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Rethinking Pedagogy: A Scope for Sustainable Education

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ABSTRACT

In the 21st century, as education is encountering various new circumstances that is making knowledge a pillar of the wealth and power of nations, transforming at an alarming pace, the need of the hour is rethinking pedagogy at the secondary and higher-secondary school level since in the context of globalization, education in India should emphasize the importance of proactive and creative strategies improving scope for sustainable education.

Hence, the main objective of the study is to critically understand and analyse the pedagogical methods and approaches and the existing curriculum pattern prevalent in secondary and higher-secondary level schools within Kolkata Metropolitan Area.

It is a descriptive mixed method study where quantitative data has been substantiated with qualitative data, providing a comprehensive in-depth insight on the education system in India through the perspectives of 100 school students (50 from National Education Board and 50 from State Education Board) of class 9, 10, 11, 12.

The study focuses on the pedagogy, curriculum and evaluation pattern of secondary and higher-secondary level because it is the crucial stage in the hierarchy of education where students start choosing subject streams to explore the world beyond the school gate and pursue a career to get established in life. In this context, it becomes necessary to understand whether the pedagogical methods and approaches implemented in schools affiliated to both State Board and National Boards are being beneficial to students or not in taking career decisions in their life to enhance the scope for sustainable education and contributing to the economy of the nation.

Keywords: Pedagogy, Curriculum, Secondary and Higher-secondary Education, National and State Education Boards

Introduction:

Education is a process which helps society to renew itself through transmitting 'habits of doing, thinking and feeling' (Dewey, 1966:3) by the adults to the younger generation. It implies 'the standardized and stereotyped knowledge, skills, values and attitudes by means of standardized and stereotyped procedures' (Cohen, 1971:22) shaping the minds through bringing out what is inside the individual by rearing and nourishing the child (Shanker, 1991).

The necessity of schools as a formal educational institution with planned curricula and professionals capable of communicating and transmitting this complex knowledge systems to the younger generation started to exist in modern societies (Dewey, 1966:8) helping children to move beyond the kinship networks, towards adopting more universalistic values (Cohen, 1971:39) in life. Schools with their

curriculum, modes of conduct, rules and regulations, cater to the growth of education through character building by instilling a sense of discipline (Durkheim, 1961: 152), moral qualities and values to the young minds (Shanker, 1991). Thus, the main aim of education is training the youth with specialized skills so that they can earn their living in a sustainable manner by getting involved in some profession (Shanker, 1991).

Rationale of the Study:

Education is considered as a fundamental driving force for social progress and adapts itself to the changing new demands and circumstances with specific time and place, hence, each country possesses their own education system consisting of contents and practices based on their laws and economic scenario, as economic progress, wealth and well-being of the nation automatically improves the educational standards (Shanker, 1991).

In India, the implementation of the Right to Education (RTE) Act 2009 and other policies like Rashtriya Avishkar Abhiyan 2015 and Samagra Shiksha Abhiyan (combination of Sarva Shiksha Abhiyan and Rashtriya Madhyamik Shiksha Abhiyan) 2018 have created massive development in school education system in every State including West Bengal. As more students are completing their formal education, the struggle to enter the job market is increasing day by day. This leads to government pondering about the rising gap between what the market economy is demanding and what the education sector is supplying to it. As the job market is changing with more specialized professions and designations requiring technical expertise, schools should also upgrade their infrastructure, pedagogy and curriculum (Musgrave, 1965) to prepare the students with strong academic skills, build their imagination power, curiosity level, critical thinking, empathy and resilience to adapt and survive and also knowledge about entrepreneurship so that they are able to manage their own careers and create employment for themselves in innovative ways. Hence, an effective and sustainable education system is necessary to replenish the minds of the students with relevant knowledge about future employment opportunities and scope so that they in turn can implement that knowledge in changing situations.

Objective and Methodology:

Throughout West Bengal, the three most predominant school boards under which most of the schools are affiliated are West Bengal Board of Secondary Education and West Bengal Council of Higher Secondary Education (State Board)[1], The Council of Indian School Certificate Examinations (National Board)[2] and The Central Board of Secondary Education (National Board). According to The National Council of Educational Research and Training (NCERT) and National Curriculum Framework for school education, the mission of each school board should be to bridge the gap between elementary education and higher education, creating 'universalization' of secondary and higher secondary education by making it 'available, accessible and affordable' across the nation (https://wbbse.wb.gov.in).

In this context, the main objective of my study is to explore the perceptions of secondary and higher-secondary level students studying in National and State Board schools situated within Kolkata

[1] State Board abbreviated as SB comprises of schools affiliated to West Bengal Board of Secondary Education (WBBSE) and West Bengal Council of Higher Secondary Education (WBCHSE) as recognized State school Education Boards.
[2] National Board abbreviated as NB comprises of schools affiliated to Indian School Certificate Examinations (CISCE) and Central Board of Secondary Education (CBSE), as recognized National Education Boards by the Council of Boards of School Education (COBSE).

