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Capitalizing on Higher Education the Australian Way

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I. INTRODUCTION:

The OECD[1] defines Human Capital as -"the knowledge, skills, competencies and other attributes embodied in individuals or groups of individuals acquired during their life and used to produce goods, services or ideas in market circumstances."

Under the present circumstances, it is very important for economies to invest in the development of their human capital. Hence, the World Bank launched the Human Capital Project (HCP) in order to address the persistent gaps prevailing in the amount of investment for human capital development. The Human Capital Index is the key indicator of this project which is used to measure human capital of developed as well as developing economies. According to the World Bank[2] "The Human Capital Index quantifies the contribution of health and education to the productivity of the next generation of workers."

The Human Capital Index ranks 157 countries from highest to lowest based on their score, calculated between 0 (lowest) and 1 (highest). It can be observed that the developed countries rank much higher on this index than the developing ones. For instance, the two core countries of this research, India, and Australia, lie immensely apart. India[3], with a score of 0.44, stands 108 positions behind Australia[4], which has a score of 0.80.

Further, this paper studies the crucial role higher education has in the development of human capital. This is owing to the fact that developing countries, like India, can improve their human capital in a number of ways.

[1] *The Value of People*. Education at a Glance 2006. OECD. http://dx.doi.org/10.1787/015830764831. Accessed 20 Nov. 2019.

[2] "Human Capital." *World Bank*, https://www.worldbank.org/en/publication/human-capital.

[3] *Human Capital Index and Components, 2018*. https://www.worldbank.org/en/data/interactive/2018/10/18/ human-capital-index-and-components-2018. Accessed 17 Nov. 2019.

[4] *Human Capital Index and Components, 2018*. https://www.worldbank.org/en/data/interactive/2018/10/18/ human-capital-index-and-components-2018. Accessed 17 Nov. 2019.

However, one of the most significant means for human capital development is improving the quality of higher education. Due to its ability to generate competent experts, higher education stands atop the ways of developing human capital.

Additionally, the focus of this research is to compare Australia and India and highlight the areas where India can do as well as Australia. Therefore, this research studies the two countries, their initiatives taken toward higher education and, indirectly, toward the improvement of human capital.

Lastly, the paper puts forward innovative suggestions on the measures that India can take to improve its stock of human capital.

II. LITERATURE REVIEW

The current global economy demands an extensive study of human capital development. M Woodhall's paper "Human Capital Concepts" provides a brief meaning to the concept of human capital and forms a foundation for our research[5].

In order to understand the increasing relevance of human capital, compared to physical capital, the paper studies two independent growth models. RF Harrod's (1939) essay explained the concept of growth through higher savings, however, it did also highlight its limitations[6]. On the other hand, Paul Romer in his paper explained a theory for growth through investments in human capital (1990)[7]. These works directed our research toward the comparison of physical and human capital. This section of our paper concludes that developing the capacity of human capital over physical capital would better fit the Indian economy.

Following this conclusion, we move on to comparing the disparity in human capital in India and Australia. The World Bank in its 2017 report "The Human Capital Project" introduces the Human Capital Index which aids the primary comparison of human capital in the two countries through a common index. Further, the 2018 report "Human Capital Project: First Year Annual

[5]Woodhall, M. "Human Capital Concepts." *Economics of Education*, Elsevier, 1987, pp. 21–24, doi:10.1016/b978-0-08-033379-3.50011-5.

[6]Harrod, R. F. "An Essay in Dynamic Theory." *The Economic Journal*, vol. 49, no. 193, Oxford University Press (OUP), Mar. 1939, p. 14, doi:10.2307/2225181.

[7]Romer, Paul 11, et al. *NBER WORKING PAPER SERIffi HUMAN CAPITAL AND GROWTH: THEORY AND EVIDENCE*. 1989.

Progress Report" demonstrates the accomplishment of countries during the first full year[8]. Here, the human capital of the two countries was measured, scored and ranked, providing a direct comparison. Despite its comprehensive analysis of human capital development in India and Australia, this report does not highlight the structure and development of higher education and its effect on human capital. These shortcomings of the HCI prompted further study into the higher education systems.

S Kaul (2006), P Agarwal (2007) and L Helslop (2014) in their respective papers help us gauge the situation of higher education in India and the sectors that need to be looked at[9]. A 2007 study by O Hicks proved valuable for studying the Australian system and hence, helped compare it to the one prevailing in India[10].

The government of India published the National Education Policy to meet the changing dynamics of the population in 2019.

This policy focused on quality education, innovation and research. Despite the thorough policies introduced in the NEP, our research recognizes that there is more room for strengthening the existing higher education system in India through innovative solutions.

Andrew Norton and Ittima Cherastidtham (2018) map the Australian Higher education system and highlight its strengths. This report underlines the Australian reforms in higher education, giving way for the development of the same in India through *lessons from Australia.*

III. METHODOLOGY

To analyze the effectiveness of human capital on economic growth and the impact higher education has on human capital, this paper undertakes primary as well as secondary research:

a. **Primary Research** was collected in the form of three online surveys – The first with a sample size of 160, to understand the perspective of Indian students studying in India. The second one to understand the perspective of Indian students in Australia, and the third comprising the views of the

[8] *The Human Capital #INVESTinPeople.* 2018, doi:10.1596/978-1-4648-1328-3.

[9] Agarwal, Pawan. *Higher education in India: The need for change*. No. 180. Working paper, 2006.

[10] Hicks, Owen. "Curriculum in higher education in Australia–Hello." *Enhancing Higher Education, Theory and Scholarship, Proceedings of the 30th HERDSA Annual Conference [CD-ROM]*. Vol. 8. No. 11. 2007.

teachers in the Indian education system. The details of both surveys are mentioned in Appendix 2.

b. **Secondary Research** was gathered from reports, research papers, articles, journals, the World Bank data, and the government released information.

IV. COUNTRY PROFILES

Before comparing the Higher Education and Human Capital Development systems, this paper conducts a fundamental comparison of the political, social and economic framework prevailing in the two countries.

INDIA

The Republic of India, the world's largest democracy, is the seventh-largest country by area. This country is home to a multicultural population of over 1.3 billion — the second largest in the world. Overcoming its vast history of political turmoil and economic disintegration, India has rapidly industrialized, urbanized, and militarized. It has now established itself as an economic powerhouse and a nuclear-armed state, with enormous influence in the South Asian region. Owing to its expertise in IT services,

India has the world's second-largest labor force at its disposal. With a rapidly expanding middle class, the Indian economy has emerged as the fifth-largest by nominal GDP, and the third-largest by purchasing power parity. As a multi-party parliamentary democracy, India has seen numerous socio- political transitions, marking the cultural fabric with an endless cycle of conflict and cooperation. Even as India continues its unprecedented rise, it must also battle poverty, corruption, economic inequality, social polarity, and other challenges that confront developing knowledge economies in the 21st century.

AUSTRALIA

The Commonwealth of Australia is universally praised for its education, health, and quality of life offered. It is the sixth- largest country by area and is home to a small, but highly urbanized population of million. As a highly developed country with the world's tenth-highest income, Australia's socio-economic system shapes its regional power in the Asia-Pacific. With a stable parliamentary constitutional monarchy, Australia's liberal-democratic setup has encouraged economic freedom and civil liberty. Thus, it is emerging as an attractive destination for ambitious foreign students and immigrants alike.

This influx, coupled with its lack of a national language or religion, has allowed a distinct, yet diverse "Australian" culture to flourish. The developed Australian economy is characterized by the highest average wealth in the world and a subsequently low rate of poverty.

However, despite this, the aging population, increasing pressures on infrastructure, and growing environmental concerns threaten to hamper the stability of Australia's society and economy.

Parameter	***India***	***Australia***
Government Structures	A federal parliamentary constitutional democracy	A federal parliamentary constitutional monarchy
GDP Per Capita	2,041.091 USD	57520.00 USD
Population	1,371,677,477	25,317,949
Number of Public Universities	513	40
Labor Force Participation Rates	49.8%	65.7%
HCI Ranks	115	7

Table 4.1.1: Comparing India and Australia

V. THE ECONOMICS OF IDEAS:

RF Harrod in his work "An Essay in Dynamic Theory"[11] developed an easy mechanism to understand growth in a developing economy. It states:

5.1. The Harrod-Domar Model of Economic Growth

[11]Harrod,GDP R. F. "An Essay in Dynamic Theory." *The Economic Journal*, vol. 49, no. 193, Oxford University Press (OUP), Mar. 1939, p. 14, doi:10.2307/2225181

a. "The level of a community's income is the most important determinant of its supply of savings.
b. The rate of increase of its income is an important determinant in its demand for savings.
c. The demand and supply should be equal."

On the basis of these three postulates, he derived a conclusion that states that there exists a rate of growth in every economy, also known as the warranted growth, the value of which is determined by the average propensity to save and the state of technology.
It states[12],

$$G = \frac{s}{c}$$

Prof. Domar developed a similar conclusion. However, his conclusion was drawn from the supply side, which is the productive capacity of labor. His research recognized the dual role of investment, which is to generate income as well as increase the productive capacity. Following this, his research focused on the rate of change in savings and capital that would maintain full employment.

It states[13], $\Delta I/I = \alpha\sigma$

On corroborating the two theories, the Harrod-Domar model of economic growth was derived. This model states Harrod's warranted rate of growth (Gw) is Domar's full employment rate of growth ($\alpha\sigma$).

Harrod's $G = \frac{s}{C}$ = Domar's $\alpha\sigma$.[14]

Conclusion of the Theory: The theory demonstrates how the transfer of capital to developing economies can lead to higher growth, which in turn will enable a higher rate of savings. An increase in savings will improve the investment and the capital stock of that country making growth steady and self- sustaining. However, there are certain limitations to this theory that prove to be obstacles to growth. These limitations are mentioned in detail in appendix 2.

Relevance of the Theory: This research notices that the Harrod-Domar Theory pays specific attention to the accumulation of physical capital. The theory states that an increase in physical capital can lead to a steadily growing economy. The importance is given to physical capital, therefore, increases the role of investment and savings in a developing economy.

[12] Derived in Appendix 1

[13] Derived in Appendix 1

[14] Derived in Appendix 1

However, it is argued that developing countries face a vicious cycle of low investments, low savings and hence lower rates of growth. **Therefore, this paper uses the Harrod-Domar Model to explain the diminishing need for physical capital in a developing economy.**

5.2 The Endogenous Growth Theory by Paul Romer:

Emerging in stark contrast to neoclassical growth theories, Paul Romer's endogenous growth model places "the economics of ideas" at the heart of economic growth. Through this hypothesis, the theory describes technology-induced economic growth. This growth is the result of the knowledge and expertise of researchers, innovators, and entrepreneurs who respond to economic incentives.

Previous macroeconomic research focused on the role of technological innovation in stimulating economic growth. Instead, Romer explores how situational factors in the economy determine the creation of new technologies. Therefore, by offering insight into the capacity of "ideas" to inspire endogenous technological change, Romer developed a model of economic growth.

This model employs the non-scarcity and non-rivalry of ideas to encourage increasing returns to scale in the process of production[15].

The use of an idea by one set of resources or by one economy does not prohibit the use of the same idea by others, and hence establishes the non-rivalry of ideas. Therefore, while the accumulation of physical capital eventually leads to diminishing returns, ideas are different in nature and can accumulate to yield increasing returns and achieve sustained economic growth[16].

Conclusion of the theory:

Building on the collaborative nature of ideas, Romer's theory presents output as a result of the overall stock of knowledge. These efforts made to increase knowledge through education, research, and technological innovation lead to sustained economic growth.

[15] *Nobel Laureate Paul Romer: The Path To Economic Growth And Innovation*. https://www.forbes.com/sites/katevitasek/2018/11/19/paul- romer-the-path-to-economic-growth-and-innovation/amp/. Accessed 17 Nov. 2019.

[16] Romer, Paul. *Human Capital And Growth: Theory and Evidence*. Nov. 1989, doi:10.3386/w3173.

Relevance of the theory:

As "increasing returns" are equivalent to higher output and higher income per person, this model implies that "**bigger is more productive**" as far as human capital is concerned. Assuming that an economy with more people will have a larger number of researchers, a larger number of ideas and hence, a higher level of output. As the fast- growing economies of countries like India and China simultaneously tackle high growth rates of population, Romer's controversial idea that population growth rates are proportional to economic growth acquires greater significance[17].

