

Inclusivity, Access, and Gender Parity in Indian Higher Education: A Comparative Study of Conventional and Open & Distance Learning (ODL)

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Abstract

Purpose – Indian higher education has experienced substantial expansion during the last decade, accompanied by increasing emphasis on inclusivity, equitable access, flexibility, and gender parity. Despite significant progress in enrollment and women's participation, variations continue to exist across educational delivery systems, particularly between Conventional (Regular) and Open & Distance Learning (ODL) modes. This study examines comparative enrollment trends, gender-wise participation patterns, growth trajectories, and Gender Parity Index (GPI) trends in Indian higher education. The study further assesses the role of Conventional and ODL systems in promoting educational inclusivity and gender equity in alignment with the objectives of the National Education Policy (NEP) 2020, Sustainable Development Goal 4 (SDG-4), the Gross Enrollment Ratio (GER) target of 50% by 2035, and India's Viksit Bharat vision.

Methodology/Approach – The study adopts a descriptive and longitudinal research design using secondary data obtained from the All India Survey on Higher Education (AISHE) covering the period from 2010-11 to 2021-22. Enrollment data were classified into Conventional and Open & Distance Learning (ODL) categories. Annual Growth Rate (AGR), Compound Annual Growth Rate (CAGR), and Gender Parity Index (GPI) were employed to analyze enrollment expansion, participation patterns, and gender equity trends across educational modes.

Findings – The findings reveal substantial expansion in Indian higher education enrollment, increasing from 27.5 million in 2010-11 to 43.27 million in 2021-22, reflecting an overall growth of approximately 57%. Conventional education remained the dominant mode, accounting for an average of 88.57% of total enrollment, while ODL contributed 11.43%. Female enrollment increased considerably across both systems, contributing to sustained improvement in gender parity. The national GPI improved from 0.78 in 2010-11 to 0.92 in 2021-22, while Conventional education demonstrated comparatively stronger and more stable parity outcomes than ODL. Nevertheless, ODL emerged as an important mechanism for expanding educational access among women, working learners, rural populations, and geographically dispersed groups through flexible and technology-enabled learning pathways. The findings indicate a gradual transition toward a more inclusive, flexible, and learner-centered higher education framework in India.

Policy/Practical Implications – The study highlights the importance of strengthening digital infrastructure, learner support systems, scholarships, women-focused outreach initiatives, multilingual digital resources, and blended learning frameworks to enhance accessibility and gender equity within higher education. Expanding inclusive and technology-enabled educational systems is essential for achieving NEP 2020 objectives, advancing SDG-4 goals, and supporting India's long-term vision of equitable and knowledge-driven national development.

Originality/Value – This study provides a comprehensive longitudinal comparison of Conventional and ODL enrollment patterns using official AISHE data. By integrating enrollment growth analysis with gender parity assessment, the study contributes empirical evidence to the discourse on educational inclusivity, flexible learning systems, and equitable higher education development in India.

Keywords: Higher Education, Open & Distance Learning (ODL), Conventional Education, Inclusivity, Access, Gender Parity, NEP 2020, SDG-4, India.

1. Introduction

Higher education plays a transformative role in promoting economic development, social mobility, human capital formation, technological advancement, and democratic participation. In emerging economies such as India, higher education has become a critical instrument for advancing inclusive growth, workforce development, and equitable social progress. During the last decade, Indian higher education has experienced substantial expansion, with total student enrollment increasing from 27.5 million in 2010-11 to 43.27 million in 2021-22. This rapid expansion reflects the combined influence of institutional growth, policy reforms, digital transformation, and increasing societal demand for higher education.

Alongside enrollment expansion, increasing emphasis has been placed on inclusivity, equitable access, and gender parity within higher education. National indicators demonstrate significant improvement in women's participation and educational accessibility across the study period. Nevertheless, variations continue to exist across socio-economic groups, regions, and educational delivery systems. In this context, both Conventional (Regular) education and Open & Distance Learning (ODL) systems perform important and complementary roles in widening educational participation and supporting inclusive higher education development.

The Ministry of Education through the National Education Policy (NEP) 2020 emphasizes the transformation of Indian higher education toward a more flexible, multidisciplinary, learner-centered, and inclusive framework. The policy promotes academic mobility, multiple entry and exit pathways, digital learning, lifelong education, and technology-enabled instructional systems. These reforms are closely aligned with the objectives of United Nations Sustainable Development Goal 4, which advocates inclusive and equitable quality education and lifelong learning opportunities for all. In addition, India's Gross Enrollment Ratio (GER) target of 50% by 2035 and the broader vision of Viksit Bharat highlight the strategic importance of expanding accessible and equitable higher education opportunities.

Within this evolving policy environment, Open & Distance Learning (ODL) has emerged as an important mechanism for democratizing higher education access. The increasing demand for tertiary education, combined with infrastructural limitations in conventional institutions, has encouraged Higher Education Institutions (HEIs) to expand flexible and technology-enabled learning systems. The growth of digital infrastructure, online platforms, and blended learning models has further strengthened the relevance of ODL within contemporary higher education planning.

Conventional and Open & Distance Learning systems represent two distinct yet complementary approaches to higher education delivery. Conventional education is primarily characterized by structured classroom-based instruction, direct interaction between faculty and students, synchronous learning environments, and campus-based academic engagement. In contrast, ODL emphasizes flexibility, learner autonomy, affordability, accessibility, and self-paced learning, enabling students to pursue higher education irrespective of geographical, occupational, or social constraints.