Metropolitan Area (KMA)[3] regarding their board curriculum, examination and evaluation pattern and the pedagogy that school teachers implement in imparting knowledge in classroom teaching, as it is significant to consider and give preference to the critical opinions, suggestions and feedback of students, as the prime stakeholder of the education system, towards improving the quality and standard of the curriculum being framed.

This is a descriptive mixed-method study (Stebbins, 2001; Swedberg, 2020), where both quantitative and qualitative approach have been mixed to capitalize the strength of each method. Further a focus-group discussion was also conducted so that in-depth information can be gathered from respondents' own language, making the study more insightful.

Total 100 students (male and female) within the age-group 14-18 years (class 9,10,11,12) studying in schools located in Kolkata Metropolitan Area was considered as sample using non-probability purposive sampling technique, out of which 50 respondents were from National Board (missionary and non-missionary) and the other 50 from State Board (missionary (Bengali and English medium) and non-missionary (Bengali and English medium) schools. Based on this, a pilot study with 20 respondents (10 from NB and 10 from SB schools) was conducted to derive the specific objective after which 100 students were interviewed using a semi-structured interview schedule having close-ended as well as open-ended questions to collect data through face to face as well as telephonic during the pandemic phase with their verbal consent during November 2019 till August 2020.

With the help of Microsoft Excel, quantitative data was processed systematically through coding and table analysis. While qualitative data was derived from in-depth conversations in the form of narratives and interpreted thematically by using Microsoft Word for data transcription based on the purpose of the research.

Table 1: Area-wise Student Distribution

	Student Distribution		
KMA	**NB**	**SB**	**TOTAL**
Old Kolkata	27	14	41
New Kolkata	17	33	50
Greater Kolkata	6	3	9
TOTAL	50	50	100

Table 1 depicts the distribution of 100 respondents within Kolkata Metropolitan Area.

Table 2: Total Schools Covered within KMA

	Total No. of Schools		
KMA	**NB**	**SB**	**TOTAL**
Old Kolkata	16	9	25
New Kolkata	11	15	26
Greater Kolkata	2	3	5
Total	29	27	56

3. Kolkata Metropolitan Area (KMA) covers Old Kolkata, New Kolkata and Greater Kolkata, an urban agglomeration of the city of Kolkata in the state of West Bengal, India. (https://kmda.wb.gov.in/page/cms/introducing_kmda_011393)

Table 2 shows the total number of schools affiliated to National Boards and State Board covered within the Kolkata Metropolitan Area.

Review of Relevant Literature and Theoretical Framework:

In school education, the National Council of Educational Research and Training (NCERT) plays a significant role in forming the school curriculum and evaluation guidelines through the National Curriculum Framework which every State then, tries to adopt and frame their own syllabus, curriculum structure and resources so that schools can function effectively (NCERT, 2000). Curriculum is a selected content of a specific subject or a course (Deng, 2011), consisting of certain materials like syllabus, textbooks, or teaching guides, which is organized and transformed for social, cultural, educational, curricular and pedagogical purposes (Deng, 2009; Deng & Luke, 2008). Curriculum making (Schwab,1973), i.e., transforming certain study materials into a universal school curriculum depending on instructional policies of various school education boards, is conducted by a body or committee comprising of subject matter expert, teaching faculty, educationists and learners providing their relevant ideas, thoughts and values which are intended for curriculum development. Pedagogy refers to a systematic teaching process that enhances learning among students by implementing methods, tools and materials depending on the education level. There are different pedagogical interventions that stimulates the instructional process and the role of students and teachers: 1. Behaviourism- where teachers transmit knowledge while students passively receive it without questioning and does rote-learning during examination. 2. Constructivism- where students construct meanings to whatever they are learning by making their minds active. There are two parts i.e., cognitive constructivism which is learner-centric and discovery-oriented learning process and social constructivism where the learner learns from his/her specific social environment through field work or projects or various societal community groups (Rajesh, 2014). The role of the teacher in a classroom is to utilize his/her 'content knowledge' and 'pedagogical content knowledge' (Shulman, 1986) to transform his/her understanding of the subject content into various pedagogical forms by lifting the content from specific text-books and resource materials and giving the curriculum an independent existence through his/her knowledge and creativity (Doyle, 1992: 499).

