iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 10 **Issue:** XI **Month of publication:** November 2022

DOI: https://doi.org/10.22214/ijraset.2022.47723

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue XI Nov 2022- Available at www.ijraset.com

4E Strategy for Pedagogical Analysis of Content

Yudhisthir Mishra[1], Miss. Kshireswari Khamari[2]
[1]*Asst.Prof. IN Pedagogy of Maths & Science, Sambalpur University, Odisha,*
[2]*M.Sc. (Maths, Int B. Ed-M.Ed)*

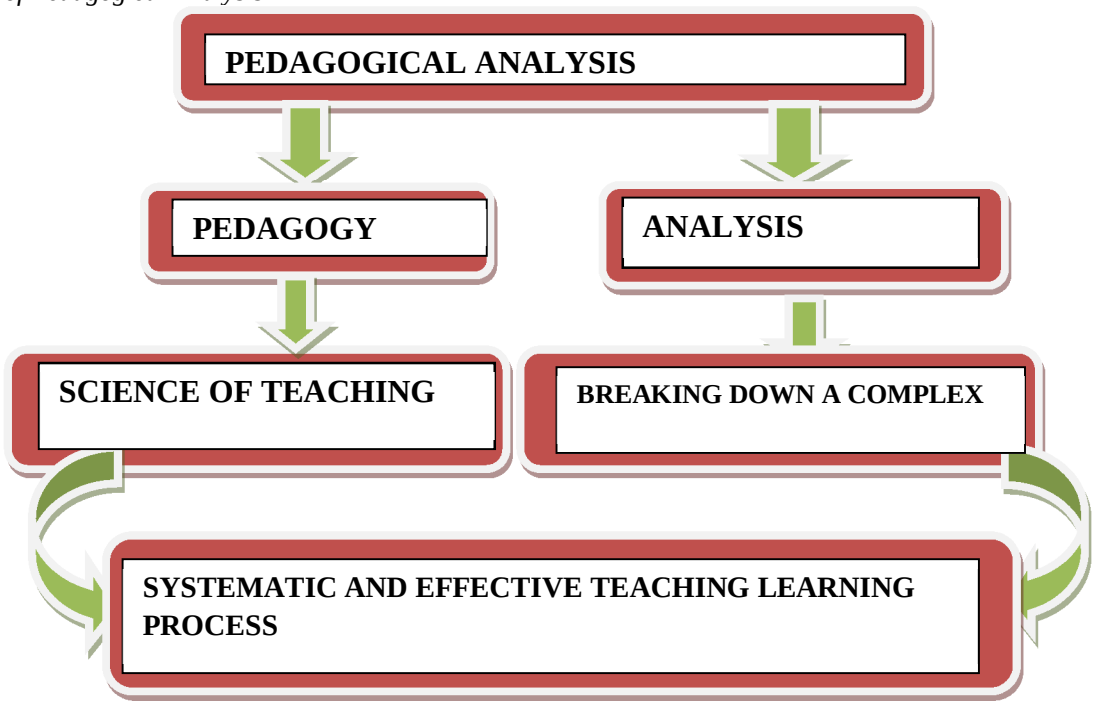
Abstract: ***Pedagogical analysis is based on four essentials pillars along with their inherent mutual relationships and interdependence for being considered essential in the effective teaching-learning process. Content analysis of the topic being taught by the teacher in the subject. Setting of the teaching or instructional objectives of the content material of the topic in hand by writing them in specific behavioral term. Suggesting methods, techniques, teaching-learning activities aids and equipments helpful for the teaching-learning of the topic in hand quite in tone with the realization of the set instructional objectives. Suggesting appropriate evaluation devices in the form of oral, written or practical activities and test questions etc. for evaluating the outcomes of the teaching-learning process carried in relation to the teaching-learning process carried in relation to the teaching of the topic in hand. Researcher developed a strategies for pedagogical analysis of a particular content that is called "4E Strategy".***

Keywords: Content analysis, learning objectives, Teaching learning Experiences , Evaluation process

I. INTRODUCTION

Pedagogical analysis is a compound word. It consists of two words that is pedagogy and Analysis. In its simple meaning the term pedagogical Analysis (a composition of 2 words pedagogy and Analysis) stands for a type analysis based on pedagogy. As we know pedagogy means the science of teaching and analysis is a term stands for a process of breaking or separating a thing in two its smaller parts, elements or constituents. We break a teaching unit in to its constituents- subunit, topic and single concept etc. through the process of unit analysis. In additions, we can break the contents of the prescribed course in a subject into its various constituents- major and minor sections, Sub-sections, units and sub-units, major concepts and minor concept, topic etc. by carrying out a process of content analysis. Therefore "the analysis of a given content material in any subject, any topic carried out well in the spirit of science of teaching is known by the term "pedagogical Analysis of the contents".