The theory also emphasizes the importance of human capital development as the economic growth potential of a country rests on human capital accumulation. Further, it also depends on the closeness to the frontiers of technological innovation, on the efficiency of its education system, and on the prerequisite of a high level of skill and expertise within the population. By linking the economy to society, education to innovation, and human capital to economic growth, Romer, therefore, prescribes "investment in knowledge" as the crucial determinant of economic growth.

This paper attempts to explain the increasing relevance of Human Capital Development in developing economies with specific attention towards technology and innovation as its central indicators.

5.3 Physical Capital v/s Human Capital

The evolution of growth theories from the Harrod-Domar model to the new endogenous growth model specifically highlights the limitations of physical capital in today's developing economies. Given the diminishing returns of physical capital accumulation, the influence of human capital and knowledge in enhancing the production process cannot be ignored. As savings and investments cannot always be increased through policy decisions, the handicap of developing economies is worsened in the physical capital model. Further, as the global knowledge economy expands in size and reach, ideas are placed at the core of all economic structures. Since ideas are endogenous and originate from within the human resource, there is a need to enhance human capital to achieve economic growth. In response to the growing levels and growth rates of the population today, it is imperative to turn the population into a valuable asset, now more than ever.

[17]Barro, Robert. "Comment on P. Romer, 'Human Capital and Growth: Theory and Evidence.'" *Carnegie-Rochester Conference Series on Public Policy*.

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As the stage of human capital development in the country is reflective of its economic growth, in the context of populous, but developing economies, a sustainable model of economic growth can be derived primarily through cross-generational development of its large human capital.

Policy Implications of a "Human Capital Orientation":

The human capital component of production can be influenced through policy action to a large extent. The policy implications are:

- Given that ideas emanate from the overall stock of knowledge, investment in education and research is the key to economic growth — the stock of knowledge essentially being an investment in human capital itself.
- Learning from the success of developed countries like Australia and Japan in this regard, the development of superior human capital must presuppose the existence of a strong higher education framework with research- centric learning.

- Consequently, as innovation is accepted as being "endogenous" to human capital, it is imperative to incentivize investments in research to promote knowledge creation. While public investment has the social incentive of progress and development, private incentives must receive economic motivation.
- Lastly, as the collaborative nature of ideas is exacerbated, knowledge partnerships and the mutual benefits of innovation emerge as the ideal way to affect widespread economic growth.

In an interview, Nobel Laureate Paul Romer, effortlessly explained how Human Capital Development is relevant for developing economies:

"Take some really valuable idea. My favorite really valuable idea is something called oral rehydration therapy, which is this formula, this insight, for how to save the lives of kids who get diarrhea. Many of them will die of dehydration if you don't give them fluids. If you just give them water or even give them just water plus a little salt in it, they'll actually get an electrolyte imbalance and die. But it turns out if you mix in a little bit of glucose, a little bit of sugar, along with the salt and the water, you can save millions of lives — from figuring out just a simple formula to mix some sugar in with the salt and a few minerals with the water.

Now, what's the right price for a discovery like that? Well, society should be willing to pay a huge amount to have somebody go discover something like that because it can save so many lives. But then what's the right price for deciding who gets to use it?"

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Given human capital is greatly impacted through Higher Education and technological change we measure the two indices in India. The measurement of human capital in India is done through the comparative analysis between India and Australia, given the former is a developing economy and the latter is a developed one.

VI. INDICATORS

5.4 Conclusion

As this paper analyses, human capital in comparison to physical capital, the immediate potential of human capital in stimulating and steering economic growth is evident. Even in the complex socio- economic setup of developing countries, human capital brings together several institutional factors, including education and economy.

Having constructed a direct relationship between human capital development through higher education and technological

Four indicators are measured to study the impact of Higher Education on the Human Capital Development of the two countries, India and Australia. They are:

1. Institutional Framework
2. Investment
3. Innovation and Technology
4. Retention Rate

6.1. Institutional Framework: Overview of the Undergraduate Systems in India & Australia:

What is institutional framework?

Higher education refers to all post- secondary education, including both public and private universities, colleges, technical training institutes, and vocational schools[18].

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The framework comprising of undergraduate institutes specializing in higher education is called the institutional framework of a country.

Relevance of institutional framework:

Since the *undergraduate system* is the first university degree that an individual obtains, this is a part of higher education in any country. All policies and plans for the higher education of a country are also applicable to its undergraduate system. **This paper exclusively focuses on the undergraduate system applicable to public universities in India.**

The undergraduate system in India:

In India, the development of basic infrastructure in terms of both planning and policies of higher education is managed by the Department of Higher Education under the Ministry of Human Resource Development (MHRD)[19]. The higher education in India is a shared responsibility between the Centre and the states.

The recent growth of higher education in India is a direct product of the growth of universities. A *university*, here, is established under a Central Act, Provincial Act or a State Act and must be recognized by the University Grants Commission (UGC) according to the requirements of the UGC Act, 1956.

Currently, there are 6 types of universities/ university-level institutions in India: *Central, State, Private, Deemed-to-be, Institution of National Importance and Institution under the State Legislature Act*[20]. The determination of the standard and the coordination of these universities is the responsibility of the *University Grants Commission (UGC)*, a statutory organization which provides grants to eligible universities and colleges, and also advises the Centre and the state governments regarding higher education and its development[21]. It also established an autonomous body called the *National Assessment and Accreditation Council (NAAC)* whose main function is to assess and accredit institutions of higher education. This is done in a two-step process

18 "Tertiary Education Overview - World Bank ...." https://www.worldbank.org/en/topic/tertiaryeducation. Accessed 4 Nov. 2019.

19 "About Department Of Higher Education | Government ... - MHRD." 25 Apr. 2016, https://mhrd.gov.in/overview. Accessed 4 Nov. 2019.

20 "University and Higher Education | Government of ... - MHRD." 19 Apr. 2016, https://mhrd.gov.in/university-and-higher-education. Accessed 4 Nov. 2019.

21 "University Grants Commission - MHRD." 19 Apr. 2016, https://mhrd.gov.in/university-grants-commission. Accessed 4 Nov. 2019.

where, in the first step the institution seeks the 'Institutional Eligibility for Quality Assessment' (IEQA) and in the second step the institution is accredited with grades A, B, C and D[22].

The undergraduate system in Australia:

The higher education in Australia, on the other hand, is made up of universities and institutions that train students to acquire the necessary skills for development[23]. It is divided into 6 levels from level 5 to level 10 by the *Australian Qualifications Framework (AQF)*. The AQF is the national policy in Australia for regulated qualifications in education and training in Australia. This helps to ensure consistency and national recognition of qualifications throughout Australia. The 6 levels starting at Level 5 are *Diploma*, *Advanced Diploma & Associate Degree*, *Bachelor Degree*, *Bachelor Honors Degree & Graduate Certificate or Diploma*, *Master's Degree* and *Doctoral Degree*[24].

The AQF is accredited by the *Tertiary Education Quality Standards Agency (TEQSA)*. This is an independent agency for national quality assurance and regulation of Australian higher education. It uses three basic principles — the necessity, risk, and proportionality — while regulation and is responsible for safeguarding the interests of students and the reputation of Australia's higher education system[25].

6.2. Investment

What is investment?

Investment as an indicator of higher education ranges from the proportion of national wealth spent on higher education to the spending on tertiary education per student.

Relevance of investment in higher education:

To undertake a qualitative and quantitative comparison of the higher education system in the two countries, we need to measure their respective investments. Further, the extent to which financial resources are invested in the development, strengthening, maintenance, and expansion of the system must also be analyzed. Acknowledging that successful outcomes of higher education are largely influenced by the public expenditure policy and the private incentive to invest[26], there is a need to evaluate investment not just from an economic standpoint, but from a policy perspective, too.

22 "University And Higher Education | Government of ... - MHRD." 19 Apr. 2016, https://mhrd.gov.in/university-and-higher-education-1. Accessed 4 Nov. 2019.

23 "Higher Education | Department of Education." 8 May. 2018, https://www.education.gov.au/higher-education-0. Accessed 4 Nov. 2019.

24 "Australian Qualifications Framework (AQF)." https://www.aqf.edu.au/. Accessed 4 Nov. 2019.

25 "About us | Tertiary Education Quality and Standards ... - TEQSA." https://www.teqsa.gov.au/about-us-0. Accessed 4 Nov. 2019.

Investment in higher education in India:

In the formative years of India's education network, the "universalization of primary education" was recognized as the foremost socio-economic target. With this objective left unfulfilled, the relevance of India's attempts to expand tertiary education through directed investment comes into question. This idea is exacerbated through the trends in public spending on education in developing countries, which reveal the extent to which public spending on primary education exceeds public spending on tertiary education[27].

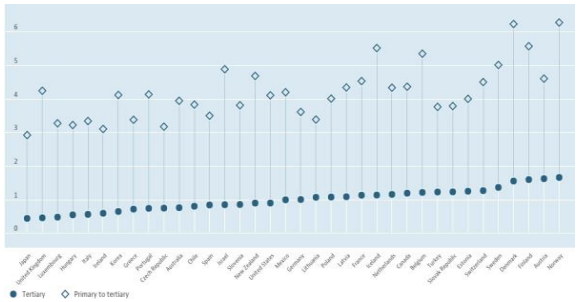

Figure 6.2.1: Public Expenditure on Tertiary and Primary Education. Source: OECD database, 2016.

Currently, the need for investment created by India's growing demographic of the tertiary-age population is undeniable. With the OECD predicting India's young population outpacing that of China by 2020, and the relative success of boosting primary enrolments and increasing access to secondary education; the demand for higher education is set to increase drastically[28].

Over the last decade, India's public expenditure on higher education settled at an average of 1.47% of total budgeted expenditure, evidently lower than the budgetary allocations of its contemporaries such as Japan and China[29]. Owing to this shortfall in investment and the lack of tangible outcomes of investment, the higher education system is plagued with chronic issues. Some of them being a shortage of qualified faculty, curricula that are disconnected from the realities of the job market, and a weak ecosystem for innovation[30]. **These statements are further be proved by our primary data that states 63.8% of our sample thinks the government can have better utilization of funds and investment.**[31]

[26] *Human Capital - Econlib.* https://www.econlib.org/library/Enc/HumanCapital.html. Accessed 11 Nov. 2019.

[27] "Documents & Reports." documents.worldbank.org/curated/en/337771468765265752/pdf/multi-page.pd.

[28] "Demography - Young Population - OECD Data." *TheOECD*, data.oecd.org/pop/young-population.htm. [29] Uis. *Education : Government Expenditure on Education as a Percentage of GDP*, data.uis.unesco.org/index.aspx?queryid=3373#.

Through the National Education Policy 2019, the government has reiterated the need to increase public expenditure on higher education, with the multi-pronged aim of encouraging R&D, increasing administrative autonomy, and improving the quality and capacity of existing institutions[32]. The evolving dynamics of today's job market, along with India's intent to emerge as the largest source pool for global talent, demand a transformation in the education system. These transformations can be about infrastructure, curriculum, pedagogy, and assessment, that perhaps public funding alone may not be sufficient for.

This idea acquires unique significance when contextualized by the higher education expenditure portfolio of Australia, which is characterized by a nearly equal public- private structure.

Investment in higher education in Australia:

The OECD has repeatedly highlighted the low levels of public funding in tertiary education in Australia, thereby granting it the rank of second-lowest (by public funding) in its 2016 report[33]. On the other hand, as compared to the national average of USD 12,600 in Spain and USD 11,800 in Portugal, Australia's expenditure per tertiary student is comparatively higher, resting at an average of USD 20,300. A realistic representation of the finance received by the Australian higher education system thus demands greater consideration given to private investment. Australia's education system derives significant finances from private institutions, with higher education being the largest beneficiary. Even though recent government plans show an intent to increase public funding on higher education, the existing infrastructure, faculty training, research inclination and exposure, and innovative curricula are almost entirely outcomes of greater private funding through loans, grants, and scholarships. To justify the claims of quality and capacity, a dominant role of private investment in Australia must be recognized[34].

[30] *Understanding India: The Future of Higher Education and Opportunities for International Cooperation UNDERSTANDING INDIA-THE FUTURE OF HIGHER EDUCATION AND OPPORTUNITIES FOR INTERNATIONAL COOPERATION*. 2014.

[31] Primary Data Appendix

[32] *Committee for the Draft National Education Policy Members of the Drafting Committee*. 2019.

[33] *Education at a Glance 2016 (Summary in English)*. 2016, doi:10.1787/033aaa9d-en.