Both systems contribute significantly to India's higher education ecosystem. Conventional education continues to dominate professional, laboratory-intensive, and research-oriented disciplines, while ODL expands educational opportunities for women, working professionals, rural populations, adult learners, and socio-economically disadvantaged groups. The flexibility associated with ODL has become particularly important for women balancing education with employment, family responsibilities, and social obligations. Consequently, understanding the comparative dynamics of enrollment growth, gender participation, and parity trends across Conventional and ODL systems is essential for evaluating India's progress toward inclusive and equitable higher education.

1.1 Background and Policy Context

Gender equity in higher education is increasingly recognized as both a developmental priority and a foundation for inclusive socio-economic progress. Expanding women's participation in higher education contributes significantly to labor force participation, leadership development, economic productivity, social mobility, and community well-being. Recognizing these linkages, national and international policy frameworks have increasingly emphasized educational accessibility, inclusivity, and lifelong learning opportunities.

The objectives of NEP 2020 and SDG-4 strongly advocate reducing educational disparities, strengthening gender inclusivity, and promoting flexible learning pathways capable of accommodating diverse learner needs. In response, Indian higher education has increasingly adopted technology-enabled and learner-centered approaches designed to improve participation across traditionally underserved groups.

Within this broader transformation, ODL has gained considerable importance as a flexible and accessible pathway for higher education participation. The affordability, adaptability, and location-independent nature of distance education have enabled wider participation among women, working learners, rural students, and individuals seeking continuing education and skill enhancement. Simultaneously, Conventional education continues to provide structured academic environments, institutional interaction, and comprehensive campus-based learning experiences.

The expansion of flexible learning pathways has further accelerated following the growth of digital education ecosystems and blended learning approaches. These developments indicate a gradual transition toward a more diversified and inclusive higher education framework in India.

1.2 Conceptual Framework

The conceptual framework of the study is based on the relationship between educational delivery systems, enrollment expansion, gender parity, and educational inclusivity within the policy context of NEP 2020 and SDG-

4. The framework conceptualizes Conventional and ODL systems as complementary pathways that collectively expand higher education participation and accessibility.

Conventional education contributes through structured institutional learning, academic interaction, and formal educational engagement, whereas ODL supports flexibility, accessibility, affordability, and technology-enabled learning. Together, these systems influence enrollment growth, improve educational participation, and strengthen gender parity within Indian higher education.

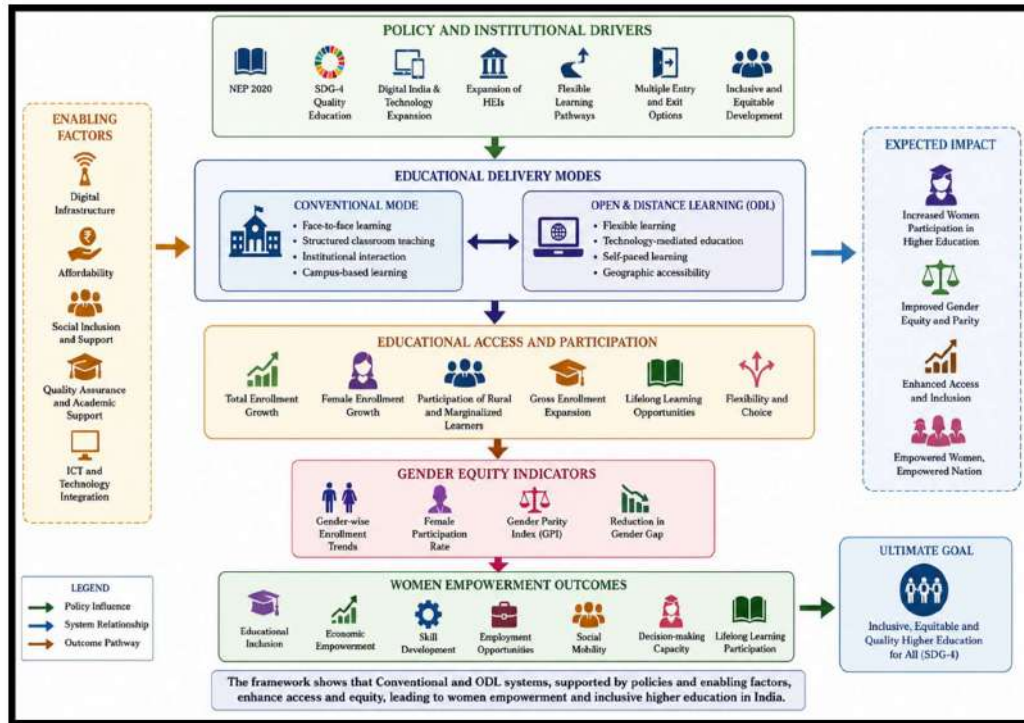


Fig 1. Conceptual Framework-Conventional & ODL Higher Education in India: Access, Equity, and Women Empowerment

The framework further assumes that increasing educational accessibility positively influences women's participation, which subsequently contributes to improved Gender Parity Index (GPI) outcomes and broader inclusivity within higher education. Policy initiatives such as digital learning expansion, blended learning frameworks, academic flexibility, and lifelong learning opportunities act as enabling factors supporting equitable educational participation across diverse learner groups. Thus, the framework positions Conventional and ODL systems as important mechanisms for advancing inclusive, flexible, and learner-centered higher education in India.

1.3 Comparative Dimensions of Conventional and ODL Systems

Conventional and Open & Distance Learning (ODL) systems represent two complementary approaches to higher education delivery in India. However, they differ significantly in terms of instructional structure, accessibility, flexibility, learner engagement, and educational outreach.

