United International Journal of Multidisciplinary Research (UIJMR) An International Peer-Reviewed and Refereed Multidisciplinary Journal
ISSN: 3048-6726 Impact Factor:6.934(SJIF)Volume-3, Special Issue-10

Education, Skill Development and Human Capital Formation: A Study of Telangana.

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DOI:10.37854/UIJMR.2026.310.312

ABSTRACT
This paper looks at how Telangana has gone about building its human capital through education and skill training. The state has set itself a very large goal: to become a three-trillion-dollar economy by 2047. Government documents say this cannot happen unless the state increases its human capital growth rate by nearly 1.75 times what it is now. The paper examines whether the current systems of schooling and training are up to that task. It draws on official state reports, data from the central Ministry of Skill Development, and published research. The picture that emerges is mixed. Telangana does better than most Indian states in getting children into school and giving them basic facilities. It has also built a wide network of skill training programmes. But there is a serious problem: a very large number of graduates, especially engineers, are not getting jobs. One survey found that 83 out of every 100 engineering graduates in India have no job offer and no internship. The problem is not only a lack of technical knowledge. Employers say graduates cannot communicate, cannot work in teams, and cannot solve problems on their own. The paper argues that Telangana has built the size and reach of its education and training systems. What it has not yet built is the quality, especially the soft skills that make a person employable. Without fixing that, the 2047 target will remain out of reach.

Introduction:

Every state in India says it wants to grow. Few have put the idea of human capital at the very centre of their plans the way Telangana has. In 2025, the state government released a vision document called Telangana Rising 2047. The document says the state wants to become a three-trillion-dollar economy in about twenty years . That is an enormous number. It is roughly the size of some mid-sized national

economies today.The interesting part is how the document says this will be achieved. It does not talk mainly about building roads or attracting factories, though those things matter. It says the state must raise its human capital growth rate to about 1.75 times its current level. It also says productivity must grow at a similar speed. In plain terms: the state is saying that its people, and what they can do, are the engine of growth. Everything else depends on that.This idea is not new. Economists have argued for decades that education and skills are the real sources of long-term prosperity. A person who can read, calculate, and solve problems is more productive than one who cannot. A worker who can learn new things when technology changes is more valuable than one who only knows one task. These ideas go back to the work of Gary Becker and others in the 1960s. But they have rarely been tested as directly as Telangana is now testing them.Telangana is an interesting case for another reason. It is a young state, formed in 2014. It inherited a fairly strong educational base, especially around Hyderabad. It has a booming information technology and pharmaceutical industry. Its per capita income is about 1.8 times the national average. In many ways, it starts from a position of strength.But it also has a problem that is common across India but particularly visible in a state that depends on high-skill services. Too many young people are finishing their education without the skills that employers actually want. This is not just about engineering colleges. It runs through the whole system, from schools to training centres.This paper asks a simple question: is Telangana's education and skill development system actually producing the human capital the state says it needs? To answer that, it looks at three things. First, what the school system is doing. Second, what the skill training programmes are doing. Third, whether the people coming out of these systems are getting jobs.

Research Objectives:

This study has five objectives:

1. To examine how well Telangana's school education system is performing, looking at enrolment, facilities, and the number of teachers.
2. To describe the scale and reach of the state's skill development programmes, including both central government schemes and state-level initiatives.
3. To look at the gap between what graduates learn and what employers need, especially for engineering graduates.

4. To assess whether the current system can realistically support the state's 2047 goals.
5. To suggest what might be done differently.

Research Methodology:

This paper uses existing data and published research. It does not collect new survey data. The sources are:

The Telangana Socio-Economic Outlook, an annual report published by the state government. The 2026 edition contains detailed figures on schools, enrolment, and skill programmes.

A reply from the Ministry of Skill Development and Entrepreneurship in the Lok Sabha, the lower house of India's Parliament. This reply, dated February 2026, gives year-by-year training numbers for Telangana under various central schemes .

Reports from the Unstop Talent Report and other surveys on graduate employability in India.

Published news reports from Deccan Chronicle and Business Standard on Telangana's education and skill initiatives.

Academic and policy papers on human capital formation and skill development.

The analysis is descriptive. It compares Telangana's performance with national averages where data allow. It also looks at trends over time.

Research Gap

There is a lot of data on Telangana's education system. The state government publishes annual reports. There are also numbers on how many people go through skill training. But there is very little work that puts all this together and asks a simple question: are these systems actually creating human capital?