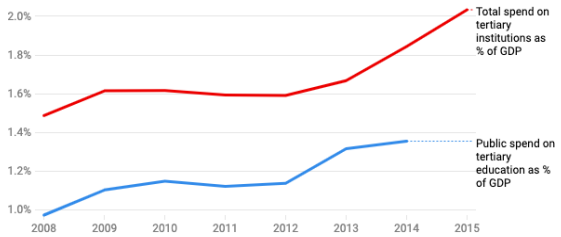

Figure 6.2.2: Public spending and total spending on tertiary education. Source: Education at A Glance, 2016. OECD.

However, the budgetary allocations of the government are also indicative of the path that public investment is likely to take in the near future. Recognizing the need to prepare students for an increasingly globalized world, the 2018 budget showed directed funding of $42 million to enhance accessibility for rural and regional students through the establishment of 1000 Commonwealth-supported bachelor and sub-bachelor places, as well as the creation of up to eight regional study hubs[35].

The 2019 budget continues this policy through the investment that focuses on increasing opportunities in regional Australia, upgrading infrastructure to meet demand, and strengthening the Tertiary Education Quality and Standards Agency (TEQSA)[36].

The most noteworthy characteristic of public funding in Australia, however, is the high productivity of investment, owing to the clear allocation of funds and transparent policy for review.

Australia's public investment in tertiary education is at 0.7% of gross domestic product or GDP, while India's is 4.6% of GDP[37].

[34]OECD. *Private Spending on Education (Indicator)*. 2015, doi:10.1787/6e70bede-en.

[35]*Budget 2018-19: Supporting Australian Students to Meet the Demands of the Modern World | Department of Education*. https://www.education.gov.au/budget-2018-19- supporting-australian-students-meet-demands-modern- world. Accessed 11 Nov. 2019.

[36]*Budget 2019-20: Delivering Better Education and Training Outcomes for All Australians | Department of Education*. https://www.education.gov.au/budget-2019-20. Accessed 11 Nov. 2019.

[37]*Higher Education Spending among World's Lowest – OECD*. https://www.universityworldnews.com/post.php?story=20170913140128375. Accessed 11 Nov. 2019.

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6.3. Innovation and Technology:

Meaning of innovation & technology:

Following the conclusion of the Harrod Domar model studied previously in the paper, "Innovation and Technology" is analyzed as an indicator for higher education below.

> **According to OECD, innovation in educational organizations such as schools, universities or training centers can be the introduction of: "*1) new products and services, such as a new syllabus, textbooks or educational resources; 2) new processes for delivering their services, such as the use of ICT in e-learning services; 3) new ways of organizing their activities, such as ICT to communicate with students and parents; or 4) new marketing techniques, e.g. differential pricing of postgraduate courses.*"**

Relevance of innovation & technology:

The aim of innovation is to improve the scope of education in the countries in any way possible. Therefore, they should be treated as improvements in the education sector. However, innovation in education is a highly disputatious issue. The education sector is regarded as the most resistant sectors, but it simultaneously also faces the problem of productivity and efficiency.

Here, efficiency means the balance between the investments made in the resources and the results in terms of students' performance and value. The problem of productivity and potency in education is even concerning when education is compared with different public policy sectors. In other sectors like health, technology has been a major driver of increased efficiency and productivity, even though the costs might have gone up. However, no similar improvements were seen in the education sector. Therefore, the governments have been investing in Digitization and Information and Communication Technology (ICT) for schools.

Educational innovations can lead to better learning outcomes, and enhanced educational provisions and equity.

The comparison between India and Australia provides insights regarding the new innovative policies in the higher education sector planned by the government of India and lessons that can be adopted from the technological framework of Australian higher education. This is further corroborated using our primary data collected, which states 74.3% of our sample believes that our education system should be modified to have more room for innovation and technology.

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Innovation in higher education in India and Australia:

India:

Various new innovative policies, as well as technological updations, have been adopted by the Ministry of Human Resource Development (HRD), Government of India which include ICT, Innovation Cell and so forth.

1. **Information and Communication Technology (ICT)**: Digitization and adoption of ICT are progressively rejuvenating the conventional way of classroom learning. It has increasingly helped in bridging the gap between student drop out and teacher shortage. "*According to the 11th five-year plan, the government has invested USD 16 billion on ICT, out of which USD 9 billion were for setting up ICT labs for computer- aided training and the remaining for the National Skill Development Program for training through virtual centers through vocationalization.*"[38]

2. **Innovation Cell:** The Ministry of HRD has introduced Innovation Cell and Atal Ranking of Institutions on Innovation Achievements (ARIIA). The primary mandate of the Innovation Cell is to uplift, inspire and nurture young students by exposing them to new ideas and processes, leading to innovative activities in their initial years. This is envisioned to be fostered through a network of innovation clubs in higher academic establishments; whereas ARIIA will encourage healthy competition among Higher Education Institutions (HEIs). "*India has already been improving on the global stage in terms of Innovation ranking from 86th place, 5 years ago, to 57th place this year.*"[39]

The ministry is not only planning to **encourage the use of digital learning resources** among students and teachers but also focusing on the Induction Training of the newly recruited teachers and strive for the smart campus. This is imperative since the quality of education leads to the enhancement in the output and increased efficiency of not only students but also teachers through innovative training methods.[40]

3.

[38]IBEF. "Education Sector in India." (2016). [39]*Innovation Cell and Atal Ranking of Institutions on Innovation Achievements (ARIIA) Launched by M/o HRD to Foster Culture of Innovation in Higher Education Institutions*. https://pib.gov.in/newsite/PrintRelease.aspx?relid=183177. Accessed 17 Nov. 2019.

Australia:

Australia has a comparatively different outlook on innovative solutions to enhance their efficiency in the higher education sector. Technology is globally revolutionizing the way education is practiced, absorbed and funded. Therefore, Australia has adopted Education Technology or EdTech, which is a provision of technology solutions for education purposes. It supports and improves the provisions of online learning, increases student engagement and retention, enables personalized and adaptive approaches to learning, and moreover, facilitates lifelong learning. It also supports efficiencies in administrative functions. *"In its most recent analysis of the industry, Frost & Sullivan found that the Australian edtech market is expected to grow to $1.7 billion by 2022. The market is expected to grow significantly amidst increasing student demand for education services and technology innovation, competition amongst institutions and decreasing acquisition costs."*[41]

6.4. Retention Rate:

What is retention rate?

Retention rate can be defined as the proportion or ratio of a country's students that continue to pursue higher education at an institution to the total number of students.

Relevance of retention rate:

The cumulative retention rate of educational institutions of an economy measures the impact on its academic, social and economic forefronts as a result of students' persistence and commitment.

A correlation study can be undertaken to demonstrate the effect of retention rate on higher education on a country. However, it is to be noted that every economy has definitive preconditions impacting its student retention or attrition rates.

[40] *Three-Day VCs' Conference on Research & Innovation in Higher Education Ends;* https://pib.gov.in/newsite/PrintRelease.aspx?relid=181153. Accessed 17 Nov. 2019.

[41] *Australian Education Technology Report. 2017, www.austrade.gov.au/edtech/australian-education- technology-report-2017.pdf* .

Retention rate is a suitable instrument to gauge the correlation between higher education and human capital as it is not an end in itself like the Gross Enrolment Ratio. The retention rate is also a viable tool because an efficient comparison can be carried out between the two countries based on their retention rates, provided that the comparison between the two stands reasonable.

Calculation of the retention rate:

The retention rate of an economy can be measured by collecting data for the number of students who enrolled at the beginning of any academic year and the data for the number of students from an incoming class who remain enrolled for that particular academic year and then dividing the two.[42] Thus, in the holistic view, retention rate can be measured by dividing the total enrollments for a specific academic level by the remaining enrollments for a higher one than the specific academic level.

In this paper, we use the Gross Enrolment Ratios as given by the World Bank. This section of the paper will take into account two ratios that can be equated to find the student retention rate of an economy.

1) Gross Enrolment Ratio in Tertiary Education (GER_{TE}):

In order to define the Gross Enrollment Ratio in tertiary education, a distinction should be made between Secondary and Tertiary Education as two different levels of education. We can define secondary education, the second stage traditionally found in formal education, beginning about age 11 to 13 and ending usually at age 15 to 18.[43] Notwithstanding, tertiary education can be defined as the third-level or stage of academia. Tertiary education can also be expressed as 'post-secondary' education. Thus, GER_{te} can be defined as the proportion of total enrollments in post-secondary or tertiary level of education.

2) Gross Enrolment Ratio in Secondary Education (GER_{SE}):

Previously, this paper has defined secondary education. Hence by stating the Gross Enrolment Ratio in Secondary Education, this paper implies the number of students enrolling for education on a secondary/higher level of education. The GER_{SE} can be used to denote the rate of students enrolled at a particular level of academia.

[42] *What Are Graduation, Retention, and Transfer Rates?, fafsa.ed.gov/help/fotw91n.htm.*

[43] *The Editors of Encyclopaedia Britannica. "Secondary Education." Encyclopædia Britannica, Encyclopædia Britannica, Inc., 27 Mar. 2018, www.britannica.com/topic/secondary-education.*

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The calculation of the following data has been shown in Appendix 2.

DATE	*GER SE*	*GER TE*	*RR* [44]
2004	51.6	11.0	21.31
2005	54.2	10.7	19.74
2006	55.1	11.5	20.87
2007	57.5	13.2	22.95
2008	60.6	15.1	24.91
2009	59.8	16.1	26.92
2010	63.3	17.9	28.27
2011	66.4	22.9	34.48
2012	69.2	24.4	35.26
2013	68.9	23.9	34.68
2014	74.3	25.5	34.32
2015	74.0	26.9	36.35

Table 6.4.1: Retention rates of India calculated

One of the two countries - India's - data has been depicted in columns 2 & 3 in table

6.4.1 Thus, using the equation given previously, this paper calculated the Retention Rate for the Indian Education System.

DATE	*GER SE*	*GER TE*	*RR*
2004	149.9	71.7	47.83
2005	148.4	72.3	48.71
2006	127.4	71.5	56.12
2007	126.4	72.5	57.35
2008	128.0	72.9	56.95
2009	130.3	76.8	58.94
2010	132.5	80.9	61.05
2011	134.3	83.5	62.17
2012	136.9	85.4	62.38
2013	137.6	86.6	62.93
2014	137.6	90.3	65.62[45]

Table 6.4.2: Retention rates of Australia calculate

[44] *"India Gross Enrolment Ratio in Secondary Education, 1970-2018." Knoema, knoema.com/atlas/India/topics/Education/Secondary-Education/Gross-enrolment-ratio-in-secondary-education.*

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Similarly, the second country of our study - Australia - has a retention rate as calculated by its data shown in table 6.4.2 and the equation mentioned in Appendix 2.

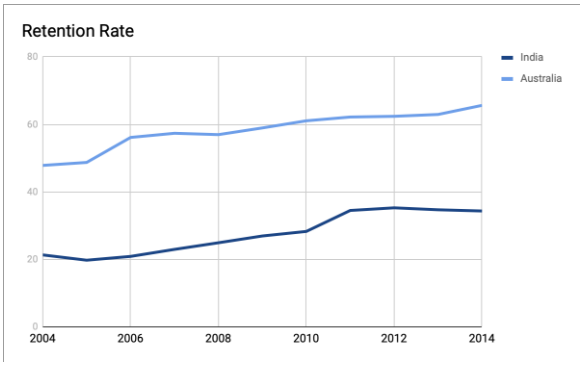

Fig 6.4.3: Trends for the retention rates of two countries

VII. CAN INDIA AND AUSTRALIA BE COMPARED?

Having examined the two nations across the above socioeconomic indicators, it is necessary to also review certain key aspects of both countries. This is done with a view to gauge whether India and Australia are comparable to the extent that a law or policy that was successful in Australia, would also find success in India.

To that end, the profiles of both countries are compared along with the following relevant parameters.

Population size and density - At over 1.3 billion, India's population is 55 times larger than Australia's, and has a density of over 415 per km^2. In contrast, Australia's population of 24.6 million boasts a low density of just 3.28 per km^2. Thus, the implementation proficiency of Indian governance is understandably lower than that of Australia.

Demographics - While the median age in Australia is 37 years, over 50% of India's population is below 25 years of age. 67% of India's population is still categorized as rural, and the social fabric of the country is far more culturally diverse than that of Australia.

Higher Education Structure - Indian higher education has a greatly fragmented structure, with 402 state universities, 334 private universities, and over 39,000 colleges. Australia, on the other hand, has 43 consolidated universities that derive nearly half their funding from private sources.