Examinations or continuous assessments to check students' performance is considered as an essential part of the education system. National Education Policy 2020 as well as National Curriculum Framework 2005, stated that the quality and types of questions to evaluate one's academic performance should be application oriented rather than just testing one's memorizing power of bookish knowledge. Challenging questions should be given in question paper so that students learn how to analyse and evaluate critically (Kaur, 2018; Sreekanth, 2007). In this context, questions based on Benjamin Bloom's (1956) Taxonomy levels such as knowledge, comprehension, application, analysis, synthesis and evaluation is strongly recommended to judge students' knowledge and skill set (Boon and Lim, 2014).

Studies (Chanboualapha and Islam, 2012; Akende & Bamise, 2017; Sahin et al., 2010; Kim, 2011) point out that access to authentic information and resources from the internet highly influences the academic performance and achievements of students, helping them to broaden their knowledge base (Siraj, et al., 2015), self-learning skills (Yesilyurt et al., 2014) and doing project works (Almasi et al., 2017). Internet is a vital source for supplementary learning materials other than prescribed textbooks, provides exposure to current affairs (Ogedebe, 2012), improving one's general knowledge and reading habits (Yebowaah, 2018). On the other hand, ample studies (Singh et al., 2013; Olatokun, 2008; Ngoumandjoka, 2012; Akin-Adaramola, 2014; Mami and Hatami-Zad, 2014; Torres-Diaz et al., 2016; Carter, 2016) also confirm that

internet if not used rightfully can hamper academic results among students as they get addicted and indulge in chatting, gaming, social-networking sites, online shopping, downloading and watching videos and movies. Internet has become a powerful tool in education, shaping the career of the new generation of students with technological skills (Jain, 2016). Thus, digital education or online mode of teaching-learning process (Jena, 2020; Adanir et al., 2020) have indeed posed many challenges to the traditional offline classroom teaching-learning method as e-learning have become personalized, setting some positive and negative trends in the domain of education like creating digital divide among people, the personal touch, care and face-to-face interaction is missing, reduction in online class attendance, decrease in attentiveness among students in online class, teaching-learning have become flexible in nature, various web-tools used by teachers and students for learning and communication, demand for open and distance learning, conducting e-examinations or online examinations (Khan et al., 2021; Ozden et al., 2004) blended mode of education and Artificial Intelligence will take a prominent role in education (Jena, 2020).

Adopting technology in schools to enhance learning in India have been the primary focus among educationists and policy-makers, which initiated the process of edtech start-ups to connect with school curriculum to assist students with the regular learning and assessment. These free educational apps integrate the learners with various teaching faculties, exposing them to outside knowledge, beyond the pages of a specific textbook. Several government initiatives are being taken to implement the 'Digital India' campaign across all States and hence schools are being equipped with smart classrooms, projectors, computer and internet facilities with trained teachers so that students from very young age gets accustomed with e-content and resources and also hands-on experience of using technology in classrooms for professional development in India. Through animations and videos, concepts are being explained to the students easily. Usage of power-point presentation, excel, google sheets, open access e-library, all have facilitated students in project works, class presentations as well as learning the subject content. The starting of a massive open online platform SWAYAM by the government where various courses of different subjects and disciplines are available for students of class 9 till post-graduation have indeed broadened the scope of knowledge attainment which students can access anywhere at their own time and will (British Council, 1999).

The following theories formed the foundational base and framework of the study:

Johann Friederich Herbart (1806), father of pedagogy, identified five important components of pedagogy like preparation, presentation, association, generalization and applications (Kapur, 2020). **Schwab** (1969) identified the symptoms of 'crisis of curriculum through six different flights, 1. Flight of the field 2. Flight upward 3. Flight downward 4. Flight to the sideline 5. Flight to perseveration 6. Flight to hot caustic debates, stating that the existing methods and principles of curriculum were unable to create advancement of education and so needs to be modified by making a distinction between theory and practical and developing three other modes of operations i.e., practical, quasi-practical and eclectic (Deng, 2014). **Michael Young** (1971), being a Neo-Marxist and a primary founder of critical curriculum theory, later shifted towards building a theory of knowledge, which provided grounds for establishing educational policies and curriculum development in the 21st century (Moore, 2013; Moore & Young, 2001; Young, 2007; Wheelahan, 2010). Young (2013) states that contemporary curriculum is in crisis as its primary goal of what knowledge should be taught and learned in schools is completely neglected and so as a solution his knowledge-based approach concentrated on developing curriculum principles on the basis of what students are entitled to learn and increasing the probability that maximum students are able to access the best disciplinary knowledge in schools, irrespective of class, race and gender differences (p.115). **Hirsch**