A. Figure of Pedagogical Analysis



ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue XI Nov 2022- Available at www.ijraset.com

II. 4E STRATEGY

4E is a strategy which is developed by Dr Yudhisthir Mishra Assistant professor in Pedagogy of Mathematics, Sambalpur University Jyoti Vihar Burla Odisha with Miss Kshireswari Khamari (M.Sc in Mathematics, Integrated Bed-Med). 4E Strategy has four E. Each E has different components. E for Essence of Content Analysis, E for Explore learning Objectives, E for Exhibit Teaching Learning Experience, E for Evaluation process. Figure of 4E Strategy are given below.

III. DESCRIPTION OF 4 E STRATEGY

1) *1StE :- Essence of Content Analysis:* Content means subject matter of any subject and Analysis means breaking down complex topic into smaller sub topics. So before starting teaching a teacher go through the whole content and break the major concepts into the systematic and meaningful minor concepts or simple concepts. So, it is very essential component in pedagogical analysis because in doing so a teacher should have good knowledge of the maxims of teaching and through knowledge of content.
2) *2ndE:- Elaborate learning Objectives:* The second pillar of pedagogical analysis is elaborate learning objectives. After analysis of content a teacher formulate the instructional objective. This is the second pillar of pedagogical analysis. A teaching process should be effective based upon its instructional objectives. So, it is very important task to formulate these objectives very carefully.
3) *3rdE:- Exhibit Learning Experience:* The third pillar of pedagogical analysis is learning experience/ methods/ techniques so in this the students came into the contact of teacher and subject matter. Teachers give the knowledge about the content or concept by selecting the methods, techniques or methods which are best for the teaching of sciences. The instructional objectives are achieved only when there is right selection of the methods/ techniques. It is an artistry of a teacher that which method and how he used this method in his teaching. By utilizing various skills and giving best learning experiences a teacher will be able to achieve his aims. A teacher performs the following activities- Use a various teaching skill in his/her teaching, selection and use of best teaching method/ technique for teaching, use of various teaching aids, activities and techniques e.g. charts, model, real objects, specimens, multimedia presentation etc.

4) *4th E:- Evaluation Process:* This is the fourth pillar of pedagogical analysis. In this we come to know whether the objectives are achieved or not. The outcomes are measured with the help of evaluation devices. So, the selection of appropriate evaluation devices in the form of oral, written or practical activities are carried out in relation to the teaching or topic.

IV. NEED OF PEDAGOGICAL ANALYSIS OF CONTENT

The pedagogical analysis is needed in various purposes. Pedagogical is the science of teaching is a master plan that includes a detail of what is to be done by a teacher, the instructional strategies, instructional equipments and the cardinal objectives of instruction. Depending on what can actually learn and what are the exceptions set for learners of a particular stage of development, specific instructional objectives are determined and appropriate set of activities provided. The teachers decided instructional objectives, equipments and strategies with every aspects of learning condition to be created. Favorable conditions for positive learning cell for knowledge of various factors operating in different conditions. Pedagogical analysis is selection of appropriate objectives and strategies in various instructional situations to assess the levels of actual learning at the end. A comprehensive revision of required takes, strategies for realization of specific goals facilities effective learning. So, pedagogical analysis offers enormous potential for improving the delivery of information in all form of education.

Steps of pedagogical analysis of content: -

1) Divide the contents of the selected unit into the suitable sub-units and arrange the sub-units into a number of required periods.
2) Briefly write the essence of the content of the selected sub-units.
3) Write the appropriate pervious knowledge required for the sub-unit.
4) Write appropriate instructional objectives to be selected for the sub-unit.
5) Select appropriate teaching strategies for the subunit according the following instruction.

a) Write the name of the method applied.
b) Mention the teaching aids required.
c) Briefly illustrate the necessary demonstration or experimentation required.
d) Mention the necessary Black board work required.
e) Write probing question related to the sub-unit and provide appropriate answers for them.
f) Prepare a worksheet for the sub-unit.

6) Give suitable examples/ illustration/ analogies for the sub units.
7) Prepare a table of specification for the subunit. Write at least six criterian reference test of subunit.

