

Innovative Pedagogies to transform Education & Leapfrogging: 21st Century Scenario

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Abstract: The term “Pedagogy” as we all know that can be defined as the “art and science of teaching”. This particular art is nothing but the true bridging between learning process & Teaching Practices. “Leapfrogging Inequality: Remarking Education to help young people Thrive” -one of the world class handbook published in 2018 by Centre of universal Education (CUE) argues that the educational leapfrogging creating transformative shifts rather than incremental evolution by harnessing the power of innovation to advance on breath of skills. The report of the book focuses on teaching & learning element of the leap frog framework specially on pedagogical traits & teachers role. Pedagogical innovation is critical & is at the heart of ambition to leapfrog education systems which is true for learning situations by children & young people, teachers learning is also included in it. In fact, the existing transformation approaches can well teach the teachers about what has been achieved & how it is done for futuristic development.

The global lifelong learning agenda calls for serious reimagining of the education landscape. It argues that pedagogies especially the innovative pedagogy must be the key control attractive to any systematic transformation if leapfrogging is to be achieved & its ultimate result shows six clusters of pedagogical advancements which alone or in combination would underpin such a transformation. Regarding this issue, the foundational analysis were done jointly by the CUE & OECD (organisation for economic co-operation & development) stating “teachers as designers of learning environment” That is why from CUE & OECD based concepts we therefore can draw an insight into the said framework & thus among the six clusters- the breadth of skills, ‘Curriculum’ & ‘Scaling’, be the major contributors of “21st century” skills. These are also termed as “transversal skills” but as such no single precise approach is appropriate to this analysis.

Keywords: Leapfrogging, OECD, Six Clusters of Education, Transversal skill, Pedagogy.

Introduction:-

Many educators argue that the best way for schools to prepare young people for future success is to help them to develop a broad range of learning, work & life skills that they can deploy all over in their lives. These do not mean jettisoning academic learning but it means using teaching & learning approaches that delve students deeply into subjects and also fostering a range of learning activities related to “21st century skills” At the core education system must move from prioritizing knowledge acquisition to prioritizing both knowledge acquisition & the development of skills needed to use that knowledge effectively. It is clear that the previously discussed “breadth of skill agenda” in which breadth refers to different skills & capacities now needed. 21st century skills needed for problem solving & knowledge transfer, which deeply depends upon deep understanding. So, these are very ambitious extensions of the goals of education. A parallel CUE study concludes that there is a compelling evidence of a shift in education systems toward broadening education provision beyond traditional disciplines & should focus on literacy & numeracy. One of the reasons to focus strongly on pedagogies & learning is because of the gap between the broad competence based vision, curricula & the actual learning taking place in classrooms pedagogy therefore acts as a bridge between principals & practice. The learning crisis coupled with the high global expectation for education are first main reason for innovation inspiration. Pedagogies are located in the engine room of education. Here the care elements of learners, educators, content, curricula of learning resource come together to work collaboratively or individually in different ways. Reaching transformation in education implies changes in conditions under which core elements can able to work & pedagogical transformation will truly reflect upon the student learning if & only if the educators teaching practice is being changed. Pedagogy is that

dynamics that connects learning, teaching, culture & its practice is even more intimate, creative, intuitive, responsive to certain contexts. 41 Innovative teaching discuss about curriculum to next new skills, school governance may have indirect connection with pedagogies what happened in the classroom. The pedagogy after all should be student centered or at par with “21st century skills” rather than bookish concepts & traditional teaching practices. 6

The OECD worked in 2018, to deepen the understanding the innovative ‘pedagogies in two different ways.’

- To better understand how to implement curriculum goals with bridging of new content, skills, competencies, international & national level assessments of learners with technological framework.
- To navigate within the innovation landscape, pedagogy offers a road map to teachers which sets up link between practices, methods with learning principles, and theories of education that also includes its six clusters of innovative pedagogies, by using these pedagogical clusters to illuminate leapfrogging pathways using diverse models of teaching that are child centered or ‘constructivist’ Those six clusters of innovative pedagogy enables new skills, 7 more engaging diversified with fruitful ways to teach subject in short jumping ahead in the learning element in a platform of leapfrog pathway.

