal by adopting the ethnographic methodology. We have taken an in-depth interview of Kora peoples who belong to different age groups and sex from the above-stated districts of West Bengal on the basis of the objectives of this study by adopting purposive sampling method.

### **3. FINDINGS AND DISCUSSIONS**

At first we cited some statements of Kora people on their religious beliefs and practices at present days evolved from the in-depth interview with them during our field study.



**Interview 01** Debnath Kora (name changed due to protect his privacy), age about 75 years old, residing at Mohan Gara village of Bankura district told us that at present Kora people has been enjoying *kali puja* and *mansa puja* which are also known as Hindu deities. The new generation of kora people are attending marriage ceremonies or other religious festivals of Hindu community but it is not too much. They are also inviting other caste people in their programs. He also said to us that the myth of the Ramayana and Mahabharata in the Hindu religion has been accepted by their community people. They have also worshipped their traditional God and Goddess like *Garam-thakur*, *Bonga-buru*, *Vogoban*, etc. by their priests.

**Interview 02:** Sunaram Mudi (name changed due to protect his privacy), age about 46 years old, residing at Chakdoba village of Purulia district told us that presently they have been enjoying Hindus' *kali puja* and *Durga puja* along with their traditional religious festivals. They have been using Casio with their traditional instrument. Some influenced people from their community had got married to some higher caste women but they did not live their own village. Some Kora people have been living in an urban area but they are not involving actively in their traditional festival.

**Interview 03:** Nalini Kora (name changed due to protect her privacy), age about 48 years old, residing at Bamandangavillage of Paschim Medinipur district told us that Kora traditional culture has been present here but it has been more affected by Hindus' culture. They have using band party their marriage ceremony and inviting others caste. They have adopted some rituals from Hindus like *Pindda-dan*, *Sad-vokkhan*, etc. Kora peoples have also knowing the story of Ramayana and Mahabharata.

**Interview 04:** SagenMudi (name changed due to protect his privacy), age about 35 years old, residing at Nipania village of Purulia district told us that Kora community give place to the services of Brahmin priests and Vaishnava Guru. In this village also interesting to note that the impact of Sadhus on the life of the Kora has already crept in. After taking sacred initiation (*diksha*) from the Vaishnava religious preceptor, a fraction of the Kora community has started a holy life by refraining themselves from killing of animals and by keeping themselves aloof from all earthly affairs. They sing *nam-gan* of Lord *Hari* to get mukti (liberation) from the earthly sufferings. He also told us that, according to the advice of the *guru*, they practice

the art of withholding the discharge of semen at the time of sexual intercourse. This ritual is connected in Hinduism.

### **Traditional Religious Beliefs and Practices Performed by the Koras:**

Now we discussed about their traditional religious god and goddess along with their beliefs and practices:

***Bakken Kali Bonga:*** One of the most important deities of the Koras is *Aakken Kali*. It also regarded as the deity of the village, *gram-debota*. The Koras of West Bengal are believed to be originated from the Modis of Chhotonagpur. *Aakken Kali* is originally the supreme deity of the Modi and now it is a popular festival of them. *Aakken Kali* is worshipped on the first day of Bengali month *Magh*. At first the worship is performed outside the village beneath a *pakur* tree where a mud-built square-shaped platform is prepared. Before worship, the platform is mopped with cow dung solution. This ritual is performed by the priests of their, popularly known as *Degharia*. He uses sacred thread like Hindu Brahmin only during the worship. The Kora males and females observed fast from the morning till the end of the puja. Few pieces of Mango leaf, leaf of neem (*Azadirachta indica*) tree, flowers, incense sticks, dhuno (resin) are used for the worship. They offer different types of fruits like banana, lemons, white potatoes, *atapchal* (sunned rice), flattened rice, sweets, and cow milk also. Generally, two Brahmins are selected to perform the puja. At first, they assemble the fruits on the brass dish and fetch some water in an earthen pot from the river and keep it just in front of the platform. They keep *atapchal* on the earthen pot and some sweets (*batasa*) are kept on it. When the sweets fell down from the *atapchal* they think that their puja is successful and the spirit is pleased with them. Then goat, fowl or duck are sacrificed at a little distant from the sacred platform. The whole village shares the expenditure equally. It is interestingly noted here that the neighboring Hindu people are also participating in their puja actively. They make different types of offerings with due respect. Not only that they also give animals for sacrifice like he-goat, duck, cock, very often they promise the deity to sacrifice for having a son, for a good crop or for passing the examination. After the end of the puja, they distribute the fruits and flattened rice among the villagers and then return back. *Haria* (one kind of country liquor is made by fermentation of rice) is being prepared by some villagers. The meat of the sacrificed animals is cooked than by the females but they are strictly prohibited to eat the head of the animals. After drinking *Haria* with meat they start their traditional group dancing and singing since the stock of *haria* is over.

