

SYNOPSIS

on

Evaluating Outcome and Impact of Selected National Policies on Education and Mining Sector in Gujarat

Submitted for fulfillment of partial degree in

Ph.D. Program in Management

By

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**GUJARAT TECHNOLOGICAL UNIVERSITY, AHMEDABAD
MAY-2026**

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1. Title of the Thesis and Abstract

1.1 Title of Thesis

Evaluating Outcome and Impact of Selected National Policies on Education and Mining Sector in Gujarat

1.2 Abstract

Evaluation of the new implemented policies helps to decide future roadmap for the betterment of nation. Two policies namely National Mineral Policy and National Education Policy have major impact on nation building. The National Mineral Policy aims to ensure scientific, sustainable, and transparent mining while promoting economic growth, environmental protection, and social welfare, especially for mining-affected communities. Based on survey on 80 stakeholders, impact of NMP 2019 was analysed and 60 respondents were taken to analyse the drawback of NMP 2019. The National Education Policy (NEP) 2020 is a comprehensive education reform policy of the Government of India, approved in 2020, that aims to transform India's education system from school to higher education. NEP 2020 focuses on holistic, flexible, multidisciplinary, and skill-oriented education, replacing rote learning with conceptual understanding, creativity, and critical thinking. NEP 2020 is India's policy to create a flexible, inclusive, and skill-based education system for the 21st century. In this research work, we have analysed the impact of NEP 2020 in the areas (1) Academics (2) Students (3) Faculties (4) Employment (5) Research and (6) Institute. We have evaluated the impact of NMP 2019 and NEP 2020. For the evolution of NMP-2019 we evaluated its impact on stackholder and drawbacks of it to suggest corrective majors for betterment of the policies. The NEP-2020 evaluated across the different Institutes/ Universities in Gujarat state. Impact of NEP 2020 was analysed in our research work by using the responses from 360 different Institutes such as Government University, Private University, Deemed University. Participated stakeholders were Dean, HOD, Professors, Associate Professor and Assistant Professor. We have collected the responses from the stakeholders who were associated with different disciplines- Engineering, Pharmacy, Management, Commerece, Life science etc. From our research work, we have observed that due to NEP 2020, Gujarat state sees improvement in foundational aspects related to studentand teachers.

2. Introduction

National policies play a crucial role in shaping the socio-economic development of a country by guiding sectoral growth, governance, and innovation. In India, transformative reforms such as

the National Education Policy (2020) [1] and the National Mineral Policy (2019) [2] have been introduced to address long-standing challenges and align with global standards. The education sector focuses on enhancing quality, accessibility, flexibility, and research orientation, while the mining sector emphasizes sustainable development, transparency, and efficient resource utilization. Evaluating the outcomes and impacts of these policies is essential to understand their effectiveness, implementation challenges, and contributions to national and regional development. This study aims to critically assess how selected national policies have influenced structural reforms, stakeholder engagement, and overall performance in the education and mining sectors.

2.1 National Mineral Policy - NMP

The National Mineral Policy has evolved from resource exploitation (1993) to sustainable and inclusive mineral development (2019), balancing economic growth with environmental and social responsibility.

The National Mineral Policy (NMP) is a policy framework of the Government of India that guides the exploration, extraction, management, and conservation of mineral resources in the country [2]. The National Mineral Policy of Government of India has evolved over time to match India's economic needs, industrial growth, and sustainability concerns. We have evaluated impact of NMP, 2019 in the Mining sector across the Gujarat State.

Main Objectives of National Mineral Policy (2019) are

- Ensure sustainable mining with minimal environmental damage
- Encourage private sector participation and foreign investment
- Promote transparent allocation of mineral resources
- Improve technology use in mineral exploration and mining
- Protect the rights of local and tribal communities

Evolution of national Mineral policy is as under over the period of time

1. National Mineral Policy, 1993
 - Introduced after economic liberalization (1991)
 - Allowed private sector participation in mining
 - Focused on systematic exploration and mineral development
 - Marked a shift from state-dominated mining to a market-oriented approach
2. National Mineral Policy, 2008
 - Emphasized sustainable development

- Introduced concerns for environment protection and mine closure
 - Encouraged foreign direct investment (FDI)
 - Stressed scientific mining practices and transparency
3. National Mineral Policy, 2019 (Current Policy)
- Strong focus on sustainable and responsible mining
 - Promotes zero-waste mining and value addition
 - Protects tribal and local communities
 - Encourages digital technologies, exploration, and recycling
 - Supports Make in India and Atmanirbhar Bharat

2.2 National Education Policy - NEP

The National Education Policy (NEP) 2020 is a landmark reform introduced by the Government of India to transform India's education system in line with 21st-century needs [1]. It replaces the earlier 1986 National Policy on Education. NEP 2020 aims to create an inclusive, flexible, multidisciplinary, and skill-oriented education system that promotes critical thinking, creativity, ethical values, and lifelong learning.

Key Features of NEP, 2020

- School Education Reforms
- Higher Education Reforms
- Teacher Education
- Vocational & Skill Education
- Technology & Digital Learning

NEP 2020 marks a shift from content-based education to competency-based learning, preparing students to meet future challenges while preserving India's cultural and ethical values. Main Objectives of NEP 2020.

- Universal access to quality education
- Improve learning outcomes
- Promote equity, inclusion, and lifelong learning
- Make India a global knowledge hub

The demographic profile of stakeholders in the education sectors affected by the National Education Policy 2020 was analyzed in our research work by using responses from 142 participants, including student, professor and different stakeholders.

