# EXPANSION OF SCHOOL LEVEL VOCATIONAL EDUCATION IN INDIA: AN ANALYSIS UNDER THE NSQF FRAMEWORK

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***Abstract***

Vocational Education has emerged as a key policy priority in India, aimed at addressing skill gaps and increasing employability. This paper examines the evolution and growth of vocational education at school level, with particular reference to policy developments under the National Skill Qualification Framework and the National Education Policy, 2020. Using UDISE/ UDISE+ data spanning the period from 2016-17 to 2021-2022, the study analyses trends in school participation and student vocational enrolment both at the secondary and senior secondary levels. The findings show a significant expansion in both institutional coverage and student enrolment under NSQF during the study period, notwithstanding a temporary decline during the COVID -19 pandemic period. Subject-wise analysis indicates higher participation in IT-ITes and Healthcare, reflecting evolving demand in labour market. Overall, the study highlights the increasing mainstreaming of vocational education within India's school education system.

***Keywords*** : Vocational Education, NSQF, UDISE/UDISE+

## EDUCATION AND ECONOMIC DEVELOPMENT

Education is widely acknowledged as a critical determinant of economic growth, contributing significantly to human capital formation, productivity and employability. Classical human capital theorists like Schultz (1961), Becker (1964), Mincer (1974) emphasized that investment in education yields returns in terms of higher productivity, better earnings, and growth in national income. Development economists have further argued that education contributes to sustained economic growth, innovation, and poverty reduction (Psacharopoulos & Patrinos,2004). Education encompasses structured learning pathways tailored to diverse social and economic needs, categorized into formal, informal and non-formal types. Formal education is institutionalized, structured and curriculum based. Informal education, on the other hand is unstructured, unsystematic and self-directed one, acquired through everyday experiences and exposure to real life situations. Non- formal education, although organized like formal education, is flexible in nature and occurs outside the ambit of the formal system.

## THE GENERAL Vs VOCATIONAL EDUCATION DEBATE

The curriculum of formal education is broadly divided into two categories, namely general and vocational streams. General education aims to develop broad-based knowledge and literacy required for academic progression and lifelong learning. It is generally associated with progression to higher education and long-term professional careers. Vocational education, in contrast, is designed to equip learners for direct entry into occupations and trades. It focuses on developing technical skills, industry relevant knowledge, and practical competencies required for productivity and efficiency in the labour force (UNESCO UIS, 2013). In many advanced economies, vocational education enjoys high social acceptance, offering clear livelihood pathways into employment and professional mobility (Agrawal, 2012). Nations such as Singapore and South Korea in Asia have established strong vocational education and training systems that significantly contributes to their economic competitiveness, productivity and workforce readiness. In these context, vocational education is not necessarily viewed as inferior to general education; rather, it is taken as an alternative route to employment, skills and social mobility.

In India, however, vocational education has historically been marginalized within the education system due to its low social acceptance and the perception that it is appropriate only for academically weaker students (Tilak, 2002). This low social acceptance has limited its attractiveness among students. Therefore, the challenge in India is not only to expand vocational education but also to improve its labour market relevance, social credibility and linkages with higher education.

## LITERATURE ON VOCATIONAL EDUCATION IN THE INDIAN CONTEXT

Indian empirical research on vocational education remains relatively limited, especially at the school level. Existing literature primarily focus on returns to vocational training, determinants of participation at higher education level and challenges related to programme quality.

Ahmed (2016) using NSSO 61st and 66th unit level data, analyzed wages and individual's employment status who participated in the labour market after completing vocational education and training. Using Mincerian wage equations and Heckman two-stage models, the study found that vocational education and training provides more secure but relatively lower paying employment when compared to general education. The returns were found to be highest for early school leavers, particularly at the primary level.

Kumar et al. (2019), using a logit model on NSSO 68th round data, identified different factors influencing vocational participation. Variables like gender, social category, religion, educational attainment etc were considered. The results showed a higher probability of vocational participation among urban residents, males and individuals belonging to Christian and other minority religions groups.

Boruah (2022) highlighted persistent challenges in vocational education such as inadequate teacher preparation, low-quality infrastructure, weak industry linkages etc. These issues affect the quality and credibility of vocational education programmes.

Ahamad & Kesari (2023) examined socio-economic factors that influences the adoption of vocational training in India and discussed both its success and its challenges. The study suggested that effective implementation of vocational education could address unemployment and improve livelihoods, thereby contributing to economic growth. However, this requires better programme quality, greater social acceptance and strong institutional support.

Overall, the literature highlights that vocational education has the potential to improve employability, but its effectiveness depends on accessibility, quality, industrial linkages and strong pathways to work or further education.

## HISTORICAL EVOLUTION OF VOCATIONAL EDUCATION AND TRAINING IN INDIA

The evolution of vocational education in India can be divided into two broad phases namely pre-Independence and post-Independence period.

During the colonial period, the British government paid limited attention to vocational education. Although administrative requirements demanded clerical and skilled personnel, there was little systematic effort to develop a skilled industrial workforce. Moreover, vocational occupations were often socially stigmatized, which further weakened the status of skill-based education.