**Henda-a-Giddhi:** Generally the *Henda-a Gidi* is worshipped in every family twice in a year, one on the last date of *Jaistha* and other on the last date of *Agrahayana* of the Bengali month. Every family worships in their own family. The host family invites a male member as a priest from any clan group other than of his own. It has no image or idol. On the day of worship the elder male and female member of the family fast until the puja is over. At first the place of worship is smeared with cow dung solution. Then they draw six squares by sunned rice powder. The squares are filled up with cow dung, few pieces of small grain coals and burnt mud. The black fowl is sacrificed and drop few blood into the squares. They do not utter any mantras but repeatedly remember their fore fathers name. After the end of the puja they cook the meat of the sacrificed fowl mixed with rice and take it as Prasad. The head of the fowl is burnt separately and only the male members can take it. After eating *Prasad*, all the villagers assemble at a common place where country liquor is ready to serve. Then all day long they drink, sing and dance in groups with their musical instruments like *madal*, *flute*, *aktara*, etc.

**Bonga-Buru:** Worship of *Bonga-Buru*, 'the spirit of hill' is one of the most important festivals among the Kora tribe of West Bengal, generally performed on the last day of Bengali month of *Chitra* i.e. the day of *Chaitra Sankranti*. It is also known as *Hompuja*. As they believe that one day their ancestors lived in the hilly area of Chhotonagpur, so they pay respect to their homeland and hope that if the spirit is pleased they will be happy, prosperous, and secured in life and the production of crops will be maximized. At first, the spirit is worshipped in a place far away from the village boundary. The place is mopped with a cow dung solution. The priest takes a thread (*AloSuto* – the thread of light) dipped into the mixture of oil and turmeric and put on across his body. He draws two figures; one of the sun and other of the moon. Now three cakes are offered to the sun and three to the moon. These cakes are made by the housewives with sunned rice and mustard oil. Two cocks are fed sunned rice and then sacrificed to the sun and the moon. Its meat is distributed among each and every member of the village present there. After this, a glass of *Haria* is poured on the mopped place in the name of the spirit *Buru*. Now the place is rubbed with water only. A big stone with some thorns is placed there so that dog or any other animal cannot step on the place. *Bonga Buru* is also worshipped either inside the house or under the cowshed to keep the cattle in good health. At first, the cowsheds are cleaned with brooms and then mopped with cow dung solution. Some twigs of *Pakur* (banyan) are

daubed with oil and turmeric solutions are kept on the mopped place in three vertical rows. In each row, four leaves are placed. The cakes which they have prepared with sunned rice and mustard oil, are broken each one into three pieces and placed on each leaf. Now a big plate with full of rice is kept before these leaves by the eldest member of the family. The rice is fed to a red cock (*katari*). After feeding a little the worshipper sacrificed the cock with a blow on the plate in such a manner that the blood of the bird drenches the rice. The blood-soaked rice now becomes Prasad. It is cooked and distributed among the members of the family. After taking the Prasad, every family member washed his/her hands with water and then takes mustard oil to apply over his/her face. It is specifically mentioned here that after the worship of *Bonga-Buru* the Koras are sanctioned to start the preparation of their cultivable lands.

**Soso-Giddi:** Basically this is a worship of the Koras ancestral spirits. Interestingly, they use the term *Satyamarayan*, one of the most familiar god, worshiped by the Hindus very synonymously. Generally, the worship is performed just before sowing seeds in the Bengali month of *Jaistha* and also before harvesting in the month of *Agrahayan*. They also organize the worship personally after marriage ceremony, or after first rice eating ceremony (*anyaprasan*). The priest is employed from any other clan group besides of his own. *Soso-giddi* puja acts like a bridge between their faiths towards the orthodox Hindu religion and their traditional belief system. The Kora religion originated from the Munda religion and during this worship presence of the Munda people is must. When they could not find the Munda, they select the Munda from their own Kora society. After the end of the puja they should give *Haria* to the Munda and the priest. On the day of the worship some adult male members take bath in the river and then enter into a room and close the door. Then the priest asks them about their identity. They reply that they came there for some work and tell their surname as 'Modi'. Then they are allowed to participate in the worship. Their conversation should be in the Munda language. In this way, Koras convert themselves to a Munda. When *soso-giddi* is worshipped before sowing seed they also try to please all the spirits of animals connected with the paddy field. Not only that the spirit of the sun and the moon are also venerated to give proper protection.