Most studies look at one piece of the puzzle. Some look at school enrolment. Some look at skill training numbers. Almost none look at what happens after training. Do people get jobs? Do they earn more? Do they stay employed? These questions are rarely answered with data.

There is also very little research on the specific problem of soft skills. The available evidence suggests that employers are not mainly complaining about technical knowledge. They are complaining that graduates cannot communicate, cannot work with others, and cannot think for themselves. But no one has systematically studied how Telangana's education and training programmes address this.

Finally, there is a gap between what the state says it wants to do and what it is actually measuring. The 2047 vision talks about human

capital growth. But the state's education reports talk about enrolment and buildings. These are not the same thing. A state can have high enrolment and still produce graduates who cannot get jobs. That seems to be close to what is happening in Telangana.

Review of Literature

What is human capital?

The idea of human capital is simple. People are not just workers. They are also holders of knowledge and skills. Those knowledge and skills are a form of capital, just like machines or buildings. And like other forms of capital, they can be invested in. A government can spend money on schools. A family can keep a child in school instead of sending them to work. A company can trains its workers. All of these are investments in human capital.

Economists Gary Becker and Jacob Mincer developed these ideas in the 1960s. Becker made an important distinction. Some skills are general. They are useful to any employer. Reading and writing are general skills. Other skills are specific. They are only useful in one company or one industry. A worker who knows how to operate a particular machine in a particular factory has a specific skill.

This distinction matters for policy. If the government wants to help people get jobs, it should focus on general skills that many employers need. If a company wants to train workers, it might focus on specific skills. When governments train people for very specific jobs that might disappear, they may be wasting money.

Does education cause growth?

The evidence is more complicated than it first appears. At the individual level, the answer is clear. People with more education earn more money. This has been found in study after study, in country after country.

At the national or state level, the evidence is murkier. Some studies find that education is strongly linked to growth. Others find a weak link. One recent study on India found something interesting. It was not the average level of education that mattered for growth. It was specifically the share of adults who had completed tertiary education, meaning university-level education . This finding fits Telangana's situation. The state's economy is driven by services like IT and pharmaceuticals. These sectors need university graduates, not just people with basic schooling.

But there is another finding from the same study that is worth noting. The study used the historical location of Catholic missions in India to try to figure out whether education actually caused growth, or whether richer places just happened to have more schools. The study found that tertiary education did have a positive causal effect on development. So education does seem to matter, at least at the university level.

The lesson for Telangana is that not all education is equally valuable. Getting children into primary school is important. But if the state wants to become a three-trillion-dollar economy, it needs to focus on higher education and on the skills that high-value industries need.

Skill development: what works?

India has many skill development programmes. The central government runs PMKVY, which gives short-term training and certification. It runs NAPS, which places apprentices in companies. It runs JSS, which targets disadvantaged groups. It runs CTS, which works through Industrial Training Institutes .

The evidence on how well these programmes work is not encouraging. A study by the Organisation for Economic Co-operation and Development and other researchers found that vocational training often has lower returns than general education. This is partly because vocational training is expensive. It is partly because the skills learned can become outdated. And it is partly because vocational programmes often do not conect well to actual jobs.

In Telangana, there are state-level programmes on top of the central ones. TASK works with colleges to give students industry-relevant skills. TGSTEP runs short-term training centres. SETWIN provides job-oriented courses . These programmes are well-intentioned. But there is little evidence on whether they are leading to jobs.

The employability problem

The most important piece of evidence for this paper comes from surveys of employers and graduates. The Unstop Talent Report surveyed over 30,000 students across India. It found that 83 per cent of engineering graduates from the class of 2025 had not received a single job offer. Even among business school graduates, 46 per cent had no offer .

The reasons are revealing. It is not mainly that graduates lack technical knowledge. It is that they lack what are called soft skills. A separate analysis found that 52 per cent of graduates fail interviews

because of poor communication, not because of technical weakness . Employers say they need people who can work in teams, solve problems, and adapt to changing situations. These are not skills that are easily taught in a classroom.

One commentator put it bluntly: India graduates 1.5 million engineers every year, but only about 10 per cent get jobs in engineering . The rest either take jobs in other fields or remain unemployed.

This is the problem that Telangana must solve if it wants to reach its 2047 goals. Building more colleges and training centres will not solve it. The problem is quality, not quantity.

Data Analysis

The school system: strong on access, unclear on quality

Telangana's school system has some impressive numbers. According to the Socio-Economic Outlook 2026, the state had 39,641 schools in January 2026, with about 6.24 million students .