Purpose & Objectives of Study

Like many educators who have endured difficulties throughout their our educational journey. A qualitative case study has been conducted about 21st century. Innovation, creativity & skills related to teaching in my own district / school, It used to take a clearer insight as to how to improve school education here. It usually help to describe the benefits of case study method by applying real life context. In this method our aim is to examine specifically & therefore to focus in particular. While conducting this study analysis, the idea of teachers influence in students achievements was brought into account beyond any factor. Once American President Barak Obama stated “from the moment a student center a school, the most important factor in their success is not the colour of their skin, or the income of their parents, it’s the person standing in front of the classroom America’s future depends upon its teachers” (U.S Dept. of Edu. (DOE), 2011) 8 considering these situations, some guiding questions been framed centering the attributes of the teachers, rather than students.

21st Century Skills & Pedagogical Leapfrogging

The systematic review conducted by chalkiadaki (2018) categorized 21st century skills into 4 main Categorize:-

• **Personal Skills:**

i) Self development & autonomy means self management, self direction, self reflection, self independence & emotional intelligence.

ii) **Creativity:**

It implies curiosity, imagination, playfulness & innovation.

iii) **Problem solving & critical thinking:-**

It should ensure authentic learning environment, analytical thinking evaluative evidence ability to provide solution in given, higher order thinking & decision making.

iv) **Presence in globalised environment:**

Adaptability, agility, managing complexity, & risk taking.

• **Social Skills:**

i) Communication & collaborations: Skilled oral & written communications, team working in heterogeneous fields, open mindedness & conflict management.

ii) Global & Cultural awareness: Ability to appreciate the value of varied cutters & intentionally construct cross-cultural relationship.

iii) Leadership: Self motivation, initiative taking, & entrepreneurship.

- **Digital Literacy:** Based on chalkiadaki's analysis, digital literacy in 21st century context indicates the confidence of one's use of media ICT & hand on proficiency in use of digital tools, plus interactive skills, critical use of digital tools & critical perspective. Chalkiadaki's model concentrate on cross-cutting approach to categorization developed by APEC which includes four '21st century competencies' like life-long learning problem solving, self management & teamwork. APEC 2008, cited in Scott 2015 & 21st century skill project (ATC 21S) by griffin macaw & care 2012, cited in Scott 2015.

- **Wagner theorem:**

Lippmann et al (2014) & Wagner (2010) (cited in Scott 2015) & a leadership group of honored university identified a set of competencies & skills to the needed to acquire by the students for survival in the midst of 21st century life, work & citizenship as follows:

- Critical thinking & problem solving
- Collaboration & leadership
- Agility & adaptability
- Entrepreneurialism
- Oral & Written communication
- Analyzing information & curiosity & imagination.

- **The '4CS' & P21 framework:**

In continuance with Wagner & Lippmann's approaches, the 'framework for 21st century learning' proposed by US band partnership (P21) highlights the '4CS' (Critical thinking, communication, collaboration & creativity) & they should be developed in the context of teaching core subject areas. The '4C' model is based on the assertion that 21st century challenge will demand a broad set of skills emphasizing on individual capability in different aspects in pedagogical fields & core areas. Through proper acquisition of communication, collaboration, creativity, & critical thinking we can achieve a leapfrogging in the look place, educative domain familiarizing P21S & 4C models. Infect Vogt & Robbin (2010, 2012) investigated five 21st century skill works for categorizing the 'creativity' itself.

- **Soft & Life Skills:**

Moving from a categorization of skills in term of attributes that are presented as of value in primarily a work based context. Gates et al (2016) identified a range of largely personal attributes that creates a positive outcome on youths lives & teachers also. They are nothing but life skills, socio economic skills & transferable skills (Scott 2015) given the broad nature of soft skills.11 USAID launched a website to explain & categories those skills. A broad range of skills that navigate the environment of the work place behavior, personal qualities, relate well with others, performance united with achieving goals.

Detailed description is given:

- Positive attitude of the learners (given by Lippmann 2015)
- Responsibility to give positive outcome & to ensure learners our belief, choice, & action.
- Goal Orientation
- Empathy (ibid)
- Communication (Lippmann 2014)
- Social skills.

A) Modern Learning Principles of Learning to Design Innovative Learning Environments (ILE)

Learning research should deeply inform educational policy & practice in order to embed the close understanding in the innovative learning environments (ILE), where OECD commissioned authoritative research reviews by prominent experts on different aspects of learning from different experts identified the design of learning environment (Dumont et al 2010) & OECD '7' framework.

Learning principle one: The learning environment recognize the learners as its core participants, encourages their active engagement & develops in them on understanding of their own activity as learners.

Learning principle two: The learning environment is founded on the social nature of learning & actively encourages well organized co-operative learning.

Learning principle three: The learning professionals within the learning environments are highly attended to the learners motivations & the key role of emotions in achievements.