Conventional education is institution-centered and primarily based on classroom instruction, synchronous learning, direct faculty interaction, and structured academic engagement. It provides collaborative learning environments, laboratory exposure, and continuous academic supervision, making it the dominant mode in undergraduate, professional, and research-oriented disciplines.

In contrast, ODL emphasizes flexibility, learner autonomy, affordability, and technology-enabled education. Through asynchronous and self-paced learning systems, ODL enables students to pursue higher education irrespective of geographical location, employment obligations, or social responsibilities. Consequently, ODL has become particularly important for working professionals, women, rural learners, adult students, and individuals seeking continuing education, reskilling, and lifelong learning opportunities.

The growing integration of digital technologies, online platforms, and blended learning models has further strengthened the role of ODL within Indian higher education. At the same time, increasing convergence between Conventional and digital learning systems reflects the gradual emergence of more flexible and inclusive educational ecosystems aligned with the objectives of NEP 2020 and SDG-4.

Table 1: Comparative Dimensions of Conventional and ODL Systems

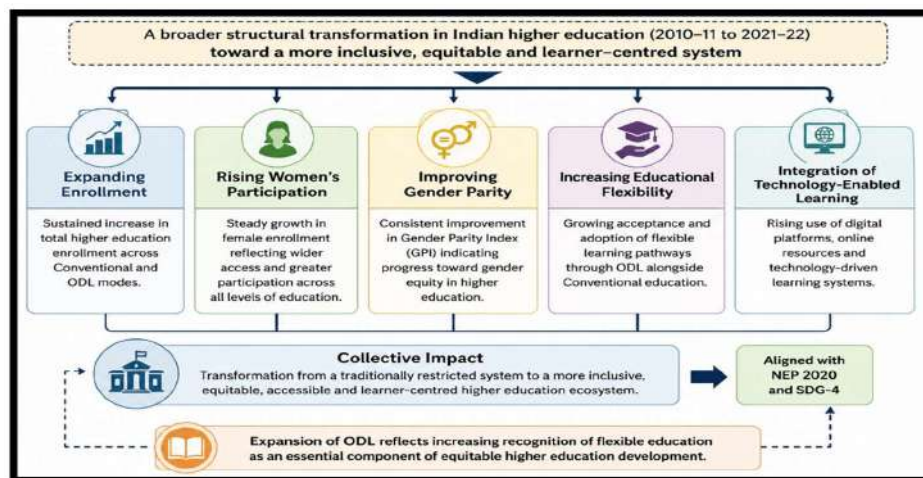
<i>Dimension</i>	<i>Conventional Mode</i>	<i>Open & Distance Learning (ODL)</i>
Learning Structure	Classroom-based and synchronous	Flexible and asynchronous
Instructional Nature	Teacher-centric	Learner-centric
Accessibility	Location dependent	Location independent
Flexibility	Limited flexibility	High flexibility
Interaction	Direct faculty and peer interaction	Technology-mediated interaction
Major Beneficiaries	Full-time students	Working professionals, women, rural learners, and adult learners
Cost Structure	Higher institutional and living costs	Comparatively affordable
Learning Environment	Structured academic environment	Self-directed learning environment
Technological Dependence	Moderate	High
Major Challenges	Limited institutional capacity and infrastructure pressure	Digital divide, technological accessibility, and learner isolation
Policy Role	Core formal higher education system	Expanding educational access, flexibility, and inclusivity
Contribution to Inclusivity	Supports large-scale formal enrollment	Enhances access for geographically and socially diverse learners
Role in Women's Participation	Provides structured academic engagement	Facilitates flexible participation for women balancing education, employment, and family responsibilities

1.4 Inclusivity and Gender Parity Trends

Over the past decade, Indian higher education has experienced significant improvement in women's participation and gender parity across both Conventional and ODL systems. Female enrollment increased at a comparatively faster pace than male enrollment, contributing substantially to narrowing gender disparities in higher education participation.

The Gender Parity Index (GPI) improved steadily during the study period, reflecting sustained progress toward gender inclusivity at the national level. Conventional education demonstrated comparatively stronger and more stable parity outcomes, while ODL exhibited gradual but important gains in women's participation through flexible and technology-enabled learning pathways.

Importantly, ODL has emerged as a valuable mechanism for supporting women's educational participation by reducing geographical, financial, occupational, and social constraints. Flexible learning opportunities have enabled many women to pursue higher education alongside employment, caregiving responsibilities, and household commitments.

**Fig 2. Conceptual framework of structural shift toward inclusivity**

These trends indicate a broader transition within Indian higher education toward inclusivity, educational flexibility, and diversified learning participation, consistent with the objectives of NEP 2020 and SDG-4.

1.5 Purpose and Significance of the Study

This study examines enrollment trends in Indian higher education using longitudinal data from the All India Survey on Higher Education (AISHE) covering the period from 2010-11 to 2021-22. The study specifically compares enrollment growth, gender-wise participation, and Gender Parity Index (GPI) trends across Conventional and Open & Distance Learning systems.

The study is significant because it provides a comparative and policy-oriented assessment of educational inclusivity, gender parity, and flexible learning pathways within Indian higher education. By evaluating the evolving role of Conventional and ODL systems, the study contributes empirical evidence relevant to NEP 2020, SDG-4, the GER target of 50% by 2035, and India's long-term vision of inclusive and knowledge-driven national development.