[45] *"Education Statistics." Education Statistics (EdStats) | Data Catalog, 14 June 2017, datacatalog.worldbank.org/dataset/education-statistics.*

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Stage of Human Capital Development - India ranks 115th on the HCI and reports a healthy growth rate of 0.62%, per capita GDP of 2,041.091 USD, and merely 5.8 learning-adjusted school years. With an HCI ranking of 7, a healthy growth rate of 98%, per capita GDP of 57520.00 USD, and 11.6 learning-adjusted years of quality education, Australia's human capital is far more developed than that of India, and hence has different requirements and expectations that are reflected in policies as well.

Policy priorities - Perhaps the most important determinants of a policy's relative success are the driving force behind it and the objectives it wishes to achieve. Owing to its demographic, India's policies mainly seek to cope with the massive rise in student demand, to improve the quality of teaching/ program delivery, to increase equity and access through universalization, and to enhance capacity, performance, and output to better cater to the labor market. Functioning at a different level of development, Australia's policies seek to promote diversity and innovation through technology and social media, to enhance global competitiveness through better research output, to achieve internationalization by attracting high- caliber overseas talent, and to achieve social and economic sustainability through higher education collaborations. Given that their policy priorities are complementary but different, the idea of Australia's practices being able to serve as an efficient benchmark for India comes into question.

As these differences limit the possibility of a direct comparison between India and Australia, simply selecting an Australian policy and applying it unequivocally to the Indian system is not feasible. A more nuanced approach, therefore, would demand acceptance of the complementarity of the objectives of the two countries. While India struggles with the challenges of rising demand and the need for quality assurance, Australia must also attempt to overcome stagnation through the infusion of superior global talent into its resource pool. Recognizing the fact that the Australian higher education and human capital framework is unwavering in terms of quality, capacity, and performance, this paper will approach policy recommendations from Australia, with the following dual perspective:

a) **Reconstructing Australian policy to be congruous with the Indian system** - This requires the identification of aspects within Australian policies that are relevant to India, so that they may be modified to align with India's needs and expectations.

b) **Adopting a collaborative approach to allow both countries to achieve their respective goals** - This entails making a collaborative effort to use India's widening talent base and Australia's infrastructural strength to Facilitate mutual benefit and development.

8. Learning from Australia's Major Reforms:

The last major reforms to the higher education system in Australia have been in 1990. Since then, there have been a number of constant and extensive changes to higher education. They are:

Australian Policy	Central Idea	Relevance to India
Increased higher education sustainability through an increase in higher education funding	Focus on sustainability of higher education	To keep the higher education model well-founded, it is imperative to introduce funding projects that maintain the viability of the system
The choice for students by improving support for regional higher education	Expansion of regional higher education	To bridge the urban-rural divide and to provide every student with the platform to excel, the introduction of pertinent policies supporting regional higher education is needed
Increased transparency and accountability through contingent funding for universities	Increased accountability for universities	To keep corruption and leakages in check and to ensure consistency of quality of education, increased accountability from institutions is required
Transparency for teaching and research expenditure	Support for research expenditure	With the rising need for research-based programs and funded research projects, an increase in public funding for research can revamp the higher education system in India

Fig 8.1: Majors reforms in Higher Education in Australia and their relevance to India

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VIII. POLICY SOLUTIONS:

The primary data collected states that 75.7% of our sample believes that the current degree courses in India would not suffice to get them enough opportunities in this globalized, and innovation orientated world. This calls for innovative reforms in the higher education system of India. The six solutions prescribed in this paper aim to make higher education in India more oriented toward the development of skills, entrepreneurial abilities, and employability of individuals.

9.1 Teacher Exchange Program:

This policy tackles the issue of the urban- rural divide between educators in India. This problem can simply be dealt with by the rotation of teachers between urban and rural areas. In order to decentralize the education system, teachers should have regular "rotations" between institutions located in urban and rural regions. This solution is pertinent to the Indian context as the higher education system is concentrated only in the urban areas. Further, the diversity of experience in educators is non-existent as well.

I] Legislative Framework:

Rotation implies following a system of regular and moderated exchange between the teachers in urban and rural institutes.

Implementation can be conducted through a Regulatory Impact Analysis (RIA). The variables that to be controlled are area and language. The results of this should be calculated with respect to the exposure received by the students across this RIA and the experiences of the teachers. This paper suggests that rotation begins with a single state and then be expanded. These rotations under this policy should be held every three years, for one semester or six months, whichever is finished first.

Upon systematic implementation, this policy will increase the educators' exposure to varied groups of students as well as classroom environments. Such exposure not only leads to diversification of a teacher's abilities but would also make them more equipped with dealing with heterogeneous groups of students.

We suggest further research be done on this solution so as to strengthen its implication.

Problem identified: difference in diversity, experience and exposure to educators in urban and rural areas
Solution advised: rotation of teachers between urban and rural areas

9.2. Incentivize Pedagogical Change:

The NEP (2019) highly recommends changes in the higher education system of India through pedagogical changes. At the core of any pedagogical change lies the initiative and willingness on the part of the stakeholders in the system. This paper offers solutions that incentivize pedagogical changes and make their implementation smoother.

I] Legislative solutions:

Incentives to boost pedagogical change can mainly be categorized into monetary and non-monetary incentives:

1. *Monetary Incentives* such as improving the threshold for the minimum salaries or increasing room for promotions. Further, increased access to research grants and monetary rewards can be introduced. Such incentives have a direct effect on the productivity of those at the center of the change.
2. *Non-Monetary Incentives*[1] can prove to be equally beneficial. This paper suggests motivators with a significant impact such as awarding with recognition or having an evaluation system in place.

Recognition and support from students as well as their parents can also prove to be a motivator for teachers.

II] Behavioral Solutions:

The behavioral framework of the incentives offered to teachers would be best substantiated by giving them a 'nudge' in the right direction. The Nudge theory, given by Richard Thaler, explains how an indirect suggestion can influence the behavior of individuals. In this case, if teachers are 'nudged' in the direction of improving the structure or curriculum, it would greatly impact the overall education system. Further research, case studies, and applications of

Problem identified: insufficiency of will in making pedagogical change as suggested by the NEP
Solution advised: monetary and non-monetary incentives along with Richard Thaler's "nudge"

this theory are mentioned in Appendix 4.

9.3 Project Bridgital:

India broadly has two problems affecting human capital, the translation of jobs in terms of employment opportunities and access to technological resources. There is a critical shortage of access to vital services across the nation, like healthcare and education, rendering them unavailable to millions of Indians.

As earlier mentioned in the paper, the endogenous theory of growth suggests that the development of human capital through the use of technology would be most beneficial.

Thus, this paper proposes to build a 'bridge'. A bridge that closes this skill gap, by enabling the existing unskilled labor force by enabling them with technology. **The Bridgital Project** addresses access challenges and restructures a typical job by enhancing its basic roles with technology. This solution is one where machines and men don't compete with each other but rather complete each other.

This policy suggests augmentation of tech to unskilled human capital, enabling both to

solve greater problems. India needs a solution that doesn't disregard the existing unskilled and meager human capital scenario, but one that essentially makes the best of it.

I] Institutional Framework

The implementation would detail the investment of basic augmented technology to workers from the ground up, enabling them to take on bigger tasks and responsibilities, and freeing up skilled labor to allow them to work more effectively. It would go about to set each Ministry in concern here with the fore mentioned technology, and its mandatory application to ground level public sector units that have scope for improvement. This technology would be tailored to each specific industry, automating manual processes by enabling the workers to control it, via predefined, uniform systems, and solving basic problems halfway through the supply chain.

II] Behavioral framework

A decentralized behavioral framework here would clearly propagate how the detailed deployment of technology from the ground up here would not threaten jobs. In order to supplement their skills, help them create more value and protect their jobs while maximizing efficiency, technology can be helpful, all at economically dispersed costs.

Hence, during the deployment of this system, the existing workforce must be given the rudimentary training needed, which will further be implemented in the education required to get to the position in question.

9.4 Industry Participation Initiatives:

As the human capital in India is characterized by poor employability and productivity, there is an evident inequality between the demand and supply of talent to the labor market. The standard curriculum is rapidly losing relevance, and the demands of the industry evolving constantly. This leads to the skills and learning opportunities offered by tertiary education institutions becoming increasingly disconnected with the current needs of the economy.

Problem identified: shortage of access to technology for human capital enhancement
Solution identified: restructuring the role of technology such that workforce can be kept up to date with modern skills

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Therefore, in order to reconcile the gap between learning and employment, there is a need to create an economy-led higher education framework. This implies increased participation of the industry in transforming pedagogy and curriculum, to enhance the employability of graduates.

I] Institutional Framework

Given that curricula are often outdated and irrelevant, industry-led curriculum design would facilitate a dynamic learning curve that meets the skill requirements of the economy. Further, as professional experience has acquired equal significance as theoretical knowledge in today's labor market, industry engagement can help make work experience a seamless extension of higher education. This may be done through a 3+1 industry-based learning structure, whereby students must devote certain semesters to hands-on training. It is also advisable to set up an industry-funded scholarship and "service bond" system that allows students to afford better education with the added benefit of an employment guarantee while giving companies a space to nurture and recruit the best talent.

II] Behavioral Framework

On one hand, India's public higher education system is noticeably wary of industry participation, and on the other, there is a clear inclination of the industry towards private institutions. To truly integrate education and economy, it is imperative to "nudge" both sides towards a collaborative effort. Public universities must be made aware of the competitive advantage of industry participation and its ability to create a dynamic student body, thus freeing the system from its bias against industry involvement. Further, much like any government-driven service that demands private intervention, education too must offer a social and economic incentive to industries to encourage their participation. Whether this is achieved through subsidies and tax benefits, or through increased

ownership in the overall learning process, the aim is to allow industries to view themselves as valuable stakeholders in the higher education system.

Problem Identified: insufficient industry participation in higher education, leading to inferior human capital

Proposed solution: active industry participation in the form of scholarships, skill training and apprenticeship opportunities

9.5. India-Australia Higher Education Merger:

This paper suggests a bilateral alliance between India and Australia in order to obstacles that both countries are facing in maximizing the available resources for the development of higher education and human capital. The higher education system, on one hand, is looking for a serious boost when the one Australia needs to gain momentum out of its stagnant position. The higher education and human capital system in India, following the NEP, is more open to international partnerships that benefit India as well as the partner country.

The **primary research** conducted states that 77.6% of our sample prefers Higher Education in India. However, when given a choice without determinants, 73% preferred studying in Australia. This demonstrates how the collaboration would be appropriate.

To maximize the benefit of the collaboration for both countries as per their own long term objectives, the following propositions can be worked upon by a **bi-national body** with representatives from the fields of academia and policy-making as well as industry experts that will focus on the execution expansion of the collaborative efforts. This body can work on the implementation of the following initiatives under the partnership:

I] Institutional Framework:

a. **Setting up campuses of Australian universities in India:** Given that the demand for foreign education in India has led to massive brain drain, the establishment of reputed foreign universities in the country can solve the problem. Since nine of the world's 50 most internationally diverse universities are now Australian the collaboration will lead to the development of qualitative higher education in India along with boosting the Australia education system.

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b. **Capacity Building for Educationists**: Through this collaboration, India can directly benefit from Australia's expertise by training workshops, courses, and diplomas provided by Australian institutions. Australian teachers go through rigorous assessments with respect to qualifications, language and criminal records, governed by each state separately, resulting in well-equipped teachers and high- quality education. Such assessments along with vocational training will not only have positive effects on the educators in India but also improve the employment opportunities of Indian Students at a lower cost.

II] Behavioral Framework

Firstly, a collaborative effort can also be beneficial to both countries from the perspective of developing cultural understanding and diplomatic ties, as facilitated by student exchange programs, bilateral scholarship funds, and joint degree programs.

Further, by altering the rigid Indian higher education system to allow the transfer of credits for completion of courses across different universities. This will alter the outlook of students that carry a preference for education abroad.

It must be noted that while there are great opportunities to be explored through institutional collaborations between India and Australia, there are several complications, too.

Problem identified: Need to revamp the education systems of both India and Australia
Proposed Solution: Bi-national government collaboration to best suit the goals of both countries with regard to higher education

9.6 Suggestions for Strengthening the National Education Policy, 2019:

The most recent transformation in policy culminated in the **draft National Education Policy 2019**, which represents a departure from the previous approach to education. However, a closer look at the provisions of the policy through the lens of the indicators studied for this paper reveals several uncertainties and shortcomings that must be corrected.

