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"Skill Enhancement & Development in India

A Comparison with China"

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SRIVIPRA PROJECT 2023

Title

Skill Enhancement & Development in India
A Comparison with China

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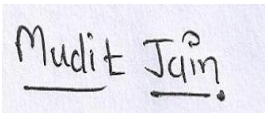
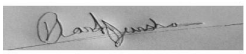
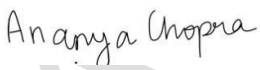
1		Mudit Jain	0920093	B com Programme	

2		Harsh Darshan Upadhyay	0121228	B.A. Programme	
3		Ananya Chopra	0521005	B.A(H) Economics	
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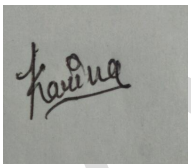
8		Karina	0121183	BA Programme (Eco + Maths)	
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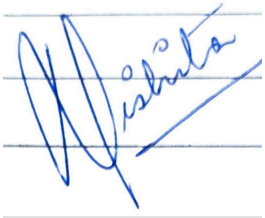
10		Nishita	0521024	B. A(H) Economics	

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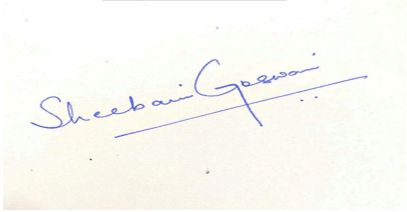
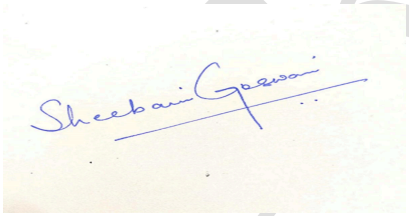


Certificate of Originality

This is to certify that the aforementioned students from Sri Venkateswara College have participated in the summer project SVP-2352 titled " **Skill Enhancement & Development in India - A Comparison with China "**. The participants have carried out the research project work under my guidance and supervision from 15 June, 2023 to 15th September 2023. The work carried out is original and carried out in an online/offline/hybrid mode.

Signature of Mentor



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List of Abbreviations

VET	Vocational Education and Training
TVET	Technical & Vocational Education
NSDA	National Skill DevelopmentAgency
NSD	National Skill Development Corporation
SSC	Skill Security Council
ITI	Industrial Training Institute
HE	Higher Education
PMKVY	The Pradhan Mantri Kaushal Vikas Yojana
NSQF	The National Skills Qualifications Framework
CPD	Continuous professional development
OECD	Organization for Economic Cooperation & Development.\
MSDE	The Ministry of Skill Development & Entrepreneurship

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CHAPTER 1: THE INTRODUCTION

1.1 Skill Development In India: A Backdrop

In recent years, skill development has emerged as a critical aspect of economic growth and social development in countries around the world. With globalization and the increasing demand for a highly skilled workforce, nations across the globe have recognised the significance of a skilled population as the driving force in meeting the challenges of this rapidly evolving global economy. The importance of skill development cannot be overstated, and India stands at the forefront of this transformative journey.

Being the world's second-most populous country, with a population exceeding 1.4 billion people, India possesses a vast reservoir of human capital. However, it also grapples with high levels of unemployment, low education levels, and a significant skills gap that hinder its ability to fully leverage this demographic dividend that comes once in the life of any nation.

The proportion of working-age individuals (typically aged 15-59) in a nation's population is a key driver of its GDP growth. This ratio measures the benefits gained from an increase in the number of working-age individuals in comparison to the dependent or non-working population (usually those under 15 or over 60 years old). When the share of the population above 60 years exceeds 10% of the total population, the United Nations (UN) defines that society as aging. China’s demographic dividend will be over by 2015; India’s is expected to continue till about 2040 (World Bank 2012).

Only 4.7% of the total workforce in India had received formal skill training, compared to 52% in the US, 80% in Japan, and 96% in South Korea, further highlighting the challenges ahead in the Indian government's ambition to make India the "Skill Capital of the World."

What are skills ?

Skill is generally constructed as one's ability to successfully carry out a given work. The need for skill development is to bridge the skill gap and be ready for the future. One may possess it naturally or develop it step by step over time. It may be soft skills which highlight someone's characteristics like communication skills, leadership skills, creativity etc or hard skills which are enhanced through education and experience. With globalization, there has been an increased demand for a highly skilled workforce or a high demand for skill development.

History of skill development in India

Skill development has appeared as an essential feature for Economic Growth and development, and India has made substantial efforts to address these challenges. The government of India has launched various skill development programs and initiatives, aiming to bridge the gap between the demand and supply of skilled workforce. These initiatives range from formal education reforms to vocational training programs, apprenticeships and entrepreneurship development schemes.

In the 1990s, the IT industry and Service sector began to grow, but there was a slowdown in the manufacturing sector. Today the pursuit of skill is emerging on a larger scale; the success of digital India has made access to resources an efficient process. The government is also holistically understanding the growing demand for skills in India. Atul Kumar Tiwari, secretary of the Ministry of skills development and Entrepreneurship (MSDE), stated, "There is an increasing realization that skilling is an important career pathway"

The National Skill Development Corporation (NSDC) and its associated sector skill councils have played a vital role in coordinating and implementing skill development initiatives in India. The Pradhan Mantri Kaushal Vikas Yojana (PMKVY) and the Skill India Mission 2015, which aims to train over 400 million people by 2022, encouraged positive changes in India's vocational training system. Indian youth across diverse sectors are to be skilled, promoting entrepreneurship and creating a culture of lifelong learning.

It is vital to escalate these initiatives, as India is in a position today where it understands the value of its 65% working-age population, and the idea should be to use it efficiently to maximize outcomes.

Thus, our analysis aims to contribute to the understanding of how India can effectively nurture and harness its human capital to drive sustainable economic growth, promote social development, and create a workforce ready for the challenges of the 21st century. However, harnessing this potential requires a focused and strategic approach to skill development, bridging the gap between education and employability, and fostering an ecosystem conducive to innovation and economic advancement.

1.2 Policy Initiatives On Skill Development

With its large population and expanding economy, India recognises the critical role of skill development in achieving long-term growth and inclusive development. In recent years, the government has placed a considerable emphasis on policy efforts targeted at improving the skill sets of its people, providing them with the knowledge and talents required to prosper in a fast changing employment market. .The establishment of the first **Industrial Training Institute in 1969** marked the beginning of the period of vocational education and skill training. **The All India Council of Technical Education Act of 1987** became the official college regulator in 1987.

The National Skill Development Corporation (NSDC), which was established to finance vocational training and assist skill development systems, was founded in response to the need to include more private sector organizations in the system. The NSDC carried out a number of policy initiatives with a focus on short-term training and placement programmes, including the **State Skill Development Mission** and the **Aajeevika Programme**. The economic expansion after 1991 did not lead to an increase in employment, which led to a skills gap in the labor market. These difficulties demonstrated the urgent necessity for a skill development programme in the nation. By introducing the skill development strategy in 2009, a wide policy framework was put into place in accordance with the recommendations of the five-year plan.In 2013 **,The National Skills Qualifications Framework (NSQF)**, a quality assurance framework that arranges qualifications according to a variety of levels of knowledge, skills,

and aptitude, was authorized by the Cabinet Committee on Skill Development. This framework was essential to maintaining diversity, development structure, and skill set.

In 2014, **The Ministry of Skill Development & Entrepreneurship** was formulated which is in charge of coordinating all Skill Development efforts across the country, bridging the gap between demand and supply of skilled labor, developing the vocational and technical training framework, skill up-gradation, the development of new skills, and innovative thinking not only for existing jobs but also for jobs that will be created.In 2014, the **Apprentices (Amendment)Act** was introduced according to which,trade apprentices who have not had any prior institutional training must receive basic training before being admitted to the workshop for practical training.Such training may be provided by any institute with adequate facilities.**The Skill India Mission** was launched in 2015 under which **Pradhan Mantri Kaushal Vigyan Yojana** was introduced which encouraged the standardization of the certification process and laid down the groundwork for creation of skills registration. Over 10 million youths have benefited from this policy in a four year time period,2016-2020,by enabling and mobilizing a significant number of young people to participate in industry designed quality skill training, become employed and earn a living. In 2016, **Pradhan Mantri YUVA Yojana** was introduced which is a centrally sponsored Scheme on entrepreneurship education and training under the Ministry of Skill Development and Entrepreneurship, Government of India. The Scheme aims at creating an enabling ecosystem for Entrepreneurship development through Entrepreneurship education and training; Advocacy and easy access to entrepreneurship support network and Promoting social enterprises for inclusive growth. In order to strengthen institutional mechanisms for skill development and increase access to quality and market-relevant training for youth across the country, **Skills Acquisition and Knowledge Awareness for Livelihood Promotion (SANKALP)** was launched on 19th January, 2018 with an implementation period till March, 2023. SANKALP is a World Bank loan assisted scheme with the present agreement between Government of India and the World Bank for $250 million (Rs. 1650 Crore) In 2019, **National Entrepreneurship Awards 2019** were introduced by MSDE which conferred NEA 2019 to 30 Young Entrepreneurs and 6 Organizations / Individuals, building Entrepreneurship ecosystem in the country. The awards were presented to honor outstanding contributions in entrepreneurship development.

1.3 Comparing Skill Policies

As seen so far,India has implemented a number of policy initiatives aimed at enhancing the country's well-being where different programmes covered a broad range of topics, including

health,education and economic development. Of these, many projects have resulted in considerable improvements and hence have benefitted millions of lives. But, despite these achievements, considerable work has to be done to address the country's remaining social and economic difficulties.

To put India’s policies in relation with other countries' policies is important as the market is highly globalized in the present context. Skill development policies play an important role in the workforce development, bridging the skill gap and pushing economic growth in countries across the world. With this context, a comparative analysis of skill policies of different nations provides valuable insights into different policies and initiatives adopted by them with relation to India. This part aims to compare the skill development policies of India, China, and Germany, shedding light on their policies for skill training, industry collaboration, and the focus on emerging new technologies.

