

# Innovations in Teaching and Integrating ICT & NEP 2020 With AI (Artificial Intelligence): Opportunities, Challenges and Ethical Issues

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DOI: <https://doi.org/10.51244/IJRSI.2025.12050052>

Received: 03 May 2025; Accepted: 08 May 2025; Published: 02 June 2025

## ABSTRACT

The Indian educational system has been organized and effective with cultural and moral orientations. The Indian education has undergone various transformations since Independence. However, there is a need for effective and purposive inclusive education in Indian higher education sector. The Indian government had given a new National educational policy in 2020 which can be implemented across the country. The educational model seems to be purposive, holistic & integrative in its nature and objectives. There is also a need for modern tools like AI & ICT to be integrated for effective implementation of NEP 2020. These aspects and issues are explored in this research as it would also give new impetus on innovations in Indian higher education teaching. This research is exploratory and conclusive in its nature and approach. This research is descriptive and critical in its approach. This study uses secondary data collected from various published sources in specific Google scholar. Data analysis has been done using empirical analysis which can provide new impetus and insights. It is concluded in this study that AI & ICT tools has a positive effect on NEP 2020 implementation. The opportunities for AI & ICT oriented NEP 2020 implementation are very huge which has to be exploited in Indian higher education sector. The teachers and top management of various Indian higher educational institutions must create new platforms, methods of teaching learning practices which can provide holistic integrative strategies for 2035.

**Keywords:** ICT& AI tool-oriented NEP 2020 implementation, ethics, challenges and opportunities for NEP implementation, innovation in NEP implementation and teaching in Indian higher education sector

## INTRODUCTION

The Indian educational system has been functional in nature. This system had emerged {Dr. Prakriti James, Priyabatra Pandey (2024)} as an independent functionary since Indian independence. The system has provided new impetus and directives for the modern Indian economy. This system by nature has its influences from British system of education. Although this system and practices {Usha Thawrani, Tapasya Sharda, Urvashi Gaurav, Dr. Binod Kumar, Saloni, Dr. Raghav Acharya (2025)} has been effective in its delivery and outcomes – the need for an Indian educational system which moves towards human development, prosperity and integrity of its people. The educational system must be able to remove regional imbalances, focus on balanced growth, development and sustainability. As the country had progressed for decades on this system – the need to provide new impetus and Indian visionary for global educational platform is mandatory.

The New educational policy has been drafted and approved by Indian government for its implementation {Khan, M.T.A. and Husain, N., 2024} by 2020. This has given new progressive pathways for the entire educational sector. This provides a new blue print for progress and development of human resources as a capital which can benefit the Indian country and its ambitious goals towards 2030. This policy is inclusive and holistic {Gautam, D., 2024} in its purpose, approach and scope. This NEP also has given new directives and pathways for Indian higher educational system and its transformation towards future.

This policy has focused on providing quality education {Das, P., 2024} for all students who are undergoing higher education in India. It has changed the teaching learning process and its approaches {Aggarwal, A (2020)} with an inclusive learning and techno orientation. It provides scope for multi-disciplinary universities

with 3000 students' intake. The vision of multi-disciplinary universities has to be implemented by 2030 and 3000 student's ambitious target {Kanwar, S., 2024} by 2040. The higher educational universities by this new framework are classified in to two major types: teaching oriented universities and research-oriented universities. The vocational stream had been given a focus of 26.3% of the total gross enrollment in universities would be increased to 50% {Rajalakshmi, G. R., T. H. Ashoke, and M. Janani (2023)} by 2030.

The newly formed multi-disciplinary universities would just bear the name as universities as the name per say as Deemed universities and affiliated universities nomenclature would be removed totally.

Students would be provided with an academic bank of credit which can make it integrative and operational {Grandhi, S.H., 2024} with other global universities of repute. The semester-oriented exam method and evolutions would be removed.