The uncertainty of how the policy will be funded, the lack of direction in investment, and the ambiguity of implementation strategies, however, emerge as key flaws. Even though the use of technology is indicated, there are clear operational challenges at the grassroots level. Although the policy recognizes the need to promote "liberal education", it neglects the need to link education and employment, thus inhibiting the enrichment of human capital. Building on the vision of the NEP 2019, the following **legislative solutions** are highlighted:

a. **Setting up dedicated committees:** Recognizing that governance and implementation given India's population is an inevitable challenge, individual **state- level committees** may be introduced to implement and encourage the core principles of the NEP through a decentralized format, with better adaptation to local needs. To immediately address the needs of areas with poor outcomes, or institutions with low- performance levels, a **crisis committee** must be established. The purpose of this body would be to assess the status of such institutions, identify the best alternative for development, and implement corrective measures.

b. **Merging HEIs to achieve consolidation:** To implement the NEP's goal of reducing fragmentation in the higher education system, the merging of institutes or the placing of weaker institutes under the supervision of relatively successful institutes must be encouraged. Besides the benefits of consolidation, this will also promote the standardization of education quality and capacity across institutes, thus leading to better outcomes.

Problem Identified: lack of cohesive solutions in the NEP
Proposed Solution: liberalization, standardization and decentralization of education by strengthening the NEP

IX. WHAT VALUE WILL THIS PAPER ADD?

This paper is of relevance in the larger conversation of Human Capital Development in India as well as Australia. This research demonstrates how developing countries should invest in human capital. Further, it highlights the areas where India can do better in the field of human capital through higher education. Lastly, it explores how India can build its ranking on the HCI through various suggestions from Australia. Coordination suggestions are unique and therefore can be further studied

X. LIMITATIONS

Due to the lack of a universally accepted definition of higher education and human capital development, the scope of the study was very vast. Even though attempts were made to keep the scope of the research focused, the following limitations were encountered:

- There are no appropriate indices that can measure Human Capital in a country. The HCI comes close, however, the government of India has rejected its findings, stating it does not reflect the key initiatives that are being taken for the development of human capital in the country, such as Samagra Shiksha, Ayushman Bharat Program, Swachh Bharat Mission, Pradhan Mantri Ujjwala Yojana, Pradhan Mantri Jandhan Yojana and the Aadhaar identification system-enabled direct cash transfer, that have improved governance and social protection.
- Investment: Although the investment patterns for the higher education of the two countries can be studied, we cannot be sure about how much of it has been implemented correctly.
- Technology: This paper compares the technology of the two countries through their various innovations. However, there is no common index to do so.
- Retention Rate: The retention rates of Australia are higher than those of India, however, they show no sign of further improvement.
- Institutional Framework: The narrow time-period post the New Education Policy, permits a very short-term study of the legislation in India, hence posing as a disadvantage.
- Policy Suggestions: Although well researched, there are no results for the implications the policies will hold.

XI. CONCLUSION

This paper attempted to answer two questions, through a qualitative as well as quantitative study. The first one being, **"How does higher education impact the economic development of a country"**. The conclusion to this question was drawn with the help of a comparative study between the Harrod-Domar Model and the Endogenous Growth Theory. The differences found in the two theories proved as a precedent for the argument of human capital's role in the growth of a developing country. Higher education, a key index in the development of human capital, thus was proved imperative for developing countries.

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The second question was "**What is the difference between higher education in India and Australia**?" A comparative study between the two countries was conducted using four indicators namely, Institutional Framework, Investment in Higher Education, Innovation & Technology and lastly the Retention Rates for Higher Education. These indicators illustrated that India was lacking in higher education both in terms of the legal framework as well as the practical implementations. The superiority of the Higher education system in Australia is evident. However, with the vast differences in the two countries, that comparison cannot be held valid.

Therefore, the Lessons from Australia were suggested more holistically, with respect to the major reforms made by Australia that could be implemented in India. Apart from this, a *regular reassigning of teachers* between the urban and rural areas was also a proposed solution. Several other policies were suggested too, all of them having a separate *institutional and behavioral framework*. They are, bridging the digital gap through *Project Bridgital*, incentivizing teachers towards *changes in the pedagogy* and an *increase in industry participation.* These were suggested to enhance the skill development, employment opportunities and entrepreneurial abilities of an individual through Higher Education. Improvement of the current National Education Policy (2019) and a collaborative effort of the Indian and Australian governments are also solutions towards a better quality of education.

Therefore this paper concludes, although India is underperforming on the HCI and Higher education, there still is room for further development. Furthermore, looking at Australia as a precedent is deemed helpful, however, not optimal given the vast differences between the two countries.

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APPENDIX 1: DERIVING THE RELEVANCE OF HUMAN CAPITAL

❖ Explaining the formula:

As given by R. F. Harrod,

"Warranted Growth: Let G stands for the geometric rate of growth of income or output in the system, the increment being expressed as a fraction of its existing level. G will vary directly with the time interval chosen - e.g., 1 percent. per annum = l percent. per month. The equilibrium is, for reasons to be explained, a highly unstable one. Thus, even in the most ideal circumstances conceivable, G, the actual rate of growth, would diverge from time to time from G, the warranted rate of growth, for random or seasonal causes. Let s stand for the fraction of income which individuals and corporate bodies choose to save."

"Let C stand for the value of the capital goods required for the production of a unit increment of output. The unit of value used to measure this magnitude is the value of the unit increment of output. The value of C is inversely proportional to the period chosen. The value of C depends on the state of technology and the nature of the goods constituting the increment of output. It may be expected to vary as income grows and in different phases of the trade cycle; it may be somewhat dependent on the rate of interest."

❖ Domar Model:

According to an article by Smriti Chand explaining the Harrod-Domar Model, Domar Model is derived as "This can be indicated as 1Ϭ, where a (sigma) represents the net potential social average productivity of investment (= ΔY/I). Accordingly, la is less than

I.s. 1Ϭ is the total net potential increase in output of the economy and is known as the sigma effect. In Domar's words, this "is the increase in output which the economy can produce," it is the "supply side of our system."

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Required Increase in Aggregate Demand. The demand side is explained by the Keynesian multiplier. Let the annual increase in income be denoted by AY and the increase in investment by ΔI and the propensity to save by a (alpha) (=ΔS/ΔY).

Then the increase in income will be equal to the multiplier (1/α) times the increase in investment: ΔY = ΔI 1/α

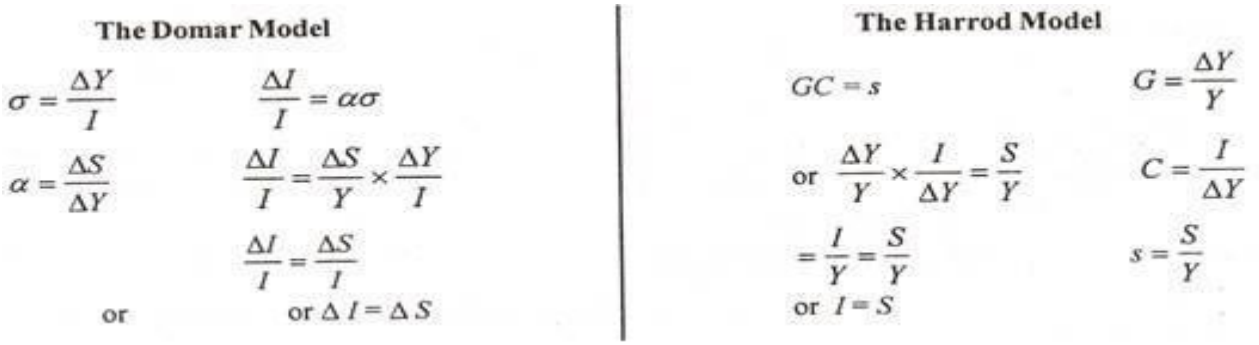
Equilibrium: To maintain the full-employment equilibrium level of income, aggregate demand should be equal to aggregate supply.

Thus we arrive at the fundamental equation of the model: ΔI 1/α = Iα

Solving this equation by dividing both sides by I and multiplying by a we get: ΔI/I = αϭ

This equation shows that to maintain the full employment growth rate of net autonomous investment (ΔI/I) must be equal to αϭ (the MPS times the productivity of capital). This is the rate at which investment must grow to assure the use of potential capacity in order to maintain a steady growth rate of the economy at full employment.

Similarity:



”

There are, however, important **differences in the two models:** (1)Harrod looked at the level of income as the most important determinant while Domar regards the key role of investment in the process of growth and its dual character. (2) While Domar illustrates the relationship between

capital accumulation and full capacity growth in output, Harrod shows the relationship as well as the behavioral relationship between the rise in demand and capital accumulation.

❖ **Aforementioned in our research, the Harrod-Domar Model of Growth explained how higher investments can lead to higher growth, however, there are certain limitations:**

a. It is difficult for developing countries to increase savings at this rate. Saving ratios in developing countries can hardly increase when there is a struggle for basic needs.

b. There are examples of countries that have experienced rapid growth rates despite a lack of savings, such as Thailand.

c. It has unrealistic assumptions such as the existence of a reliable finance and transport system, absence of government interference and so forth.

d. It gives increasing importance to physical capital and none to human capital

e. The scope of this model is restricted because it is only applicable to the process where saving income ratio and capital-output ratio remain constant. However, this model is not applicable in a case where the growth can tend to be unbalanced and discontinuous.

❖ **Similarly, the limitations of the Paul Romer theory are:**

a. In a world where education leads to the convergence of countries and ideas flow across borders, Romer's inference that economic growth is intimately tied to a country's own population, highlights many questions, such as - should the economy of Germany be richer than that of Luxembourg, since it has a larger population?

b. As the theory reduces economic growth to a function of human capital accumulation, the insufficiency of available human capital proxies emerges as an issue.

c. The theory's emphasis on the role of technological innovation and human capital development in stimulating growth clearly favors the developed world. It contextualizes why populous, but underdeveloped economies like India, fail to achieve the exponential rate of growth that Romer describes.

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APPENDIX 2: PRIMARY DATA APPENDIX

SURVEY 1 - QUESTIONNAIRE FOR INDIAN UNDERGRADUATE STUDENTS:

Sample for the survey:

This survey was conducted to understand the perspective of students about higher education. Whether the preference is to pursue their higher studies in India or abroad & what in their view needs to be done to improve the current educational system of India. The data for the sample has been collected specifically from Indian Students pursuing different degree courses.

Questions:

Q1. What are the pros of pursuing degree courses in India itself? (Any 3)

a. In-depth theoretical knowledge
b. Affordability
c. Quality Education
d. Career Opportunities
e. Cultural Diversity
f. Developing Economy
g. Well ranked Universities

Q2. Would you prefer studying abroad (Australia) over India for your further education?

a. Yes
b. No

Q3. What do you think are some of the flaws of our education system? (Any 3)

a. Lack of practical learning and skill development
b. Improper use of government aid and investment
c. Lack of use of technology
d. Lack of Qualified teachers

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e. Chalk and Talk system of teaching
f. Being more examination orientated and less classroom for research

Q4. What challenges are faced when a student who is well equipped with theoretical knowledge and not enough practical learning? (Any 3)
a. Wastage of time and money over training newly recruited employees
b. Lack of job opportunities in the global market of employment
c. Lagging behind in the field of research and development
d. No scope for innovation
e. Less efficient and knowledgeable

Q5. Do you think that the current degree courses will suffice to get you good employment opportunities in this multitude, globalized, and innovation orientated world?
a. Yes
b. No

Q6. What do you think should be modified in our education system? (Any 3)
a. Proper use of available resources
b. More room for research and innovation
c. Use of technology
d. Skill development and training programs
e. More diverse process for grading students

Q7. Do you like the grading system for your education?
a. Yes
b. No

Q8. What initiatives the government can take to better our higher education system? (Any 3)
a. More investments
b. Proper utilization of Funds and Investment
c. Setting up institutions and Programmes for skill development and training