China and India

China has recorded a double digit growth rate in the last two decades and one of the major reason behind this milestone achievement is China's comprehensive planning according to global trends. Also China shares stages with India across various regional and global groupings like BRICS, G-20 etc. Some of the key initiative which contributed in China’s impressive growth when compared to India’s are as follows :-

Policies : In China one of the key policy initiative was enactment of The Vocational Education Law of 1996, which provides legal backing to ensure the participation of private enterprises in vocational training. According to law it is mandatory for all enterprises to spend 1.5 percent of their total payroll towards vocational training and it also defines the roles and responsibilities of the Ministry of Education and Ministry of Human Resources & Social Security. Thus it provides a concrete framework for the Chinese vocational education and training system. Whereas in India there is no law for legal backing. Only NSDC is there which acts as a standard body for skill development initiatives in India. It collaborates with various industries, training partners, and some other stakeholders to facilitate skill training programs, promote entrepreneurship, and develop a skilled workforce.

Participation of local government : After the introduction of reforms in the year 1978, China has ensured the participation of local government in education system through fiscal

decentralization and autonomy. The participation of local government in curriculum design made China's education system more flexible according to the requirements of local industries. On the other hand, in India Central government plays a key role in the education system. Also, NCERT act as a standard body for the design and structure of curriculum all over India. So, in India the participation of local government is almost negligible.

Teacher training system : Another important aspect of China's vocational education is the implementation of strict training and qualification for teachers and instructors. Teachers hired to teach at the senior secondary level and undergraduate colleges are required to hold undergraduate and postgraduate degree in that specific field respectively. In addition, teachers are required to undergo practical training in industry for appropriate duration so that they can remain at par with modern technologies. In India no such requirement is there for ITI instructors. Also there is no provision for mandatory practical training. So in India there is a need to align training programs with industry requirements, upgrade training infrastructure, and enhance the capacity of trainers to deliver high-quality training.

Subsidies : The Chinese government has recognized the fact that poor students face a financial cost if they undertake vocational education and to ensure the participation of poor students in VET schools, a national scheme was introduced to offer a subsidy of 1500 Yuan per year per student, for their first two years at secondary vocational schools. Also, since 2009, government has introduced an initiative to make tuition fees for senior secondary vocational schools free of cost for all students. In India though there is need for financial assistance but yet the government has not introduced any national level financial assistance programme specifically in the field of vocational education.

Mobility and flexibility : In China there is a greater flexibility and mobility for students after vocational education due to the system of national level college entrance examination. While in India there is no such streamlined system which results in lack of flexibility.

Germany and India

Germany is a leading manufacturing and innovation country, focusing on high-end products and sustainable workforce development. Its dual education system, combining classroom learning with practical training, ensures a skilled and adaptable workforce. Germany's strong emphasis on research and development has led to breakthroughs in various industries, cementing its reputation

as a global leader in innovation. We will discuss below the causes that contributed to its growth and India's stand in reference to Germany:

Policies : Germany's skill development policy emphasizes dual education, apprenticeships, and strong industry involvement. The dual education system combines classroom learning with practical training, fostering a skilled workforce. Germany's industries actively shape vocational education programs, ensuring they align with industry needs through close collaboration between educational institutions and businesses.

Skill development policies in India often lack a targeted approach that addresses the specific regional and sectoral requirements. Different regions and sectors have distinct skill gaps and demands, and a one-size-fits-all approach may not be effective. Policies should prioritize identifying and addressing the specific needs of different regions and sectors to maximize the impact of skill development efforts.

Subsidies : India's skill development sector faces challenges due to a lack of subsidy structure, making it difficult to provide adequate training and resources. The disparity between Germany and India highlights the need for a robust subsidy system to incentivize skill development and bridge the gap. While Germany emphasizes financial support, India may rely on public-private partnerships or government-funded training programs.

Focus on future technology : Germany's Industrie 4.0 strategy focuses on digital transformation in the industrial sector, integrating automation and automation. The country's dual education system incorporates emerging technologies, Technological Competence Centers, and fostering collaboration between industry and academia.India acknowledges the significance of future technologies and their job market impact. Skill development programs are integrated across AI, data science, IoT, and cybersecurity domains. The government establishes Centers of Excellence and Technology Innovation Hubs, bridging skill gaps through public-private partnerships, online learning platforms, and government initiatives.

Teacher Training : Germany's teacher education programs emphasize pedagogical skills and methodologies through coursework, curriculum development, instructional design, assessment techniques, and classroom management. Collaboration with industry partners ensures hands-on experience and strong bonds. Continuous professional development (CPD) is essential for teachers, offering training opportunities, workshops, seminars, and emerging technologies. Germany maintains high-quality standards through evaluation and accreditation processes, enhancing the effectiveness of teacher education and skill development.

India offers various teacher training programs to enhance educators' skills and knowledge, ensuring quality education. These include DIET, D.El.Ed., B.Ed., CTET, TET, NCERT Teacher Training Programs, and online platforms. Aspiring teachers should research and identify programs that align with their educational goals and requirements to ensure effective and quality education.

1.4 Need For The Study

The need for a study on the topic 'Skill Development and Enhancement and Development Comparisons with China' is important to clearly explain the problems and for developing new policies, schemes and solutions to all the problems. Skill development plays a crucial role in pushing economic growth and reducing unemployment. As technology gets advanced, it is important to stay connected to decision-making skills required for future job opportunities. By conducting a study on this topic, we can understand the current state of the workforce, identify areas for improvement and develop strategies to bridge the skill gap. It provides insights that can complement decision making.It also provides information on the effectiveness of existing skill development schemes and programs. To bridge the skills gap, it is important to focus not only on technical skills but also on soft skills such as communication, leadership and problem-solving. By addressing both technical and soft skills development, individuals will be equipped with a well-rounded set that is sufficient for the changing demands of the workforce. It provides data on the outcomes of various policies and initiatives which help policymakers to understand what works and what doesn’t. This can help them to use the findings from the research paper to implement effective policies and programs for skill development. It displays innovative approaches, successful models, and strategies to have positive results. The study provides valuable information involved in skill development including government agencies, job seekers, and employers. Research papers on skill development in India often include comparative studies with other countries which allows policymakers to learn from best policies and successful models. Therefore it will help to address the need for skilled workers in various sectors of our country. This includes understanding the limitations to skill development such as lack of proper education and training, and identifying solutions and opportunities for improvement.

Moreover, Development Comparison with countries like China, which till the 1970s followed the same growth path as India, will help us know about the different initiatives taken thereafter to boost Skill Development in their country that were lacking or not been given consideration to in India. Analyzing skill development in both countries can reveal the effectiveness of their policies. By sharing their achievements and failures, policymakers can improve future policy implementation by making more informed decisions.Efforts to compare skillset in both the countries will assist in identifying the areas where collaboration and cooperation can be improved, resulting in mutually beneficial stances and enhanced regional stability.Also,comparing

the educational and training systems of these 2 nations would thereby showcase their strengths and weaknesses, on which they can work on. Furthermore, initiatives on skill development are vital in fostering social and economic inclusion by giving underrepresented groups the chance to access better work possibilities.

Finally, it can be said that research on "Skill Enhancement and Development in India and Comparison with China" is of utmost importance for figuring out the future course of these two economic giants. Their capacity to improve and expand their skills has a direct impact on their economic growth, competitiveness, and job market stability as populous nations with abundant human resources. This analysis offers insightful information on how policies are created, allowing decision-makers to improve upon weak points and emulate effective tactics. Furthermore, by analyzing their educational and training systems, we can spot potential areas of cooperation as well as areas that need improvement. In conclusion, this research encourages a deeper understanding of the potential of the two nations, assisting them in utilizing their demographic dividends and promoting technological growth and innovation. By encouraging global cooperation and social and economic inclusion,both India and China can take use of their competent workforces by increasing social and economic inclusion and international cooperation, which will result in advantages for both countries and long-term regional stability in the global economy.

1.5 Objectives Of The Study

This research paper has the objective to fulfill the following:

1) To determine the key elements impacting skill development initiatives in both countries- India & China.
2) To analyze the current state of skill upgrading and development programmes in India and China.
3) To understand the structural reform of India and identify reasons for the mismatch of supply & demand for labor.
4) To investigate the role of government policies, educational institutions, and industry collaborations in driving skill development and upgrade activities in India and China.
5) To make recommendations based on a comparative analysis, about best practices for improving skill development initiatives in India.

1.6 Hypothesis

By examining the theme of the paper, the following hypothesis emerges:

1)The availability and accessibility of vocational training and apprenticeship programs vary between India and China, affecting the effectiveness of skill enhancement efforts.

2) Despite India's population advantage, China has achieved better outcomes in skill enhancement and development.

1.7 Methodology

The research is mainly descriptive as well as analytical in nature. The data and information are derived from the relevant sources as per the need of research. The research depends on data that has been collected from various reputable sources like outlets, articles, scholarly journals and reliable websites. Articles and journals are used to improve awareness and understanding of the subject matter. Inputs from the Government and other reputable websites are used for current data, updates and policy initiatives in the field of skill development in India and China.

1.8 Scope of the study

China has been a manufacturing leader for the past three decades, while India is on the way to becoming one of the largest economies by 2030. India has a large working-age population, but there is a need to use it to its maximum potential. China has a compulsory education system that has led to a high literacy rate and high employment rate for vocational school graduates. India is still in the early stages of developing its skill sector, but the government has set a target of 500 million skilled workers by 2022. The Indian education system has traditionally focused on book knowledge, but there is a growing shift towards competency-based learning and training. The government is working with private organizations to develop curricula, apprenticeships, and entrepreneurship programs to improve the skills of the workforce. The launch of the National Education Policy 2020 was a bold move that revolutionized the education industry in India. Both schools and colleges are expected to improve the educational standards of their students. The shift in the market from learning-based approaches to skill-based models is blamed on politics.