1.6 Objectives of the Study

The present study aims to examine the comparative dynamics of enrollment expansion, gender participation, and educational inclusivity in Indian higher education through Conventional and Open & Distance Learning (ODL) systems. The specific objectives are as follows:

- To examine enrollment trends in Indian higher education from 2010-11 to 2021-22.
- To compare enrollment growth patterns between Conventional and ODL systems.
- To analyze gender-wise enrollment trends across educational modes.
- To evaluate Gender Parity Index (GPI) trends in higher education.
- To assess the role of ODL in advancing women's participation and educational inclusivity.
- To interpret the findings in the context of NEP 2020 and SDG-4.

2. Review of Literature

Higher education plays a significant role in promoting socio-economic development, human capital formation, social mobility, and inclusive growth. In India, higher education expansion has increasingly emphasized educational access, gender equity, and inclusivity, particularly for women and socially diverse populations. Alongside Conventional education, Open & Distance Learning (ODL) has emerged as an important mechanism for expanding flexible, affordable, and technology-enabled learning opportunities.

Global frameworks such as Sustainable Development Goal 4 (SDG-4) emphasize inclusive and equitable quality education and lifelong learning opportunities for all (UNESCO, 2015). Similarly, the National Education Policy (NEP) 2020 advocates multidisciplinary learning, academic flexibility, digital education, and wider participation in higher education through diverse learning pathways (Ministry of Education, 2020). The policy further recognizes ODL and online education as strategic instruments for improving accessibility, inclusivity, and achieving the Gross Enrollment Ratio (GER) target of 50% by 2035.

Existing studies indicate substantial expansion in Indian higher education enrollment during the last decade, accompanied by steady improvement in women's participation and gender parity. AISHE reports show continuous growth in female enrollment across higher education institutions, contributing to a gradual narrowing of gender disparities (AISHE, 2022). Further (Ahmad & Ahmad 2025a, 2025b) also observed significant improvement in women's participation, while highlighting variations across professional and technical disciplines.

The literature identifies ODL as an important pathway for expanding educational access among women, working professionals, rural learners, and adult students. Flexible scheduling, affordability, and technology-enabled instruction make ODL particularly suitable for learners balancing education with employment and family responsibilities. Institutions such as Indira Gandhi National Open University (IGNOU) have played a major role in democratizing higher education through flexible learning systems.

Comparative studies suggest that Conventional and ODL systems perform complementary roles within higher education. Conventional education emphasizes structured classroom interaction and institutional engagement, whereas ODL promotes flexibility, learner autonomy, accessibility, and lifelong learning. The expansion of digital infrastructure and online education, particularly after the COVID-19 pandemic, has further accelerated the adoption of blended and hybrid learning models in Indian higher education.

Despite the growing literature on higher education expansion and gender participation, comparative longitudinal studies examining enrollment growth and gender parity across Conventional and ODL systems remain limited. The present study addresses this gap through a comparative analysis of AISHE data from 2010-11 to 2021-22, focusing on enrollment trends, gender-wise participation, Annual Growth Rate (AGR), Compound Annual Growth Rate (CAGR), and Gender Parity Index (GPI) patterns. The study contributes empirical evidence

to the discourse on inclusivity, flexibility, and gender equity in Indian higher education within the framework of NEP 2020 and SDG-4.

3. Synthesis and Research Gap

Existing literature highlights substantial expansion in Indian higher education along with steady improvement in women's participation and gender parity. Studies have examined enrollment growth, educational accessibility, and the role of policy frameworks such as NEP 2020 and SDG-4 in promoting inclusive higher education. The literature also recognizes the growing importance of ODL in expanding flexible and technology-enabled educational opportunities.

However, limited research has comparatively examined Conventional and ODL systems using longitudinal gender-disaggregated AISHE data. Most existing studies focus on aggregate trends and descriptive analysis, with comparatively less attention to enrollment growth trajectories, Annual Growth Rate (AGR), Compound Annual Growth Rate (CAGR), and Gender Parity Index (GPI) patterns across educational modes.

The present study addresses this gap through a comparative analysis of Conventional and ODL higher education from 2010-11 to 2021-22. Using longitudinal AISHE data, the study evaluates enrollment expansion, gender participation, and parity trends to provide empirical evidence on educational inclusivity and gender equity in Indian higher education within the framework of NEP 2020 and SDG-4.

4. Methodology

The study adopts a descriptive and longitudinal research design using secondary data obtained from the All India Survey on Higher Education (AISHE) for the period 2010-11 to 2021-22. AISHE provides comprehensive national-level data on student enrollment, institutional participation, gender distribution, and educational categories across recognized higher education institutions in India. For analytical purposes, enrollment data were classified into two categories: Conventional (Regular) Mode and Open & Distance Learning (ODL) Mode.

The analysis employs Annual Growth Rate (AGR), Compound Annual Growth Rate (CAGR), and Gender Parity Index (GPI) to examine enrollment expansion, participation patterns, and gender equity trends across educational modes.

- (i) **Annual Growth Rate (AGR):** This measures the percentage change in enrollment from one year to the next and is calculated as:

$$AGR (\%) = \frac{\text{Value for the year} - \text{Value for previous year}}{\text{Value for previous year}} \times 100$$

- (ii) **Compound Annual Growth Rate (CAGR):** specific term for the geometric progression ratio that provides a constant rate of growth over the time period

$$CAGR = \left(\frac{V_{final}}{V_{begin}} \right)^{1/t} - 1 \quad \text{where}$$

V_{begin} = Beginning value V_{final} = Final value t = Time in years

- (iii) **Gender Parity Index (GPI):** This measures relative gender participation by comparing female enrollment with male enrollment and is calculated as

GPI = Percentage of females/Percentage of males

- GPI = 1 → Perfect parity: equal access for both males and females.
- GPI < 1 → Disparity in favor of males (fewer females relative to males).
- GPI > 1 → Disparity in favor of females (more females relative to males).