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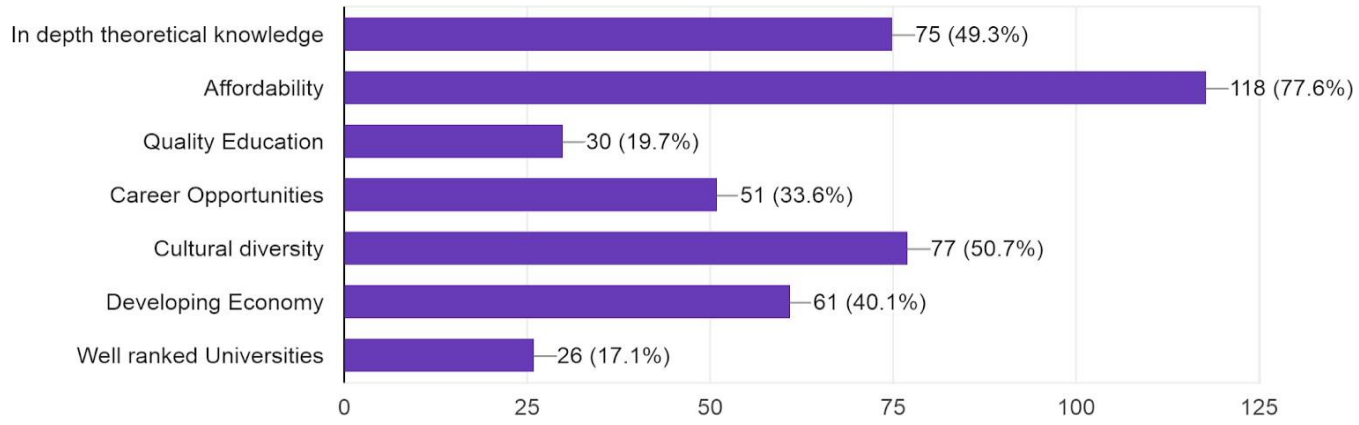
d. Maintaining education infrastructure
e. Setting stringent standards for teacher's qualifications
f. Making higher education accessible to all

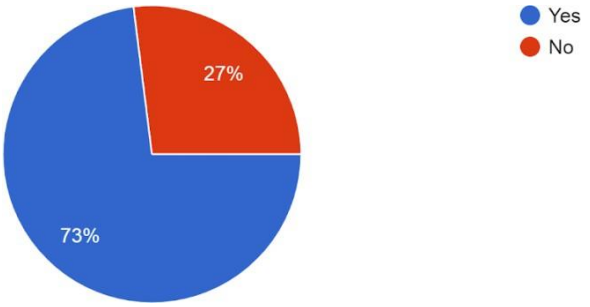
Q9. Do you think more private institutions for higher education should be set up over public education institutions?
a. Yes
b. No
c. Maybe

Analysis:
Q1. What are the pros of pursuing degree courses in India itself?



Summary of response-
'Affordability' has come out as the most positive factor with (77.6%) in deciding whether a student wants to pursue higher studies in India or abroad. Following affordability, cultural diversity (50.7%) is the second most important factor. Quality of education and Well Ranked Universities are the least preferred factors for the students here.

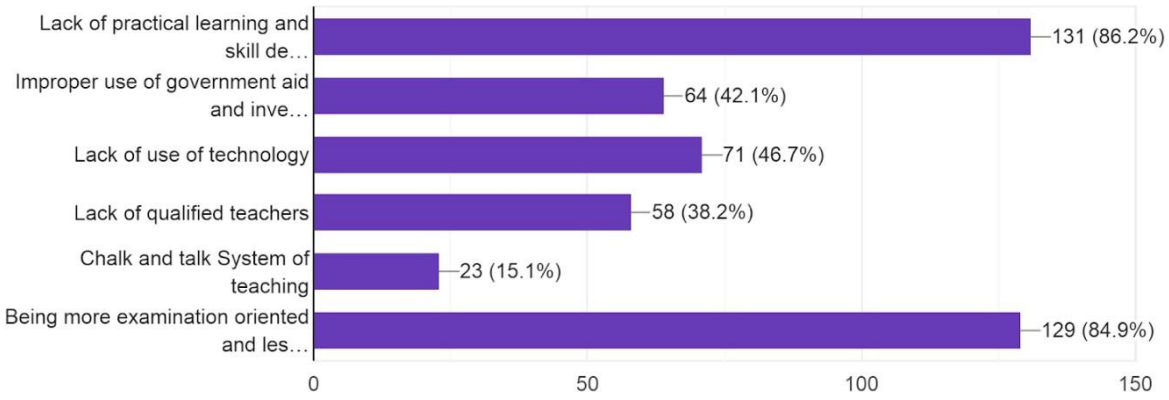
Q2. Would you prefer studying abroad (Australia) over India for your further education?



Summary of response-

We can see that (73%) of students want to pursue their higher studies abroad (Australia) and (27%) want to study in India itself.

Q3. What do you think are some of the flaws of our education system?



Summary of response-

Top 3 of the major flaws being- The majority of the sample population (86.2%), believes that the major drawback of the Indian education system is giving emphasis to theoretical knowledge over practical training. Also about (84.9%) of students find the current education system devoid of research and exploration another major flaw. With changing times many respondents (46.7%) feel a lack of use of technology is also a major flaw.

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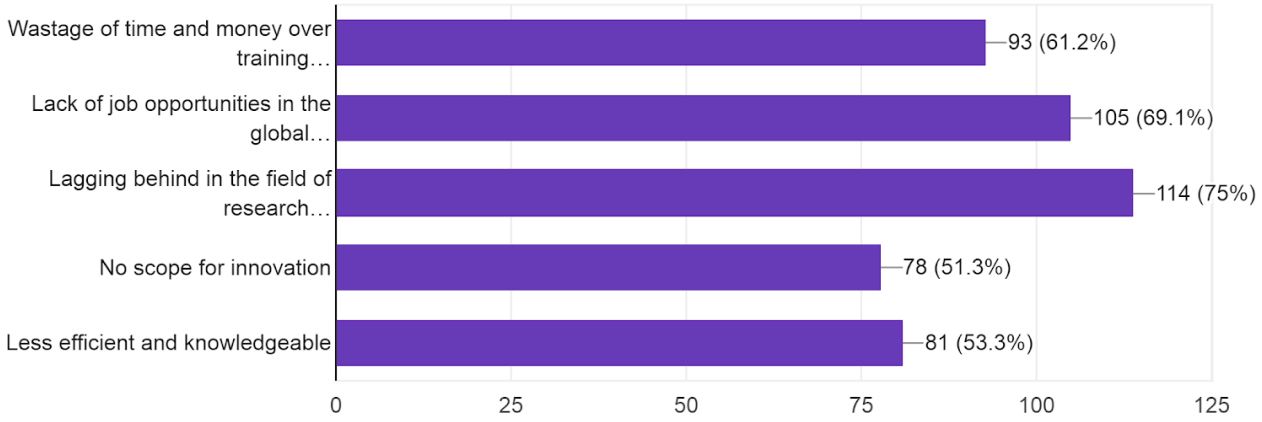
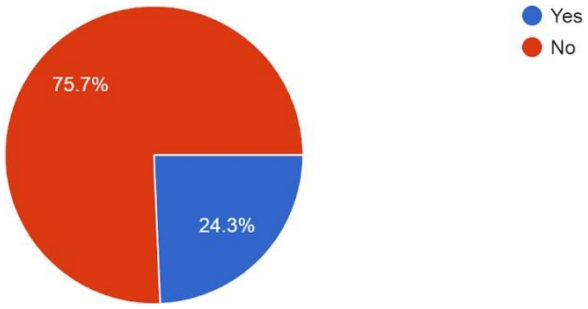
Q4. What challenges are faced when a student who is well equipped with theoretical knowledge and not enough practical learning?



Summary of response-

This question is in continuation with the previous one. The majority of students (75%) believe that lagging behind in the field of research is a major challenge, about (69.1%) believe that lack of practical experience impacts their chance at better job opportunities in the global market. (61.2%) students believe that students and companies alike have to shell out more from their pockets to garner on-field training, after college.

Q5. Do you think that the current degree courses will suffice to get you good employment opportunities in this multitude, globalized, and innovation orientated world?



Summary of response-

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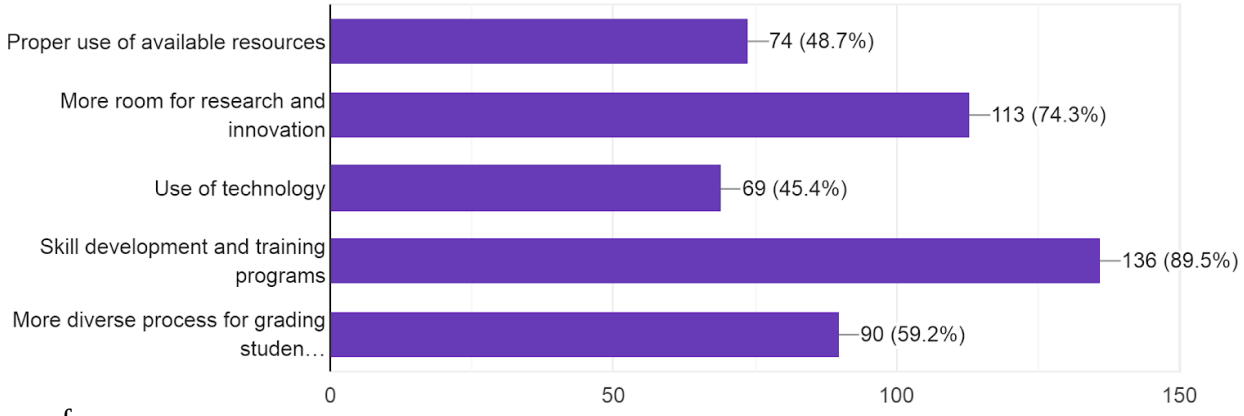
The majority of the students (75.7%) believed that the current education scenario would not help them achieve their goals while only (24.3%) agree that the higher education system of India is sufficient for them.

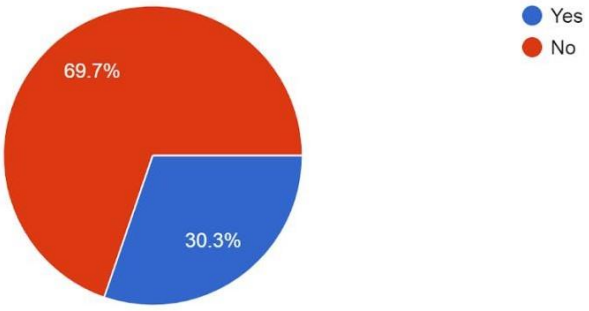
Q6: What do you think should be modified in our education system?



Summary of response-

We can see skill development and training programs is one of the most important modifications that students (about 89.5%) want in our Indian education system. More than 70% want research and innovation to be an integral part of the curriculum. Technological advances and available resources are the least of their concerns.

Q7. Do you like the grading system for your education?



Summary of response-:

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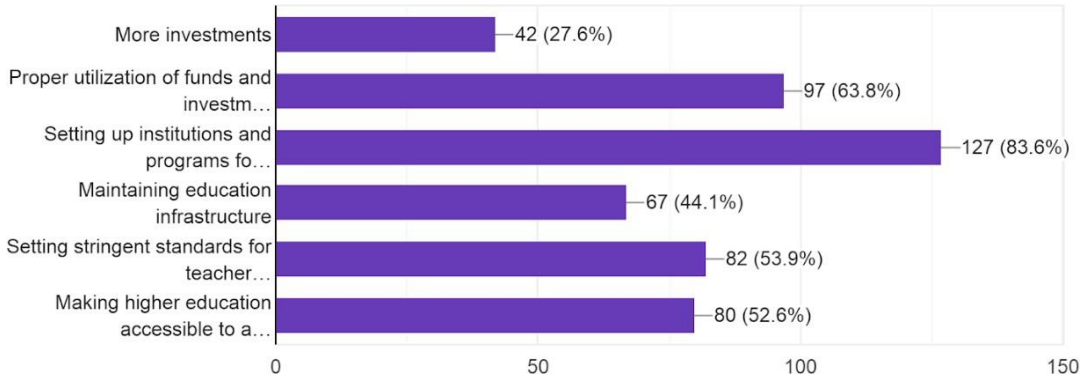
Approximately 70% of students didn't like their current grading system and the remaining 30% are satisfied with the grading system.

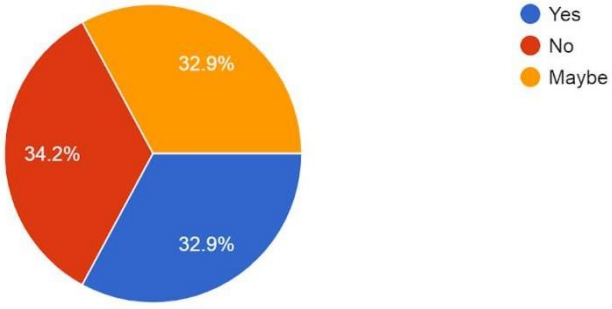
Q8: What initiatives the government can take to better our higher education system?