In short, China has a more developed skill sector than India, but India is making progress. The government of India is working to improve the skills of the workforce and to make the education system more competency-based.

1.9 Limitations Of The Study

Data Reliability: The study's dependence on big data, research reports, and other indirect sources may possess issues regarding the availability and reliability of the data collected. The accuracy and reliability of the data and information obtained from these sources can vary at large which can potentially impact the validity of the study's findings. It might also result in focus on some specific cases or contexts of the countries, which might limit the reliability of the findings to a broader population given the vast and diverse system in both the nations.

Bias and Subjectivity: Qualitative studies of this kind are largely subject to the researcher's interpretation of the data and findings collected by the indirect sources. From the selection of data sources to the analysis process the subjective judgment of the researcher is involved in almost every process of the study which while drawing conclusions can result in introduction of inherent biases that may affect the objectivity.

Limited Scope of Analysis: Due to the selected nature of the study, it might result in various constraints in the analysis and reaching the objectives. It may not be possible to explore all the dimensions of the skill development system comprehensively due to lack of time and resources. Some relevant factors that could significantly impact the study and further its objective may receive less attention or go unnoticed in the study. Conducting the study from the existing sources might be time-consuming but it can also result in the study's findings that are captured may not contain the most up-to-date developments in the skill development system of both the nations and due to the dynamic nature of the policies and ever changing socio-economic conditions of both the countries may limit the study's ability to provide real-time insights.

1.10 Plan Of The Study

The global landscape of economic development is interwoven with the abilities and competencies of its workforce, and cultivating a skilled workforce has become imperative as nations strive to position themselves as key players in the economy. This research study dives into the realm of skill enhancement and development, focusing on India and drawing insightful parallels with China. By dissecting India's economy through the lenses of demand and supply, we seek to understand the intricacies of skill development and ascertain whether equilibrium has been achieved between the demand and supply of skills within the nation.

Organized into three chapters, this study navigates through the landscape of skill development, with each chapter shedding light on its essential components. The paper commences with an insight into the rationale behind skill development, what it essentially means, and why it has become a must for any nation in this fast-paced world, along with the need and objectives of our study, the hypothesis, and the methodology used.

The next chapter commences with a comprehensive literature review that illuminates past research that has paved the way for our own research. The literature available on this subject is extensive, providing studies on present and anticipated demand for skilled labor, rates of literacy, projections for the availability of human resources (both skilled and unskilled) in the near future, as well as successful policy initiatives implemented in China that India can draw valuable lessons from.

To simplify the literature review, we have divided it into three parts: the demand side, the supply side, and the lessons drawn from China. The papers depict the inadequacy of our country's basic education system in meeting the needs of emerging sectors where the demand for skilled labor will overcome that of semi-skilled labor in the forthcoming years. They also highlight the low literacy levels in the nation, with a percentage of the population having received even below primary-level education. Most people are not qualified enough to get into the ITIs and thus remain stuck in the informal sector, which hinders their development and opportunities to rise. India needs to revamp its education system to teach practical, industry-relevant skills to meet the demands of technology-driven enterprises. Following China's approach of the TVET system, and the collaboration between universities, industry, and government can help bridge the prevalent skill gap and create a culture of lifelong learning and adaptability in the workforce.

The last chapter examines the demand and supply sides of skilled labor in India, and whether an equilibrium has been attained between the two, that is, if there is any mismatch between them or if the supply of skills and skilled labor is sufficient to meet its demand. The demand side portrays labor market trends, tracing the trajectory of demand and supply of skilled labor over time. We also explore the specific skills in high demand, the structural and transformational shifts occurring within the industry and the job market with the evolving economy, and the challenges that structural development, though needed, poses to countries on their path to sustainable development.

On the other hand, the supply side examines the quality grading of Industrial Training Institutes (ITIs) in India's northern and central zones, assessing their efficacy as centers of skill development. This investigation enables us to gauge the supply side's readiness to meet the labor market's demands, along with recommendations and challenges. Through these lenses, we unravel whether the equilibrium between the supply of skills and the demand for labor has been achieved.

CHAPTER 2: LITERATURE REVIEW

In today's world, the vitality of economies is intrinsically tied to the competency of their employees. The availability and demand for qualified workers have become significant elements shaping a country's economic destiny. This paper dives into the
complex subject matter of talent development in India, taking into account both demand and supply while gaining useful insights from China's experiences. India, as one of the world's largest

and fastest-growing economies, confronts the simultaneous challenge of meeting changing industry needs while capitalizing on its expanding demographic dividend. The need for talents has gone beyond traditional limits, owing to technology changes across industries. Emerging fields such as artificial intelligence, robots, and data analytics require a workforce skilled in cutting-edge technology.

India's education and training institutions provide a steady supply of trained labor. However, the existing skills gap between graduates and those required by industry is a major concern, which hence leads to a demand and skill mismatch. This mismatch
emphasizes the importance of modernizing old educational approaches in order to
connect curricula with real-world needs. Vocational training and upskilling programmes are critical in preparing the worker to flourish in a rapidly changing employment market.
As India strives to boost economic growth while meeting the demands of a constantly changing labor market, the dual sides of demand and supply in skill development are critical. Analyzing China's talent development path provides lessons that might
change India's strategy.China's transformation from an agricultural to a global industry in curriculum creation and promoting apprenticeship opportunities.Furthermore, China's emphasis on reskilling and upskilling, which allows employees
to migrate into other industries, provides a blueprint for handling skill demand adjustments.

2.1 Demand Of Skills

India, a country of varied diversity, is also varied economically, socially, and culturally and these factors help determine the situation of the working-age population, allowing one to respond to the type of demand the economy anticipates. Our country's basic education system is inadequate to meet the needs of emerging sectors. ***Santosh Mehrotra*** and ***Jajati K. Parida*** in their research paper titled, ***"Stalled structural change brings an employment crisis in India in 2021"***states that with the growing demand for a skilled workforce,the youth 'not in the labor force, education, or training (NLEFT) is also increasing, with an added unemployed population that acts as a 'Reserve

workforce'. The importance of education and vocational training is highlighted in the paper, which has become significant for the youth in India to obtain in order to be employed. The paper states that people with higher education or vocational training were employed over the less educated. This has, in turn, according to the author, imposed an education-driven inequality. various factors like societal limitations have been limiting, especially for women which have restricted them to access quality skilled education or vocational training.
The research papers titled, ***Skilled Development in India: Challenges and Opportunities***, by ***Anita and Sunita Swain 2020*** and ***"Skilled Development in India: a Brief Analysis of the Skill Gap" by Dr. Rajshekhar Basavvapattan*** both highlighted that by 2022, the demand for the skilled workforce will rise significantly across various sectors.

The research paper titled ***"Education and labor market: Estimating Future Skill Gap In India"*** written by ***Majumder, Rajarshi & Mukherjee, Dipa and Ray, Jhilam*** · projects the future labor demand based on Output growth rates for each sector. To obtain the output growth rate the study considers the growth in Gross Value Added by all NIC sectors as well as the growth rates for each sector as per the projection of the Planning Commission of India for the period 2005-15. What emerges from the above projection and analysis is that in the coming years, Agriculture and Construction will be the highest employer but at the same time the demand will be skewed towards skilled labor. Also, the demand for High Skilled Workers is expected to overtake that for Semi Skilled workers. All these changes indicate that the dynamics in the Indian labor market are going to change in the future and thus highlight the importance of adapting skills to meet future demands.

In the paper ***Skill Development in India: Need, Challenges & Way Forward"*** written by ***Vandhana Saini***, challenges faced by the demand side have been elaborated upon. Several challenges hinder effective skill development initiatives in India. This paper discusses how ensuring the quality and relevance of training programs is a significant challenge in India as there is such a lackluster framework in place and also due to less investment in marketable skills. There is also a need to align the skill system for every region and social group as different and uneven curriculum makes it difficult for employers to get a consistent marketable skill. The paper also throws light upon the dire need for industry collaboration and how this lack of collaboration will result in low-quality of trainers and subsequently affect curriculum which increases the gap between skill levels and real-world applications, the demand for skillful labor according to the article is always there in the market but due to lack of existence of labor market information system, it is not available to labors check but also to the employer which results in more skill gap in the market, a better system is not only a need but a necessity. There is a lot of institutional

hierarchy both internal and external which gives rise to a lot of red tapism and difficulty in the adoption of new policies.

India also faces challenges with regards to trainer quality and capability as there is no minimum qualification requirement unlike China or any other country. There is a pertaining issue of bad teachers which results in a lack of good skills in the market and then eventually a lack of placements for the skilled labor force and thus increasing the taboo around it.

A report on ***"Skill Development & Productivity of Workforce"*** written by ***Ms. Sunita Sanghi*** from ***Niti Aayog***. It draws the reader's attention toward some crucial data points which indicate demand side issues as a factor of skill mismatch. 56% of the workforce in 2011-12 had education up to primary, and the proportion of low literacy levels was high among the female workforce, with 75% having received below primary level education. The proportion of the total workforce with secondary education was just 11.5%, while for the female workforce, it was lower at 5.4%. In 2011-12, a staggering 75.8% of the workforce did not receive any skill training. Only a mere 3.05% of the workforce had formal training, whereas 12.46% received training through informal modes. With current skill levels, the profile of our enterprise is such that nearly 95 percent of the units are micro in size, engaging less than five workers. The challenge, therefore, lies in expanding the size of the enterprises beyond 5 in number for the growth of the enterprises from a single employer to that of a partnership or private corporate entity. According to the Ministry of Skill Development & Entrepreneurship, there will be a need for an additional 109.73 million workers in 24 different sectors by the year 2022.