Wood's Dispatch (1854) recognized the importance of industrial education, but implementation remained weak. The National Education Movement (1905-1921) and the Swadeshi movement later emphasized practical training and self-reliance, creating an insignificant push towards indigenous development in vocational education. The Sapru Committee (1934) recommended introducing vocational education after eleven years of schooling. Further, it has been realized to develop proper vocational education in Indian Education System.

The Abbott-Wood Committee's recommendations led to the establishment of polytechnic institutions and technical schools and emphasized vocational education at the school level. Post-Independence, the Secondary Education Commission (1952-53) recommended diversification of secondary education to meet industrial demands. The Kothari Commission also strongly advocated vocationalization and work experience as part of secondary education.

The National Policy of Education (1968) introduced the 10+2+3 structure and incorporated vocational courses at the secondary and senior secondary levels. In 1975, vocational education was introduced as a separate stream at the senior secondary level. The National Policy on Education, 1986, set target to cover at least ten percent of senior secondary students under vocational education by 1990 and twenty five percent by 1995 (GOI, 1986). However, progress was limited due to social attitudes, lack of awareness and weak school-industry linkages.

The Scheme of Vocationalisation of Secondary Education (1976-77), was later revised as a Centrally Sponsored Scheme in 1992-93. The National Vocational Education Qualification Framework was introduced in 2012 and later subsumed into the National Skill Qualification Framework (NSQF) in 2013. NSQF established a nationally integrated competency-based framework linking general, technical and vocational education across different levels.

The National Education Policy, 2020 marks a paradigm shift in the development of vocational education by integrating vocational education into mainstream schooling from class VI onward. It emphasizes early exposure to skills and stronger integration between academic and vocational education.

## OBJECTIVE

The present paper aims to examine the magnitude and pattern of student enrolment in vocational subjects at the school level in India with particular emphasis on trends over time. Under NSQF, vocational subjects are offered primarily by government and government-aided schools at the secondary and senior secondary level. The study seeks to provide a national- level picture of the reach, accessibility and growth trajectory of vocational education, contributing to an under-researched area in Indian education policy.

## DATA SOURCES

The study uses data from the Unified District Information System for Education and its updated version, UDISE+. UDISE+ is India's largest and most comprehensive school-level Education Management Information System and is managed by the Ministry of Education. It provides a platform that enables schools to record and submit annual information pertaining to its infrastructure & facilities, students enrolment, teachers and other school-level indicators.
It also furnishes detailed information on vocational education; the number of schools offering vocational subjects, vocational enrolments, and subject-wise distribution etc. A standardized Data Capture Format has been used to collect the data. The Data Capture Format comprises of eleven broad sections covering different aspects of school. The vocational education section provides information on vocational subjects offered under NSQF, number of courses, enrolment by class, gender, social category, religion and industry partnerships.

The study covers the period from 2016-17 to 2021-2022 for school participation and student enrolment under NSQF. Based on available UDISE data, subject-wise enrolment is analysed for 2015-16 to 2017-18.

## DATA ANALYSIS

### Schools And Enrolment under NSQF

Table 1 highlights a longitudinal overview of the total number of schools (by management type) offering vocational subjects and the corresponding student enrolment under the NSQF scheme at the all-India level for the period 2016-17 to 2021-22. The table shows a steady increase in the number of schools offering vocational subjects, from 4,084 in 2016-17 to 13,206 in 2021-22. The institutional participation rate increase from 1.57 percent to 4.51 percent during this period. This expansion has been primarily driven by government schools, followed by a small number of government aided schools, highlighting the central role of public institutions in implementing NSQF-aligned vocational education.

Student enrolment for vocational subjects under the NSQF scheme increased significantly from 267,618 in 2016-17 to approximately 1.78 million in 2021-22. The growth in enrolment outpaced the increase in the number of participating school. The annual growth rate indicates that in 2017-18, the number of schools and student enrolments increased by approximately 77 percent and 164 percent, respectively, compared to the previous year. This surge in the growth rate may be attributed to the initial momentum created by policy initiatives such as introduction of new courses, the Skill India Mission and growing awareness of vocational programmes at school level.

In subsequent years, growth in both school participation and enrolment became more moderate. The year 2020-21 experienced a noticeable decline in enrolment. This decline can largely be attributed to the COVID-19 pandemic, which led to prolonged school closures and widespread disruptions all over the world. Since vocational education depends largely on hands-on learning, it was particularly affected by the shift to online education. With the reopening of schools and renewed policy emphasis, enrolment rebounded in 2021-22.