(1991) developed the idea of imparting universal 'shared core of knowledge' (p.1) to eradicate unfairness and injustice in schooling so that students of all culture could learn and be educated in a generalized manner. His concept of 'Core Knowledge Sequence' (p.7) for elementary levels, where specific knowledge in History, Geography, Mathematics, Science, Languages and Fine Arts are provided in planned progressive manner comprising only 50% of the school curriculum while rest is for imaginative innovative approaches based on local contexts enabled students to be more proactive while learning in class, achieving success in academic grades (p.8). **Fred Davis** (1985) introduced the Technology Acceptance Model (TAM) for successful utilization of information technology. It became widely acceptable for electronic learning as dependency on computer technology increased in all spheres of regular life and even to the education sector especially during and post pandemic phase and also due to implementation of NEP 2020 which gave priority to digital learning. This model was created to see how end-users adopted and adapted to innovative technologies based on usefulness of the product as well as ease of using the product. Computer self-efficacy and computer anxiety are key factors which determined the usage of technology by learners as knowing to use various technological tools was a challenge which had to be faced to access its benefits (Zaineldeen et al., 2020). **Shulman** (1986) emphasized the importance of content knowledge and tried to distinguish subject-matter content knowledge, pedagogical content knowledge and curriculum content knowledge from one another. Later, **Mishra and Koehler** (2006) formulated Technological, pedagogical and content knowledge (TPACK) as an extension to Shulman's theory, claiming that in contemporary society, knowledge about traditional and innovative technology when integrated within curriculum can enhance effective teaching. **Slough and Connel** (2006) produced technological content knowledge which differs from TPACK as it concentrated on more focused and collaborative professional development approach through computer generated visualizations with scientific understanding. Electronic Pedagogical Content Knowledge (ePCK) (Franklin, 2004; Irving, 2006) deals with knowledge that teachers possess alongside content, pedagogical and curriculum knowledge so that they can integrate technology in classroom education enhancing the efficacy of teachers. **Lee and Tsai** (2010) developed Technological Pedagogical Content Knowledge-Web (TPCK-W) which was an extension of Shulman (1986) and Mishra and Koehler's (2006) TPACK components of content and pedagogy with just replacing general technology with advanced knowledge to teach specifically on World Wide Web using web tools (Koehler et al, 2014.p. 103-104).

Main Findings and Analysis:

Perception of Students Regarding Subject Options in their School

Every school board has a range of subjects included in their curriculum, out of which affiliated schools select certain subject options for students to choose specifically in secondary and higher-secondary level. School subjects are specialized area of knowledge which is taught to make students learn about the discipline so that they become aware about their own interests, talents and potentials. Hence it should be made with such content based on personal experiences, community cultures and wisdom which caters to the personal growth of students, keeping in mind all the developmental stages of the individual because the primary purpose is to link theory (knowledge and skill) with practice (occupation and profession) to equip students with economic and social productivity in the future (D Souza et al. 2018-19). Therefore, it is important to find out whether the students of State Board and National Board are satisfied or dissatisfied with the subjects offered to them by their respective schools during stream choice.

Table 3a: Satisfaction with Subject Options in School

Whether Satisfied with Subject Options	NATIONAL BOARD							
	Missionary schools				Non-Missionary schools			
	Class 9-10		Class 11-12		Class 9-10		Class 11-12	
	M%	F%	M%	F%	M%	F%	M%	F%
YES		49	49	16.7	28.6	55.6	40	88.9
NO	100	51	51	83.3	71.4	44.4	60	11.1
TOTAL	100	100	100	100	100	100	100	100

Table 3b: Satisfaction with Subject Options in School

Whether Satisfied with Subject Options	STATE BOARD							
	Missionary schools				Non-Missionary schools			
	Class 9-10		Class 11-12		Class 9-10		Class 11-12	
	M%	F%	M%	F%	M%	F%	M%	F%
YES	50	50	57.1	60	54.5	100	62.5	54.5
NO	50	50	42.9	40	45.5		37.5	45.5
TOTAL	100	100	100	100	100	100	100	100

Thus, both these tables showed that students (male and female) from National Board studying in missionary and non-missionary schools of both class-groups (9-10 and 11-12) were not satisfied with the subject options offered to them by their respective schools while choosing streams due to few options and rigid system while on the other hand, majority students (male and female) from State Board studying in missionary and non-missionary schools of both class-groups (9-10 and 11-12) were satisfied with the subjects their schools offered when they chose their specific streams.

National Board non-missionary school female student (class 12): *"I am not satisfied because there are fixed subject combinations from which we have to select"*.

National Board non-missionary school male student (class 9): *"I do not like because subject choice is less and so should increase the number of subjects"*.

Research studies further corroborated the significance of school subjects and how it should be framed within the curriculum design to benefit school students in contemporary society.

Schools affiliated under State Board and National Board have certain traditional subjects like languages, mathematics, history, geography, physics, chemistry, biology which are compulsorily taught to students for gaining knowledge about the discipline. So, the task of the teacher is to select and arrange the content of the knowledge to make it appropriate for classroom teaching while respecting societal expectations. According to Deng and Luke (2008), educationists construct school subjects depending on social, economic, political, cultural, educational realities and needs, which is uniquely designed purpose-driven to fulfill academic goals. Grossman and Stodosky (1995) stated that, different school subjects have different status within schools and society at large like moral science, craft, and physical education is not given importance compared to science subjects and languages; the subject matter is taught in sequential manner based on the age of the student like addition, subtraction is taught first than fractions in mathematics , moreover scope of some subjects is broad and some are restricted like under science there is physics, chemistry, biology and social science like history, civics, geography, sociology, and economics.

Hirsch's (1991) theory on 'Core Knowledge' and the concept of 'Cultural Literacy' stated the significance of traditional academic subject content, which needs to be taught so that achievement gap among school students can be bridged. Democratic education policies should be highlighted and implemented in all schools, with its focus on common academic curriculum and shared core intellectual capital so that knowledge base of school students gets strengthened as he believed that knowledge increases intelligence and not vice-versa and also the fact that common educational opportunity can be availed by all (Hirsch, 1999; p:2). Durkheim (1956) stressed the moral role of knowledge and truth that should be imparted in ways to bind society together while keeping the issues of structure and content of knowledge within … curriculum (Young and Muller, 2015; p: 186). Thus, school subjects are such learning tools which should be framed based on the needs of the students, maintaining social efficiency and productivity and keeping pace with contemporary occupational, professional and vocational needs so that students can later implement the knowledge and skills learnt from the discipline in their work-sphere (D Souza et al. 2018-19).

But, even-though there is ample amount of studies signifying the importance of learning traditional subjects with core knowledge content by school students, quantitative data revealed that students of National Board schools are highly dissatisfied with the current rigid subject options which they have to choose while opting a specific stream, and instead demanding more global and professional based subjects and foreign languages to be included within every school curriculum as they may be keen to aim for studying abroad after schooling and so the transition will be much smoother.

Perception of Students Towards Classroom Teaching and Activities

Classroom is the core place for educational activity (NCERT 2006) where effective classroom teaching process and learning activities play an important role for the student to grasp and comprehend the content knowledge. Students' love and interest towards a subject grows depending on how well the teacher explains the concepts and content by using different learning tools and methods. So, it is the responsibility of the teachers to be creative enough to provide a positive learning attitude among the students in the classroom and face questions and feedback from them to improve one's quality of teaching as it is a two-way interactive process (Jena, 2015).

Thus, students' opinion on classroom pedagogy becomes essential to study to know how all the schools function following the Board curriculum for the betterment of the student community at large.

Table 4a: Satisfaction with Classroom Teaching

Satisfaction with Classroom Teaching	NATIONAL BOARD							
	Missionary schools				Non-Missionary schools			
	Class 9-10		Class 11-12		Class 9-10		Class 11-12	
	M%	F%	M%	F%	M%	F%	M%	F%
YES	100	75	87.5	100	42.9	55.6	40	66.7
NO		25	12.5		57.1	44.4	60	33.3
TOTAL	100	100	100	100	100	100	100	100

Table 4b: Satisfaction with Classroom Teaching

Satisfaction with Classroom Teaching	STATE BOARD	
	Missionary schools	Non-Missionary schools

	Class 9-10		Class 11-12		Class 9-10		Class 11-12	
	M%	F%	M%	F%	M%	F%	M%	F%
YES	46	48	42.9	40	72.7		75	36.4
NO	54	52	57.1	60	27.3	100	25	63.6
TOTAL	100	100	100	100	100	100	100	100

So, from both the above tables it is observed that large number of students (male and female) under National Board (missionary and non-missionary) schools of both class groups (9-10 and 11-12) state that they are satisfied with their classroom teaching while on the other hand students (male and female) under State Board (missionary and non-missionary) schools of both class groups (9-10 and 11-12) are of the opinion that they are not satisfied with the classroom teaching in their schools.

The narratives of State Board school students revealed the reasons behind their dissatisfaction with their classroom teaching in their respective schools:

State Board non-missionary school female student (class 10): *"bhalo lagena karon khub shongkhepe porae".*

State Board non-missionary school male student (class 12): *"sob teacher ra bhalo poraena tai khub bore lagee".*

Various studies (Darling-Hammond,1997; Ball & Cohen, 1999; Ball, 2000; Mulholl and Wallace, 2005; Koehler et al., 2014; Cimpoeru, 2001) further confirm the above findings that teachers need to be not only well-equipped with content-knowledge but also with pedagogical and technological learning tools and with the passage of time they should upgrade their teaching methods as a need so that the learning process is enhanced.