The impact of Covid-19 on the skill mismatch was analyzed in the research paper ***"Supply and demand for skills in the labor market and impact of Covid 19"*** written by ***Mitali Gupta.*** A higher proportion of people with general and technical education are mainly hired as workers, while those with vocational education are mainly self-employed in the Indian labor market. During 2018 -19 India showed sector-wise nature of employment among 9 core sectors, mining, and quarrying, manufacturing, trade, hotel, restaurants, construction, transport, and communication mainly employed low medium skills labor, agriculture, and construction predominantly hired low-skilled labor. However, the India Skills Report 2019 saw the services sector hiring a greater number of medium and high-skilled jobs, reflecting the change in labor market dynamics.

The research paper by ***Aya Okada Graduate School of International Development, Nagoya University*** on ***"Skills Development for Youth in India: Challenges and Opportunities"*** reflects the skill gap .The availability of vocational training opportunities in India is very limited. There are only about 2.5 million places available in vocational training courses, while about 12.8 million persons enter the labor market every year. This means that there are not enough places for

everyone who wants to get vocational training. In addition, there are very few formal vocational training opportunities for young people who haven't been to school. Due to this, more than half of the age group are unqualified for ITI training. As a result, the majority of young people are likely to find jobs only in the informal sector, where they will not have the *opportunity* to develop their skills. This can have a negative impact on their earnings and career prospects. India's labor market is divided into different segments, such as the formal and informal sectors, the skilled and unskilled sectors, and the urban and rural sectors. This segmentation makes it difficult for people to move up the career ladder, as they are often limited to the sector and level of education that they were born into. The segmentation of the Indian labor market is a major obstacle to social mobility. There are a number of policies that could be implemented to reduce the segmentation of the labor market, such as investing in education and training and providing more opportunities for social mobility.

Despite the expansion of education opportunities in India, the youth still have limited educational attainment. The literacy rate for Indians over the age of seven is 74%, with rural areas having a lower literacy rate than urban areas. Another challenge is the lack of coordination between economic development policy and vocational training. This means that there is no clear pathway for young people to get the skills they need to get good jobs. In addition, the quality of formal school education needs to be improved in order to improve the basic skills of young people. This will help to ensure that they have the skills they need to succeed in the workforce.

Finally, ***Ms. Megha Grover*** and ***Mr. Ramit Kapoor's*** research paper titled ***"skill development in India, a study of key success factors and Challenges"*** describes how the Indian economy is rapidly growing. According to the research articles cited above, India's rising economy would provide new job possibilities and raise the demand for skilled personnel. The integration of industrial sectors with technology has resulted in the sector's necessity for specialized capabilities. In today's rapidly changing world, technology has emerged as a significant tool for both employees and employers. By incorporating technology into education/vocational training, individuals can develop their abilities to meet the demands of the industrial and other sectors. Online certificates, mobile applications, and E-learning programs all play a significant role in addressing the economy's demand. They also stressed the significance and advantages of globalization, which has expanded India's participation and competition on the global stage, resulting in a greater requirement for highly trained workers in fields such as IT, finance, and digital marketing, among others. As a result, demand will undoubtedly rise in the economy, and technology will continue to play an important role in meeting that demand.

2.2 Supply Of Skills

Infrastructure and institutional framework **:** The lack of adequate infrastructure, including training centers, technology etc. poses a major challenge to skill development efforts in India. We can get an analysis on it from ***Make in India: Strengthening the Supply Side of Indian Economy -Dr. Renu Sharma*** which states how infrastructural issues acts as a challenge for the Indian skill system and make in india. This has also impacted the quality and effectiveness of training programs throughout the country which also put questions on the credibility of the skill system and courses in India. The lack of infrastructure hampers practical training and vocational training at ITIs is generally considered to be practical thus making it ineffective, ***Skill Development in India: A Brief Analysis of Skill Gap -Dr. Rajshekhar Basavapattan*** highlights the issue of current infrastructure being insufficient to meet the market demand thus increasing the existing gap. Existing literature also elaborates on how This is not only because of lack of resources in these institutions but also there are not enough institutions in India to accommodate the many young people who want to attend which results in lesser labor participation. Additionally ***Skill Development in India: Need, Challenges and Ways Forward- Vandhana Saini*** draws attention towards outdated equipments in ITIs and how it results in no to less skills attainment which is however also due to ITI training been focused on providing training in a variety of occupations, rather than on training people for specific jobs that are in demand which results in skill gap in market. The issues with institutional development also add up to the challenges India face with skill development, existing study highlights how there are lots of institutions that govern the skill system in India, ex- MSDE, Skill India, etc to start with which results in the chaos in policy making and impacts the execution in the grassroot level according to existing literature and these issues of the framework does greater harm than other issues to the skill system as it deals with the grassroot level directly.

Training credibility **:** ***Skill Development in India: A Study Of Key Success Factors and Challenges By Ms. Megha Grover – Assistant Professor at RDIAS, Delhi, India, Ramit Kapoor – Student at RDIAS, Delhi,*** India explains about India's poor quality of training programs that focus on theoretical knowledge rather than on practical skills. Old teaching methods and insufficiently qualified trainers add and contribute to this already existing challenge, when compared to other countries, ex- China, Germany, etc. India does not have a proper training program for trainers. Even the minimum qualifications for teachers in ITIs is just ITI graduates unlike other countries which prioritize on job skill training and update of skills every 2-3 years according to ***China's Skill Development System: Lessons for India: Santosh Mehrotra ,***

Amkita Gandhi and a Kamladevi **,** this results in various shortcomings in training thus increasing the skill gap in the market. ***Make in India: Strengthening the Supply Side of Indian Economy- Dr. Renu Sharma*** highlights how the Training issues majorly arise in capital-intensive sectors requiring highly skilled labor, making it difficult for the government to prepare a skilled workforce, providing jobs and filling the gap. The training issues result in loss of credibility of not only the skilled graduates from the institutions but also the entire skill system of the country and further impacts the labor opt in and skewed placements.

Societal issues **:** ***Skill Development in India A Study Of Key Success Factors and Challenges By Ms. Megha Grover – Assistant Professor at RDIAS, Delhi, India, Ramit Kapoor – Student at RDIAS, Delhi,*** India focuses on how Marginalized communities and rural areas have limited access to skill programs, quality education and training and all of these issues arise from grassroot level i.e., less penetration of education amongst the lower strata. Existing literature highlights the need for equal opportunities for all as bridging this urban-rural divide is crucial for not only economical growth but also strengthening of the skill system. ***Supply and demand for skills in the labor market and impact of covid 19 (202 - Mitali Gupta*** talks about how the social norms and attitudes in the country have historically focused more on traditional higher education rather than vocational training which is a result of India's traditional hierarchical social structure based on the centuries-old caste system due to which society has not generally appreciated or valued craft and trade skills, students also prefer white-collar jobs in their search for upward mobility; this adds up to the already existing issues with the skill system and has a larger impact as lesser labor opt in and hinders the mobilization of skilled workers and their entry to technical, vocational and professional fields. From ***Skill Development in India: A Study Of Key Success Factors and Challenges By Ms. Megha Grover – Assistant Professor at RDIAS, Delhi, India, Ramit Kapoor – Student at RDIAS, Delhi,*** India we can get comprehensive analysis on Gender Disparity in skill development as women usually face barriers such as societal norms, lack of access to training facilities and limited job opportunities it results in a large segment of potential labor force remaining unskilled, further adding up to the already existing labor constraints. This indicates the need for gender-sensitive skill development programs in the country.

Skill gap **:** The article ***" Skill Development in India: A Brief Analysis of Skill Gap" written by Dr. Rajshekhar Basavapattan,*** which gives a brief analysis about the demography of India. India's demographic advantage, with 64% of the working population being active and with a median age of 29 years, offers a competitive edge over Western economies until 2040.The country has a substantial educational infrastructure, including universities and colleges, with potential for skill development, but the current training capacity of 4.3 million fails short of

meeting the demand. Skill Development requires heavy capital investment which has been ignored by the government. Slow processing of banking loans is another reason why people are not willing to invest in skill development. India faces challenges that revolve around bridging the gap between workforce skills and available training.

In the research paper ***Skill Development in India: Challenges & Opportunities written by Anita & Sunita Swain in November 2020*** conveying that the World Bank Enterprise Survey 2014, revealed that the percentage of firms offering formal training programmes for permanent employees in India is just 36% as compared to 80% in China. Secondary and Primary analysis revealed that extensive skill training in and around rural areas is essential to access good jobs and set up their own business. Training issues arise in capital-intensive sectors requiring skilled workforce which makes it challenging for the government to prepare a skilled workforce.

Outdated curriculum **:** The article***"Skills Development for Youth in India: Challenges and Opportunities" written by Aya Okada Graduate School of International Development, Nagoya University.*** The Old and out of date curriculum of Industrial Training Institutes (ITIs) is centrally fixed and highly standardized. This means that the curriculum is the same for all ITIs across India, regardless of the local demands for specific skills or the structure of local industry and labor markets. This lack of flexibility can make it difficult for ITIs to meet the needs of employers and workers.

Low labor participation **:** In the article ***"Skill Development and Productivity of the WORKFORCE" written by Ms. Sunita Sanghi, NITI Aayog and Ms. A. Srija, NITI Aayog,*** India faces the challenge of providing skills to a large labor force that is primarily uneducated, lacking even primary education, and unskilled. A rapid decline has also been seen in the contribution of the farm sector to the GDP to 16% due to the structural transition from the agricultural to the non-agricultural sector. A prolonged decline in workforce participation to 48% has resulted in a low agricultural sector productivity level. 91% of the workforce is working in informal jobs with the employment status of self-employment. The problem of youth unemployment persists due to a discrepancy between their skills and aspirations, alongside a decline in female workforce participation. Moreover, the failure to generate jobs in proportion to economic growth exacerbates this issue. The distribution of the workforce by sector and employment status shows the agriculture sector as almost 32% self-employed, with the majority operating as own-account or unpaid workers. Of the total workforce, 52% were self-employed. Out of this, 33% were own-account workers, and 18% were unpaid helpers.