These indicators facilitate systematic evaluation of enrollment growth, participation dynamics, and gender parity trends in Conventional and ODL higher education systems in India.

5. Results and Analysis

5.1 Enrollment Trends in Higher Education

Indian higher education experienced substantial expansion during 2010-11 to 2021-22, with total enrollment increasing from 27.50 million to 43.27 million, representing an overall growth of approximately 57%. The sustained rise in enrollment reflects increasing demand for higher education, institutional expansion, and the growing emphasis on educational accessibility and inclusivity in India.

Conventional education remained the dominant mode throughout the study period, accounting for an average of 88.57% of total enrollment. Enrollment in Conventional mode increased from 24.18 million in 2010-11 to 38.14 million in 2021-22, recording an overall growth of approximately 57.7%. In comparison, Open & Distance Learning (ODL) contributed an average share of 11.43%, with enrollment rising from 3.31 million to 5.12 million during the same period, reflecting growth of nearly 54.5%. Although comparatively smaller in scale, ODL demonstrated increasing importance in expanding flexible and accessible higher education opportunities.

Table 2: Students enrollment through Conventional and ODL modes in (HEIs) in India

Year	Students Enrollment			Percentage (%) Share		Annual Growth Rate (%)		
	Conventional	ODL	Total	Conventional	ODL	Conventional	ODL	Total
2010-11	24185295	3314454	27499749	87.95	12.05	-	-	-
2011-12	25758094	3426237	29184331	88.26	11.74	6.50	3.37	6.13
2012-13	26543159	3609258	30152417	88.03	11.97	3.05	5.34	3.32
2013-14	28406140	3930094	32336234	87.85	12.15	7.02	8.89	7.24
2014-15	30399914	3811723	34211637	88.86	11.14	7.02	-3.01	5.80
2015-16	30759880	3824901	34584781	88.94	11.06	1.18	0.35	1.09
2016-17	31616124	4089781	35705905	88.55	11.45	2.78	6.93	3.24
2017-18	32610784	4031594	36642378	89.00	11.00	3.15	-1.42	2.62
2018-19	33427320	3972068	37399388	89.38	10.62	2.50	-1.48	2.07
2019-20	34249437	4286922	38536359	88.88	11.12	2.46	7.93	3.04
2020-21	36808839	4571874	41380713	88.95	11.05	7.47	6.65	7.38
2021-22	38147087	5121094	43268181	88.16	11.84	3.64	12.01	4.56
CAGR (%)	4.2%	4.0%	4.2%	Average (88.57%)	Average (11.43%)	AAGR (4.25%)	AAGR (4.14%)	AAGR (4.23%)

Source: Authors' calculation based on AISHE data

AAGR (Average Annual Growth Rate)

Annual Growth Rate (AGR) analysis further highlights differences between the two systems. Conventional education exhibited relatively stable growth patterns, whereas ODL showed comparatively greater fluctuations, including periods of rapid expansion and moderate decline. ODL recorded its highest AGR of 12.01% in 2021-22, reflecting the growing relevance of flexible and technology-enabled learning systems.

The Compound Annual Growth Rate (CAGR) remained comparable across both modes, with Conventional education recording 4.2%, ODL 4.0%, and total enrollment 4.2%. Similarly, the Average Annual Growth Rate (AAGR) remained balanced across Conventional (4.25%), ODL (4.14%), and total enrollment (4.23%). Overall, the findings indicate a gradual structural transition toward diversified, flexible, and inclusive higher education systems aligned with the objectives of NEP 2020 and SDG-4.

5.2 Gender-wise Enrollment Trends

Gender-wise enrollment trends indicate substantial improvement in women's participation in Indian higher education during the study period. Female enrollment increased from 12.03 million in 2010-11 to 20.69 million in 2021-22, reflecting growth of approximately 72%, which exceeded the growth rate of male enrollment. This expansion contributed to a gradual narrowing of gender disparities and reflects increasing educational inclusivity.

Table-3: Gender-wise Enrollment Trends through Conventional and ODL Modes in Higher Education

Year	National (All India-Overall) Student Enrolment			Conventional Mode Student Enrollment			Open and Distance Learning (ODL) Student Enrollment		
	Male	Female	GPI	Male	Female	GPI	Male	Female	GPI
2010-11	15466559	12033190	0.78	13479707	10705588	0.79	1986852	1327602	0.67
2011-12	16173473	13010858	0.80	14243271	11514823	0.81	1930202	1496035	0.78
2012-13	16617294	13535123	0.81	14604229	11938930	0.82	2013065	1596193	0.79
2013-14	17495394	14840840	0.85	15349137	13057003	0.85	2146257	1783837	0.83
2014-15	18488619	15723018	0.85	16431441	13968473	0.85	2057178	1754545	0.85
2015-16	18594723	15990058	0.86	16539469	14220411	0.86	2055254	1769647	0.86
2016-17	18980595	16725310	0.88	16730737	14885387	0.89	2249858	1839923	0.82
2017-18	19204675	17437703	0.91	16863859	15746925	0.93	2340816	1690778	0.72
2018-19	19209888	18189500	0.95	16990324	16436996	0.97	2219564	1752504	0.79
2019-20	19643747	18892612	0.96	17264173	16985264	0.98	2379574	1907348	0.80
2020-21	21237910	20142803	0.95	18759158	18049681	0.96	2478752	2093122	0.84
2021-22	22576389	20691792	0.92	19733282	18413805	0.93	2843107	2277987	0.80

Source: Authors' calculation based on AISHE data

At the national level, the Gender Parity Index (GPI) improved from 0.78 in 2010-11 to 0.92 in 2021-22, reaching a peak of 0.96 in 2019-20. The trend demonstrates substantial progress toward gender equity in higher education and aligns with the inclusive educational objectives of NEP 2020 and SDG-4.