Learning principle four: The learning environment is actually sensitive to the individual differences among the learners in it, including their prior knowledge.

Learning principle five: Learning environment devises programmers that demand hard work & challenge fm all without excessive overload.

Learning principle six: The learning environments operates with clarity of expectations & deploys assessment strategic consistent with these expectations; there is strong emphasis on formative feedback to support learning.

Learning principle seven: The learning environment strongly promotes "horizontal connectedness" across areas of knowledge as well as to the community & the wider world.

B) ILE "7+3" Framework by OECD

The full framework proposed by OECD maintains of learning principles as fundamental to all activities & design but then adds 3 more dimensions to optimize the conditions for putting the principles into practice and that's why it is termed as (7+3).

They are i. Innovate the pedagogical core of learning environment whether the core elements (Learner, educator, resources or the dynamics which connect then (Pedagogy & formative evaluation)

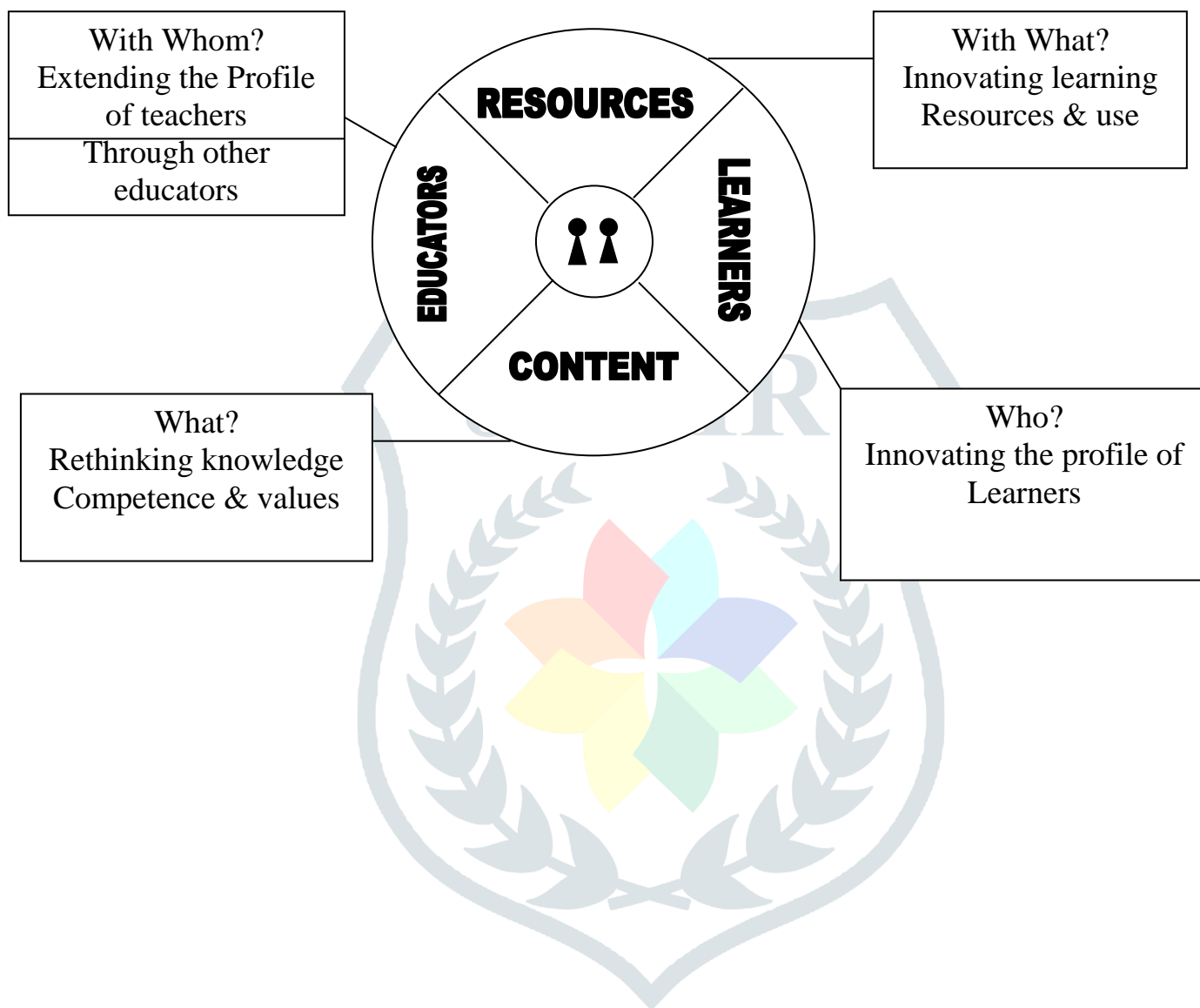
ii. "Formative organization" with strong learning leadership constantly informed by evidences about the learning achieved by different strategies.

iii. To open up partnerships with families, communities, higher educators, cultural institutes media houses, & with other schools to shape pedagogical core.