The National Mining Policy was analysed by including professional such as AGM/DGM, geologists, managers, and lecturers. The study found significant concerns regarding NMP 2019, particularly its orientation towards private sector benefits and its impact on public sector opportunities.

2.3 AIM, Objectives and Scope of Work

a. AIM

AIM of this research work is to do critical evaluation of two most important policies of national interest namely: National mineral policy and National education policy. For this, our research was designed with aim of analysing how the NMP policy has influenced mineral governance, sustainable mining practices, transparency, environmental sustainability, value addition, and capacity building and the overall growth of mining after NMP implementation, and how the NEP policy has impacted skill development, industry–academia collaboration, employment generation, curriculum reforms, multidisciplinary education, teacher training, digital learning, institutional autonomy, education and training institutions in the state.

b. OBJECTIVES

The research aims to achieve the following specific objectives in the context of the National Mineral Policy 2019 and its implementation in Gujarat:

1. **To examine** the key provisions of NMP 2019 and analyze their relevance to Gujarat’s mining and education ecosystem.
2. **To assess** the impact on the mining sector in Gujarat in terms of mineral production, value addition, transparency in mineral allocation, investment inflow, and sustainable mining practices.
3. **To analyze** the influence on education and skill development, particularly in mining engineering, geology, environmental studies, and vocational training programs aligned with industry needs.
4. **To measure** employment generation and entrepreneurship opportunities created in the mining and allied sectors after NMP 2019 implementation.
5. **To identify implementation challenges and gaps** in policy execution at the state level.
6. **To provide recommendations** for strengthening policy effectiveness and enhancing sustainable growth of both the mining and education sectors in Gujarat.

The research aims to achieve the following specific objectives in the context of the National Education Policy 2020 and its implementation in Gujarat:

1. **To analyze** the key reforms introduced under NEP 2020 and examine their alignment with Gujarat's existing education framework.
2. **To evaluate** the impact on higher education
3. **To assess** changes in higher education, including multidisciplinary education, Academic Bank of Credits (ABC), multiple entry–exit options, and institutional restructuring.
4. **To examine** the role of digital education and technology integration, including online learning platforms and blended learning approaches.
5. **To identify** implementation challenges and administrative constraints faced by educational institutions in Gujarat.
6. **To suggest** policy recommendations for improving effective implementation and ensuring sustainable educational transformation in the state.

c. SCOPE

This research focuses on evaluating the outcomes and impact of the National Mineral Policy 2019 on the mining and impact of National Education Policy -2020 on education sectors within Gujarat. The scope of the study includes the following dimensions:

1. **Geographical Scope** : The study is confined to Gujarat state, covering major mineral-producing districts and selected educational institutions.
2. **Sectoral Scope** : National policy related to mining and education.
3. **For the NEP-2020** we considered higher education.
4. **Time Scope**: The study focuses on developments from 2020 onward, assessing short-term and medium-term outcomes based on available data.

The research does not extend to comparative analysis with other states unless required for contextual understanding. It primarily concentrates on measurable outcomes, implementation effectiveness, and long-term developmental impact within Gujarat.

This defined scope ensures a focused and systematic evaluation of NEP 2020's implementation effectiveness and its transformative impact on Gujarat's education ecosystem.

3. Background Study & Literature Review

3.1 National Mineral Policy – Historical Persepctive

- National mineral policy 1993 mainly focused on liberalize the mining sector and encourage private participation [3]. It designed to promoted private investment and modern technology in mineral exploration. It is also focused on legal and regulatory frameworks for uniform mineral administration and ensured systematic development of mineral resources considering national and strategic needs [3].
- National Mineral policy 2008 emphasized on zero-waste mining and technology upgradation. It encouraged privatization and Foreign Direct Investment (FDI) in mining and opened the sector further to private players and global participation. It introduced the concept of a Sustainable Development Framework (SDF) and focused on optimal utilization of mineral resources with environmental considerations [3].
- National Mineral policy 2016 Addressed rising demand and depletion of mineral resources globally. It hghlighted the need for reforms in institutions and regulatory systems for balanced economic growth, environmental protection, and social welfare. It strengthened sustainable mining practices through an established SDF (2011) and emphasized advanced mineral exploration strategies under updated policy frameworks [3].
- National Mineral policy 2019 aims to ensure better regulation for sustainable development of the mining sector. It focuses on transparency and balanced enforcement, especially benefiting tribal and affected communities. It encourages increased exploration activities with greater private sector participation and aim to maximize the contribution of the mining sector to the Indian economy. It also targets reduction in mineral imports by strengthening domestic production [4, 5, 6,7,8].

3.2 National Education Policy

- The foundation of technical education was laid by British colony in the year of 1794 by establishing the survey school in Madras. Since, 1794 Britishers have formed many commissions/committee which recommended various technical institutes in various parts of India for creating skilled labors, who will assist the Britisher's in achieving their ambitions and goal of ruling India [9,10]. In early 20th century the college of engineering

at Jadavpur was founded under National Council of Education. The college first offered the diploma in mechanical engineering followed by chemical engineering. Sir Jamshedji Tata established Indian institute of science which started a certificate course in electrical engineering. Till the end of 1930s there were only 10 institutes offering courses mainly in limited facilities like ISM Dhanbad, established based on Royal School of Mines, London, 1926 [10].