Gross enrolment ratios, which measure how many children are enrolled compared to the school-age population, are higher than the national average at every level. At the foundational stage, Telangana's GER was 63.6 compared to India's 41.4. At the secondary level, it was 86.8 for girls and 80.6 for boys, both above the national figures.

The pupil-teacher ratio is 21 to 1 in Telangana, compared to 24 to 1 nationally. This is a meaningful difference. A smaller class means more attention per child. The state government says the ratio has actually improved to 17 to 1, which would be well below the legal requirement of 30 to 1 .

School facilities are another area where Telangana does well. Digital libraries are available in 85.7 per cent of schools, compared to just 6.9 per cent nationally. Functional computer facilities for teaching are in 81.2 per cent of schools, against 57.9 per cent nationally. Almost all schools have electricity and drinking water.

These numbers suggest that the state has invested heavily in making schools functional and well-equipped. That is a real achievement. Many Indian states struggle to provide basic facilities.

But the data also show something that is harder to measure. There is no information in these reports about whether children are actually learning. Enrolment is not the same as attendance. Attendance is not the same as learning. A child can sit in a classroom with a computer and still not learn to read properly.

The state report mentions that AI and digital literacy have been introduced in Classes I to IX . But there is no data on whether this is working. There is no data on reading levels or math levels. The state is measuring inputs, not outcomes.

This matters for human capital. If children are not learning foundational skills in school, they will struggle later. They will struggle in higher education. They will struggle in job training. The whole chain of human capital formation depends on what happens in the early years.

Skill training: many programmes, little evidence

Telangana has a large and growing skill training system. The central government runs several schemes in the state. The Lok Sabha reply from February 2026 gives the numbers .

Under PMKVY, the flagship short-term training scheme, 8,040 people were trained in 2022-23. That rose to 15,390 in 2023-24 and 22,188 in 2024-25. In the first nine months of 2025-26, the number was 4,650.

Under NAPS, the apprenticeship scheme, numbers have been steadier. They were 31,821 in 2022-23, rose to 37,775 in 2023-24, dipped to 34,018 in 2024-25, and stood at 34,885 by December 2025.

Under CTS, which runs through ITIs, numbers have grown steadily. They went from 26,480 in 2022-23 to 40,452 by December 2025.

The state also runs its own programmes. TASK, the Telangana Academy for Skill and Knowledge, works with over 800 colleges. It says it has skilled over one lakh youth since it began in 2015 . TGSTEP runs nine training centres offering three- to six-month courses. SETWIN enrolled 13,698 trainees in 2025-26 and offers 59 job-oriented courses.

On paper, this looks like a lot of activity. Thousands of young people are being trained every year. The state is clearly trying.

But the data do not tell us whether any of this leads to jobs. The Lok Sabha reply includes a column for placement percentages, but the numbers are not given for Telangana in the search results . The state's own reports describe programmes but do not report employment outcomes.

There is one piece of evidence that suggests training can work when it is well-designed. A life sciences skilling programme run by the state in partnership with industry reported that 86 per cent of participants

reached the final interview stage for jobs. Thirty-nine received full-time offers from two companies alone. But this was a small pilot, involving about 140 students. It is not clear whether it can be scaled up.

The bigger problem is that most skill training in India, and probably in Telangana, is not well-connected to actual jobs. Training providers are paid for training people, not for getting them employed. There is little incentive to make sure the training matches what employers need.

The graduate problem: too many degrees, too few jobs

The most troubling data concern higher education graduates, especially in engineering.

India produces about 1.5 million engineering graduates every year. According to Team Lease, only about 10 per cent of them get jobs in engineering. The Unstop Talent Report found that 83 per cent of engineering graduates from the 2025 class had no job offer and no internship.

This is not just a Telangana problem. It is a national problem. But it is more visible in Telangana because the state's economy depends so heavily on high-skill services. If graduates cannot get jobs in IT or pharmaceuticals, they cannot contribute to the three-trillion-dollar goal.

colleges teach outdated material. A graduate may have learned programming languages that no one uses anymore. Another is that there is no practical experience. Many students never do an internship. They never work on a real project. They only study for exams.

But the most consistent finding across studies is about soft skills. Employers say they can teach technical skills on the job. What they cannot teach is how to communicate clearly, how to work in a team, how to solve a problem when you do not know the answer.