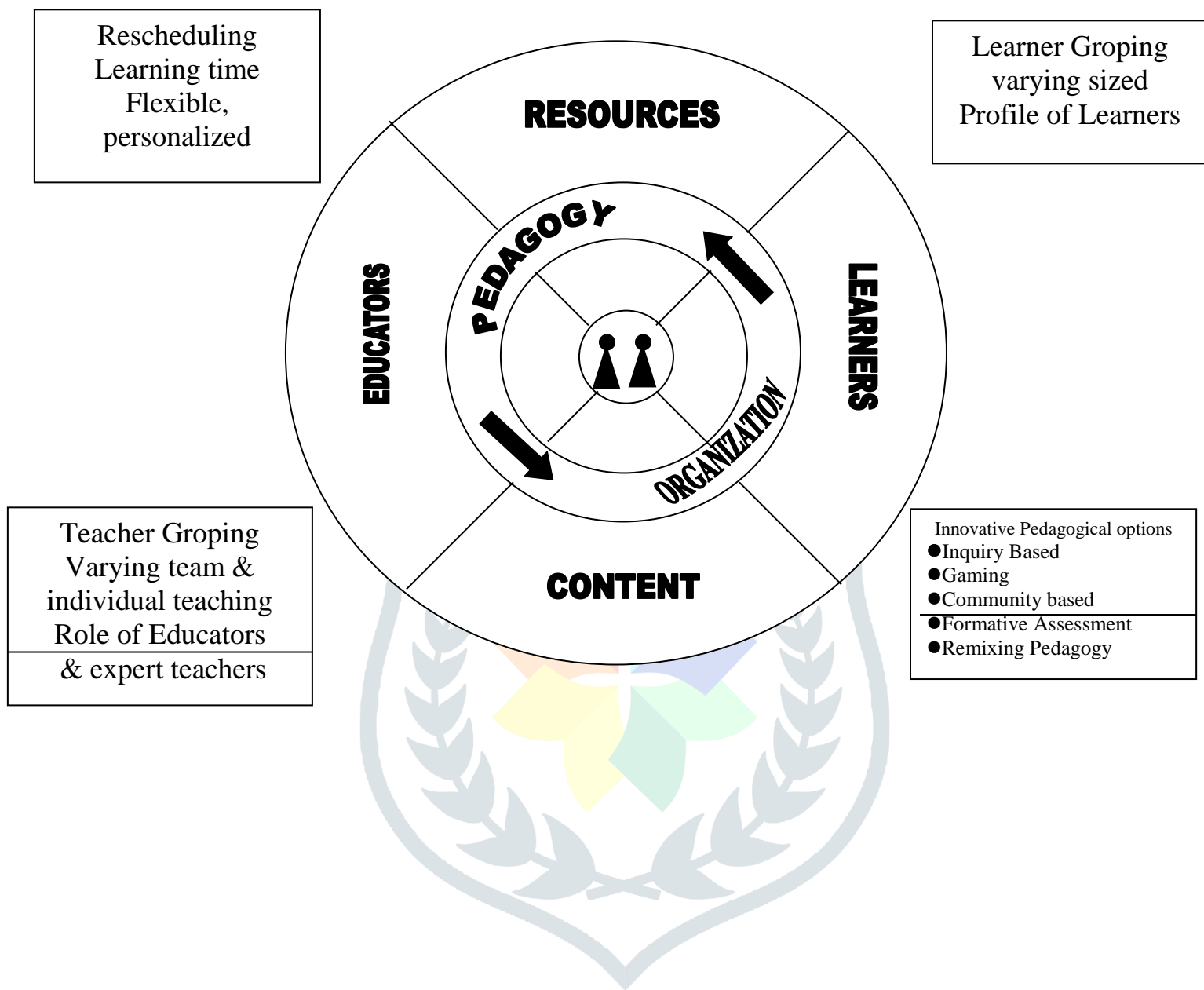
• **Innovating pedagogical core & dynamics by six clusters of pedagogy**