The twice a year evaluation method would be replaced with continuous assessment and evaluations. In this new NEP policy online education would be focused more as they would be collaborative with Indian courses across global universities. The Higher educational institutions {Tyagi, C.K. and Kumar, A., 2024} would be provided with global benchmarking standards which can attract global students. Research activities in these universities would focus on Intellectual property rights as original and unique contributions would be the futuristic directives. The new outlook of modern Indian universities with a NEP outlook and perspective is

S. No.	Issue	Current Scenario	Future Expectation
1	Institution	Majority are Stand-alone, single discipline small institutions	Large multi-disciplinary autonomous institutions /Universities/Clusters
2	Campus Size	Few hundred students	Few thousand students
3	Govt. Colleges	Independent affiliated colleges	Constitutional Colleges of previously affiliating Public University
4	Higher education focus	Knowledge & skills	Confidence through knowledge, skills, experience, values & research
5	Academic curriculum	Common curriculum	Customized curriculum
6	Curriculum Structure	STEM	STEAM
7	Industry experience	Industry visit	Compulsory Internship
8	Evaluation	Choice based credit system	Competency based evaluation system
9	Examination	Focus on Semester/Year end exams	Focus on continuous evaluation

given as a table below:

Source: Aithal, P. S. & Aithal, Shubhrajyotsna (2020).

This study focuses on the various futuristic scenarios which could emerge in Higher education with an effective implementation of NEP. But it is also evident that although this above picture (Aithal, P. S. & Aithal, Shubhrajyotsna (2020). provides a holistic and positive outlook on the outcomes of effective implementation of NEP- this is a conceptual paper in its approach.

So, there is a need for more purposive and location-based studies to be done on NEP implementation and the applications of AI & ICT tools. As these aspects and dimensions has not been studied or evaluated before on effective NEP implementation as existing challenges, opportunities & ethical issues– this research is an empirical attempt towards it. The next section would deal with literature review.

### Review of literature: NEP 2020 studies

Kumar, A., 2021. Had done a conceptual paper on the New educational policy and its implications on Indian economy and human resource development. This paper evaluates the role of NEP as the visionary futuristic roadmap 2.0. This paper by nature provides a positive outlook on the implementation of NEP for higher education which was framed in 2020. It is also evident that empirical research studies on these aspects and dimensions like AI & ICT, existing challenges, opportunities & ethical issues have not been done extensively on its various issues and intensively on its implementation. This research is an attempt to reduce this research gap which is obvious and evident now.

Aithal, P. S. & Aithal, Shubhrajyotsna (2020) had done a conceptual paper on the various challenges which are there while implementing NEP in higher educational institutions. This paper provides a clear indication on the various challenges in implementation, strategies to be adopted, strengths & weakness of NEP as a whole towards higher education.

10	Teaching & Learning process	Classroom based	Classroom, Online, and Industry blended
11	Outcome focus	Employability	Entrepreneurability
12	Marks card	Paper based with tampering possibility	Digital with blockchain technology supported security
13	Institutional & Faculty autonomy for deciding Courses, Subject & Curriculum	Low or Not at all	High level of autonomy for Courses, Subject & Curriculum
14	Regulation	Strong but Loose with corruption oriented	Light but Tight
15	Online education and Open Distance Learning (ODL)	Only a few universities are currently allowed	All universities who can maintain quality & financial independence are allowed
16	Research Model	Single discipline focussed	Multidisciplinary, cross-disciplinary & interdisciplinary focussed

Source: Aithal, P. S. & Aithal, Shubhrajyotsna (2020)

However, it is found that research studies have not been done on NEP implementation and related issues with AI & ICT which is attempted with this work. Central university of Haryana (2021) had given an action plan on National educational policy 2020 for its effective Implementation. This is a comprehensive report which focuses on various challenges which had to be faced by Indian universities. This implementation program provides a flexible learning program and curriculum for students, multiple entry with exit, credit-based marking system and integrative approach towards multi-disciplinary universities of repute and excellence. However, these aspects and dimensions have not been studied with a focus relating to AI and ICT tool's role on NEP 2020 implementation in Indian higher education.

It is found that as empirical studies in this direction are very less – this research provides scope for reducing this research gap which is prominently visible now.

Prem Sonwal(2021), had done research study on the NEP and its implications on higher education in India. This study states that NEP had provided new impetus as it has given Indian values and cultural orientations to it- which has given color and grace in global education system. It focuses on transformation of higher

education sector which can provide new directions in the global educational scenario. This policy provides multi-disciplinary approach to students which can provide new outlooks and perspectives. This study is conceptual in nature as these aspects and issues needed to be tested on the implementation issues and related challenges.