2.3 Learnings From China

Among all major economies around the globe, China has done impressive work in the field of skill development. In the last four decades, China has introduced several policy initiatives to utilize its manpower potential and these initiatives also catered significant benefits to China in terms of overall economic growth. But at the same time, China also countered numerous hurdles during this process. India and China share some common characteristics in terms of economic reforms and due to this by analyzing China's skill development policy India can make its skill development process more effective.

A brief idea about China's skill development system can be gathered by looking at the report by **OECD** from **2010** titled "**Vocational Education and Training in China Strengths, Challenges and Policy Options**". The report highlights two major initiatives which helped China in the successful implementation of skill development policies. The first major initiative is the financial assistance of 1500 Yuan per year to VET school students, which in turn ensures greater participation of students in the vocational stream. Keeping in mind the per capita income and economic conditions of the majority population, to overcome the financial barrier India also needs such a type of permanent assistance scheme. The second advantage that is highlighted in the report is the teacher training system. In China, the teacher training system is designed in a very systematic manner which keeps the teacher in line with modern industrial requirements. It is mandatory for teachers to spend at least one month in the industry every year. To increase practical exposure such type of arrangement is also required in India.

However, the report also presents the other side of the coin. Some major challenges that China is currently facing are a lack of coordination between different institutions, uneven distribution of economic resources and low quantity training in some industries. Considering all these challenges India should ensure the proper distribution of resources along with the establishment of a centralized institution for better synchronization among all stakeholders. Also, to maintain the quality of industrial training there is a need to decide standards for industries in advance. So the report gives a concrete idea about both the strengths as well as weaknesses of China's skill development policies.

The article "**China's Skill Development System: Lessons for India**" by **Santosh Mehrotra, Ankita Gandhi, and A Kamaladevi**, published in **2015**, presents a comprehensive analysis of China's education system and the various steps and reforms undertaken to realize its demographic dividend and become the manufacturing hub it is now.

The first section explains the working of the Chinese education system and its comparison with the current education system in India. The education system in China offers a well-rounded approach that effectively combines general academic education with vocational education and practical training. In response to the demand for skilled workers, significant reforms have been made in the field of education, including both vocational and technical training. The Vocational Education Law of 1996 mandates industry participation and exposure of junior high students to "Zhongkao" , the senior high school entrance examination whose scores determine their entry into general or vocational streams. Along with the ‘Dual Qualification Programme’ for teachers and the ‘Dual Certification’ for students, this has resulted in effective and quality practical training.

According to the authors, India could benefit from adopting critical parts of China's skill development system, such as a change away from an academic-oriented education system and towards one that emphasizes practical skills and vocational training. They also stress the importance of stronger collaboration among government agencies and active business participation in curriculum development to improve the relevance and quality of skills delivered.

Thus, the paper encourages India to learn from China's talent development system to sustain growth and employment rates. By embracing vocational education, enhancing cooperation between the government and industry, and utilizing labor market information systems, India has the potential to create a more efficient environment for skill development. This would promote economic growth, lower poverty, and enhance employment opportunities for its people.

Furthermore, in a **study sponsored by the Planning Commission, Government Of India**, titled "**Understanding Skill Development and Training in China: Lessons for India**" they provided a thorough examination of the lessons that can be drawn by India from China’s educational system.The study highlights the TVET (Technical and Vocational Education and Training) system which is a comprehensive framework encompassing vocational education across secondary schools, colleges, training centers, and adult training. It emphasizes elements such as curriculum design, industry engagement, and financial support. China's successful TVET system, supported by the 1996 Vocational Education Law, has played a significant role in driving manufacturing growth. India recognizes the potential benefits of China's experience in enhancing vocational skills to support its own manufacturing expansion ambitions. However, India's current push for increased manufacturing faces challenges, as its GDP share remains stagnant. To bridge this gap, India must focus on integrating vocational education into a wider range of secondary schools and enhancing teacher training.

According to the report China's effective TVET system owes much of its success to its adaptability and industry participation, as stipulated in the 1996 Vocational Education Law. This law not only encourages post-secondary vocational training but also outlines the roles of various stakeholders, including government ministries, education institutions, and enterprises. By fostering collaboration between these entities, China ensures that its vocational education system remains responsive to industry demands and technological advancements. Conversely, India's vocational education system struggles with limited flexibility and alignment with industry needs. This mismatch hinders the growth of a skilled workforce and impedes progress toward manufacturing targets.

Another study on China's vocational education and TVET system titled **“Skill Development In India: Challenges And Opportunities” (2020)** by **Naita and Sunita Swain** emphasizes the necessity of skill upgradation for economic growth.The study expresses the need for TVET system adoption in all secondary schools and systematic classification of education systems along with stipends for vocational students.

The paper **"Skill Development In India: Need, Challenges, and Ways Forward" by Vandana Saini (2015)** emphasizes initiatives such as strengthening public infrastructure and Industry-Institute collaboration. It explains how India should tailor its skill development programs in order to fulfill the needs of emerging industries.

Dr. Rajshekhar Basavapattan in a paper titled **“Skill Development In India: A Brief Analysis Of Skill Gap (2021)”** depicts how countries like China managed the skill gap by implementing practices such as - integration of formal education with skill development, vertical mobility for students, utilizing public infrastructure for skill training in remote areas, encouraging industry participation through apprenticeships, curriculum design, and teacher training, and adopting innovative delivery mechanisms as crucial steps to address skill-related challenges.

In conclusion, to address its skills shortage and manufacturing growth ambitions, India can draw valuable lessons from China's TVET system. China's focus on regular teacher training and local industry involvement in curriculum design has been pivotal to its success. In contrast, India's TVET system lacks these crucial elements, resulting in a lower percentage of skilled workers. The skill gap is projected to widen further, hindering the realization of manufacturing goals. To counter this, **India's 12th Five Year Plan** proposes initiatives such as the establishment of a National Training Fund and subsidies for vocational education, mirroring China's allocation of a portion of the education budget to vocational training. By aligning its strategies more closely with

China's successful model, India can better equip its workforce and achieve its manufacturing targets.

2.4 Conclusion

Skill development acts as a lynchpin in the complex web of global economic development, connecting countries' growth potential with the labor force's skills. The full examination of India's skill development ecosystem, including demand and supply dynamics, as well as lessons from China's experiences, illuminates the wayforward.

India's rise as a developing economic power is intrinsically linked to the development of its human capital. The demand for trained individuals is being driven not just by conventional sectors, but also by the rise of technology-driven enterprises. To overcome this, India must reimagine education paradigms, emphasizing on teaching practical, industry-relevant skills that can smoothly merge with the growing employment market. While India struggles with the complexities of skill supply, China's growth trajectory provides significant insight. China's comprehensive approach to talent development, in which university, industry, and government work in harmony, has powered the country's spectacular economic success. China has created a workforce capable of responding to fresh difficulties, moving industries forward, by prioritizing the alignment of education with industrial demands. China's emphasis on continual learning, a reskilling culture, and the capacity to anticipate and solve future skill shortages serve as a model for India's skill development path. India can successfully bridge the skill gap and handle the disruptions that arise in a period of fast technological innovation by creating a comparable culture of lifelong learning and adaptability in its workforce.

Finally, the convergence of skill development, economic growth, and national advancement is a universal topic. India's aim of capitalizing on its demographic dividend and boosting economic growth is dependent on skill development policies that address both demand and supply. The evolving story of India's growth may learn from China's experience by embracing a comprehensive skill ecosystem and a responsive education structure.The need of investing in human resources remains unshakable as both India and China approach their respective horizons. Skill development is the pivot around which innovation, competition, and social growth revolve. India can construct a successful future by strengthening the relationship between education, industry, and economic growth, demonstrating the transformational potential of skills in altering the fate of nations.

CHAPTER 3:

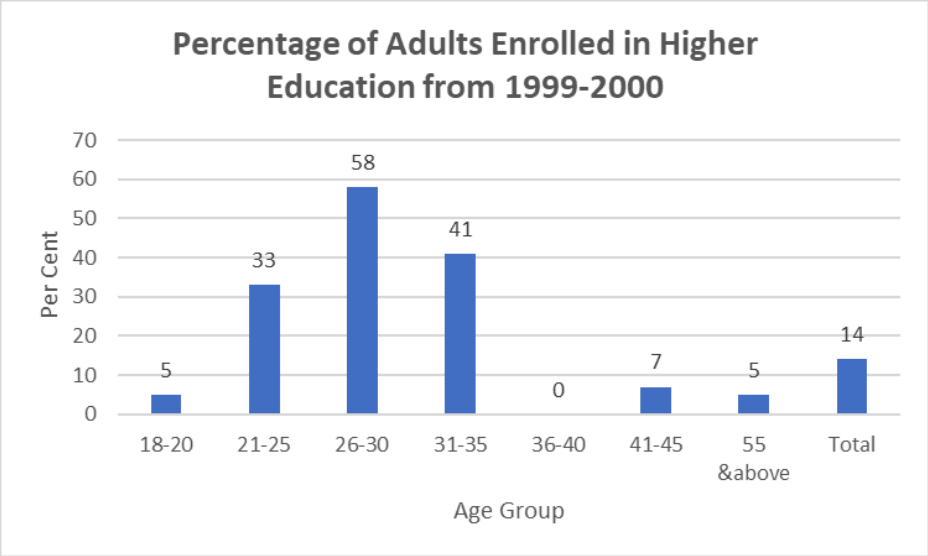
DEMAND & SUPPLY SIDE STORY: HAS EQUILIBRIUM BEEN ACHIEVED?