We call the the elements & dynamics at the heart of each learning environments as “Pedagogical care”

1. **The elements of pedagogical care**



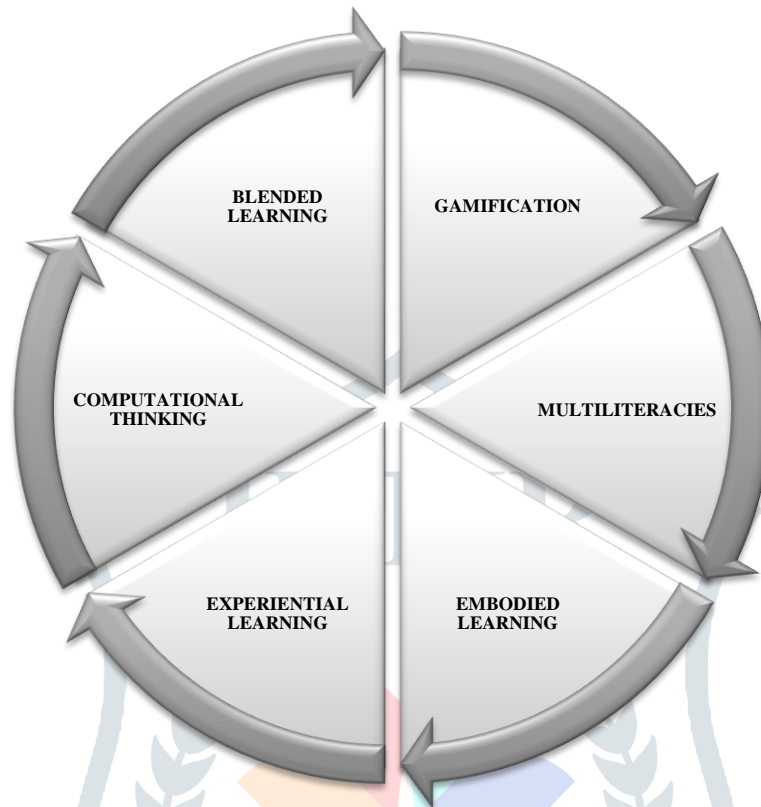
2. Innovating the dynamics of the Pedagogical care



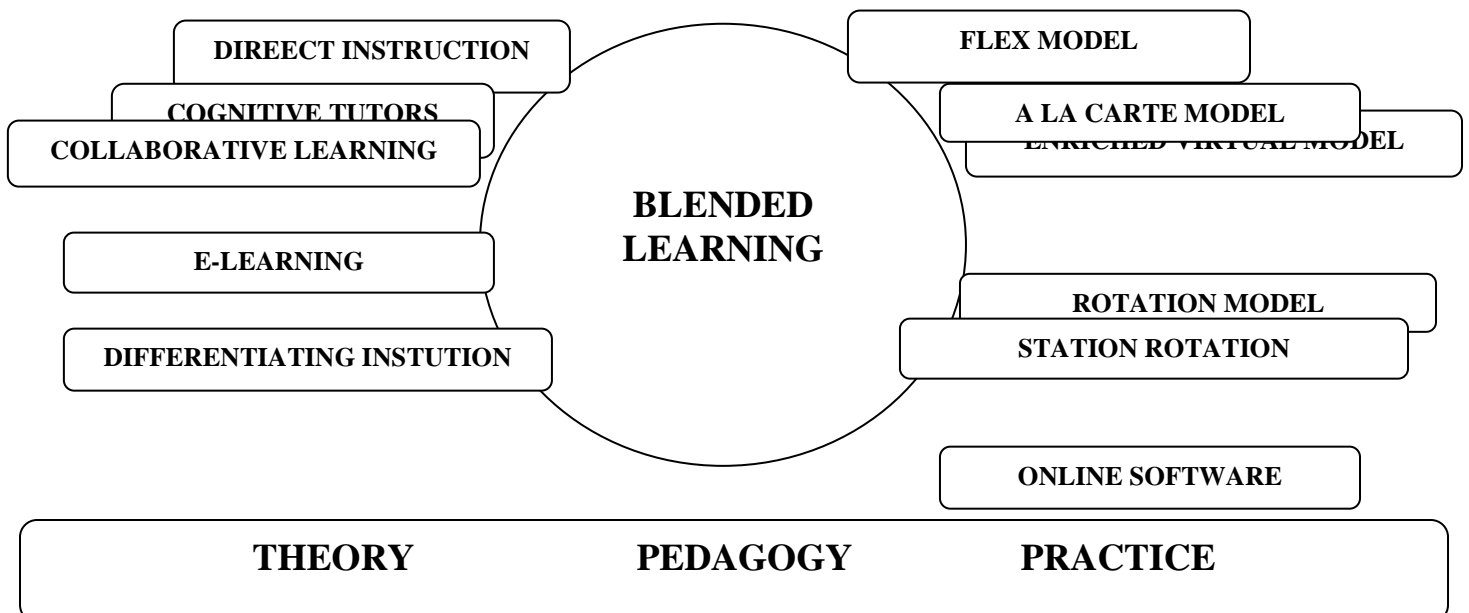
3. Mapping the landscape with clusters of innovative pedagogy & its implementing tools