One industry observer put it this way: employers want people who show adaptability, problem-solving ability, and digital readiness. These are not things that can be learned from a textbook. They have to be practiced.

Telangana has recognised this problem. TASK runs programmes that include soft skills training. The life sciences programme includes communication and teamwork training . But these are add-ons. They

are not at the centre of the curriculum. The main focus is still on technical content.

There is another issue. The engineering education system in India has expanded very rapidly. There are now over 3,500 engineering colleges. Many of them are in Tier 2 and Tier 3 cities. The quality varies enormously. A student from a top college in Hyderabad may have good job prospects. A student from a lesser-known college in a small town may have none, even if they worked hard.

This creates a problem for human capital. The state may be producing many graduates. But if most of them cannot get jobs, the investment in their education is not producing returns. It is like building a factory that produces goods no one wants to buy.

Findings:

The analysis points to five main findings.

1.Telangana's school system is strong on access but weak on measuring quality. The state gets more children into school, provides better facilities, and has smaller classes than most Indian states. But there is no data on whether children are learning. Without that data, it is impossible to know if the school system is actually building human capital or just providing childcare.

2.The skill training system is large but disconnected from jobs. Thousands of people go through training every year. But there is almost no evidence on whether they get jobs afterward. The programmes are measured by how many people they train, not by how many people they help employ.

3. The graduate employability problem is severe and is mainly about soft skills. Most engineering graduates in India do not get jobs. Employers say the main reason is not technical knowledge but the inability to communicate, work in teams, and solve problems. Telangana's education system, like the rest of India's, focuses on technical content and treats soft skills as an afterthought.

4. There are islands of good practice. The life sciences programme shows that when industry is involved in designing the curriculum, and when soft skills are taken seriously, results can be much better. The apprenticeship model, where students learn on the job, seems to work better than classroom-only training. But these are small programmes. They have not been scaled up.

5. The state's 2047 goals are not matched by its current approach. The vision document talks about human capital growth. The education and training systems talk about enrolment and training

numbers. These are not the same thing. The state is measuring inputs when it should be measuring outcomes.

Suggestions:

Based on these findings, several suggestions can be made.

Measure learning, not just enrolment. The state should introduce standardised tests at key stages of schooling to see whether children are actually learning to read, write, and do basic math. Without this data, the state is flying blind. It cannot improve what it does not measure.

Put soft skills at the centre of higher education. Technical content matters. But so do communication, teamwork, and problem-solving. These should not be optional add-ons. They should be part of the core curriculum. Every student should have to practice these skills, not just hear about them in a lecture.

Track employment outcomes for skill training. Right now, training providers are paid for training people. They should also be judged on whether those people get jobs. This would change incentives. It would push providers to build relationships with employers and to design courses that actually lead to work.

Expand apprenticeship-style programmes. The evidence suggests that learning on the job works better than learning in a classroom. Telangana should expand the Apprenticeship Embedded Degree Programme and similar initiatives. But this requires companies to participate. The state may need to offer incentives for companies to take on apprentices.

Involve industry in curriculum design. The life sciences programme worked because companies helped design the course. They knew what skills they needed. This model should be applied more broadly. Industry should not just be a consumer of graduates. It should be a partner in producing them.

Focus on the transition from education to work. The state has many programmes at different stages. But there is no single place where a young person can go to find out about all the options. The proposed Unified Telangana Youth Enhancement Platform, which would bring together job listings, training programmes, and apprenticeship opportunities, is a step in the right direction . It should be implemented quickly and made easy to use.

Conclusion

Telangana has done something unusual. It has put human capital at the centre of its development strategy. The 2047 vision document says clearly that the state cannot reach its economic goals without a massive improvement in what its people can do.That is the right diagnosis. But the treatment is not yet working.The state has built the size and reach of its education and training systems. More children are in school. More young people are going through skill training. The physical facilities are better than in most Indian states.But size is not the same as quality. The evidence from engineering graduates shows that too many young people are finishing their education without the skills that employers need. The problem is not mainly technical knowledge. It is the ability to communicate, to work with others, and to solve problems.This is not a problem that can be fixed by building more colleges or starting more training schemes. It requires a change in what happens inside classrooms and training centres. It requires measuring learning, not just enrolment. It requires treating soft skills as essential, not optional. It requires connecting education to work in a real way, not just on paper.Telangana's 2047 target is ambitious. It may even be unrealistic. But the direction is right. The state has recognised that people are the engine of growth. What it needs now is to make sure that engine is actually running.

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