Summary of response-

From the survey, we can derive that the majority of respondents (83.6%) people think that the most required initiative to be taken by the government is to develop skill hubs and institutions. Many (63.8%) believe that the main initiative that the government can take is to start making proper use of existing funds and resources in an optimum manner. While there is a marginal difference between the numbers of people who think raising the qualification standards for teachers and making it accessible to all is equally important. There are hardly a few respondents about (27.6%) who feel that the government should make more investment.

Q9. Do you think more private institutions for higher education should be set up over public education institutions?



Summary of response-:
Students are indifferent to the fact that the institution is private or government-owned.
As we can clearly see that there is less than a 2% gap between the students who want more private institutions and those who want more public institutions.

SURVEY 2 – SURVEY FOR INDIAN STUDENTS IN AUSTRALIA

Sample:
The given survey was conducted to study Higher Education in India and Australia and the differences exist between the two. The sample for the survey consists of Indian students who are studying in Australia.

Questions:
Q1. What made you choose Australia over Indian Higher Education System?
a. affordability
b. quality education
c. career options
d. well ranked universities

Q2. What are the pros of pursuing degree courses in India itself? (Any 3)
a. In-depth theoretical knowledge
b. Affordability
c. Quality Education
d. Career Opportunities

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e. Cultural Diversity
f. Developing Economy
g. Well ranked Universities

Q3. What do you think are some of the flaws of the Indian education system? (Any 3)
a. Lack of practical learning and skill development
b. Improper use of government aid and investment
c. Lack of use of technology
d. Lack of Qualified teachers
e. Chalk and Talk system of teaching
f. Being more examination orientated and less classroom for research

Q4. What are some of the flaws of the Australian Higher Education System? (Any-3)
a. Lack of private institutions
b. Lack of diversity in the education system for migrants and international students
c. Not accessible to all the classes and masses
d. Lack of qualified teachers
e. Need for integrating technology

Q5. What challenges are faced when a student who is well equipped with theoretical knowledge and not enough practical learning? (Any 3)
a. Wastage of time and money over training newly recruited employees
b. Lack of job opportunities in the global market of employment
c. Lagging behind in the field of research and development
d. No scope for innovation
e. Less efficient and knowledgeable

Q6. Do you think that your current degree courses will suffice to get you good employment opportunities in this multitude, globalized, and innovation orientated world?
a. Yes
b. No

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Q7. What do you think should be modified in the Indian education system? (Any 3)

a. Proper use of available resources
b. More room for research and innovation
c. Use of technology
d. Skill development and training programs
e. More diverse process for grading students

Q8. Do you like the grading system for your education?

a. Yes
b. No

Q9. What initiatives the government can take to better the Indian higher education system? (Any 3)

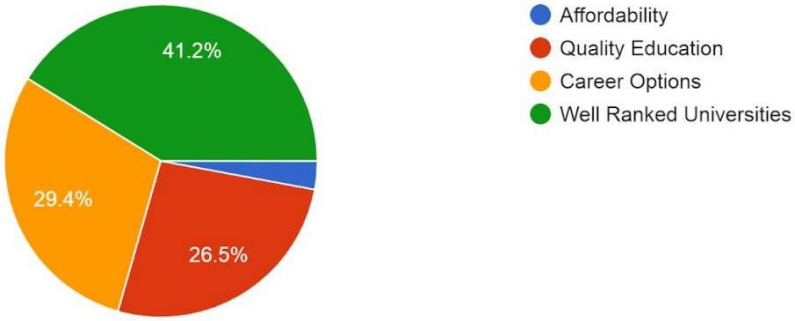
a. More investments
b. Proper utilization of Funds and Investment
c. Setting up institutions and Programmes for skill development and training
d. Maintaining education infrastructure
e. Setting stringent standards for teacher's qualifications
f. Making higher education accessible to all

Q10. Do you think more private institutions for higher education should be set up over public education institutions?

a. Yes
b. No

Analysis:

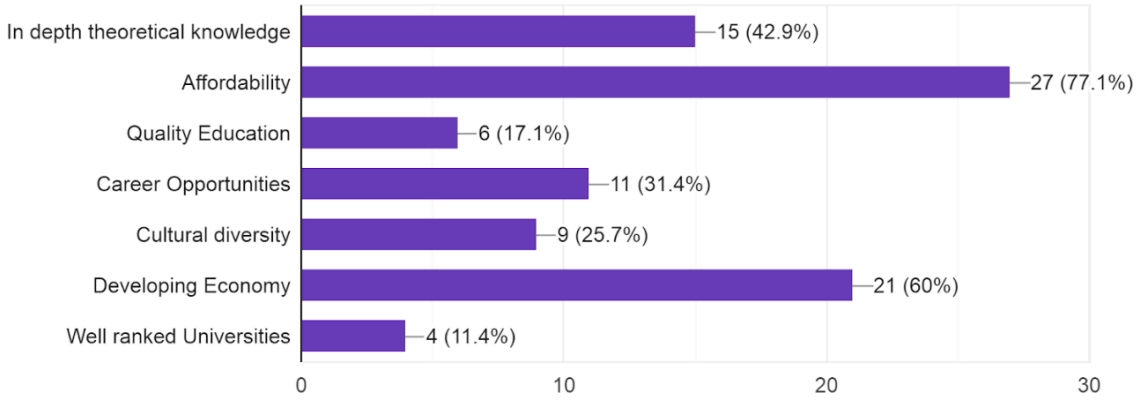
Q1. What made you choose Australia over Indian Higher Education System?



Summary of response:

The above pie-chart shows the reasons why Indian students prefer degree courses in Australia over India. 41.2% of students prefer Australian universities as they are better-ranked compared to Indian institutions. Around 30% of students choose the availability of better career choices as a major reason and 26.5% of students chose the level of quality education as their reason to study in Australia. Only 2.9% chose affordability as their key reason for studying there.

Q2. What are the pros of pursuing degree courses in India itself?



Summary of response:

The above survey shows why the respondents feel that Indian education is well-suited. The top three reasons they choose are affordability (77.1%), the developing nature of the Indian economy (60%) and a high focus on developing a strong theoretical base (42.9%). The respondents also consider better career opportunities as a reason for pursuing degree courses in India. However,

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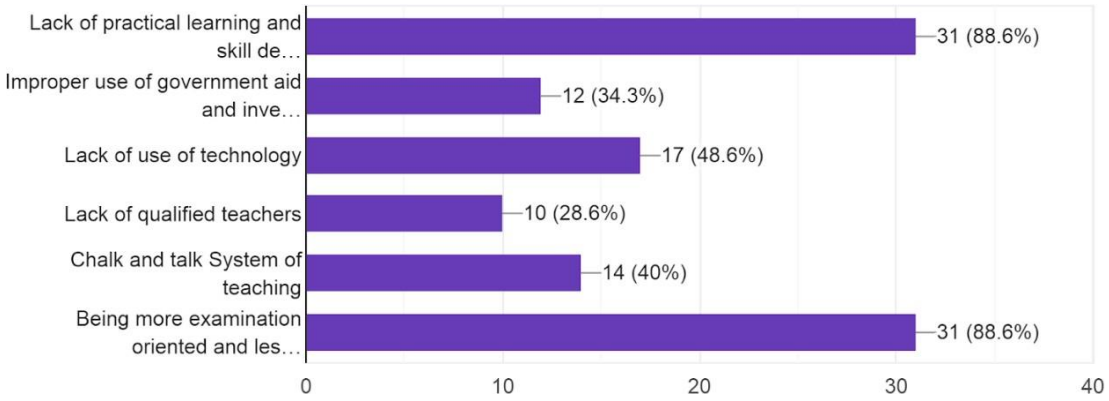
the respondents don't feel that the Indian universities are well-ranked or of good quality to be a benefit for your career.

Q3. What do you think are some of the flaws of the Indian education system?



Summary of response:

The above question from the survey answers as to what flaws respondents find in the Indian education system. Top 3 being- (31 respondents) think that more impetus to exams and lack of practical learning is a major flaw in the Indian higher education followed by a lack of application of technology(17 respondents) and chalk and talk system of education(14 respondents). 28% of respondents felt the lack of qualified teachers, whereas 34% of people suggested the inefficiency of government functioning as a flaw in the Indian education system.

Q4. What are some of the flaws of the Australian Higher Education System?

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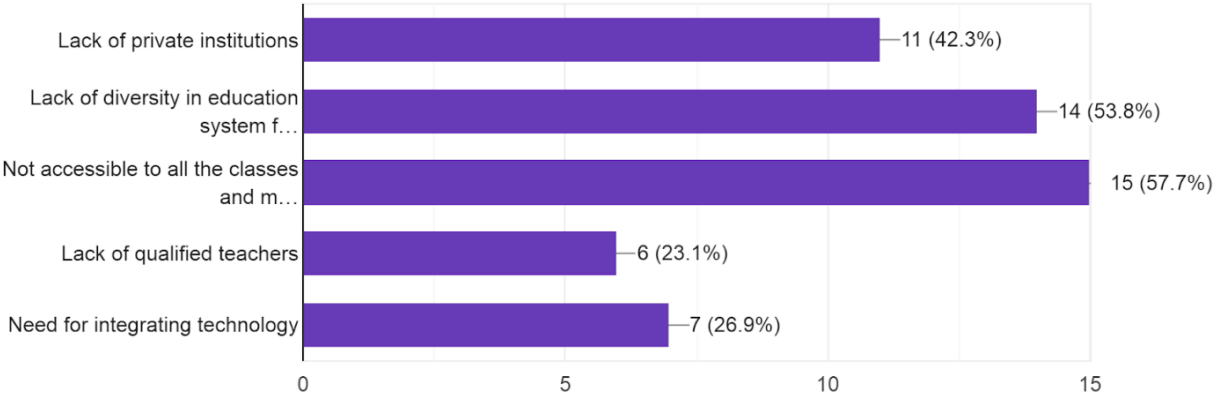
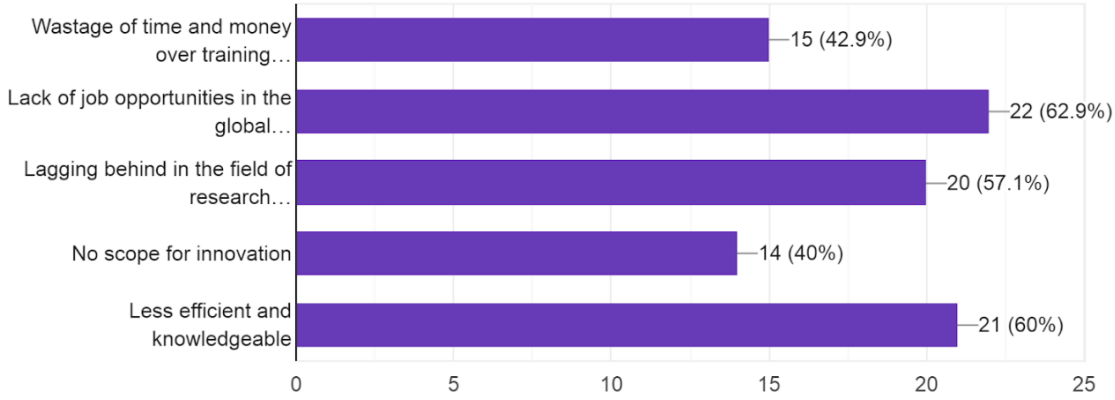


Summary of response:

This question asks the respondents what flaws they find in the Australian education system. Top 3 reasons were (57.7%) think that the Australian education system is not accessible to all while (54%) think that there is a lack of diversity in education to cater to all student's needs in the classrooms (42%) of people think that there is a lack of private institutions in Australian education system whereas only (23%) of people think that the flaw is of qualified teachers.

About (26%) of people think that technology and the lack of it is a flaw.

Q5. What challenges are faced when a student who is well equipped with theoretical knowledge and not enough practical learning?