The map is an implementing tool & indicating the proper way of communication between broad & abstract learning principles with different teaching practices.

- Six clusters of innovative pedagogies.



Pedagogy is the ‘technology of instruction’ that determines how schooling inputs are used in practices to impact learning outcomes schools & teachers both can use these cluster of innovative pedagogical technique to deepen their understanding of what they are doing connecting with learning principals and to broad their understanding by combining it with other experiences. Technology enabled techniques have surged in schools in a worldwide area in which online learning delivers content in a new viable & flexible way & better differentiates learners’ needs. As a result students have more grip & control over the content, pace, timing & location of their learning which in turn allows teachers to further differentiate between instructions. 58 This is called blended learning. The rotational model of blended learning is best known for schools to impose less pressure & this shows a pathway to flourish leapfrogging taking together a rotational access of students in schools lab, face to face classroom interaction & individualized caring. 61



A more detailed analysis of blended learning, embodied learning been given by shape at all (2006) adapted & identified several strategies regarding the use of ICT & Web 2.0. Along with first generation tools & technology e.g interactive white board (IWB), E-mailing Chatting-Conferencing & video conferencing to train up end users through workshop, later 2006-07 onwards through web forms using library & information system is blended learning in staff development process. Social networking soft work is now extensively used for networking purpose by every spheres of education especially in case of learning & teaching. This is also known as web 2.0 & includes valuable resource book by Phil Bradley (2007). Another remarkable application of web 2.0 software is Skype software through while phone call on land phone line as well as computer calling is possible. A remote access teaching by screen sharing & calling possible simultaneously. Blended learning & Embodied learning with collaborative simulations has seen a remarkable transformation both from learner & teachers end. In recent times weblogs is being used extensively in a blended learning platform. Weblog is being used as a learning journal of is a part of blended & collaborative process. Learners are provided updated & upgraded information's & they are asked to open blogs upon their individual experiences.

Research Methodology

Desired outcome of this work in to build capability & enhance teacher capability by exploring innovative 21st century pedagogy which will beaky to leapfrog in educational area in a school in a much backward Muslim oriented uluberia I area West Bengal, India, & it is believed that things case study will provide best innovative way to leapfrog & to promote pedagogical innovations at school level. As Patton indicated in 2002 "A rich variety of methodological combinations can be employed to illuminate an interview question. Ross man & Rallis (2003) stated that "Interviewing observing & studying material culture are the key primary way to discover & learner in field". According to these authors, this study derived from varied sources of data. Ross man & Rallis (2003) asserted that "qualitative research is interactive & researcher is involved face to face with participates to the study". Patton (2002) said "internal validity relates to extent that the research finding accurately represents the phenomenon under investigation". As because this is a case study, internal validity was addressed in terms of accurately identifying & documenting out come from all participants, while establishing sense of transferring in the data may appear clearly. Though several researches were done in relation to teacher effectiveness this study is unique in the sense of schools in the backward Muslim area at uluberia-I subdivision in West Bengal India. So definitely it serves a purposive phenomena including internal validating in a particular context.

Research Questions

Primary Research Questions

- The primary research question for this study is: What are the attributes character is ties, trails of teachers who are seen as innovative creative & highly effective at uluberia subdivision schools? (especially this area has more than 70% are from Muslim students & 30% from Hindu rate of education to low)

Secondary Research Questions

- What commonalities are evident in the teaching styles & practices of those staff identified as: Creative, innovative, and proponents of 21st century learning?
- What are the commonalities in pedagogy philosophy, & relationship that promote effective learning?
- What commonalities in the teaching styles & practices of those staff identified as creative, innovative, shows leapfrogging approaches according to 21st century pedagogical viewpoint?
- What are the Characteristics in pedagogy, philosophy, & the relationships between them to promote effective learning different from conventional one ?