Table 5a: Classroom Pedagogy

Classroom Teaching Methods	NATIONAL BOARD							
	Missionary schools				Non-Missionary schools			
	Class 9-10		Class 11-12		Class 9-10		Class 11-12	
	M%	F%	M%	F%	M%	F%	M%	F%
Reading Textbook	25	37.5	37.5	33.3	42.9	38.9	40	33.3
Using Blackboard	50	62.5	43.8	33.3	42.9	38.9	40	44.4
Using PPT	25		6.2	16.7				
Referring to other books			12.5	16.7	14.2	22.2	20	22.3
TOTAL	100	100	100	100	100	100	100	100

Table 5b: Classroom Pedagogy

Classroom Teaching Methods	STATE BOARD							
	Missionary schools				Non-Missionary schools			
	Class 9-10		Class 11-12		Class 9-10		Class 11-12	
	M%	F%	M%	F%	M%	F%	M%	F%
Reading Textbook	50	37.5	50	40	45.5	50	37.5	50
Using Blackboard	50	37.5	28.6	40	36.4	50	37.5	36.4

Using PPT								
Referring to other books		25	21.4	20	18.1		25	13.6
TOTAL	100	100	100	100	100	100	100	100

Data outcomes in table no. 5 (a and b) reflected that under both National Board and State Board, the primary classroom pedagogy was still using the traditional blackboard and having a specific textbook for each subject which the students follow. Many researchers who have conducted studies on pedagogy affirm that enriching and innovating the teaching-learning process is a necessity today. Improvising to enrich the content–knowledge through meaningful enhancements in the pedagogical styles is needed.

The word 'pedagogy' comes from the Greek word 'paidagogos' where 'paidos' means a child and 'agogos' meaning a leader (https://www.newworldencyclopedia.org/entry/Pedagogy). Pestalozzi (1801), father of modern pedagogy, believed that it is an interplay of 'Head', 'Heart' and 'Hand' (https://jhpestalozzi.org/wp-content/uploads/2021/11/Pestalozzi-and-Education.pdf) ...the way a teacher thinks and acts while teaching students any academic subject in the classroom (Clarke 2003).

there are five pedagogical approaches included in the K-12 curriculum, that every teacher should follow to enhance the learning process in the classroom: 1. Constructivist approach- a student-centric method where the students are made to involve in the 'knowledge construction' process rather than just be passive receiver of information from teachers in the classroom. 2. Collaborative approach- a team learning method where through interaction and shared experiences each student learns and gathers information from each other. 3. Inquiry-based approach- an active method of learning where problems and questions are posed to enhance the thinking skills of students rather than teaching only established facts. 4. Integrative approach- when the curricular of traditional school subjects are integrated to provide an inter-disciplinary approach to the students. 5. Reflective approach- a process where the teachers reflect and analyze their own teaching method and practice to improve learning outcomes of students or to solve any difficulty of a particular student. While implementing the appropriate approach, the teacher has to be aware about students' needs and requirements, academic goal, age-group, grade-level, subject, learning abilities, interactive potential, personality traits, standard of education, rules and regulation of the specific school. Pedagogical approaches need to be upgraded with the passage of time to improve academic success of students (Kapur 2020).

Herbart (1977) conceptualized five important components of pedagogy 1. Preparation i.e., preparing oneself for the teaching-learning process 2. Presentation i.e., when the actual process starts 3. Association i.e., relating with memories, thoughts or feelings creating mental connection while teaching 4. Generalization i.e., explaining general concepts by referring to specific instances 5. Applications i.e., implementing theoretical knowledge into practice (Rutto, 2017; p: 2025).

Studies (Arlene & Tiffany 2009; Jacob & Lefgren 2004) showed that the traditional blackboard method where the teacher draw diagrams, solve problems which the students follow and calculate is not possible when power-point presentation is used in the teaching process, as smart classroom tends to reduce the power of imagination among students to solve problems on their own. So, this conventional usage of blackboard as a teaching method is practiced from ages primarily by all teachers followed by referring to a specific textbook reading. But in recent times group activities and community practice are being highlighted by educationists to implement within the school curriculum so that students can have exposure and think outside bookish knowledge and develop various life-skills (Jena 2015).

Using textbooks as classroom practice emerged as a single dominant solution and knowledge source for students maintaining its supremacy over all other teaching practices even in current times thus making the students dependable on it as the 'symbol of authority' (NCERT 2006). Textbook centered teaching method has taken a crystallized form in Indian education system as teachers adhere to it rigidly. But it is a critical problem as accuracy of knowledge is questionable as textbooks need to be revised and upgraded with contemporary information and examples focusing on local cultures and traditions so that students can relate with his/her surroundings while studying. Every Board should allow multiple collections of textbooks on relevant issues in schools so that students get the opportunity to attain knowledge and perception from various authors (Harap 1959). Thus, package of concrete teaching-learning materials and equipment should be implemented by teachers in the classroom to engage students in active learning (NCERT 2006).

However, the information derived from the respondents of both boards National and State did not subscribe to any of the five pedagogical approaches nor did the pedagogy innovate as per requirement if any as teachers may not be oriented enough or trained to adapt to utilize smart classroom with ICT based education.

Perception of Students Towards Board Examination and Curriculum

Board examinations are crucial phases in the life of school students as these academic certifications are considered as the benchmark for pursuing higher studies as well as in the world of work. So, at the very beginning of school education, parents try to weigh all the pros and cons of each Board curriculum and then selects schools affiliated under the chosen board so that their children can be benefitted in the long term. Hence, it is significant to know the opinions students have about their specific school boards as these feedback and suggestions will help to comprehend the lacunas of the curriculum and which areas improvisations and modifications are needed to improve the sustainability of education.

Table 6a: Board Exam Syllabus

Whether Modification of Board Exam Syllabus Needed	NATIONAL BOARD							
	Missionary schools				Non-Missionary schools			
	Class 9-10		Class 11-12		Class 9-10		Class 11-12	
	M%	F%	M%	F%	M%	F%	M%	F%
YES	49	75	37.5	83.3	85.7	88.9	40	44.4
NO	51	25	62.5	16.7	14.3	11.1	60	55.6
TOTAL	100	100	100	100	100	100	100	100

Table 6b: Board Exam Syllabus

Whether Modification of Board Exam Syllabus Needed	STATE BOARD							
	Missionary schools				Non-Missionary schools			
	Class 9-10		Class 11-12		Class 9-10		Class 11-12	
	M%	F%	M%	F%	M%	F%	M%	F%
YES	52	56	71.4	80	81.8	0	87.5	27.3
NO	48	44	28.6	20	18.2	100	12.5	72.7
TOTAL	100	100	100	100	100	100	100	100

Thus, from both the above tables it can be observed that students (male and female) under both the boards (National and State) studying in missionary and non-missionary schools of both class-groups (9-10 and 11-12) are all of the same opinion that Board examination syllabus should be modified and upgraded at regular intervals keeping at par with contemporary times so that it can benefit students more.

State Board missionary school female student (class 9): *"It is too lengthy and needs to be more precise".*

National Board non-missionary school female student (class 10): *"syllabus should be more application based and should change according to future scope".*

Contrary to the empirical findings and narratives of respondents from both National and State boards, studies and information from school education boards, revealed modification of board examination syllabus at regular intervals as per the knowledge requirement of the student fraternity needed with changing times.

Syllabus for various subjects differs from one school board to another depending on the quantity of topics covered at a specific level. During 2021, the West Bengal Board of Secondary Education issued an order stating 30-35% reduction of syllabus in certain subjects like First Language, Second Language, Mathematics, Physical Science, Life Science, History and Geography due to extreme academic pressure experienced by the student community at large during Board examinations. (https://www.wbedu.in/madhyamik-2022-syllabus/). Similarly the West Bengal Council of Higher Secondary Education also stated that 30-35% reduction of syllabus that was done due to pandemic situation for 2021 examination, would be continued in 2022 and as well as recently upgraded certain topics according to its relevance in contemporary times for subjects like Languages and in Humanities, Science and Commerce stream subjects for the benefit of students to perform and score well in exams (https://drive.google.com/file/d/1bEGOERQL5TUkP_NkMHmpLnP58j0MvNPr/view). Within the National Boards, the Council for the Indian School Certificate Examinations as well as Central Board of Secondary Examination have both abridged the syllabus for reducing the burden which students face while studying in schools (https://www.cisce.org/ ; https://www.cbse.gov.in/).

Revised syllabus for every subject at regular intervals is utmost necessary to be made by every Board by including new topics for students to learn and practice hands-on through fieldworks, projects, experimentation in laboratories so that it will benefit them in their professional world.

The above-mentioned qualitative data, showcasing reduction and forming of syllabus according to contemporary relevance, thus, is conflicting with the quantitative findings and narratives expressed by respondents from both National and State boards, opining strongly for modification of it in future at par with global standards of education.