V. FORMAT OF PEDAGOGICAL ANALYSIS OF CONTENT

1) Subject
2) Class
3) Chapter
4) Topic
5) Period required

Topic	No of period

6) Sub topic

S.no.	Sub topic	No of period required
01		
02		
03		
04		
05		
06		

7) Pedagogical analysis of content- introduction of set
8) Previous knowledge required:-
9) Instructional objectives (specific learning objectives)
a) Remembering
b) Understanding
c) Application
d) Creativity

10) Teaching methods
11) Approaches of teaching:- constructive approaches 5e model
12) Maxims of teaching
13) Teaching learning material
14) Innovative teaching learning material
15) Themes/discussion points of topic
16) General procedure:
17) Teachers activities
18) Students activities
19) Black-board work
20) Assessment strategies
21) Home work

VI. EDUCATIONAL IMPLICATION

Teacher can take steps to motivate students. It helps the teacher to adopt learner centred instruction. It makes the instructional programme more systematic and content appropriate. It helps the teacher to design a plan of action for immediate feedback, diagnosis and remediation. It helps the teacher to implement proper evaluation procedure

VII. CONCLUSION

So, pedagogical analysis offers enormous potential for improving the delivery of information in all form of education. It involves various logical steps to arrive at logical inference. It also helps the students to understand concepts, principles or phenomena. The learning environment created accordingly enables to- Relate individual fragment of knowledge to real experience in life and work. Develop skills and relates facts as a part of larger organized completely. Realization of specific goals facilitated by a detail planning in effective learning. The science of teaching pedagogy is found to serve the following two main objectives in the scheduled task of a teacher's teaching. Teaching should be carried out as smoothly as possible. It should result into the maximum output in terms of the expected better teaching outcomes.

Mishra.Y & Khamari.K (2022)- Pedagogical Analysis refers to culture of teaching and learning process of 21st century teaching learning system.