Participants

The Participants in this study included five classroom teachers proposed by their collagens as being innovative & creative. Survey consists a voluntary way (App ending A) distributed to all grade teachers in class VI to class VIII for four junior high school under uluberia I subdivision. The class teachers are selected for this purpose asked to prompt & identity best innovative teachers in that subdivision. Five elementary female teachers are also selected from three different schools, e.g. school A, B, & C. A similar

questionnaire was administered to the principals of each schools & an additional question prompting principals to identify the innovative & creative teacher in this survey two from schools. A one fm school B & two fm school C where classroom teaching experience varied fm 2 to 9 years. Once the surveys were collected participants were considered by the member of times they were identified, along with other criteria such as the result fm the principal survey & interest in participation. The four research sites are also a factor is participant selection, as a higher incidence of identification from one particular school. According to initial identification process, the researcher contacted each potential participant to further collaborate on the context of study. Once selected all participants were invited to an informational dialogue to explain the scope of the study.

Data Collection

Data for this study was connected fm teacher interview student interview researcher observations, and artifact analysis. Data e,g audio taped recording, document sample & anecdotal notes were stored in a file under the researcher.

Interview:

Each of the classroom teachers are participated in a twenty two thirty minutes interview by the researcher. These interviews were connected early in the process & open ended questions were asked to avoid dichotomous answers. Once transcribed the interviewees had the opportunities to review the transcripts for clarification. Each participant was given text copies of all five interviews along with audio versions on digital format. Each participants was encouraged to listen to, real, & inculcate the common themes throughout. Each participant was provided a reflection sheet to document their findings & was also encouraged to emotute directly into the transcriptions of they chose to. Once all interviews & observations conducted, researchers further analyzed the themes and conclusions with participants & they had the scope to refine & clarify the information's. The observations researcher conducted informal observations to provide a clear illustration as to what was happening in the class room. This is what the thick description (Ryle & Greetz 1973). By using thick description, it was easily tapped to detail information of how and why certain phenomena take place in the classrooms. & to understand each teachers way to deliver lesson, experience & influence on learners. During these classroom observations the researcher saw & interacted to the participants to gain a better understanding of what makes their classroom environments, techniques & teaching styles remarkable.

Documents & Artifacts:

In addition to observation & interviews providing participants the opportunity to share artifacts such as lesson plans reflections, books, material culture, goes the participants & researchers to collect meaningful data (Wood ward 2007). It generally depends on culturally communicative capacity & that should not be automatically answered. Object might signify sub-cultural affinity occupation participants in leisure activity etc & different values & meanings being may these artifacts hold within the individual classrooms observed to understand the impacts of material culture on teaching.

Data Analysis

Once the study began data analysis was an ongoing multi step process. Data was analyzed both formally & informally to determine the best process to construct study design (As per Ross man & Rallis 2003) By examining the data collected, common emergent themes being searched for forefront added values with deeper understanding. The themes & conclusions obtained served as a basis of framing follow up questions set for final group meeting.

Findings

The purpose of this study was to investigate trait attitude & characteristics of teachers who were seen as innovative, creative, & highly effective in the context of a remote minority led school area under Uluberia-I subdivision under Howrah District in West Bengal. To conduct this study five teachers & four student interviews along with classroom visit been done during six-week. After completion, five a comparison of transcription of all five teachers interviews been done to distill.

Six common themes e.g.

See the teacher as lead learner

- Encourage learner reflection
- Foster class-community & relationship
- Give students choice to instill ownership
- Employ project / problem –based learning
- Make connections to real life
- Encourage Teacher student collaboration.

Once this process was complete, all of the teacher participants were invited to a final desiccation of the study whether any relevant insight they gained from participates. Student interviews were also analyzed.