- The national education policy is designed to ensure that every child has the right to free education [1]. As per the NEP 1968, the main objective was to provide primary education to as many as possible and also to train teachers for quality education. It was focused on the three dialect equation i.e. People should know three languages I) English, II) Hindi and III) Regional Dialect. NEP 1979 was focused on providing basic training for the improvement of identity and character. It focused on learning of arithmetic, history, language, elementary sciences, etc.
- In 1944, government of India formed department of Planning and Development to reorganize the Indian economy under Sir Ardeshir Dalal [10]. He understood the importance of higher education in uplifting the Indian economy. As a result, following steps were carried out for promoting scientific research and technical education in India by the government:
 - Forming of All India council of technical education to advise the government in all aspects of development of technical education at diploma level and above levels, including post graduate general stream teaching.
 - Establishment of Department of scientific and Industrial Research.
 - Forming a committee in 1945 under the chairmanship of Mr. N.R Sarkar
 - Establishment of overseas fellowship scheme for training of scientists and technologists abroad
- Union government built up the University Education Commission (1948–1949) to create recommendations to modernize India's training framework. The main National Policy on Education (NPE) was proclaimed in 1968 by the then Prime Minister Indira Gandhi. It was a set up for assessing the structure of national training framework [9]. Since 1947, till 1968, India had 135 institutes involving polytechnics [10]. Post-independence looking to economic and industrial development of country, no attention was towards developing a framework for higher studies or research in the field of engineering and

technology. Later, the government realized the importance of higher education and research and founded 5 IITs with objective:

- To upgrade the knowledge and competence of teachers of technical institutions and to augment the pool of such teachers to meet the demands of future.
- To develop adequate facilities for training manpower for research and development and to provide leadership in this area.

With the above objectives the facilities for post graduate studies and Research were expanded in India.

- Educational policy of India is mainly focused on quantifying the education rather than quality of education. If we look at the pre independence era, technical education was provided only to fulfil the assistance for British colonial government [10, 13]. But post-Independence, India realised the importance of technical education in boosting the economy and various premium institutes were established like IITs. Now the government has established many universities and colleges, as well government allowed private players to contribute by establishing deemed / to be deemed universities. To boost research, government research agencies are granting research funds to carry out research which is in the direction of sustainable energy and has socio economic importance. To check the quality of technical education, government has created accreditation bodies viz. NAAC and NBA which evaluates the institutes and programs, respectively and provides accreditation to keep the quality check of education in India.
- NEP 2020 [1] is based on the principle of holistic development of the students. It aims to develop a good human being capable of rational thought and action, processing compassion and empathy, courage and resilience, scientific temper and creative imaginations, with sound ethical morals, values and complete youth development. To make students industry ready, cutting edge areas like AI, 3D machining, Big Data Analytics, Bio technology, nano technology, neuroscience, etc. are also added to the curriculum.
- The NEP 2020 is targeting a holistic development of students in all the sections of education i.e. primary, secondary and higher education. In higher education, the policy aims in uplifting the higher education to notch higher. The policy talks about enhancing

the student's calibre by seeking education in multidisciplinary areas rather than focussing in one area of expertise. The policy talks about choice based credit system in which students can choose their subjects of their liking and study it throughout their career. NPE 2020 encourages more on vocational training as well as skill development. The vocational trainings need to be backed up by the industries. This will increase institute-industry interaction, which will lead to employable technocrats/technicians. NEP 2020 also offers flexibility in choice of subjects and time frames, exit at various skill level. NEP 2020 has found overwhelming response both in academia as well as in society. It is envisaged that it will pave a new path in the field of global education.

3.3 Education Policies of Foreign Countries

1. Europeans Countries

Europeans view higher education as a public service. After primary and secondary school, the most eligible students are offered, after a rigorous selection process, for studying in the public system of higher education for a specific career (medicine, law, engineering, business administration, biology, etc.) [11,12]. European education system emphasizes more on theoretical studies in university and learning 'on the job' is reality there as the system is not focused on practical implications of the theory which students learn in their career [12].

- **Bologna Declaration of European Union [11]:**

The six basic principles of the Bologna Declaration are –

- The adoption of a system of easily comparable degrees;
- The establishment of a system essentially based on two main cycles, undergraduate and graduate
- The implementation of a common system of credits for promoting widespread student mobility, the European Credit Transfer System (ECTS)
- The creation of a policy directed to overcoming obstacles and assuring mobility for students, teachers, researchers and administrative staff
- The promotion of European cooperation to assure the quality of higher education through the development of comparable criteria and methodologies and

- The development of the necessary European dimensions in higher education, particularly through curricular development, inter-institutional cooperation, mobility schemes and integrated programmes of study, training and research.
- Since 1999, more non-Europeans have begun to enrol in institutions of higher education across the European Union (EU). It seems that credit is due largely to the Bologna Process. according to Brookes and Huisman (2009), the number of international students is growing faster in Europe than in the US. In 2006 international enrolment grew 17% in the US, but in the same period it went up 29% in the United Kingdom (UK), 46% in Germany and 81% in France. Institute of International Education has calculated the economic impact of the international student market at approximately \$14.5 billion. The idea behind Bologna was to encourage institutions to respond to new trends by diversifying curricula and increasing the number of universities. Flaws of EU system with American system are -
 - Students are not motivated towards their higher education
 - Contribution of students in financial matter for higher education
 - Industry academia interaction is lagging
 - Connecting research with teaching

2. United States

- Traditionally, in the United States (US) after high school students do not choose a specific career but go through four years of general study at college [11]. Only after graduation can they join a professional school (of law, medicine, engineering and so on) at the postgraduate level. The higher education in United States of America (USA) is very expensive as the higher education is handled by private agencies and government is not participating much in the education system. Education system in USA is more practical driven, the students are trained in a skill thoroughly, which makes them devoid of vocational skills. As a result, the courses of study are much more diversified in the US than in Europe. US higher education institutions often place a greater emphasis on job preparation and training than on developing intellectual capacities.
- Research is an integral part of the system and universities tend to raise funds from industry for research which makes professors to focus more on research and less on teaching Flaws of US system in comparison of EU system are -

- Lack of vocational training to make students employable
- Making education public to support bright and low-income students
- Developing intellectual capabilities and maturity
- Connecting teaching with research rather than being industry oriented

3.4 Related Work

Devi L. & Cheluvaraju (2020) [13] studied the Awareness about the Impact of National Education Policy-2020 Among the Stakeholder of Commerce and Management Disciplinary. P. S. Aithal & Shubrajyotsna Aithal,(2020) [14] analysed the Indian National Education Policy 2020 towards Achieving its Objectives. Praveen Jha, Pooja Parvati, (2020) [15] studied the Long on Rhetoric and Short on substance National Education Policy, 2020.

Muskan Sha, (2020) [16] discussed the National Education Policy 2020 and its achievements in detail. According to Sadgopal [17] there is a lack of linkage between government and academia in terms of funding and providing autonomy to the universities. Similarly, the industry – academia linkage is poor, technology is rapidly changing with a huge pace, in which the Indian academia has a meagre contribution. The patents filed by Indians are way less than the other countries, due to lack of funding. India has filed 2053 patents which is around 1 % of global filings as per data compiled by WIPO. This number indicates the need of encouragement to institutes as well as industries to work in this direction. Industries can come up with problems to academicians and both can collaborate in their own capacities.

Dey (2022) [18] critically analyzes the National Education Policy 2020, focusing on reforms in school structure, teacher education, and higher education. The study highlights key transformations and also identifying strengths and potential implementation challenges.

Sethy and Mahapatro (2025) [19] examine how the National Education Policy 2020 aims to transform higher education through flexibility, holistic learning, and global engagement. The study highlights innovations like multiple entry-exit options and the Academic Bank of Credits, emphasizing the policy's potential to enhance quality, governance, and international competitiveness. Other major research work are summerised in in below table:

Table-1: Summerisation of Related Works

Author(s)	Year	Focus of Study	Methodology	Key Findings	Research Gap Identified
Sethy & Mahapatro [19]	2025	Transformation of Indian higher education under NEP 2020	Conceptual and policy analysis	Emphasizes holistic education, flexibility, Academic Bank of Credits (ABC), global engagement, and multidisciplinary reforms	Lacks empirical state-level data on actual institutional outcomes and performance indicators
Dey [18]	2022	Critical analysis of school, teacher, and higher education reforms	Analytical and descriptive review	Highlights structural reforms (5+3+3+4 model), teacher education restructuring, curriculum redesign; notes implementation challenges	Does not provide quantitative evidence on impact across regions or states
Sharma (N.) [20]	2023	Objectives, implementation framework, and future prospects of NEP 2020	Comprehensive policy review	Identifies inclusivity, foundational literacy, regulatory reforms (HECI), and multidisciplinary learning as transformative measures	Limited empirical validation of long-term outcomes; lacks region-specific assessment
Ghai [21]	2025	Ground-level implementation challenges of NEP 2020	Field-based descriptive analysis	Identifies infrastructure gaps, teacher preparedness issues, and socio-economic barriers affecting policy implementation	Does not examine measurable academic outcomes or comparative state performance

4. Problem Statement

The Government of India introduced the the National Mineral Policy 2019 and National Education Policy 2020 as transformative reforms aimed at restructuring two critical sectors—education and mining—through systemic, regulatory, and governance changes. Both policies emphasize modernization, sustainability, transparency, skill development, and long-term

economic growth. Despite the ambitious objectives outlined in these policies, there is limited empirical evidence assessing their actual outcomes and measurable impact at the state level, particularly in Gujarat, a state with significant industrial growth, mineral resources, and educational infrastructure.

Therefore, the central problem of this research is the absence of a comprehensive, evidence-based evaluation of the outcomes and long-term impact of NMP 2019 on Gujarat's mining sector and NEP 2020 on Gujarat's education sector. This study seeks to bridge this gap by examining whether the intended policy objectives are being realized in practice and by identifying strengths, limitations, and areas requiring policy refinement within the state context.

5. Contribution of the Thesis

- Detailed review of National Mineral Policy (1993, 2008, 2019) and National Education Policy 2020 along with historical evolution and sectoral reforms was carried out.
- Survey and stakeholder analysis involving mining professionals such as AGM/DGM, geologists, engineers, managers, lecturers, and students were conducted. Chi-square analysis and stakeholder perception analysis were performed.
- NEP-2020 impact was evaluated using responses from universities and institutions across Gujarat. Analysis covered curriculum reforms, multidisciplinary education, Academic Bank of Credits, skill development, and digital learning.
- The study investigated impact on employability, vocational training, industry–academia interaction, entrepreneurship opportunities, and institutional autonomy under NEP-2020 and NMP-2019.
- Drawbacks and implementation limitations of NMP-2019 and NEP-2020 were analyzed through stakeholder opinion surveys and descriptive analysis.
- Reliability analysis, normality analysis, Chi-square test, and One-Sample Wilcoxon Signed Rank Test were employed using SPSS for hypothesis testing.
- Suggestions for sustainable mining, inter-ministerial coordination, environmental safeguards, institutional planning, faculty development, and governance reforms were proposed.
- Research outcomes were published in journals related to mining policy and education policy implementation.

6. Research Methodology

Our research methodology start with problem identification and followed by Literature survey and data collections, data sampling, hypothesis testing, and result analysis. Detailed steps are as under:

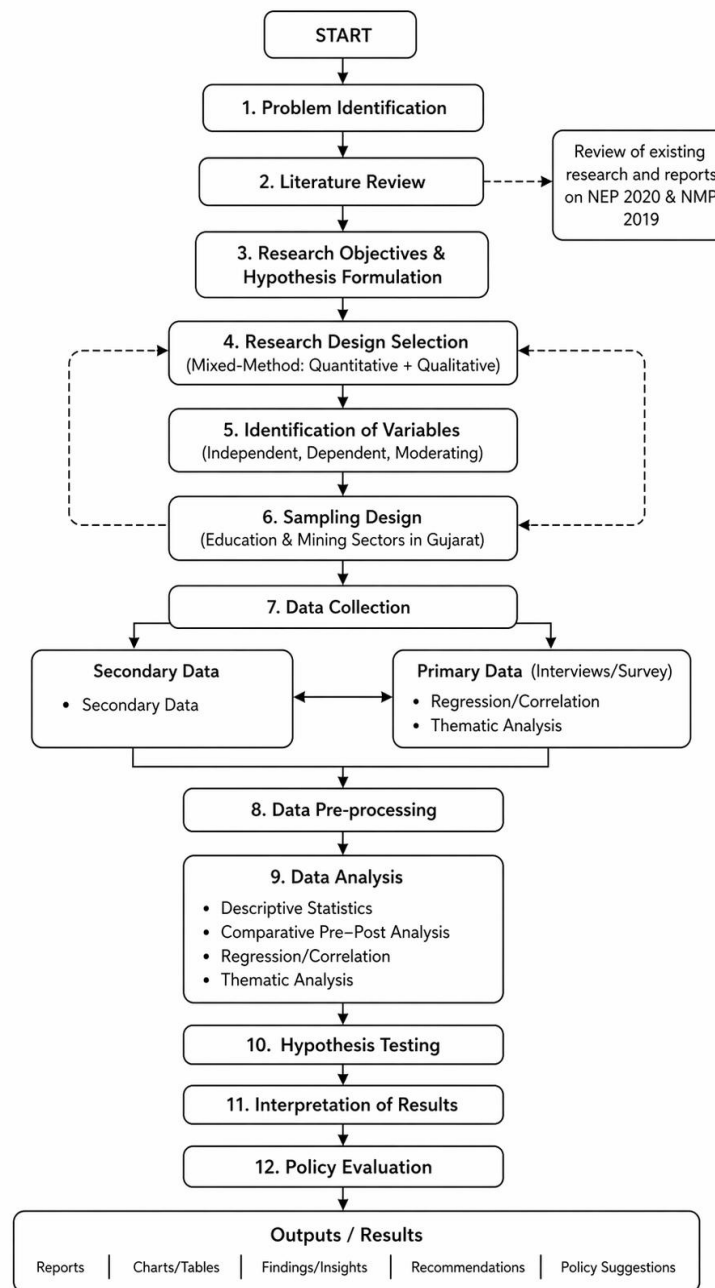


Figure 1: Flowgraph for Research Methodology

1. **Problem Identification:** Identify the research problem.
2. **Literature Review:** Review existing research, reports, and related studies.

3. **Research Objectives & Hypothesis:** Define objectives and formulate hypotheses.
4. **Research Design Selection:** Choose an appropriate mixed-method (quantitative + qualitative) design.
5. **Identification of Variables:** Identify independent, dependent, and moderating variables.
6. **Sampling Design:** Decide the sampling method (e.g., education and mining sectors in Gujarat).
7. **Data Collection:** Collect data from primary (interviews/surveys) and secondary sources.
8. **Data Pre-processing:** Clean, organize, and prepare data for analysis.
9. **Data Analysis:** Apply descriptive statistics, comparative analysis, regression/correlation, and thematic analysis.
10. **Hypothesis Testing:** Test hypotheses to validate results.
11. **Interpretation of Results:** Interpret findings and draw conclusions.
12. **Policy Evaluation:** Evaluate policy implications based on results.

Outputs: Reports, charts/tables, findings, insights, recommendations, and policy suggestions.

7. Result Analysis & Discussion

7.1 Research Procedure & Results Discussion Related to NMP 2019

Table 1 describes the demographic profile of the stakeholders of the mining and education - sectors who are majorly affected stakeholder of the study domain affected by the NMP 2019. The table signifies the study has conducted with the total 82 + 60 samples, including AGM/DGM, Owner, Geologist (Asst./Fellow Also), Manager/Asst. Manager, Engineer/Supervisor, Designation: Lecturer, Royalty Inspector, Lab Asst./Over man, Student who are well educated and having an experience in mining sector. Hence the concluding analysis drawn from this study would be beneficial for the judgment to predict the effect of mining in adoption of NMP 2019 without many complications.

Table 1: Demographic Profile of Respondents

DEMOGRAPHIC DISTRIBUTION		
Particulars	Numbers	Percentage
Gender (Male)	74	90.24
Gender (Female)	8	9.76
Age below 23	10	12.20

Age 23 to 28	28	34.15
Age 29 to 35	20	24.39
Age Above 35	27	32.93
Designation: AGM/DGM	7	8.54
Designation: Owner	1	1.22
Designation: Geologist (Asst./Fellow Also)	19	23.17
Designation: Manager/Asst. Manager	15	18.29
Designation: Engineer/Supervisor	13	15.85
Designation: Lecturer	10	12.20
Designation: Royalty Inspector	7	8.54
Designation: Lab Asst./Overman	3	3.66
Designation: Student	7	8.54

Table 2: Respondent Opinion on the Drawbacks of the Current NMP-2019

Particulars	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total Samples
It is lacking to encourage the firm from Right to First Refusal.	0	13	21	13	13	60
It is mainly private sector oriented.	3	19	18	12	8	60
The policy is mainly oriented to obtain financial benefits.	3	18	20	14	5	60
It is degrading the opportunities for Public sector and minor firms.	4	21	11	20	4	60
It is lacking in the conservational requirement of minerals for the future.	4	25	13	14	4	60
Overall employability ratio will decrease due to privatization.	6	16	13	21	4	60

Rationalization of reserved areas given to PSUs will not attract private sectors.	5	15	14	25	1	60
More and more national reserve will go in the hands of foreign investors.	5	15	10	26	4	60
It is not encouraging the indigenous technological advancement.	4	16	12	18	10	60
Less emphasis is made in enforcement of environmental rules and regulation.	2	24	12	14	8	60

The table 3 represents the respondent's opinion on the limitations of current National Education Policy. Out of the 60 samples collected from the various stakeholders some conclusions can be drawn such as 22 of the respondents thinks that the NMP 2019 is private sector oriented where as 18 are neutral on the decision and 20 (i.e. 33 %) stakeholders are either disagree or strongly disagree on the orientation of NMP 2019 towards the private sector. Similarly 21 people (35 %) respondents believe that the policy is mainly financial oriented whereas 20 (33%) thinks that it is not financially oriented and rest of the respondent are neutral at their decision. 25 respondents (42 %) believe that NMP 2019 in the sector is degrading the opportunities for Public sector and minor firms where as 24 respondents (40%) disagree on the note.

Table 3: Chi Square Analysis

Particulars	Observations (O)	Expected (E')	O - E	(O - E)^2 / E
How much you are aware about NMP-2019	82	80	2	0.05
NMP 2019 builds the road map for foreign investors to start their business in early stage.	82	74	8	0.864864865
NMP 2019 is more mineral exploitation oriented.	82	74	8	0.864864865
NMP 2019 aims to develop technological advancement in mining sector.	82	74	8	0.864864865

NMP 2019 aims to bring better opportunities to foreign investors.	79	74	5	0.337837838
NMP 2019 develops market capital in mineral sector that meets future demands.	82	74	8	0.864864865
NMP 2019 opens mineral market for mining sector at global level.	81	74	7	0.662162162
NMP 2019 encourages private sectors to acquire mineral resources in other countries.	79	74	5	0.337837838
NMP 2019 will encourage national GDP growth.	81	78	3	0.115384615
NMP 2019 encourage maintenance of database of mineral resources under Mining sector.	80	74	6	0.486486486
NMP 2019 will lead to sustainable Mining sector development.	81	74	7	0.662162162
Total	891			6.111330561

Our null and alternate hypothesis and other statistical observations are as under:

H_0 : There is no significant impact of NMP 2019 on stakeholders of mining sector.

H_1 : There is significant impact of NMP 2019 on stakeholders of mining sector.

$\alpha = 0.05$

$1-\alpha = 0.95$

Degree of freedom = $11-1 = 10$

Chi square value = 6.11.

Critical value ($\alpha=0.05$ d.f= 10) = 3.940.

Decision: Chi square value is more than critical value ($6.11 > 3.940$) hence H_0 is rejected and thus alternate hypothesis that there is significant impact of NMP 2019 on stakeholders of mining sector is proved true.

7.1.1 Key Observations for NMP-2019

- The stakeholders must start analyzing the NMP 2019 working factors so that it helps to identify the skills required for working with NMP 2019.

- The stakeholders must develop the required skills and adopt the NMP 2019 positively so that it leads to faster growth of economy.
- Students community must analyze their skill set before opting for the course because the NMP 2019 aims for outcome based learning if the students opt for the course based on their skills then they can achieve their goals faster.
- There is a wide scope for the study on NMP 2019 because the major group of people are still lacking the knowledge on the working of NMP 2019.
- The researchers must undergo enormous research under this field to improve the knowledge among the stakeholders which ultimately leads to adoption of NMP 2019 at greater speed and leads to development of economy.
- State involvement is also an important factor in the NMP-2019.
- The stakeholders must start analyzing the NMP 2019 working factors so that it helps to identify the skills required for working with NMP 2019.
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- State involvement is also an important factor in the NMP-2019.

7.1.2 Suggestions for Sustainable Development with NMP perspective

- A unified authority in the form of an inter-ministerial body under Ministry of Mines should be constituted with members like Ministry of Coal, MoEarth Sciences, MoEFCC, Ministry of Tribal Affairs, Ministry of Rural Development, Ministry of Panchayati Raj, Ministry of Steel, including state governments.
- A mechanism for ensuring sustainable mining with suitable concerns for environment and socio-economic problems in the mining sectors, and to facilitate the Government on rates of royalty, dead rent etc. should be involved.

- This mechanism as proposal shall also determine the limits on the extent of mining activities that should be permitted which would, inter alia, involve undertaking a deep study for assessing what should be the state-wise/region-wise ceiling of yearly excavation of minerals,
- Also it will be considering the availability of mineral resources, the carrying capacity of the region, and the macro environmental impact on the region while also keeping in mind the principles of sustainable development and intergenerational equity and all other relevant factors.

7.2 Research Procedure & Results Discussion Related to NEP-2020

Majority of institutions demonstrated strong awareness of NEP-2020 objectives and guiding principles. Universities have initiated steps toward with curriculum revision aligned with multidisciplinary and outcome-based education, Introduction of skill-oriented and value-based courses, Enhanced focus on student-centric learning and flexibility, Faculty development and capacity building were identified as critical enablers for successful implementation. Institutions acknowledged the importance of technology integration and digital platforms in achieving NEP goals.

The survey highlights a positive institutional outlook toward NEP-2020 implementation in Gujarat. While conceptual acceptance is high, phased execution and resource support are essential for sustained impact. The key challenges identified includes: Infrastructure and funding requirements, Faculty training and change management, Alignment of regulations and academic autonomy. The findings provide valuable inputs for policy refinement, institutional planning, and monitoring mechanisms to ensure effective realization of NEP-2020 objectives.

For the evaluation of NEP-2020 we conducted survey using a structured Google Form designed in alignment with key components of NEP-2020. It covered areas such as: Academic flexibility and multiple entry–exit systems, Curriculum redesign and multidisciplinary approach, Skill development and employability focus, Faculty readiness and capacity building, Digital infrastructure and governance reforms. Responses were received from universities across Gujarat, representing diverse academic and administrative perspectives.

For response data analysis SPSS (Statistical Package for Social Sciences) software is used. Reliability analysis, and normality analysis are performed to conduct the hypothesis Testing.

1. Reliability Analysis

It is done to assess whether the questions that are used to measure different attributes, measures the same thing consistently over time or not. Cronbach Alpha is a popular statistical technique used to measure reliability. The desired value of Cronbach Alpha should be in between 0.6 to 0.95, which is if the value of Cronbach Alpha is within this range then the questions that were used are supposed to be reliable.

The reliability of the measurement scales was assessed using Cronbach's Alpha. The results indicate satisfactory reliability across all constructs, with alpha values ranging from 0.75 to 0.86, exceeding the recommended threshold of 0.60, thereby confirming acceptable internal consistency of the instrument that is the questions that are used for data collection gives consistent results over time. Overall, the reliability analysis confirms that the questionnaire exhibits adequate internal consistency and is suitable for further statistical analysis.

2. Normality Analysis

It is done to assess whether the collected responses are statistically normal or not. Based on the normality of data, the type of tests to be done for hypothesis testing will be decided. If the data is normal then parametric tests are performed otherwise non parametric tests are done. Normality of the data was examined using the Kolmogorov–Smirnov test. The results indicated that all constructs were statistically significant ($p < 0.05$), suggesting deviation from normality. Therefore, non-parametric statistical tests were used for subsequent hypothesis testing.

3. Hypothesis Testing

There are two types of hypothesis- null and alternate hypothesis. During the hypothesis testing, through a statistical test, whether a null hypothesis is accepted or rejected is assessed. If null hypothesis is accepted then alternate hypothesis is rejected and vice versa.

Hypothesis testing uses non-Parametric tests based on Normality Test. Since the data were collected using a five-point Likert scale and the test of normality indicated deviation from normal distribution, a non-parametric statistical approach was adopted. Accordingly, the One-Sample Wilcoxon Signed Rank Test was employed to examine whether the median perception score regarding (a to f) differed from the neutral midpoint value of 3.

7.2.1 Hypothesis Testing Outcomes & Result Discussion

A p-value (probability value) in statistics measures the probability of observing data as extreme as, or more extreme than, your sample results, assuming the null hypothesis (no real effect) is true; a small p-value (typically < 0.05) suggests strong evidence against the null hypothesis, indicating a statistically significant result, while a large p-value means the results could easily happen by chance. Whenever p value is less than 0.05 reject null hypothesis and whenever p value is more than 0.05 accept null hypothesis. It helps determine if a difference or relationship in your data is likely real or just random variation.

Null Hypothesis HO (Curriculum Reforms): NEP-2020 has not significantly impacted curriculum flexibility in universities of Gujarat.

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The median of NEP-2020 has introduced Flexibility in course section equals 3.000.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
2	The median of Multidisciplinary Course offering have increased in my institution. equals 3.000.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
3	The median of Skill Based courses and vocational subjects are better integrated now. equals 3.000.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
4	The median of Credit based choice system (CBCS) has been enhanced due to NEP. equals 3.000.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
5	The median of Autonomy in Curriculum Design has improved. equals 3.000.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Figure 2: Hypothesis Tsting for Curriculum Reforms

A One-Sample Wilcoxon Signed Rank Test was conducted to examine whether the perception that NEP-2020 has significantly impacted curriculum flexibility in universities of Gujarat and the impact is significantly different from the neutral midpoint value of 3. The results indicated a statistically significant difference between the observed median and the hypothesised median ($p < 0.001$). Therefore, the null hypothesis was rejected, suggesting that NEP-2020 has significantly impacted curriculum flexibility in universities of Gujarat.

Null Hypothesis HO (Pedagogy and Assesment Reforms): NEP-2020 reforms have not significantly influenced teaching methods and assessments.

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The median of Use of technology in teaching has increased post-NEP. equals 3.000.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
2	The median of Institutions have encouraged experimental or Project based learning. equals 3.000.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
3	The median of Continuous and Holistic assessment is being adopted. equals 3.000.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
4	The median of Faculty receive training in modern Pedagogical methods. equals 3.000.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
5	The median of NEP has positively impacted student Engagement. equals 3.000.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
6	The median of COE(Centre of Excellence) was helpful in providing academic and administrative autonomy in Gujarat equals 3.000.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Figure 3: Hypothesis Tsting for Pedagogy and Assesment Reforms

A One-Sample Wilcoxon Signed Rank Test was conducted to examine whether the perception that NEP-2020 reforms have significantly influenced teaching methods and assessments and is significantly different from the neutral midpoint value of 3. The results indicated a statistically significant difference between the observed median and the hypothesised median ($p < 0.001$). Therefore, the null hypothesis was rejected, suggesting that NEP-2020 reforms have significantly influenced teaching methods and assessments.