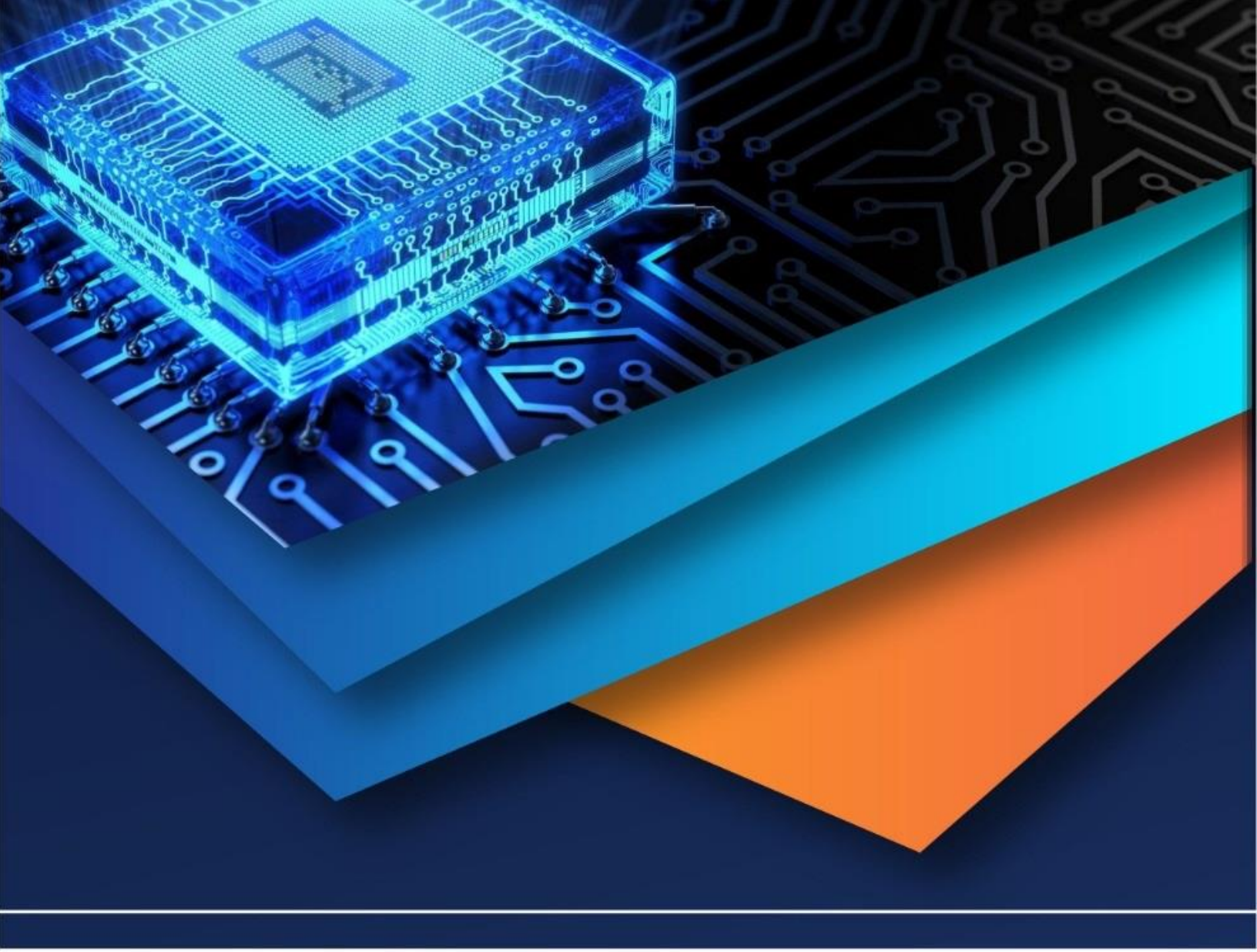
BIBLIOGRAPHY

[1] Dr. Raju. Bondu (march, 2020),A Study on Indian Mathematicians and their Contributions Covered in NCERT Mathematics text books, Assistant Professor of Education, MANUU College of Teacher Education, Bidar, Karnataka, India
[2] Dr. Sunday. A. S (sept, 2014), Mathematics Textbook Analysis: A Study on Recommended Mathematics Textbooks In School Use In Southwestern States Of Nigeria, School of Education, National Open University of Nigeria, Victoria Island, Lagos, Nigeria
[3] Elif.Turnuklu. B and Yesildere.S (0ctober 2007), The Pedagogical Content Knowledge in Mathematics: Preservice Primary Mathematics Teachers' Perspectives in Turkey, Department of Primary Mathematics Teacher Education, Buca-Izmir Turkey
[4] Gene. K (30 may 2018), An Analysis of School Mathematics Textbooks in Terms of Their Pedagogical Orientation, University of Patras
[5] Maharaj. A and Wagh. V(July,2017), Teachers' views on mathematics up to grade 7 and its teaching: A case study, School of Mathematics, Statistics and Computer Science, University of KwaZulu-Natal, South Africa
[6] Md. Khaleduzzaman (December. 2020), Problems of Teaching Mathematics at Secondary Level in Bangladesh, Associate Professor, IER, University of Rajshahi, Bangladesh
[7] Mishra. Y.(2014). Pedagogy of Mathematics. APH Publication ,New Delhi.
[8] Mishra. Y.(2017). Teaching and Learning. Kitab Mahal Publication Cuttack Odisha.
[9] Mrs. Beena. A. V. (2021), Innovative Practices In Teaching Mathematics, M. S. University of Baroda Atladara, Vadodara, Gujarat, India
[10] Mrs. Beena. A. V. (2021), Innovative Practices in Teaching Mathematics, M. S. University of Baroda Atladara, Vadodara, Gujarat, India
[11] Nag.K.M (2014), Trends and Problems of teaching Mathematics at the Secondary stage in Relation to Attitude of the Students towards Mathematics and their Achievement and Achievement Motivation,Utkal University Odisha, India

[12] Prof.Nanda.C. G, (30 oct 2019), Curriculum Implementation: A Case Analysis of Odisha, Former Professor of Education, Ravenshaw University, Cuttack, Odisha, India.
[13] Singh. P, yusoff.M. N and Hoon.S. T (30 July 2020),Content Analysis of Primary School Mathematics Textbooks and its Relationship with Pupils Achievement, Faculty of Education, University Teknologi MARA
[14] Vijayan. V (2019), Technological Pedagogical Content Knowledge Strategies For Enhancing Mathematical Ability Of Higher Secondary School Students, Kerala, Central University of Kerala, Kasaragod
[15] Vijayan. V (2019), Technological Pedagogical Content Knowledge Strategies for Enhancing Mathematical Ability of Higher Secondary School Students, Kerala, Central University of Kerala, Kasaragod

WEBLIOGRAPHY

[1] https://www.monash.edu/rlo/graduate-research-writing/write-the-thesis/introduction-literature-reviews
[2] https://library.concordia.ca/help/writing/literature-review.php
[3] https://scientific-publishing.webshop.elsevier.com/research-process/importance-literature-review-research-writing/
[4] https://www.quora.com/What-is-the-definition-of-mathematics-by-famous-mathematicians.
[5] https://www.slideshare.net/AngelSophia2/nature-scopemeaning-and-definition-of-mathematics-pdf-4.
[6] https://www.mathunion.org/icmi/role-mathematics-overall-curriculum.
[7] https://www.pqsystems.com/qualityadvisor/DataCollectionTools/operational_definition.php.



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY