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Establishing Critical Constructivism in Learning Teaching Through a Developed Self-Assessment Framework

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A B S T R A C T

Schools in general carry the fundamental responsibility of moulding and transforming society to meet the dynamic inherent. Under the scenario, it becomes immensely relevant to challenge the underpinning processes for the sustainable growth and development of any nation. The research work explores the concept of critical constructivism, in the light of Paulo Freire's philosophy to support the pertinent and ostensible transformation desired. The study develops the self-assessment framework to evaluate the preparedness of schools towards a critically constructivist classroom. The developed framework was implemented in schools of different governance to evaluate the current proposition in the context. The self-assessment framework establishes credential credibility through quality process viability assessment. The results of the study reflect upon the gaps and way forward to enable critically constructivist classrooms.

Keywords: Critical pedagogy, Constructivism, Curriculum, School education, Reforms.

INTRODUCTION

"….but they steal the ninety-nine
The school and the culture
Separate the head from the body!
They tell the child.
To think without head
To do without hands
To listen but not to speak
To understand without joy
To love and to marvel only at Easter and Christmas
They tell the child.
To discover the world that is already there
And out of Hundred, they steal the ninety-nine…"

Loris Malaguzzi's poem is unique and distinctive as it so appropriately and delicately conceptualizes the preposition of the current school education system.

In this scenario, the educational philosophy proposed by Paulo Freire can be seen as an erudition in the era. As quoted from the website www.paulofreireschool.org/about, "Paulo Freire believed that real learning happens when the learner is empowered to actively engage with real-world content, to make their connections, and to construct their meaning. Paulo Freire knew that for real learning to take place the learner must own the process and be an active agent and meaning-maker in the process. Brain researchers have now proven that real learning (deep, enduring understanding of content) only happens when learners are engaged in this way."

This indeed brings forth a few research questions to reflect upon:

- Does the educational philosophy of Paulo Freire advocate student empowerment?
- What does it take for a school and teacher to facilitate Paulo Freire's educational philosophy?
- How prepared are our schools and teachers to facilitate Paulo Freire's educational philosophy?
- Are schools and teachers unknowingly following Paulo Freire's educational philosophy?

As an initiative to understand the questions further, the current study was undertaken. Paulo Freire's educational philosophy was studied in the context of Indian schools. Quality processes that facilitate Paulo

Freire's educational philosophy were identified to develop a self–assessment framework. The developed framework was implemented in selected schools to understand the preparedness of teachers towards critical constructivism in learning to teach.

RELATED WORK

Many contemporary theories, most prominently the ones proposed by Vygotsky, Bruner and Piaget closely associate with the concept of critical constructivism in learning and teaching. Social constructivism emphasises the importance of culture and context in understanding what occurs in society and constructing knowledge. (Derry,1999; McMahon, 1997).

In a study, Critical Constructivism for Teaching and Learning in a Democratic Society, by Michael, Stephen and Jim, the authors argue that the three undesirable outcomes of education can be addressed by critical constructivism. They were understood as; De-contextualization, Reification and Technocratization, which were addressed through contingently- constructed, contextualized and value-oriented learning teaching processes in schools. How so ever, a review of the literature puts forth an unconducive picture of schools. A case study on critical pedagogy practice by Vishnu Prakash (Kerala 2018), observes that school systems are highly mechanical in nature. They operate under strict fixed standards, with no scope for critical thinking.

Many studies have emphasized the paradigm shift from teacher-centered to learner-centered classrooms, which is facilitated by the Critical Constructivist approach. How so ever, the researcher found not much relevant focused research work on deeply understanding the driving mechanism for establishing a critically constructivist classroom. Having understood what and why of a critically constructive classroom, this research work is a sincere effort to uncover the undercurrent and establish grounds as to how to achieve the desired perspective.

METHODOLOGY

The current research work is qualitative in nature. The research methodology included the development and implementation of a self-assessment framework through systematically designed phases. The research procedures involved the following three phases: conceptualization of the framework, development of the conceptualized framework, and implementation of the developed framework.

Conceptualization of the Framework

The process of conceptualizing the self-assessment framework to evaluate the preparedness of teachers towards Critical Constructivism in Learning Teaching involved five basic steps.

Experts' Review Committee

A review committee of experts was set up. The identification of members for the review committee followed data and information available in the print and electronic media. Informal interaction with the identified experts assured compliance of interest. The selected eleven review committee members were visionary educationalists with relevant experience in school education at the senior management level.

Induction Session

The eleven selected experts were taken through the induction session. The induction session addressed the expectations and concerns in the context of the research work undertaken.

Brainstorming/Feedback/Review

Post induction, rigorous brainstorming sessions were carried out to understand Paulo Freire's educational philosophy in the context of Indian schools. The probable quality processes that advocate Paulo Freire's educational philosophy were discussed and identified. Owing to the complexity inherent in the task, several brainstorming sessions were carried out. A list of fifty-three quality processes was identified in the initial brainstorming sessions. These were further discussed based on the continuous feedback drawn internally and externally. After considerable sessions of brainstorming, feedback and review a list of fourteen quality processes were identified at the end of the second round of discussions. These identified quality processes were examined meticulously for relevance, operational definition, and duplication of content. Post this exercise, ten quality processes, divided under two quality criteria, were finally identified for evaluating the preparedness of teachers towards critical constructivism in learning and teaching in their classrooms.

Framework Structure

Critical constructivism in learning to teach was set to be evaluated at two levels, which were stated as the two quality criteria. The first level, which is the first quality criterion, was a mandatory prerequisite for a critically constructivist classroom. This

level was categorized as Ethical Learning Environment in

Classroom. This quality criterion was further divided into five quality processes.

Classrooms that were found to comply with the mandatory prerequisites as identified in the quality criteria 1: Ethical Learning Environment in Classroom, were only considered for evaluation at the second level. The second level was categorized as Engaging in Learning Behavior in Classroom. This quality criterion was further divided into five quality processes.

Direct Structure Validation

The prepared framework was validated with experts' opinions for content appropriateness and relevance.

The validated self-assessment framework was conceived as.

Quality Criteria I

Ethical Learning Environment in Classroom

- The attitude of the Teachers Towards Critical Constructivism
- Teacher–Student Ratio
- Emotional Intelligence
- Social Intelligence
- Physical Environment

Quality Criteria II

Engaging Learning Behavior in Classroom

- Preparation of the Teachers
- Classroom Execution
- Evaluation Strategies
- Feedback Processes
- Student Empowerment

Development of the Conceptualized Framework

The framework with two quality criteria and ten quality processes was further described in detail. This helped in a better conceptual understanding of the framework for implementation without any ambiguity.

Framework Development

Each of the quality processes identified under two quality criteria was described in the format:

- Quality Process
- Operational Definition
- Relevance
- Data & Information
- Quality Assessment
- Zero phase
- Initial phase
- Developing phase
- Advanced phase

Quality Criteria 1:

Student-teacher Relationship

Quality Process

The students and the teachers share an acceptable relationship inside and outside the classrooms.

Operational Definition

The students and the teachers are together engaged in the learning activities. The teachers mentor the students to help them identify and achieve their highest potential by establishing ethical grounds that encourage open constructive communication. The relationship may not be just about respecting diverse opinions, but more of emphasizing practicing culture that encourages, accepts and appreciates diversity.

Relevance

The process of learning and teaching involves reflecting and constructing knowledge. This foremost requires a conducive relationship between the students and the teacher.

Data & Information

Classroom observation, Interaction with teachers and students, checklist

Quality Assessment

Zero phases: The teacher is authoritative. Students in the classes are not engaged in the learning process. The teachers believe in traditional classroom practices.

Initial phase

Most of the time the teachers are engaged with traditional classroom practices. The teachers understand the role of the student-teacher relationship in the learning process but find it practically challenging to implement.

Developing phase

Teachers make efforts to plan classroom sessions that engage students actively. Some students were found to be participating and enthusiastic.

Advanced phase: Teachers show a professional approach to addressing the concerns of their students. The belief and acceptance towards an ethical student-teacher relationship are reflected in the attitude carried by the teachers.

Preparation of self-assessment checklist

A self-assessment checklist was prepared for all the ten quality processes identified under two quality criteria.

Table 1. Quality Criteria I - Ethical Learning Environment in Classroom.

Quality Processes	Zero Phase	Initial Phase	Developing Phase	Advanced Phase
The attitude of the Teachers towards Critical Constructivism	Awareness	Readiness	Willingness	Assertiveness
Teacher-Student Ratio	Extremum	Maximum	Optimum	Ideal
Emotional Intelligence	Self-Awareness	Self-Esteem	Self-Motivation	Self-Management
Social Intelligence	Social-Awareness	Empathy	Motivator	Influencer
Physical Environment	Aversive	Embracive	Enhancive	Conducive

Source: The data is derived from the study's findings.

Table 2. Quality Criteria I - Engaging Learning Behavior in Classroom.

Quality Processes	Zero Phase	Initial Phase	Developing Phase	Advanced Phase
Preparation of the Teachers	Relatedness	Students' Experience	Value-Orientation	Contingently Constructed Plan of Action
Classroom Execution	Problem-Posing	Dialogic	Critical Thinking	Democratic Methods
Evaluation Strategies	Participatory	Problem-Based	Diagnostic	Deconstructing & reconstructing
Feedback Processes	Purposive	Reflective	Actionable	Transformative
Student Empowerment	Awareness	Codification	Critical Consciousness	Reflective Actions

Source: The data is derived from the study's findings.

Direct Structure Validation

The framework structure was validated with experts' opinions for appropriateness and relevance of the content.

Implementation of the Developed Framework

The framework was implemented in the selected schools to evaluate the preparedness of schools towards critical constructivist classrooms.

Identifying Schools

Four schools, each from four different types of governance were selected for the current study.

- Central Government Schools
- State Government Schools
- Private Unaided Schools
- International Schools

Identifying Teachers

Three teachers per school were selected. All the teachers were professionally qualified with five to eight years of professional experience.

Selecting Class and Subject

Class eighth was most suitable for the current research study. There was no subject restriction since the study concern was not subject-specific.

School Visits

The school visits planned in each phase were as below:

Table 3. School Visit Planner.

	Phase I	Phase II
Number of Days per School	3	5
Classes Observed per Teacher	4	5

Source: The data is derived from the study's findings.

Framework Implementation in compliance with the Procedures & Guidelines

Finally, the implementation procedures and guidelines were laid down. These helped in administering the framework as a self-assessment tool with a way forward. The task list followed in each phase was as listed (table 4).

Table 4. Task List.

Phase I	Phase II
Induction session	***Induction session***
Classroom Observation Schedule	Classroom Observation Schedule
Classroom Observation for Quality Criteria I	Classroom Observation for Quality Criteria I
Recording Data (observation, framework check, interactions)	Recording Data (observation, framework check, interactions)
Analyzing Data (Tabular Format)	Analyzing Data (Tabular Format)
Findings Approval/ Not Approval for Phase II implementation	Findings Discussion
Approval/ Not Approval for Phase II implementation	Discussion

Source: The data is derived from the study's findings.

DATA ANALYSIS

The self-assessment framework was thoroughly complied with to capture the hidden and subtle data through observations, interactions, and unstructured interviews. For the current study, owing to the nature of the study, the experts believed that quantifying the data could be misleading, and dilute the sensitivity of the data. Therefore, core emphasis was laid on collecting qualitative data for appropriate diagnosis and interpretation. Data collected was subjected to experts' opinions as a measure to assure unbiased data analysis. The data collected from phase I and phase II were analyzed and represented in tabular format for drawing results.

FINDINGS

The findings from the research study are presented in the tabular form below:

Table 5. Abbreviations.

Abbreviation	Meaning
C1/S1/P1/I1	Central School/State School/Private School/International School number one
C2/S2/P2/I2	Central School /State School/Private School/International School number two
C3/S3/P3/I3	Central School /State School/Private School/International School number three
C4/S4/P4/I4	Central School/State School/Private School/International School number four
TC1/TS1/TP1/TI1	Central School Teacher/State School Teacher/Private School Teacher/International School Teacher number one
TC2/TS2/TP2/TI2	Central School Teacher/State School Teacher/Private School Teacher/International School Teacher number two
TC3/TS3/TP3/TI3	Central School Teacher/State School Teacher/Private School Teacher/International School Teacher number three
TC4/TS4/TP4/TI4	Central School Teacher/State School Teacher/Private School Teacher/International School Teacher number four
TC5/TS5/TP5/TI5	Central School Teacher/State School Teacher/Private School Teacher/International School Teacher number five
TC6/TS6/TP6/TI6	Central School Teacher/State School Teacher/Private School Teacher/International School Teacher number six
TC7/TS7/TP7/TI7	Central School Teacher/State School Teacher/Private School Teacher/International School Teacher number seven
TC8/TS8/TP8/TI8	Central School Teacher/State School Teacher/Private School Teacher/International School Teacher number eight
TC9/TS9/TP9/TI9	Central School Teacher/State School Teacher/Private School Teacher/International School Teacher number nine
TC10/TS10/TP10/TI10	Central School Teacher/State School Teacher/Private School Teacher/International School Teacher number ten
TC11/TS11/TP11/TI11	Central School Teacher/State School Teacher/Private School Teacher/International School Teacher number eleven
TC12/TS12/TP12/TI12	Central School Teacher/State School Teacher/Private School Teacher/International School Teacher number twelve

Source: table is formulated after literature review.

Table 6. Phase I - Ethical Learning Environment in Classrooms (Central Government Schools).

Zero Phase	Initial Phase	Developing Phase	Advanced Phase

	School C1			School C2			School C3			School C4		
	TC 1	TC 2	TC 3	TC 4	TC 5	TC 6	TC 7	TC 8	TC 9	TC 10	TC 11	TC 12
Attitude of Teachers												
Teacher-Student Ratio												
Emotional Intelligence												
Social Intelligence												
Physical Environment												
Status	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes

Source: The data is derived from the study's findings.

Table 7. Phase I - Ethical Learning Environment in Classrooms (State Government Schools).

	School S1			School S2			School S3			School S4		
	TS 1	TS 2	TS 3	TS 4	TS 5	TS 6	TS 7	TS 8	TS 9	TS10	TS11	TS 12
Attitude of Teachers												
Teacher-Student Ratio												
Emotional Intelligence												
Social Intelligence												
Physical Environment												
Status	**No**	**No**	**Yes**	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**	**Yes**	**No**	**Yes**

Source: The data is derived from the study's findings.

Table 8. Phase I - Ethical Learning Environment in Classrooms (Private Unaided Schools).

	School P1			School P2			School P3			School P4		
	TP1	TP2	TP3	TC4	TP5	TP6	TP7	TP8	TP9	TP10	TP11	TP12
Attitude of Teachers												
Teacher-Student Ratio												
Emotional Intelligence												
Social Intelligence												
Physical Environment												
Status	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes

Source: The data is derived from the study's findings.

Table 9. Phase I - Ethical Learning Environment in Classrooms (International Schools).

	School I1			School I2			School I3			School I4		
	TI1	TI2	TI3	TI4	TI5	TI6	TI7	TI8	TI9	TI10	TI11	TI12
Attitude of Teachers												
Teacher-Student Ratio												
Emotional Intelligence												
Social Intelligence												
Physical Environment												
Status	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Source: The data is derived from the study's findings.

Table 10. Phase I - Ethical Learning Environment in Classrooms (Consolidated).

	The attitude of the Teachers				Teacher-Student Ratio				Emotional Intelligence				Social Intelligence				Physical Environment			
Central Government Schools (12 Teachers)	3	9	-	-	-	-	12	-	-	8	4	-	1	7	4	-	-	-	12	-
State Government Schools (12 Teachers)	10	2	-	-	6	6	-	-	-	6	6	-	4	8	-	-	-	6	6	-
Private Unaided Schools (12 Teachers)	2	3	7	-	-	6	6	-	-	5	4	3	-	2	9	1	-	3	9	-
International Schools (12 Teachers)	-	-	3	9	-	-	-	12	-	-	5	7	-	-	10	2	-	-	-	12

Source: The data is derived from the study's findings.

Table 11. Phase II - Engaging Learning Behavior in Classrooms (Central Government Schools).

Zero Phase	Initial Phase	Developing Phase	Advanced Phase

	School C1			School C2			School C3			School C4		
	TC1	TC2	TC3	TC4	TC5	TC6	TC7	TC8	TC9	TC10	TC11	TC12
Preparation of Teachers												
Classroom Execution												
Evaluation Strategies												
Feedback Processes												
Student Empowerment												

Source: The data is derived from the study's findings.

Table 12. Phase II - Engaging Learning Behavior in Classrooms (State Government Schools).

	School C1			School C2			School C3			School C4		
	TC1	TC2	TC3	TC4	TC5	TC6	TC7	TC8	TC9	TC10	TC11	TC12
Preparation of Teachers												
Classroom Execution												
Evaluation Strategies												
Feedback Processes												
Student Empowerment												

Source: The data is derived from the study's findings.

Table 13. Phase II - Engaging Learning Behavior in Classrooms (Private Unaided Schools).

	School C1			School C2			School C3			School C4		
	TC1	TC2	TC3	TC4	TC5	TC6	TC7	TC8	TC9	TC10	TC11	TC12
Preparation of Teachers												
Classroom Execution												
Evaluation Strategies												
Feedback Processes												
Student Empowerment												

Source: The data is derived from the study's findings.

Table 14. Phase II - Engaging Learning Behavior in Classrooms (International Schools).

	School C1			School C2			School C3			School C4		
	TC1	TC2	TC3	TC4	TC5	TC6	TC7	TC8	TC9	TC10	TC11	TC12
Preparation of Teachers												
Classroom Execution												
Evaluation Strategies												
Feedback Processes												
Student Empowerment												

Source: The data is derived from the study's findings.

Table 15. Phase II - Engaging Learning Behavior in Classrooms (Consolidated).

	Preparation of the Teachers				Classroom Execution				Evaluation Strategies				Feedback Processes				Student Empowerment			
Central Government Schools (9 Teachers)	-	2	7	-	-	3	6	-	-	7	2	0	-	9	-	-	9	-	-	-
State Government Schools (6 Teachers)	-	6	-	-	-	6	-	-	-	6	-	-	6	-	-	-	6	-	-	-
Private Unaided Schools (10 Teachers)	-	7	3	-	-	6	4	-	-	7	3	-	-	7	3	-	-	8	2	-
International Schools (12 Teachers)	-	-	9	3	-	-	5	7	-	-	10	12	-	-	10	2	-	-	12	-

Source: The data is derived from the study's findings.

DISCUSSION

"The function of education, therefore, is to teach one to think intensively and to think critically…. A complete education gives one not only power of concentration but worthy objectives upon which to concentrate" Martin Luther King Jr. (1929-1968).

This research study strongly argues for the need for a paradigm shift in learning and teaching in the classrooms. Unfortunately, but true, in the 21st century everything on this earth has transformed beyond imagination, except for the classrooms!! This statement is supported by numerous commonly accessible research pieces of evidence. Agreed, that the school buildings, infrastructure, teachers' qualifications, learning resources, and technology, all these have greatly impacted and reformed our school education system, but then the question is, is this what education is all about? Or, are these just the supporting factors to facilitate the core objective of education, which, it is not, then for sure should be, student empowerment? Schools, the units of social transformation, indulge in activities that ought to be for the students, but without the engagement of the students. A teacher teaches for and to the students, but without involving the students. Appreciation is not about the perceptions of a teacher intelligently transferred to learners, rather, it is the nurturing of the ability to critically evaluate through reflective judgement for constructing one's knowledge. Probably, the concept of student empowerment is either unknown or not acceptable or accepted as interpreted in one's interest. In either of the cases, the purpose of education is not met. It is merely because of this reason, that, despite the number of taxonomy frameworks for cognitive processing available for learning and teaching, students' ability of critically thinking while applying appropriate skills is minimal. Also, thought-provoking strategies, by Berkowitz, 1986; Chi, Glaser, & Rees 1982; Hitchcock-2004; Taylor 1982; Robinson & Kiewra 1995 and many more, as identified in the vast ocean of educational literature are effective.

Recent times have witnessed the paradigm shift from constructivism to critical constructivism as an approach to unveil the underlying suppositions of knowledge construction. And "with this reconstructive imperative in mind, one of the central tasks of a critical constructivist teacher-scholar is to formulate questions that expose-the conditions that promote social and educational advantage and disadvantage" (Brosio, 1994, 2000). Operating out of the counter-Cartesian principles, critical constructivism learns from liberation theologians and critical theorists. Thus, approaching with respect and consideration for subjugated knowledge, the new pedagogical approach occupies the logical position, confronting not only ethical assets but also sustaining back the scientific benefits. The education system is constantly under the obligation of answering questions that circle; what shapes knowledge? what is the purpose of school education? what should the curriculum be like? who is eligible to be a teacher? who qualifies as an educated person?

As education is trivialized, the 'big idea' of a critically constructivist classroom is promoted as student empowerment, which enables the student to argue, investigate, reason, and conceptualize. Though the concept of critical constructivism has a long rich history from the times of Socrates and Aristotle, it is rare to be witnessed in 21st-century classrooms. The classical, formal logic supported by modern attempts at informal argumentation has significantly contributed to the modern-day concept of critical constructivism. When critical constructivists produce knowledge, they are not attempting to reduce variables but to maximize them (Knoble, 1999). This research work argues the importance of setting conducive grounds by identifying quality indicators that would facilitate critical constructivism in classrooms. The concept needs to be understood and carried as an approach beyond the text and principles underpinning. The research work is an effort to develop a self-assessment framework with a clear understanding of prepositions, in terms of operational definition, relevance, data & information and quality assessment of the processes identified. that are necessary for a critically constructivist classroom.

CONCLUSION AND FUTURE SCOPE

Critical constructivism constructs and examines the knowledge and understanding enriched in context to social structures. And this makes it important that the concept is not understood just as another learning theory, rather, it should be the philosophy of school education. The current research work argues the relevance of various dimensions that are interrelated and form the existence of the modern pedagogical approach that churns individuals and not *copy version*s of the leaders. Further, thoughts on reconsidering a

traditional classroom, which holds the capacity of transforming society, are the key to any nation's success. This required identifying the unique disposition that each student brings to the classroom and grooming it to its highest potential. It cannot be denied that the expectations of the observer shape the perception, therefore a deep investigation is required that allows the teachers and the students to become critically conscious.

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