Null Hypothesis H_0 (Governance and Autonomy): NEP-2020 has not led to increased academic and administrative autonomy.

A One-Sample Wilcoxon Signed Rank Test was conducted to examine whether the perception that NEP-2020 has led to increased academic and administrative autonomy and it is significantly different from the neutral midpoint value of 3. The results indicated a statistically significant difference between the observed median and the hypothesised median ($p < 0.001$). Therefore, the null hypothesis was rejected, suggesting that NEP-2020 has led to increased academic and administrative autonomy.

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The median of Department-Level autonomy has increased. equals 3.000.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
2	The median of Participation in Academic decision making has improved. equals 3.000.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
3	The median of Internal quality Assurance cells (IQACs) are more active now. equals 3.000.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
4	The median of Governance is now more decentralized than before. equals 3.000.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Figure 4: Hypothesis Tsting for Governance and Autonomy

Null Hypothesis HO(Overall Perception and Impact of NEP-2020): NEP 2020 is neither effective nor impacted the Higher Education.

A One-Sample Wilcoxon Signed Rank Test was conducted to examine whether faculty perceptions of whether NEP 2020 is effective or has impacted the Higher Education curriculum flexibility is significantly different from the neutral midpoint value of 3. The results indicated a statistically significant difference between the observed median and the hypothesised median ($p < 0.001$). Therefore, the null hypothesis was rejected, suggesting that NEP-2020 has been effective for Higher Education and has impacted the Higher Education in universities of Gujarat.

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The median of NEP-2020 is a transformative policy. equals 3.000.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
2	The median of Implementations of NEP is realistic and achievable. equals 3.000.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
3	The median of Faculty are regularly involved in NEP- related planning review. equals 3.000.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
4	The median of NEP has positively impacted the overall quality of higher education. equals 3.000.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
5	The median of ABC portal credit system significantly improves students' academic flexibility and overall satisfactory compared to traditional credit system. equals 3.000.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
6	The median of APAR (a lifelong digital academic registry) improve students' long term academic continuity and employability outcomes. equals 3.000.	One-Sample Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Figure 5: Hypothesis Testing for Overall Perception and Impact of NEP-2020

Similarly, hypothesis testing is done for other criteria such as: Research innovation and internationalization and Student centric initiative. We found that NEP-2020 have major impact on each of these important aspects of national education.

8. Achievements

- Established comprehensive understanding of policy reforms and their applicability to Gujarat's mining and higher education ecosystem.
- Research confirmed significant impact of NMP-2019 on mining stakeholders, sustainable mining practices, GDP growth perception, transparency, and private sector participation. Null hypothesis was rejected based on statistical analysis.
- Findings showed significant positive impact on curriculum flexibility, pedagogy, assessment reforms, student-centric learning, and employability-oriented education.
- Results indicated improved focus on skill-based education, industry alignment, institutional autonomy, and future employment opportunities in mining and higher education sectors.
- Key challenges identified include privatization concerns, environmental enforcement issues, infrastructure gaps, funding constraints, faculty training needs, and administrative limitations.
- Statistical validation proved that NEP-2020 significantly impacted higher education reforms and NMP-2019 significantly influenced mining stakeholders in Gujarat.
- Practical policy recommendations were generated for improving implementation effectiveness, sustainable development, and long-term growth in mining and education sectors.
- Three research publications were produced, contributing to academic and policy-oriented literature on NMP-2019 and NEP-2020.

9. Conclusion

The analysis confirms that the implementation of NEP-2020 has had a significant and positive impact on higher education institutions in Gujarat. The reliability analysis indicates strong internal consistency across all constructs, establishing that the survey instrument used in the study is robust and dependable. Furthermore, the results of normality testing revealed a non-normal data distribution, thereby justifying the application of non-parametric statistical methods. The One-Sample Wilcoxon Signed Rank Test results led to the rejection of all null hypotheses ($p < 0.001$), clearly indicating statistically significant improvements across key dimensions such as curriculum flexibility, pedagogy and assessment practices, governance and

autonomy, research and innovation, student-centric initiatives, inclusivity, and overall educational quality. Faculty perceptions strongly endorse NEP-2020 as a transformative, effective, and implementable policy that is enhancing both the quality and relevance of higher education. In addition, the study expands its scope by examining the impact of the National Mineral Policy (NMP) 2019 on stakeholders in the mining sector. The comparative analysis between the existing policy framework and NMP 2019 highlights certain limitations in the earlier approach that constrained economic growth and affected opportunities for youth. NMP 2019 addresses these gaps by aligning the mining sector with national and global industrial demands, thereby contributing to improved standards of living and overall economic development. The findings suggest that all stakeholders should actively engage in understanding and adopting the provisions of NMP 2019 to ensure effective implementation with minimal challenges. While any policy shift brings both positive and negative consequences, greater emphasis should be placed on leveraging the positive outcomes. A proactive and informed approach will enable efficient execution, ultimately contributing to the welfare of the nation and sustainable growth of both the education and mining sectors.

10. List of Publications

Sr. No.	Title	Name of The Journal	ISSN NO.
1.	Impact Of National Mineral Policy Amendment: Nmp-19	Mining Engineering Journal	0975-3001
2.	Impact Of Technical Education Policy Amendment: Nep 2020	Shodhkosh: Journal Of Visual And Performing Arts	2582-7472
3.	Impact And Implementation Of Nep-2020 In Business Schools Of Higher Education, Affiliated To The State Universities	International Journal Of Humanities, Law And Social Sciences	2348-8301

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