**Table 1 : School Coverage and Student Enrolment Under the NSQF Scheme in India**

| ALL India | TOTAL NUMBER OF SCHOOLS IN INDIA | TOTAL NUMBER OF SCHOOLS IN SECONDARY AND SENIOR SECONDARY CATEGORY UNDER NSQF | | | | | TOTAL ENROLMENT UNDER NSQF FOR SECONDARY AND HIGHER SECONDARY LEVEL | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | All Manage-ment | Govt. | Govt. aided | Pvt unaided | Others | All Manage-ment | Govt. | Govt. aided | Pvt unaided | Others |
| 2016-17 | 260525 | 4084 | 4084 | 0 | 0 | 0 | 267618 | 267618 | 0 | 0 | 0 |
| 2017-18 | 273113 | 7232 | 7232 | 0 | 0 | 0 | 707318 | 707318 | 0 | 0 | 0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2018-19 | 280626 | 7471 | 7454 | 17 | 0 | 0 | 1085507 | 1042411 | 43096 | 0 | 0 |
| 2019-20 | 285223 | 11038 | 10992 | 46 | 0 | 0 | 1210649 | 1208485 | 2164 | 0 | 0 |
| 2020-21 | 291466 | 12292 | 12208 | 81 | 3 | 0 | 1013996 | 1012329 | 1667 | 0 | 0 |
| 2021-22 | 292850 | 13206 | 13090 | 116 | 0 | 0 | 1784696 | 1772259 | 12437 | 0 | 0 |

Source: UDISE and UDISE+ Reports

**Subject-Wise Vocational Enrolment**

**Table 2** present the percentage distribution of enrolment across vocational subjects for Classes IX-XII for three consecutive academic years starting from 2015-16. The data reveal an overall upward trend in vocational enrolment in almost all vocational subjects, although the pace and concentration of growth vary considerably.

**Table 2: Subject Wise Pattern of Vocational Enrolment, Classes IX-XII (In Percent)**

| Vocational Subjects | 2015-16 | 2016-17 | 2017-18 |
|---|---|---|---|
| Agriculture | 5.42 | 5.49 | 4.09 |
| Apparel | 0.11 | 0.35 | 1.50 |
| Automotive | 11.45 | 8.21 | 5.04 |
| Beauty & Wellness | 8.51 | 7.91 | 9.58 |
| Banking Financial Services and Insurance (BFSI) | 0.05 | 1.98 | 1.97 |
| Construction | 0.06 | 0.05 | 0.28 |
| Electronics | 0.58 | 0.83 | 1.67 |
| Healthcare | 17.33 | 20.17 | 17.79 |
| IT-ITES | 22.98 | 24.16 | 30.15 |
| Logistics | 0.07 | 0.07 | 0.31 |
| Capital Goods | 0.00 | 0.02 | 0.05 |
| Media & Entertainment | 0.43 | 1.07 | 3.42 |
| Multiskilling | 3.13 | 3.51 | 1.43 |
| Retail | 9.24 | 8.00 | 7.02 |
| Security | 8.74 | 8.01 | 6.01 |
| Sports | 2.90 | 3.24 | 2.64 |
| Telecom | 1.24 | 2.49 | 1.26 |
| Tourism & Hospitality | 7.76 | 4.43 | 5.79 |

Source : Author's Calculation from UDISE

The subject wise distribution indicates that IT-ITes consistently records the highest share of enrolment, increasing from 22.98 percent in 2015-16 to 30.15 percent in 2018-19. This reflects the rapid digital transformation of the Indian economy and strong labour market demand for technology related skills. The IT-ITes curriculum equips students with practical skills such as digital applications, data management etc, which are perceived as highly employable.

Healthcare emerges as the second most important subject in terms of enrolment, accounting for around 17-20 percent of total participation during the period. This trend may be linked to expanding employment opportunities in healthcare support services and public health and allied health occupations etc. Subjects like Beauty & Wellness, Automotive, Agriculture, Tourism and Hospitality are few that has experienced moderate but relatively stable participation. Automotive, although initially high, shows a declining trend over time. This may reflect changes in student preference, infrastructural constraints or uneven course availability across schools. In contrast, subjects like Capital Goods, Logistics, Sports, Banking and Financial Services, Telecom etc have exhibited comparatively lower share of enrolment. Some of the subjects may require trained instructors, specialized equipment or strong industrial linkages, which may limit their availability

Media and Entertainment and Electronics show gradual increases but remain limited in overall share. It shows that emerging subjects may attract interest over time, but require effective curriculum design, infrastructural support and career

Overall, the uneven distribution of enrolment across subjects may be influenced by various factors, such as awareness levels, accessibility of facilities, perceptions of employability, industrial linkages and regional economic structures. The findings suggest that student participation is closely aligned with perceived labour market demand and future employment opportunities.

## CONCLUSION

The study demonstrates a consistent expansion of vocational education in Indian schools under the NSQF framework. Growth in both institutional coverage and student enrolment reflects increasing acceptance of vocational education within mainstream schooling. The expansion has been majorly driven by government schools, highlighting the importance of public institutions in implementing vocational education.

The analysis also shows that vocational education remains uneven in its subject wise distribution. While IT-ITes and Healthcare dominate vocational enrolment, suggesting students' preference for subjects associated with employability and strong industrial linkages. However, lower participation in other subjects shows the need for improved infrastructure facilities, better career guidance and curriculum strengthening.

Overall, vocational education is becoming increasingly visible within India's education system at school level. However, in long term , its success will depend not only on enrolment expansion but also on better quality, relevance and progression pathways. Aligning vocational education with student aspirations, labour market demand and creating credible pathways to higher education and employment will be crucial for enhancing its contribution to human capital formation and economic development.

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