Table 7a: Board Evaluation System

Whether Board Evaluation System Needs Modification	NATIONAL BOARD							
	Missionary schools				Non-Missionary schools			
	Class 9-10		Class 11-12		Class 9-10		Class 11-12	
	M%	F%	M%	F%	M%	F%	M%	F%
YES		25	37.5	16.7	42.9	44.4	40	11.1
NO	100	75	62.5	83.3	57.1	55.6	60	88.9
TOTAL	100	100	100	100	100	100	100	100

Table 7b: Board Evaluation System

Whether Board Evaluation System Needs Modification	STATE BOARD							
	Missionary schools				Non-Missionary schools			
	Class 9-10		Class 11-12		Class 9-10		Class 11-12	
	M%	F%	M%	F%	M%	F%	M%	F%
YES	50	50	85.7	60	54.5	100	62.5	81.8
NO	50	50	14.3	40	45.5	0	37.5	18.2
TOTAL	100	100	100	100	100	100	100	100

both the tables above reflected that majority students (male and female) from National Board studying in missionary and non-missionary schools of both class-groups (9-10 and 11-12) state that they are satisfied with the current evaluation system of the board and so no modification is needed while on the other hand, majority students (male and female) from State Board studying in missionary and non-missionary schools of both class-groups (9-10 and 11-12) claim that the Board evaluation system needs to be modified so that more marks can be scored by students as it is difficult to attain good marks in the current system.

The following narratives of State Board students depicts why they are not happy with the evaluation system and demands change in the future:

State Board Missionary school female student (class 11): *"There should be more practical and projects than theoretical then marks scoring will be more"*.

State Board Missionary school male student (class 12): *"Grades should be introduced"*.

State Board non-missionary female student (class 10): *"New methods and technologies should be applied while evaluating one's potential"*.

The process of evaluation determines changes for the betterment of individual, society, nation and mankind. Evaluation in the education system includes both quantitative and qualitative descriptions of performance of a student which measures, assesses and provides value judgments about faculties of the mind and also social and emotional development after learning from classroom experiences (Sreekanth 2015) for the fulfilment of lifegoals (NCERT 2006).

The inter-variability (Sreekanth 2015) of performance standards of different Boards is a crucial issue which should be looked into by education policies. Initiating semester system, giving more weightage to internal assessments rather than external examinations, evaluating co-scholastic activities and de-emphasizing marks with grades should be improvised within the Indian education system to reduce pressure among students regarding studies.

Table 8a: Board Curriculum

Whether Happy with the National Board Curriculum	NATIONAL BOARD							
	Missionary schools				Non-Missionary schools			
	Class 9-10		Class 11-12		Class 9-10		Class 11-12	
	M%	F%	M%	F%	M%	F%	M%	F%
YES	100	75	62.5	51	57.1	88.9	80	88.9
NO		25	37.5	49	42.9	11.1	20	11.1
TOTAL	100	100	100	100	100	100	100	100

Table 8b: Board Curriculum

Whether Happy with the State Board Curriculum	STATE BOARD							
	Missionary schools				Non-Missionary schools			
	Class 9-10		Class 11-12		Class 9-10		Class 11-12	
	M%	F%	M%	F%	M%	F%	M%	F%
YES	50	25	28.6	40	36.4	50	25	36.4
NO	50	75	71.4	60	63.6	50	75	63.6
TOTAL	100	100	100	100	100	100	100	100

Thus, from both the tables a difference of opinion among students is observed wherein students of National Board students state that they are overall happy and satisfied with the National Board curriculum while on the other hand students from the State Board claim that they are dissatisfied with the system and so curriculum modification is needed.

The following narratives provided by State Board students clearly clarify why they are not satisfied with the Board curriculum and demands change for betterment:

State Board missionary school male student (class 9): *"curriculum should be application and practical oriented than theoretical and bookish".*

State Board non-missionary school female student (class 11): *"Difficult to score good marks so we lag behind students from other boards while entering higher studies so system should be changed".*

State Board non-missionary school male student (class 12): *"ICT based learning should be implemented by schools so that we get the exposure to various technology based educational tools for enhancing our knowledge in many ways".*

The planners and policy makers should abide by the regulations of the National Education Policies and National Curriculum Framework while creating the board curriculum and to pay heed to the fact that the curriculum 1. relates to the specific community life and cultural traditions of the nation 2. Involves scholastic and co-scholastic needs of the students 3. Provides skill development 4. Initiates personality development so that it leads to all round growth of students for future life (Harap 1959).

Conclusion:

Regular upgradation of the curriculum as per the need of the society is essential keeping at par with technological progress so that students can get equipped with ICT based knowledge and apply it while studying and for future career requirements. Thus, bridging the gap between theoretical knowledge and practical knowledge is the talk of the day to create efficient resource person for the society.

Empirical data combined with the narratives of respondents from State Board schools, clearly portray the lack of upgraded curriculum implementation visible through their dislike and dissatisfaction with their education board, is supported by previous research studies signifying the necessity of innovative classroom pedagogy and curriculum revision at regular intervals keeping in tangent with technological and economic progress of society to maintain the sustainability of education for future generations.

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