Throughout the interview & during the observations, the participants conveyed their experiences with their teachers who envisioned them scheme to learn with latest techniques, careers, & different aspect. But teachers each discussed how they learn from students when Ruby was asked “where does your learning come from?” & “How do you find the time”? She said “I learn all the time” & “I learned from the boys & girls continuously”. “I am trying to learn from kids on daily basis because I thing teaching is also reflective in nature.” And afterwards Ruby was seen most of the day to study books of higher studies regarding her subject of teaching & others books also. A sixth grade student roshan when asked about his teacher Ruby’s teaching he said “she was always fun & through of new ways to do things. It kids don’t understand, then she always found another way. Students are best guided by the languages used by the teachers as their classroom instruction while doing any project work which also can help the learners own reflection of opinion. Here each participants modeled special directive language that guided learners to make their decision. Daring a school performance presentation project, Rabin asked to a pupil who led that group “Doyon need a whole panda well it help? She than redirected “How much still pending Nisha then another student presented what he has finished just now after checking Rabin asked “ I need more purposive & flawless design work. Now it’s 10:30 am within 11:30 it should be completed then all the students became a claim & secreted what flow occur in their designs. After 11:30, Rabin saw that all students desk was nucleated and tidy. He then gently said “within not then tiffin time will not be there. Decide which is worth continuing. After Robin conveyed to the class, the information sent to every learners & they prepared themselves in next 30 minutes. It was just an empowerment to the students & engaging them to “decide” & also this creates the highest level of cognitive engagement. Throughout the individual teacher & student interview, one thing is clear, that is the “Student choice” Each of participants gave their students some choices wherever possible. It also instill ownership to students. There were many instances in this survey where teachers purposefully designed learning experiences to incorporate opportunities to students through their own insight. It has been seen in this survey quite well. Jayanta’s six grade class was doing observations relating to food chain. Jayanta divided students in to four-five groups & each group was engaged for nature scavenging. The pupil had to scavenge a food chain of a pond ; & they do that with full concentration. In this spite of general questions, each students framed their own observational questions with full confidence & enjoyment with & scavenging in nature. Robin certainly watched a snake there & excited. He noted his observations regarding food chain accordingly & thus afterwards Jayanta framed both convergent & divergent questions to the students where they (students) contributed their view points of their own by framing divergent thinking and thus can answer all divergent questions in the data sheet. Throughout interviews the curricular element resounded greatest were project and problem based learning. Project & problem based learning serves also as a link between “innovative” way of learning & classroom expectations. While visiting in Robin’s class there was always a strong technological foundation because of his curiosity forwards the incorporation of teacher logy into his teaching. Students are always keen to know newest tools, technical views, computational & software based learning. One of the most significant traits shared by the participants was their ability to make clarity in the curriculum which enables students through real life examples and deeper understand up. When teacher works together with students, the meaningful learning experiences occur, motivation & ownership appears to the students. Moving into Jayanta’s sixth grade class, it has been seen the students are engaged with peer-editing & everybody is busy with another one’s work. So this is the typical climate of his classrooms. More our, the participants who usually collected with their follow colleagues & anyone , has been able to do a positive influence on their classroom & students. In a seventh grade class saikat showed his students project work on daily used chemicals & their natures where he instructed everyone to write chemicals name & formula which are different from each

other & after 30 minutes theme frame, students will prepare project reports on the commonalities by viewing each others writings. This was found effective & found a versioned model of collaborative formulation.

Discussion of findings

Due to rapid advancement of technology & communication, it has rendered many traditional methods of class teachings outdated & obsolete, & it's also came forward from the study that teachers should be more offhand in technology use, explaining new ideas of communication & collaboration & this ultimately learning to 21st century innovative way of teaching. It has been seen the participant teachers shared a common talent for motivating there students, by depending on theories of motivation & self determination they (As per Ryan & Deci 1987). Mainly i) Autonomy ii) Connectedness iii) Mastery are the three main factors for students that have been seen throughout the study.

References

1. Winthrop & Barton & MC Givney "Leapfrogging Inequality"
2. Paniagna & Istance "Teachers as designers of learning"
3. Care Anderson & Kim " Visualizing the breadth of environments skills movement across education system"
4. Istance "Approaches to pedagogical innovation & why they matter"
5. OECD "Innovative learning environment"
6. Scott "Why must learning content and methods change in 21st century".
7. Winthrop & Barton & MC Givney "Leapfrogging Inequality"
8. US Dept. of education, DOE (2011)
9. Au.W (2011) "Teaching under new Taylorism: high stake testing, standardization of 21st century communication".
10. Chalkiadaki (2018) "21st century skills"
11. Gates et.al (2016)
12. Berth R (1990) "Improving schools from within, Sanfrancisco CA"
13. Berger, R (2003) " An ethic of excellence"
14. Boykin A & Nogaera P (2011) "Creating opportunity to learn"
15. Brady M (2008) " Cover the material or teach students to think"
16. To mlinson A.T (2001) " How to differentiate instruction in mixed ability classroom"
17. Ryan R.M. & Deci E.L (2000) " Self determination they & Facih tradition of intrinsic motivation"
18. Ross man G.B & Rallis S.F (2003) " Learning in the field " Introduces to qualitative Research.
19. Robinson K (2001) "Out of our minds –learning to be **creative**"