3.1 Demand Side Story

Today, India is on the path of development, with enormous boosts in literacy and elementary education levels, but Higher Education still requires more emphasis.Otherwise, many of the country's youth will be under or unemployed. As India develops into a rapidly rising knowledge economy, it becomes critical to conduct study on this component of India's skills sector so that effective policy measures can be implemented in this regard. From the 1980s,there has been an increase in both the skill and the wage premium which has led to an increase in the demand for those who have tertiary education. However, with increase in the demand, the supply has remained constant and unchanged especially from 1994 to 2004.

Many academics argue that the rapid rise in skills premium reveals a paradoxical conclusion, which appears rather plausible in the Indian setting.A study by Basant and Mukhopadhyay in 2008, found a strong correlation between higher education and high knowledge and high technology businesses. However, the quality of skilled professionals emerging from the Higher Education sector falls short of industry standards.

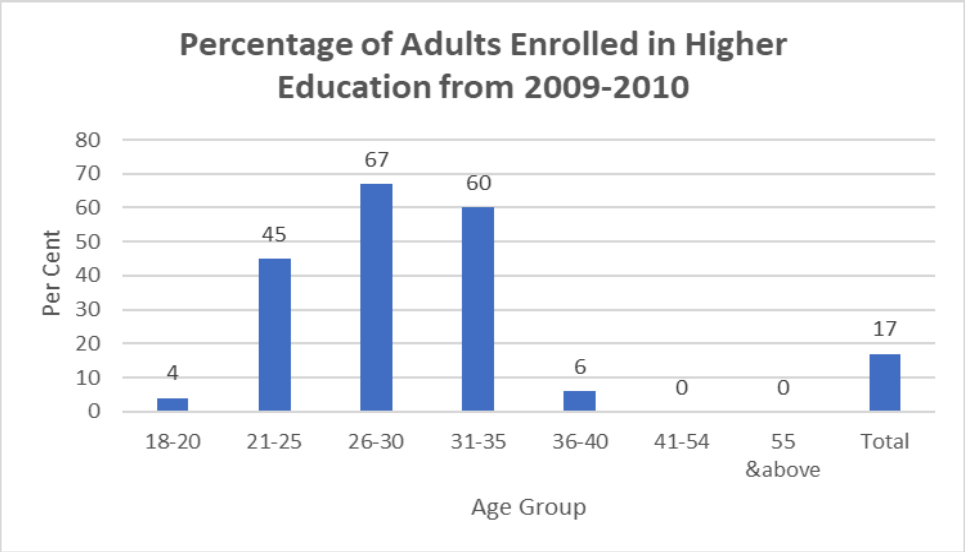
Fig 3.1 Percentage of Adults Enrolled in Higher Education from 1999-2000



Source: Unni & Sarkar

Percentage of adults involved in higher education by age group and corresponding employment trends can be specified. As shown for the period 1999-2000 in the above chart,adults enrolled in graduate studies is about 13.56%.The age range of 18-20 has had a low percentage of adults enrolled in graduate school. This might be due to a variety of factors, including helping the family earn a living by working in rural, agricultural areas or semi-skilled employment that is less formal, or in the case of girls, getting married.However, the government is making significant efforts, so a shift is likely.

Fig 3.2 Percentage of Adults Enrolled in Higher Education from 2009-10



Source: Unni & Sarkar

As shown for 2009-10 in the above chart, the total adults enrolled in graduate studies was 16.55% out of which, there was a rise in adults enrolling for age group 21-25 and 26-30. So, the middle age group was the maximum enrolled in 2009-10.
Hence, according to both (a) and (b),there has been a nearly 4% increase in adults enrolled in higher education institutions, indicating a promising start. From 2000 to 2010, there was nearly 10% growth. The greatest improvement occurred in the age group of 31-35, where the increase was about 20%.

The workforce and the nature of such job changes can address this issue in areas where we examine employment shifts. It was discovered in the research by Unni and Sarkar that the graduate intensity boosted for engineering,science technicians, medical,and social scientists giving an indication of a new knowledge economy. Nurses, village officials, and others were among the medium graduate intensity occupations.Among the low graduate intensity were ticket collectors, retailers, and waiters. Since 1999-2000, demand has surged several times over. This implies that in addition, the nature of such occupations has changed. The Twelfth FYP paper shines some light on the structural transformation in India in recent years. Instead of following the 'normal' growth path like many countries,that is, transitioning from agriculture to manufacturing to service sector, India transitioned from agriculture to service sector due to which there was a problem of Missing Middle as the manufacturing sector got ignored.

Therefore, India's transition is different as compared to other developing countries and hence gives birth to a different set of problems altogether, which is required to be looked at from some different approach.

To attain the goal of increased labor productivity, the authors describe what types of transitions are beneficial. "The first is the migration of unskilled labor from agriculture to unorganized industry or unorganized services, and the second is the migration of labor from informal employment in the unorganized sector to either formal employment in the organized sector or informal employment in the organized sector."

While dealing with the demand side of this problem, the government hence must exercise extreme caution, as there are various aspects to ensure a decent quality and grade of work for the Indian economy at present. To begin, we must define what constitutes "decent work" so that suitable regulations may be developed with that in mind. Accordingly, it would refer to the type of labor that provides the individual with employment security, financial security, or social security.

3.1.1 Structural Transformation

Structural transformation is a process in which an economy undergoes a shift from traditional sectors to more advanced sectors. Skills, on the other hand, are the abilities and knowledge possessed by individuals that contribute to their productivity in the workforce.
In the context of India, structural transformation involves a shift of labor and resources from an agriculturally based economy to industrialized and service oriented. This has led to a decline in the share of employment in agriculture and an increase in the share of employment in manufacturing and services.
The first transition is when agricultural labor migrates towards urban areas in search of higher wages and better employment and manages to find work even in the unorganized sector as rickshaw pullers, daily wage earners etc. The labor migrates because this work offers more wages than agriculture.
The second transition which happens is a more positive one in the direction of decent work as it involves movement of laborers from informal unorganized employment to informal organized employment. Employment in the organized sector as informal work is better in terms of job security, wage security and other benefits like housing, health etc.
The third transition that is the ideal type of employment is what the government is trying to achieve. The aim is to increase the size and share of formal employment in the organized sector.

Under the demand side of skill development in India, there are several skills that are in high demand due to the evolving structure of the economy. There is a need to align the skill development efforts with the changing demands of the labor market. This ensures that individuals are equipped with those skills to meet the needs of the economy. As the economy has become more industrialized and service-oriented, the demand for skilled labor has increased. This is

because skilled workers are needed to operate the complex machines and equipment that is used in these sectors.

Table 3.1: GDP and Its Sectoral Share

Year	Agriculture	Industry	Services
1950-51	55.9	14.9	29.2
1970-71	45.2	21.7	33.1
1980-81	38.1	25.9	36
1990-91	33.2	25.2	41.6
2006-07	20.5	24.7	54.8
2007-08	19.4	24.9	55.7

Source: Article by Deepali Pal

Several factors that drive structural transformation and skill development within an economy are as follows: -

Technological advancements: Technological advancements play a crucial role. It leads to changes in production processes and the demands for different skills. This requires workers to acquire new skills to remain relevant in the job market.
Globalization: As countries engage in international trade and investment, there is a need to adapt to the global market demands. This requires upgrading of skills to meet the standards of international competition and take advantage of new opportunities.
Government policies and initiatives: Governments can create favorable policies and initiatives for businesses to innovate and invest in new technologies. Government can also support skill development through education and training programs, vocational training and apprenticeship schemes.
Overall, the factors are interconnected and dynamic.

The skills that are in demand in India today include:

Technical and vocational skills: With the growth of manufacturing and industrial sectors, there is a rising demand for skilled workers who have technical knowledge related to industries such as electronics, engineering etc.
IT and Digital skills: There is a growing demand for individuals with skills in information technology, coding, data analysis and software development. These skills are crucial for the development of a digital economy.
Business skills: With the expansion of the service sector, there is a growing demand for individuals with skills in finance, marketing, business management and entrepreneurship. These skills are crucial for the development of businesses and the overall economy.
Soft skills: Soft skills such as communication, teamwork, leadership and problem-solving are essential in today's competitive job market. These skills help individuals to adapt to the changing work environments.

The importance of structural transformation and skill development cannot be overstated. They are both vital components for sustainable economic growth, job creation and improved standard of living. Countries that focus on these aspects will be better positioned to adapt to the changing economic conditions, take advantage of new opportunities and improve the well-being of their citizens.

While structural development is a necessary process for countries to achieve sustainable development, it also poses few challenges, particularly in terms of skills:

Skill gaps and mismatches: As economies undergo structural transformation, the demand for different types of skills changes. There may be a mismatch between the skills that are in demand. This can lead to skill gaps and shortage of skills in the labor market. Individuals possess skills that are not in demand.
Education and training system: The education and training systems struggle to keep up with the pace of structural transformation. They may not provide individuals with the necessary skills to adapt to the changing labor market demands. This results in inadequate skill development among workforces.
Technological advancements: Structural transformation involves adoption of new technologies, which requires a different set of skills and knowledge. This can create challenges for individuals who need to acquire new skills to meet the demands of the changing labor market.
Inequalities: Structural transformation can worsen the existing inequalities within societies. Those who have limited access to education and training opportunities find it difficult to acquire the skills needed to participate in new industries. There is also a need to ensure that the benefits of structural transformation reach all segments of society. This requires addressing issues of

inequality and ensuring that vulnerable groups, such as women, youth and rural populations, have access to opportunities.

In conclusion, the dynamics of structural transformation and skills present both opportunities and challenges. Adapting to changing labor market demands requires continuous learning and upskilling. It is crucial to invest in education and training to stay competitive and inclusive.