However, it is also found that these aspects have not been empirically evaluated with regard to innovations in Higher education NEP 2020 teaching strategies using AI & ICT – this research is an attempt on it.

Saroj Kumar Ranjan, & Snigdha Mohapatra (2023) had done research study on the issues regarding effective implementation of NEP in higher education sector. This study focuses in Indian context as it also provides the scope and opportunities in it. This study is conceptual in nature as it provides the various factors which are provided in NEP policy towards higher education. It is evident that empirical researches have been done very less on AI & ICT orientations and its impact on NEP 2020 implementation as this research is empirical research towards these aspects and dimensions.

Mrs, D.Shobana & Kumar, J.Suresh. (2023). had made contributions to research in the area of NEP and its impact in North East states. This study is evaluative in nature as it assesses the impact of NEP in North Eastern states. The challenges identified in this study are related to infrastructure, cultural issues, language-based issues, internet issues, teacher student ratio issue, resistance issue and funding related issues. However, these challenges and problems have not been evaluated on ethical issues, challenges and opportunities for NEP 2020 implementation in Indian higher education sector– as this research is an attempt on it.

### **Research gaps:**

It is found from these research studies that NEP is an emerging Indian policy document on higher education which has been released in 2020. Although the concept and its approach are very fascinating and captivating – it is also evident that research studies have been done on these NEP and educational framework largely. The challenge of implementation of NEP and its impact on Indian higher educational system has not been studied or evaluated empirically. It is also evident that the challenges of NEP implementation and its implications on AI & ICT tools related challenges, opportunities & ethical issues have not been attempted empirically as this research is an attempt on it. In order to reduce these research gaps which are prominent and evident this research is an empirical attempt based on secondary data which could provide new impetus and directives. The next section would deal with research methodology.

### **Research methodology:**

Aim of the study:

This study aims to find out the futuristic impact of NEP implementation 2020. The study also aims to find out the ways and means to effectively implement NEP using AI & ICT tools. The challenges, issues and problems regarding the effective implementation of NEP 2020 as the opportunities, challenges and ethical issues of AI tools would be studied also.

### **Type of research:**

This research is exploratory and conclusive in nature. This research is exploratory as it would explore in to the various issues and dimensions regarding NEP implementation using AI & ICT tools.

As this study would provide specific conclusions and strategies for effective implementation of NEP 2020 as the challenges, opportunities and ethical issues – this research is conclusive in its approach.

### **Research method:**



This research is empirical and quantitative. This study would involve secondary data collection only for all purposes.

**Problem statement:**

NEP has indeed provided a new perspective and orientation on Indian education. This framework is transformative, integrative and holistic in its nature, approach and purpose. This has redefined the Indian educational system and its process. However, the government of India has framed policies and procedures for its implementation in HEI by 2021 only. So, there is a need to study on the problems and issues related to effective implementation of NEP using AI tools. This could provide new perspectives, approaches and pathways which could be unique as it could also modify the global educational outlook. As these issues and problems have not been studied or evaluated this study is an attempt towards these problems – as it is intended to give futuristic solutions and directives on it.

**Need for the study:**

As the dimensions of NEP have not been evaluated with Higher educational institutions and universities – there is a need to study it. Very fewer academic studies have been done on these aspects which have to be done. As researches have not focused on the implementation issues of NEP with higher educational AI tools – this research is an attempt towards it. The problems and perspectives of AI, ICT, the existing challenges, opportunities & ethical issues have not been evaluated which needs to be done for NEP & its effective implementation towards 2035. This research is an attempt to provide integrative solutions for these needs which are there.

**Objectives for the study:**

To evaluate the existing challenges in effective NEP 2020 implementation in Indian higher education sector

To determine the role and impact of AI & ICT tools in NEP 2020 implementation

To assess the existing challenges, opportunities in AI & ICT based NEP 2020 implementation

To examine the existing ethical issues in AI & ICT oriented NEP 2020 implementation in Indian higher education sector

To suggest innovative teaching methods for NEP 2020 implementation using AI & ICT tools.