Conventional education continued to provide the primary institutional foundation for women's participation. Female enrollment in Conventional mode increased from 10.71 million to 18.41 million, while the GPI improved from 0.79 to 0.93. Simultaneously, ODL emerged as an important flexible pathway for women's educational participation. Female enrollment through ODL increased from 1.33 million in 2010-11 to 2.28 million in 2021-22, while the ODL GPI improved from 0.67 to 0.80.

The findings suggest that both Conventional and ODL systems contributed to expanding women's access to higher education. Conventional education demonstrated comparatively stable progress in gender parity, whereas ODL enhanced participation opportunities for women balancing education with employment, geographical limitations, and family responsibilities.

5.3 Gender Parity Index (GPI) Trends

The Gender Parity Index (GPI) trends demonstrate substantial progress toward gender equity in Indian higher education. National GPI improved steadily from 0.78 in 2010-11 to 0.92 in 2021-22, indicating increasing female participation across higher education institutions.

Conventional education exhibited the most stable progress toward parity, with GPI increasing from 0.79 to 0.93 during the study period. Near parity was observed in 2018-19 and 2019-20, when GPI reached 0.97 and 0.98 respectively. These findings indicate sustained improvement in women's participation within formal higher education institutions.

ODL also demonstrated gradual improvement, with GPI increasing from 0.67 in 2010-11 to 0.80 in 2021-22. Although comparatively lower than Conventional education, the upward trend highlights the growing role of flexible learning systems in widening women's educational access. A consistent hierarchy emerged throughout the study period:

Conventional GPI > National GPI > ODL GPI

The comparative trends suggest that while Conventional education achieved stronger and more stable gender parity outcomes, ODL increasingly functioned as an important complementary mechanism for expanding flexible and inclusive educational opportunities for women.

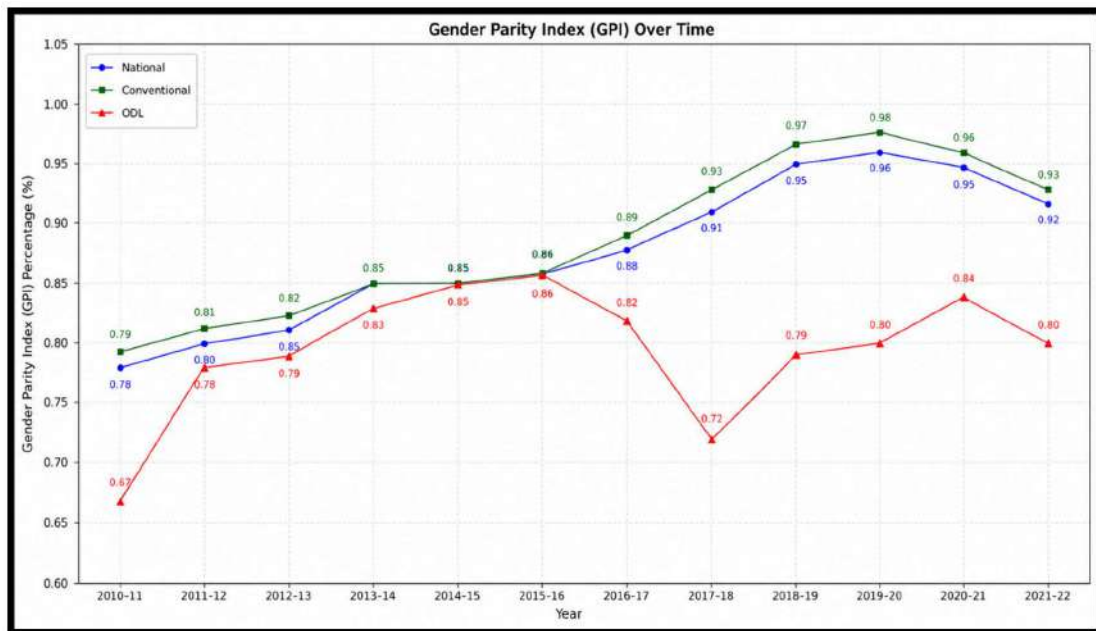


Fig 3. GPI of Students at National, Conventional and ODL levels in Higher Education

Figure 3 illustrates the GPI trends across National, Conventional, and ODL systems over the time period. Conventional education consistently recorded the highest GPI values, indicating stronger and more stable progress toward gender parity. National-level GPI also showed steady improvement, reflecting increasing women's participation in higher education. Although ODL exhibited comparatively lower and more fluctuating GPI values, the overall trend indicates gradual improvement in gender inclusivity through flexible learning

pathways. Overall, the findings demonstrate continued progress toward gender equity across all educational modes.

5.4 Program-Level Distribution

Program-level enrollment patterns reveal clear structural differences between Conventional and Open & Distance Learning (ODL) systems in Indian higher education. Undergraduate (UG) programs accounted for the largest share of enrollment across all categories, averaging 79.32% nationally, while postgraduate (PG) programs averaged 11.43%. These trends reflect the continued expansion of higher education participation and progress toward the NEP 2020 target of achieving a 50% GER by 2035.