**Sona Giddi and Rupo Giddi:** *SonaGiddi*, the spirit of gold and the *RupoGiddi*, the spirit of silver are worshipped at the same time as a symbol of wealth. The puja is performed at

a place inside the boundary of the village. The place is cleaned and mopped with cow dung solution. With the help of the Mundas, the priest draws a big rectangular room which is separated by a middle line keeping a broad opening for the spirit to move inside the rooms without any obstruction. *Sona Giddi* and *Rupo Giddi* are placed together in the right part of the rectangular figure with a belief to get extra protection for the paddy crop. On the left side of the figure, the sun is drawn which symbolizes as a controller of both day and night. The moon is drawn outside the room as it is less powerful than the sun as it controls the night only. The priest keeps two cakes of sunned rice one in each compartments indicating the presence of two spirits there. Now small circles are drawn both on the right and the left side of this room. Three circles are on the left whereas five are on the right. The three circles represent the Crow, Cuckoo and the Drongo from bottom to top respectively and the five circles represent the fox, jackal, dog and centipede in the same order. A palm is also drawn below the room where after praising each animal a pinch of sunned dried rice is put. The worship starts with the praising of the Drongo because it causes awake the people from bed by making the whistling sound. Next, the cuckoo, as it gives alarm that the dawn is at the door. This follows the worship of the crow because it cries to show the morning – the right time to go to the field. The animals, here are praise to make quiet so that they won't harm the people in the field. These are the fox, jackal, dog, scorpion and centipede. The dog has a better position because it also watches in the fields. Now the sun and the moon are praised requesting to control the weather in such a way that the farmers do not have to face many hazards in agriculture. The priest continuously praises the sun requesting not to cause drought so that they enjoy a nice shower during the rainy season. At the same time, the sun is believed to control the flood with the help of the moon. In the end, *Sona-giddi* and the *Rupo-giddi* are remembered as they are believed to give additional protection to the Kora in coordination with the sun and the moon respectively. They believe as the *Sona*, i.e. the gold, is yellow in color, it has a close association with the sun and since the color of the *Rupo*, i.e. the silver is white, it is closely associated with the moon. They pray deeply for a rich production. This follows the presentation of a small mound of rising on the figure of palm and offers a cock to the giddi. After the ritual is over, the items offered are taken as Prasad i.e. the sunned rice kept on the palm. The cooked meat of the sacrificed cock is now distributed among the villagers. They believe it provide them strength to be laborious agriculturists. The worship of *soso-giddi* when performed before sowing seeds is followed

by *muth puja*, propitiation of corn spirit. Before scattering the seeds, a handful of paddy is brought in contact with the agricultural fields and ceremonially back home by the cultivator. The sacred grains being placed on a winnowing fan are worshiped at home by the senior male members of the family by the application of vermilion and the offering of fruits and sweets. No one dare to start sowing operation without performing this ritual. Before harvesting, another ritual known as “*janthal*” is observed by way of giving thanks to the corn spirit for a good harvest. On that occasion fowls are sacrificed on paddy fields. Another item being dedicated to the deity is the new paddy crop.

#### 4. CONCLUSION

From our discussion in this paper, we can safely state that the Kora tribe of West Bengal satisfy to certain extent the fourth proposition of Risley. They aspire for a higher and secure status in the regional Hindu caste hierarchy. They have taken up certain ‘*sanskritic*’ rituals as well as participate actively in the worship of the Hindu deities. A recent trend can also be marked that the literate section among this community people finds it more convenient to leave the bulk of their Kora brethren behind and to aspire for appreciation as Hindus. Though, side by side a large section of Kora tribes retain independent religious rites yet, which are quite free from Hindu influence.

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The longest night seems to be passing away, the sorest trouble seems to be coming to an end at last, the seeming coupes appears to be awakening, and a voice is coming to us, - like a breeze from the Himalayas, it is bringing life into the almost dead bones and muscles, the lethargy is passing away, and only the blind cannot see, or the perverted will not see, that she is awakening, this motherland of ours, from her deep long sleep.

– Swami Vivekananda

# **ANWESA**

## **A Journal of Education**

**VOLUME –12, August 2020**

**ISSN – 0973 – 5895**



### **Emblem of the Ramakrishna Mission**

The wavy waters in the picture are symbolic of karma; and lotus, of Bhakti; and the rising-sun, of Jnana. The encircling serpent is indicative of Yoga and the awakened Kundalini Shakti, while the swan in the picture stands for the Paramatman (Supreme Self). Therefore the idea of the picture is that by the union of Karma, Jnana, Bhakti and Yoga, the vision of the Paramatman is obtained.

**– Swami Vivekananda**