3.1.1 Skill Development

Public and private players recognize the value of skills and the economies' mismatch between demand and skills. The impact of labor rules on employment is one such factor.
Labor rules can cost businesses funds and distort market outcomes. The World Bank noted in one of its business reports that "laws designed to protect workers often hurt them." This may be the case in India, where strict labor rules result in lower employment and higher rates of informal employment. Because they may not be able to provide the business-specific personnel that the employer may need, strict restrictions may deter firms from employing, which can worsen the skill mismatch in an economy.
It is also inferred that economies and industries are shifting to less labor-intensive products that account for changes in the general demand structure of economies. Technological developments, alterations in consumer preferences, and general economic trends can all be attributed to this shift. The decline in labor intensity can be seen in the figure below. This decline is majorly happening in labor intensive sectors.
Therefore, it is crucial that the private stakeholders cooperate in order to approach skill development. The emergence of industry collaboratives can aid in the identification of widespread issues and allow for a better understanding of some demand-specific skills, leading to the development of better training programs. Comprehensive skill development programs can be created with the assistance of PPPs (public-private partnerships).

3.2 Supply Side Story

India has a substantial demographic dividend waiting to be realized through proper vocational training and education. With 1.4 billion people at its disposal, this vast pool of human resources, if tapped correctly, will accelerate and sail the nation’s economic growth and pave the way for stabilization.

This section discusses this vast pool of human resources, which will steer the nation forward, particularly the incremental human resources in India (specifically skilled labor) for 2012-22. For ease of analysis, we have divided India into four zones: North, South, East, and West. For this paper, the northern and central zones are the focal points of our analysis.

We have compared three states in each zone based on the quality grading of their ITIs (rural/urban and government/ private) and the incremental skilled human resources in each state during 2012-22. This section aims to provide academic insight into the region's ITI landscape, differentiate between performing and non-performing ITIs, and determine each state's relative strengths and weaknesses.

3.2.1 Challenges on Supply Side

India has been actively pursuing skill development to improve the capacities of its workers and address issues with unemployment and underemployment. However, there are a number of obstacles facing India's talent development supply:

Infrastructural Framework- Poor Infrastructural framework acts as a challenge for the Indian skill system and make in india. This has also impacted the quality and effectiveness of training programs throughout the country which also put questions on the credibility of the skill system and courses in India.

Training Issues- India has poor quality of training programs that focus more on theoretical knowledge rather than practical skills. When compared to other countries, ex- China, Germany, etc. India does not have a proper training program for trainers which adds fuel to an already existing problem.

Skill Gap- India has substantial educational organizations, including universities and colleges, with potential for skill development, but the current training capacity of 4.3 million fails short of meeting the demand. Skill Development requires heavy capital investment which has been ignored by the government which results in a skill gap in the market.

Gender Disparity- Due to a variety of socio-cultural variables, women's involvement in skill development programmes is frequently lower. To provide equal access to opportunities, efforts to overcome this gender imbalance are required.

Outdated Curriculum- To keep up with the shifting needs of the labor market, skill development curriculum must constantly be updated. Certain talents may become obsolete due to rapid technology improvements, necessitating the inclusion of new skills in the curriculum.

Lack of Industry Links -Training institutions and industries sometimes don't communicate with one another. Without strong connections between the two, training programmes might not match the needs of the market, producing graduates who are not prepared for the workforce.

3.2.2 North Zone

For the north zone, the comparison is being conducted among the ITIs of Jammu and Kashmir, Punjab, and Himachal Pradesh. This analysis is based on the data obtained from the websites of NSDC and MSDE for 2012–2022. The grading by MSDE has been done based on 43 parameters, grouped under ten heads such as civil work, trades, industry connect, outcome, instructors, production center, capacity utilization, key compliances, special achievement, and miscellaneous. Essentially, the grading parameters would evaluate the civil work of the institute in terms of building completion, rented or owned buildings, etc, status of the Institute Management Committee (IMC) and the level of institute-industry engagement, etc (MSDE)

Jammu and Kashmir has 60 ITIs (54 in the Government Sector and 6 in the Private Sector) and 32 Polytechnics (24 in the Government Sector and 8 in the Private Sector)
The state of Himachal Pradesh boasts 238 ITIs, with 103 being government-owned and 135 privately owned. 33 ITIs have been upgraded through the PPP (Public Private Partnership) mode to further improve their operations after consulting with the State Steering Committee and various Industrial Associations. The government of India has also provided central assistance of INR 82.50 crores to the respective ITIs.

Table 3.2: ITI Review of North Zone

State	Incremental Human Resources (2012-22)	Name Of The Institution	Rural/Urban	Private(P)/ Government (G)	Grading

Himachal Pradesh	0.86 Lakh	Government Industrial Training Institute, Baroh, Kangra	Urban	G	1.12
		Government Industrial Training Institute Nalagarh, Solan	Urban	G	3.36
		Govt Industrial Training Institute Reckong Peo	Rural	G	1.42
		Sham Private ITI, Kangra	Urban	P	2.04
Jammu and kashmir	365,851	Govt. College for Women Parade, Jammu	Urban	G	0.86
		Govt Industrial Training Institute R S Pura, Jammu	Urban	G	2.22
Punjab	1.14 Lakh	Government Industrial Training Institute, Hoshiarpur	Urban	G	1.11
		Government Industrial Training Institute, Patiala	Urban	G	2.99
		Kanwal Ram Nath Kapoor Memorial Pvt. ITI, Tarn Taran,	Urban	P	2.17
		Rural Institute for Vocational Training V.P.O Badal, Muktsar	Rural	P	1.82

Source: NSDC and MSDE data 2012–2022

3.2.3 Overview and Recommendations

Vocational Education and Training (VET) in the North Zone of India, consists of states like Jammu & Kashmir, Himachal Pradesh, Punjab and more. The VET in this zone majorly focuses on sectors such as agriculture, construction, tourism, manufacturing, communication, etc. ITIs and skill development centers help students with hands-on experience through workshops and labs. Vocational graduates in the north zone find employment opportunities in both local and regional industries majorly due to tourism. There have been several efforts to provide training to rural areas and further engage local networks to contribute to the development of VET in the North Zone.

Focusing on High Aspirational Sectors: The current supply system of VET in this zone can start prioritizing Communication, BFSI, and Tourism Industries more as they are the emerging sectors in the region.

Infrastructural development in Districts with Lower Penetration: The VET system should focus on developing training infrastructure in districts like Chamba, Sirmaur, Kangra, Tarm tarn, Jalandhar, etc. which have lower penetration.

Schemes for Underprivileged Upliftment: The underprivileged section needed to be addressed if we want to extend our VET structure to all the region and north zone are no exception, it can be done through schemes like SGSY, Construction, and Agriculture

Emphasizing on Industry Accredited program: To reduce the skill gap in the market and break even the demand and supply of skills, the VET program should focus on offering SSC Programs to ensure better Industry Recognition.

Industrial Collaboration: The industrial collaboration is important for any skill structure to survive as strengthening of partnerships with industries can help in Placements, Curriculum, Apprenticeships, and Faculty Training.

Engaging Local Networks for Student Traction: This is important for getting students on board especially because of the taboo around skill development. This process involves partnering with SHGs, NGOs, UDISHA Groups, and Student Associations for endorsement.

3.2.4 Central Zone

Central Zone comprises Haryana and the UTs of Delhi and Chandigarh. Based on the ratings, the ITIs in this zone have performed well, with particular emphasis on urban ITIs.
The state of Haryana provides skill-based training to the state's unemployed youth through 166 government ITIs and 242 private ITIs.Since 1966, the department has grown the number of ITIs, sanctioned seats, and trade courses.
Under the Department of Training & Technical Education, Govt. of NCT of Delhi (DTTE), there are 19 government ITIs and 34 private ITIs that offer various certificate and short-term courses under different government schemes.
There are two Government Industrial Training Institutes in Chandigarh. The first one is the Government Industrial Training Institute for Women, located in Sector 11-C, Chandigarh. It was

established after the partition of Punjab and is headed by Er. Rajan Dogra. The second one is the Industrial Training Institute, located in Sector 28-C, Chandigarh. It was set up in 1962 and is headed by Sh. Arun Kumar.. Both institutes are under the control of the Directorate of Technical Education, UT, Chandigarh.

Table 3.3: ITI Review of Central Zone

State	Incremental Human Resources (2012-22)	Name Of The Institution	Rural/ Urban	Private(P)/ Government (G)	Grading
Haryana	1.34 lakh	Shri Surajmal (Pvt) ITI, Sonipat, Haryana	Urban	P	1.62
		Government Industrial Training Institute (Women), Kurukshetra, Kurukshetra, Haryana	Rural	G	3.07
		Wings PVT ITI, Karnal, Haryana	Rural	P	2.63
Delhi	NA	Government Industrial Training Institute Shahdara, East, Delhi	Rural	G	1.80
		NSIC Technical Services Centre, New Delhi, Delhi	Urban	P	2.56
		Government Sir C V Raman Industrial Training Institute Dheerpur, North East, Delhi	Rural	G	2.89
		Sri Guru Harkrishan Industrial Training Centre, New Delhi, Delhi	Urban	P	3.12
Chandigarh	NA	Government Industrial Training Institute for Women, Sector 11-C, Chandigarh	Urban	G	Unavailable
		Industrial Training Institute, Sector 28-C, Chandigarh	Urban	G	Unavailable

Source: NSDC and MSDE data 2012–2022

3.2.5 Overview and Recommendations

Vocational Education and Training (VET) in the Central Zone covers regions like Haryana, Delhi, Chandigarh and more which caters to diverse industries and sectors including manufacturing, textiles, minerals, and agriculture. Skill development institutes like ITIs and polytechnic institutes in this zone offer practical courses aligned with industry and market demands. The region's growth, governmental initiatives, and industry collaboration increase the importance of VET for a skilled workforce. VET programs in the zone extend to both urban and rural areas, with several efforts to uplift underprivileged communities. Partnerships with NGOs and various other local groups enhance the reach of these initiatives.

Prioritizing in Key Sector Training Programs: The VET can start targeting some Key sectors and skills shortages that are prominent in some key districts which can help in employability.