Conventional education remained predominantly undergraduate-oriented, with UG enrollment averaging 81.34% and PG enrollment 9.09%, highlighting its central role in campus-based and full-time higher education. In contrast, ODL demonstrated comparatively stronger representation in postgraduate and continuing education programs, with UG enrollment averaging 63.73% and PG enrollment 29.52%. This pattern indicates the growing importance of ODL in supporting lifelong learning, professional advancement, reskilling, and continuing education among working professionals, women, and adult learners.

Table 4. Program-wise Enrollment Distribution (%) in Conventional and ODL Systems

Year	National Student Enrollment		Conventional Mode Student Enrollment		ODL Mode Student Enrollment	
	UG (%)	PG (%)	UG (%)	PG (%)	UG (%)	PG (%)
2010-11	79.90	11.89	82.91	8.70	57.97	35.16
2011-12	79.41	11.54	81.69	9.13	62.26	29.64
2012-13	79.23	11.44	81.67	8.88	61.29	30.26
2013-14	78.86	11.82	81.48	8.96	59.91	32.51
2014-15	79.42	11.26	81.64	8.71	61.72	31.66
2015-16	79.28	11.33	81.02	9.13	65.35	28.98
2016-17	79.39	11.22	81.26	8.89	64.96	29.30
2017-18	79.19	11.23	81.14	9.00	63.36	29.23
2018-19	79.76	10.81	81.16	9.10	67.98	25.15
2019-20	79.53	11.19	80.96	9.32	68.06	26.16
2020-21	78.92	11.40	80.68	9.38	64.77	27.68
2021-22	78.90	12.06	80.49	9.84	67.10	28.56
Average	79.32	11.43	81.34	9.09	63.73	29.52

Source: Authors' calculation based on AISHE data

The findings further suggest that Conventional and ODL systems perform complementary roles within Indian higher education. While Conventional institutions primarily support foundational undergraduate education, ODL expands access to flexible, technology-enabled, and learner-centered educational opportunities. The increasing integration of digital learning systems also reflects a broader structural shift toward accessibility, inclusivity, and diversified participation in higher education.

5.5 Comparative Trends and Inclusivity in Higher Education

The comparative analysis demonstrates a gradual structural transformation within Indian higher education characterized by sustained enrollment growth, improving gender parity, rising women's participation, and expanding educational flexibility. While Conventional education continued to dominate overall enrollment, ODL emerged as an important complementary mechanism for widening educational access and supporting inclusive higher education development.

Female enrollment increased at a faster rate than male enrollment across both systems, contributing to improved gender parity and broader educational inclusivity. Conventional education demonstrated comparatively stronger and more stable parity outcomes, whereas ODL significantly expanded educational opportunities for women, working professionals, adult learners, and geographically dispersed populations.

The findings further indicate that higher education expansion in India is increasingly driven not only by institutional growth but also by flexibility, digital accessibility, and diversified learning pathways. The growing integration of Conventional and ODL systems reflects the emergence of more learner-centered and technology-enabled higher education models.

Overall, the statistical trends suggest that Conventional and ODL systems function as complementary components of Indian higher education. While Conventional education continues to provide the primary

institutional foundation for higher education participation, ODL increasingly supports accessibility, lifelong learning, women's participation, and flexible educational pathways. Collectively, these developments indicate that Indian higher education is gradually evolving toward a more inclusive, flexible, and equitable framework aligned with the objectives of NEP 2020, SDG-4, and India's "Viksit Bharat" vision.

6. Discussion

6.1 Expansion and Diversification of Higher Education

The findings demonstrate substantial expansion in Indian higher education during 2010-11 to 2021-22. Total enrollment increased from 27.50 million to 43.27 million, reflecting an overall growth of approximately 57% with a Compound Annual Growth Rate (CAGR) of 4.2%. These trends indicate increasing educational participation, institutional expansion, and growing demand for higher education in India.

The sustained rise in enrollment across both Conventional and ODL systems reflects a gradual transition toward a more inclusive and diversified higher education framework. The expansion further supports the objectives of the NEP 2020, particularly the target of achieving a 50% GER by 2035 through flexible, multidisciplinary, and technology-enabled learning systems.

6.2 Comparative Role of Conventional and ODL Systems

Conventional education remained the dominant mode of higher education throughout the period, accounting for an average of 88.57% of total enrollment. Enrollment through Conventional mode increased from 24.18 million in 2010-11 to 38.14 million in 2021-22, with a CAGR of 4.2%, highlighting its continued institutional centrality within Indian higher education.

In comparison, ODL accounted for an average share of 11.43% of total enrollment, increasing from 3.31 million to 5.12 million during the same period, with a CAGR of 4.0%. Although comparatively smaller in scale, ODL emerged as an important complementary mechanism for widening educational access, particularly for working professionals, women, rural learners, and adult students.

The comparative trends indicate that Conventional and ODL systems function as complementary rather than competing educational pathways. While Conventional education continues to provide structured academic engagement and institutional integration, ODL increasingly supports educational flexibility, lifelong learning, and inclusive participation through technology-enabled delivery systems.

6.3 Gender Inclusivity and Women's Participation

A major finding of the study is the substantial improvement in women's participation across both educational modes. Female enrollment increased from 12.03 million in 2010-11 to 20.69 million in 2021-22, representing growth of approximately 72%, which exceeded male enrollment growth during the same period.

Correspondingly, the national Gender Parity Index (GPI) improved from 0.78 in 2010-11 to 0.92 in 2021-22, indicating gradual progress toward gender inclusivity in higher education. Conventional education demonstrated relatively stronger parity outcomes, with GPI increasing from 0.79 to 0.93, while ODL improved from 0.67 to 0.80.