**Hypothesis:**

H1: Teacher's perception and student attitude remain as greater challenges in AI & ICT oriented NEP 2020 implementation

HO: There is no purposive & integrative role of AI & ICT tools in NEP 2020 implementation

H1: AI & ICT oriented NEP 2020 implementation would lead to sustainability of Indian higher education towards 2035

HO: Technology oriented dependence of AI & ICT tools and trust do not have any impact on NEP 2020 implementation

**Data collection & analysis methods:**

This study would be done based on secondary data only from published sources using Google scholar as the primary source. Data analysis would be done using descriptive and critical analysis. Empirical secondary data

analysis would be done extensively as the existing challenges, opportunities & ethical issues regarding AI & ICT oriented NEP 2020 implementation in Indian higher education sector. The study would also suggest innovative teaching methods for effective implementation of AI & ICT oriented NEP 2020 implementation in Indian higher education sector.

### **Data analysis:**

Part one: Challenges and opportunities in AI oriented Indian higher education

Dr Himanshu Rastogi (2025) had done an evaluative study on the increasing role of AI in educational systems, processes & outcomes. This study also has evaluated the existing status & challenges for future. In this study it is found that AI has a positive role and impact on Indian educational systems and practices. This study also provides a list of various AI oriented tools which can be used by students & teachers. In this study it is found that AI could modify and transform the entire Indian higher educational system, process and outcomes. AI also brings in larger and greater responsibility with the teachers who have to make sure that AI oriented NEP 2020 implementation is done purposefully & prudently.

AI & Indian higher education teachers:

It is evident from this research that AI provides ample scope for teachers to explore and provide innovative teaching learning processes & outcomes. AI can enable teaching oriented administrative tasks to be done in a simpler & easier way. It can also enable teachers to plan their lesson plans and teaching learning process more functional and purposive. Student's assessment could be done in the most objective way as the personal factors and influences of teachers could be avoided totally. It also increases the efficiency of teachers as they can also involve in novel innovative curriculum development methods.

Challenges of AI in NEP 2020 implementation:

This study also provides the various challenges in AI implementation like data security, trust, removal of bias, reduce human involvement & errors with cost effectiveness. Ethical challenges in assessment of students, establishing fairness in the educational system and process, ensuring equity and fairness to all remain with a techno-oriented AI & ICT based NEP 2020 implementation.

AI & NEP 2020 implementation & innovative pedagogy: 2024 study

MAHESHWARI, D.D.(2024) had done a descriptive study on paradigm shifts in Indian education. This study also evaluates the role of NEP 2020 towards innovative pedagogy & teaching practices. This study provides a holistic approach by providing an effective integration of AI, pedagogy and NEP implementation. This study has found positive impact of NEP 2020 implementation using AI as it has fostered innovative teaching and pedagogy. This has also given new impetus to Indian educational system, practices and strategies for future towards 2035.

## **FINDINGS**

It is found that challenges do still prevail in effective NEP 2020 implementation towards 2035

The role of higher educational teachers in fostering innovative teaching methods with an effective use of AI & ICT technologies for NEP 2020 implementation is emphasized.

There are huge opportunities in AI landscape which can be effectively applied for NEP 2020 implementation which has to be explored and utilized.

Indian higher educational institutional top management support is needed for effective NEP implementation towards 2035.

Ethical challenges like data security and trust do prevail in effective AI oriented NEP 2020 implementation in Indian higher educational systems and practices.

## CONCLUSION:

Narkhede, G., Pasi, B., Dhamak, P., Mahalle, P. and Ambhore, N., 2025 had done a purposive and integrative study on the role of NEP implementation towards educational excellence and achievement of global standards in Indian higher educational system and practices. In this study the importance and relevance of critical success factors towards an effective AI & ICT oriented NEP 2020 implementation in Indian higher educational practices. There is a need for strategic approaches, integration of educational technology with teaching curriculum which can enable AI & ICT orientations in NEP implementation. There is a need for context-oriented solutions as researches have to be done on Indian educational institutions on NEP implementation towards future.

It is concluded that flexible learning methods, quality orientations, emphasis on educational standards and orientation of teachers in AI & ICT based inclusive NEP implementation towards 2035 can also provide sustainability in Indian higher educational systems and practices.

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