Focusing on Soft Skill and Career Awareness Training: The VET can Emphasize on more courses and comprehensive training on Soft Skills and Career Awareness as it is something that can help in reducing the skill gap in market

Transitioning Dropouts to Vocational Programs: The regions that central zone focus have issues regarding potential dropouts that can fuel the unskilled workforce in the system, governments can focus in building mechanisms to help school dropouts in joining Vocational Training

Training of Faculty in PPP Mode: The untrained faculty is one of the major problems in the supply of skill system in India, so establishing faculty training institutes through public-private partnerships will help the overall skill system

Enhancing Skill Training Infrastructure in Low Penetration Districts: Increasing VET and Infrastructure in Districts with Limited Access and exposure to Skill Training is something that will help the expansion of VET in the zone and will help the skill system in the country.

3.3 Equilibrium of Demand & Supply

In India, achieving an equilibrium level between demand and supply for skill development is an ongoing challenge. The equilibrium level is reached when the demand for skilled workforce

matches the supply, ensuring balanced labor in the market. There would be no excess demand or supply of skilled labor.

It is very difficult to determine the equilibrium level as it can vary over time and across different sectors. There may be an imbalance in demand and supply of skills. India has made progress in addressing skill development challenges, achieving an equilibrium level between demand and supply remains a dynamic process but continuous efforts are being made to achieve this equilibrium level.

The current state of equilibrium level of demand and supply of skills can be described as imbalanced. India is facing a mismatch between the demand and supply of skills. On one hand, there is a huge demand for a skilled workforce in various sectors such as IT, manufacturing and finance. On the other hand, there is a lack of skilled workforce to meet this demand.

- One of the main reasons for this imbalance is the outdated education system in India which is more focused on theoretical learning than practical knowledge. While India has a large and young workforce, the education system faces challenges in providing up-to-date skills training. This discrepancy in skills taught by educational institutions and those demanded by industries creates a gap in supply of employable workers.
- The skill level of workers does not always match with the demands of employers. This gap creates a mismatch in skills.
- Another factor is the rapid advancement in technology. New skills are emerging and the current education system is struggling to keep up with these changes, resulting in a shortage of individuals with the right set of skills.
- There is a lack of coordination between government, academia and industries to bridge this skill gap. Government has introduced various skill development programs such as Skill India Initiative and the National Skill Development Mission but the implementation of these programs are problematic.
- There is regional disparity in the availability of skilled workers. Certain regions have higher concentration of skilled workforce and access to vocational training, while rural areas have a scarcity of skilled workforce. This further complicates the achievement of equilibrium level.
- However, creating an equilibrium between demand and supply for skills requires collaborative approach involving industries, educational institutions, stakeholders and policymakers. Continuous efforts are needed to enhance the quality of education and vocational training, and access to skill development opportunities across the country.

By focusing on these factors, India can work towards achieving a balance between the demand and supply of skills leading to a more productive workforce and sustainable economic growth.

Addressing these issues through reforms in education, training and collaboration between stakeholders is essential to achieve a better equilibrium**.**

CHAPTER 4: CONCLUSION

This research paper examined the various aspects of skill development and provided important insights as well as comparative analysis between two nations, India and China. In recent years, India's effort in skill development has played an important role in advancing its economic and social progress. As the world acknowledges the significance of skill for progress, India stands at the leading position with its large population. However, the challenges of unemployment and the skill gap continue demanding well-thought-out solutions. The NSDC and PMKVY take initiatives that highlight India's commitment towards reducing the skill gap. India must encourage innovation, reduce the gap between education and practical skills, and promote lifelong learning to tap into its potential. The alignment between education and practical skills can push for long-lasting economic growth and strengthen global competitiveness. India' needs to work on skill mastery require continued dedication, and alignment of skills with economic needs. By working on it, India can address internal challenges and emerge as a competitive global player, advancing growth and progress through well-planned skill development.

Over the years, India's policy Initiatives in skill development have transformed to address the essential role of fostering talents and enhancing the workforce's capabilities in a constantly changing economic environment. With India's vast population and growing economy, the country has observed that effective skill development policies are crucial for achieving continued growth and comprehensive development. The establishment of the First Industrial Training Institute in 1969 began with the journey of policies, marking the commencement of skill training and vocational education in India. The successive establishment of the All-India Council of Technical Education Act of 1987 further formalized the rules and regulation of vocational training and technical education. The National Skill Development Corporation (NSDC) was established, after realizing the importance for private sector engagement and concentration on short term training and placement programs. The establishment of NSDC was necessary because it became clear that

economic growth since 1991 had not led to more job opportunities, causing a noticeable skill gap within the job market, and they had taken important steps for policy such as the State Skill Development Mission and the Aajeevika Programme.

In 2009, Skill development strategy was introduced and aligned with the five-year plan, representing a significant achievement in creating a comprehensive policy framework. Then in 2013 the National Skills Qualifications Framework was introduced, for providing different approaches to classify qualifications based on different levels of skills and in 2014 the Ministry of Skill Development & Entrepreneurship was established to improve skill development across the country. They started reducing the gap between demand and supply of a skilled workforce and encouraged innovation for both future and present job opportunities. The policies such as Amendment Act, Skill Indian Mission, and the Pradhan Mantri Kaushal Vigyan Yojana (PMKVY) were directed towards improving vocational training, standardization certification process, and creating employment opportunities to acquire industry relevant skills for young individuals. Now in 2016 the Pradhan Mantri YUVA Yojan was introduced, and the skill acquisition and knowledge awareness for livelihood promotion in 2018 (SANKLP) programme, in more advanced they started emphasizing industry relevant skilling and entrepreneurship development, SANKLP programme was supported by World Bank scheme at strengthening organizational system for skill development. India's skill development policies showing commitment toward fostering skilled workforce to boost economic growth, and these policy steps covering everything from vocational training to entrepreneurship support.

In the pursuit of fostering economic growth and prosperity, both India and China have recognized the pivotal role of skill development. Skill development plays a crucial role in workforce enhancement, operating economic growth globally and addressing the skill gaps. China's one of the important initiatives was enactment of The Vocational Education Law of 1996, which has provided a legal framework for vocational education and training with private enterprises compulsory participation. According to law it is mandatory for all enterprises to spend 1.5 percent of their total payroll towards vocational training, and it also defines the roles and responsibilities of the Ministry of Education and Ministry of Human Resources & Social Security. They have active involvement with local government in education and training, through fiscal decentralization, and effective alignment to local industries. Their longstanding commitment to manufacturing and well-established compulsory education system have contributed to a more developed skill sector. The high literacy rate and robust vocational school system have resulted in a workforce well-prepared for skilled employment. They have strict rules for teachers training, including real world experience and providing quality vocational education and Their education system offers greater flexibility. China's skill development policies reflect a coordinated and strategic approach. The mandatory education system ensures that a broad base of the population gains foundational skills, while vocational training programs offer specialized skills aligned with

industry demands. This synergy has enabled China to meet the requirements of a rapidly growing manufacturing sector. The emphasis on skill development, evident through policies and investments, has led to a labor force that is well-equipped to contribute meaningfully to economic growth.

In contrast, India lacks in legal support, relying on the National Skill Development Corporation for skill initiatives. Its advantageous demographic dividend faces challenges in transitioning from a traditional education system which focuses on theoretical knowledge to emphasizing competency-based learning and practical skills. Their central government and standardized curriculum design by NCERT limit local participation. India doesn't have strict rules like China, they must make sure that the education programs need to match industry requirements and help teachers to become better at teaching. On the other hand, India has a fragmented approach. India's journey is characterized by a shift from theory to practice. The Indian government's target of skilling 500 million workers by 2022 demonstrates a recognition of the urgency to equip its workforce with relevant skills. The National Education Policy 2020's transformative measures mark a departure from conventional education models, signifying a commitment to fostering practical proficiency. Collaboration between the government and private sector highlights a concerted effort to bridge the skills gap and align education with industry prerequisites.

This study provides valuable insights, certain limitations merit consideration. The reliance on indirect data sources raises concerns about data reliability. The variations in accuracy and credibility across sources can introduce inconsistencies in the study's findings. Furthermore, the inherent subjectivity of qualitative analysis underscores the need for caution in interpreting results. Researchers' biases and interpretations may inadvertently influence conclusions. The study's scope, albeit insightful, is inherently constrained. The multifaceted nature of skill development cannot be exhaustively explored within the confines of this research. Resources and time limitations may have led to the oversight of critical factors influencing skill enhancement efforts. Additionally, the dynamic nature of policy frameworks and evolving socio-economic conditions necessitate a real-time perspective that the study might lack. To address the limitations and extend the understanding gained from this study, further research avenues emerge. A comparative longitudinal analysis could provide insights into the evolution of skill development initiatives in India and China over time. Additionally, delving into the effectiveness and impact of specific policies and programs would offer a more granular understanding of what drives successful skill enhancement.

To conclude, this paper addresses the comparative analysis of skill development policies in India and China underscores the distinct yet converging trajectories they are charting. China's established manufacturing prowess and education system have cultivated a skilled workforce that serves as a foundation for sustained growth. India, on the other hand, is actively restructuring its

education framework and collaborating with industry players to elevate skill levels. Despite the differences, both nations are cognizant of the critical role skill development plays in shaping their economic destinies. As China's manufacturing landscape evolves and India progresses toward becoming an economic powerhouse, the alignment of skill development with industry demands remains imperative. India can draw inspiration from China's model while adapting it to its unique context. Learning from China's successes and challenges can inform India's ongoing efforts to transform its demographic dividend into a skilled workforce capable of driving innovation and economic expansion. In this era of globalization and rapid technological advancements, the ability to adapt and learn new skills is a linchpin for success. The divergent yet converging skill development paths of India and China exemplify the significance of strategic planning, policy implementation, and collaborative endeavors. As both nations continue their journey, it is evident that the enhancement of skills will be a cornerstone in shaping their futures and realizing their developmental aspirations.

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