These trends highlight the growing contribution of both Conventional and ODL systems toward inclusive educational participation and women's empowerment. ODL, in particular, expanded opportunities for women balancing higher education with employment, domestic responsibilities, and geographical constraints through flexible and affordable learning pathways.

6.4 Structural Shift toward Flexible and Technology-Enabled Learning

The increasing expansion of ODL reflects a broader structural shift toward flexible, learner-centered, and technology-enabled higher education. The growth of digital learning platforms, online education, and blended learning systems strengthened educational accessibility and institutional adaptability during the study period.

Program-level distribution further indicates important structural differences between Conventional and ODL systems. Conventional education remained predominantly undergraduate-oriented, with UG enrollment averaging 81.34%, whereas ODL demonstrated comparatively stronger representation in postgraduate education, with PG enrollment averaging 29.52%. These patterns suggest the increasing role of ODL in lifelong learning, reskilling, continuing education, and professional advancement.

The findings strongly align with NEP 2020 objectives emphasizing flexibility, digital integration, multidisciplinary learning, and lifelong education. The growing integration of Conventional and ODL systems therefore reflects the emergence of more hybrid and technology-supported higher education ecosystems.

6.5 Persistent Disparities and Educational Challenges

Despite substantial progress, disparities associated with digital accessibility, regional inequalities, socio-economic conditions, and technological infrastructure continue to influence educational participation. Although ODL expanded educational outreach and flexibility, fluctuations in annual growth and comparatively lower GPI values indicate continuing differences in digital readiness and learner support systems.

The comparatively lower ODL GPI (0.80 in 2021-22) relative to Conventional education (0.93) suggests that women's participation in flexible learning systems remains influenced by technological access, socio-economic conditions, and institutional support mechanisms. Similarly, disparities in internet connectivity and digital infrastructure continue to affect equitable educational access, particularly among rural and underserved populations.

6.6 Policy Implications and Recommendations

The findings emphasize the need for integrated policy strategies to strengthen both Conventional and ODL systems for inclusive higher education development. Key priorities include improving digital infrastructure, expanding learner support services, increasing financial assistance for women learners, and promoting blended and hybrid learning models to enhance accessibility and flexibility.

It is observed that total higher education enrollment increased by approximately 57% during 2010-11 to 2021-22, alongside notable improvement in women's participation and GPI, policy attention should focus on sustaining equitable participation across diverse learner groups. Strengthening multilingual digital resources, quality assurance mechanisms, and technology-enabled lifelong learning opportunities can further improve institutional effectiveness and educational inclusivity.

The growing role of ODL, which accounted for an average of 11.43% of total enrollment, highlights the importance of flexible and technology-supported learning pathways in supporting women, working professionals, rural learners, and adult students. These measures align closely with the objectives of the NEP 2020, SDG-4, and India's target of achieving a 50% GER by 2035.

Overall, the findings suggest that strengthening flexible, inclusive, and learner-centered higher education systems will remain essential for sustainable educational development and improved educational equity in India.

6.7 Inclusivity, Equity, and Future Directions in Higher Education

The findings suggest that Indian higher education is gradually evolving toward a more inclusive, equitable, and flexible framework. The comparative trends demonstrate that Conventional and ODL systems collectively contribute toward expanding enrollment, improving gender parity, and strengthening educational inclusivity.

The sustained growth of ODL alongside Conventional education reflects the increasing importance of diversified and technology-enabled learning pathways in achieving equitable higher education development. These structural transformations align closely with the objectives of NEP 2020 and SDG-4, emphasizing inclusive access, lifelong learning, educational flexibility, and gender-responsive higher education systems.

7. Conclusion

Indian higher education has experienced substantial expansion and diversification during 2010-11 to 2021-22, accompanied by notable progress in educational access, gender participation, and flexible learning opportunities across Conventional and ODL systems. This study addressed the need for comparative longitudinal analysis of enrollment growth, gender parity, and inclusivity trends using AISHE data at the national level.

The findings reveal significant growth in higher education enrollment, increasing from 27.50 million to 43.27 million during the period. Conventional education remained the dominant mode, contributing an average of 88.57% of total enrollment, while ODL accounted for 11.43% and emerged as an important complementary mechanism for expanding accessibility and lifelong learning opportunities. Women's participation increased steadily across both systems, contributing to improved GPI levels and gradual advancement toward greater gender inclusivity. Conventional education demonstrated comparatively stronger and more stable parity outcomes, whereas ODL expanded opportunities for women, working professionals, adult learners, and geographically dispersed populations through flexible and technology-enabled learning pathways.

The study further highlights an ongoing structural transformation within Indian higher education characterized by increasing diversification, digital integration, learner-centered education, and expanding lifelong learning opportunities aligned with the objectives of NEP 2020 and SDG-4. The findings emphasize the importance of integrating Conventional and ODL systems to strengthen equitable, flexible, and inclusive higher education development. Enhancing digital infrastructure, learner support systems, financial assistance, blended learning models, and quality assurance mechanisms can further improve accessibility and support India's GER target of 50% by 2035.

The study is based on secondary AISHE data and focuses primarily on enrollment-related indicators. Future research may incorporate post-pandemic datasets, regional and institutional comparisons, discipline-specific analysis, and mixed-method approaches to further examine the evolving dynamics of gender inclusivity, digital learning, and higher education development in India.

Overall, the study demonstrates that Conventional and ODL systems are collectively contributing toward a more inclusive, flexible, technology-enabled, and gender-responsive higher education framework. Continued policy support, digital innovation, and learner-centered educational strategies will remain important for advancing equitable higher education, lifelong learning, and sustainable human capital development in India.

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