Summary of response:

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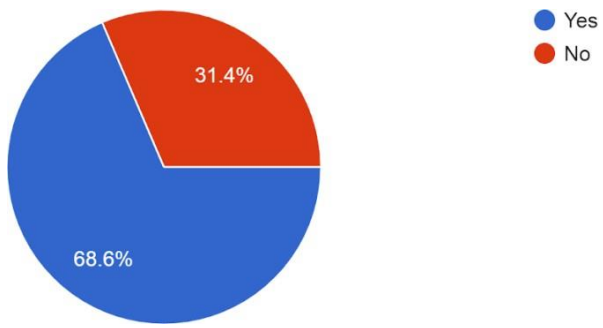
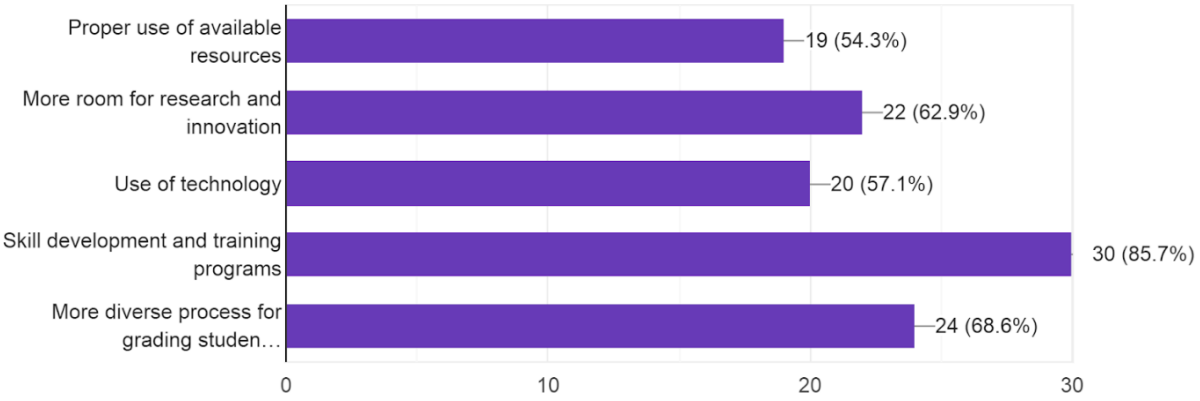
The above question answers what challenges students face if their education system is more theoretical than practical basically like the Indian education system. Top 3 reasons were (63%) of respondents feel that such students may have difficulty in getting a job at a global level. (60%) of respondents felt that they have less knowledge and (57%) thought that they lag behind in the field of research. (40%) of respondents felt that there is no scope for innovation and (43%) of people feel that more money needs to be spent on training for newly recruited employees as the Indian education system lacks the practical element.

Q6. Do you think that your current degree courses will suffice to get you good employment opportunities in this multitude, globalized, and innovation orientated world?



This question answers what the respondents feel regarding their ongoing career choices and how that will allow them to stand on their own in the future. (68.6%) of people are satisfied with their current degree course while (31.4%) of people don't think so.

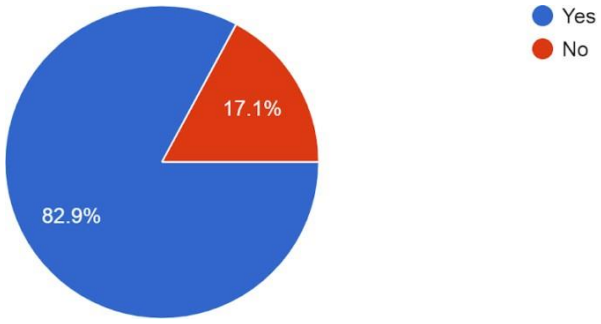
Q7. What do you think should be modified in the Indian education system?



Summary of response:

The above question from the survey asks the respondents what things should be modified from the Indian education system. Top 3 suggestions were about (86%) of respondents feel that there should be modifications made in skill development programs whereas about (69%) of people think that the grading patterns should change. (57%) of respondents felt that more technology patterns should be adopted in education whereas (63%) of people think that impetus should be given to research and innovation.

Q8. Do you like the grading system for your education?



Summary of response:

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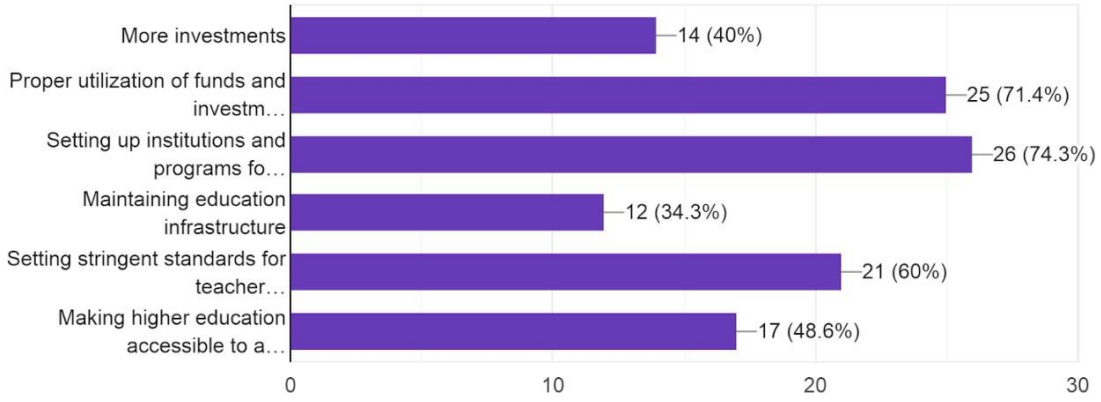
The above question asks respondents whether they like their grading system in education. (82.9%) of respondents said yes that they like their grading system forming a majority while 17.1% of people answered in the negative.

Q9. What initiatives the government can take to better the Indian higher education system?



Summary of response:

The above question from the survey gives various recommendations from the respondents' side to better the Indian education system. Top 3 reasons were maximum respondents i.e. (75%) of people think that more institutions should be set up which focuses on skill development and training to the students. Around (72%) of respondents think that there should be proper utilization of funds allotted for education while (60%) of people think that more qualified teachers are required for raising the bar of Indian education. About (40%) of respondents feel that more investment is required in Indian education while about (34%) of people think that more infrastructure is required.

Q10. Do you think more private institutions for higher education should be set up over public education institutions?

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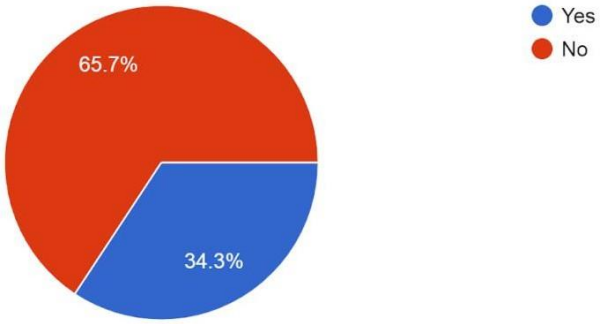

Summary of response:

The above question answers that what the respondents feel about private universities been set up. (34.3%) of people said that private universities must be set up while (65.7%) of people said that they should not be set up.

SURVEY 3 – SURVEY FOR TEACHERS IN HIGHER EDUCATION IN INDIA:

Sample:

This survey was conducted to understand the perspective of teachers about higher education. What according to them, should be the necessary changes that the higher education system in India needs? The data for the sample has been collected specifically from different Indian teachers of various degree courses.

Questions:

Q1. What are some of the major flaws or problems of India's higher education system? (Select 3)

a. Lack of funds
b. Lack of technology innovation
c. Lack of Qualified teachers
d. Lack of Practical Learning
e. Lack of government aid and initiatives
f. The traditional method of Teaching

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Q2. Why do many Indian students prefer studying abroad (Australia) over India for degree courses?

a. Better job guarantees
b. Wide choice of subjects
c. Practical Learning
d. Recognized degree
e. Ranked University
f. Integration of technology

Q3. Australian higher education system gives importance to practical learning and skill development through research work and projects over exams, should that be inculcated in India's education system?

a. Yes
b. No

Q4. Is the Indian Higher Education System's process of measuring a student’s knowledge and learning appropriate?

a. Yes
b. No

Q5. Are Indian students with minimal practical learning and skill training at a disadvantage over those who possess them in the global market of employment?

a. Yes
b. No

Q6. What suggestions and modifications would you recommend for India's Higher Education System?

a. Raising qualification standards of teachers
b. More room for research and innovation
c. Use of technology
d. Skill development and training programs

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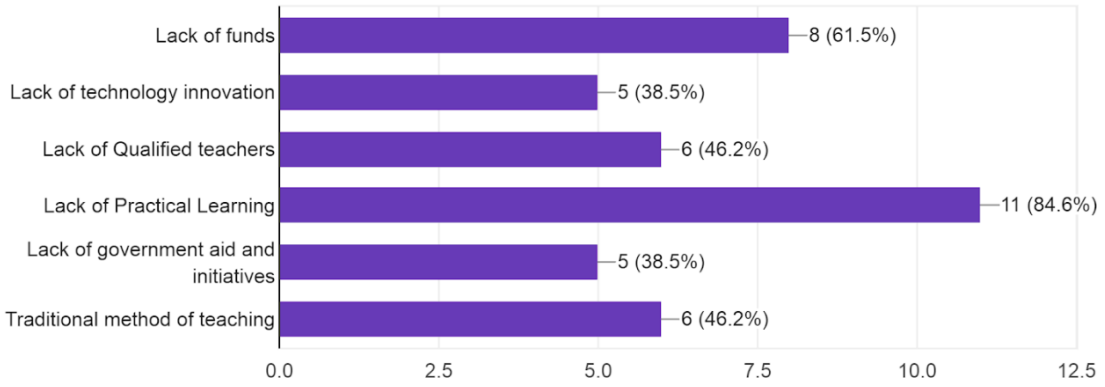
e. Making it more accessible to all classes and masses
f. Proper use of available resources

Q7. What aid in the form of government support, tools and investment should be provided to the teachers to help them teach students better?
a. Incentives
b. Better technology
c. Autonomy

Q8. Should rigorous use of technology be inculcated in imparting education to students?
a. Yes
b. No

Analysis:

Q1.What are some of the major flaws or problems of India's higher education system?



Summary of response:

The above graph shows the flaws in the Indian education system considered by teachers. 84.6% of the teachers consider a lack of practical learning as the major flaw, along with a lack of funds (61.5%). While only 38.5% of the teachers consider lack of technology innovation and lack of government initiatives and aids as major flaws.

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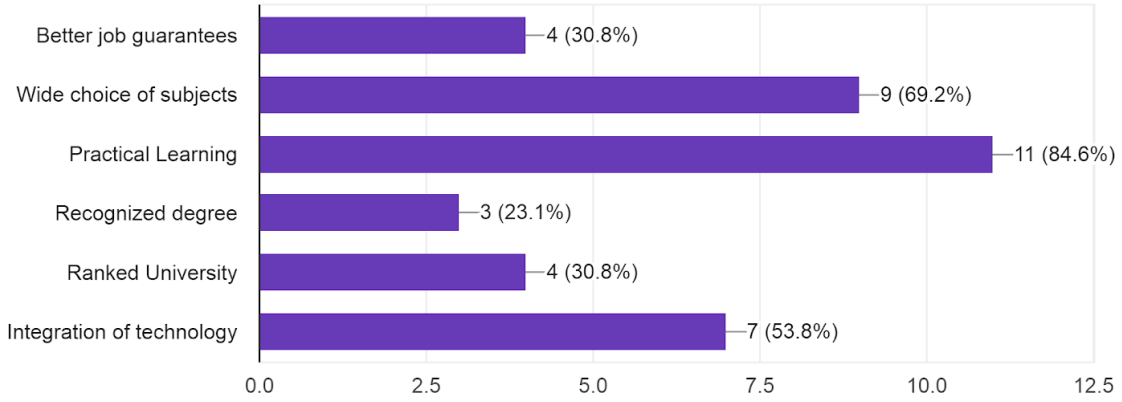
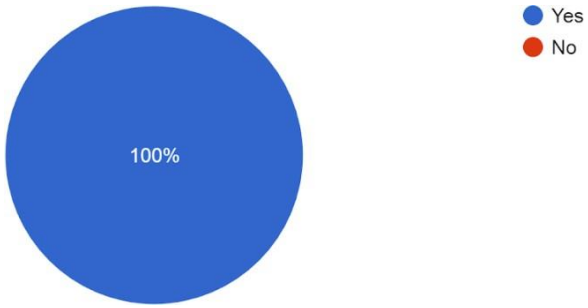
Q2. Why do many Indian students prefer studying abroad (Australia) over India for degree courses?



Summary of response:

Practical learning (84.6%) and a wider choice of subjects (69.2%) were the two main reasons according to teachers, why students want to pursue their higher education in Australia. Whereas, students, preference does not rely much on ranked universities and better job opportunities.

Q3.Australian higher education system gives importance to practical learning and skill development through research work and projects over exams, should that be inculcated in India's education system?



Summary of response:

As we can clearly see in the above pie chart, that every teacher (100%) feel practical learning and skill development needs to be inculcated in our education system & to be given importance over theoretical examinations.

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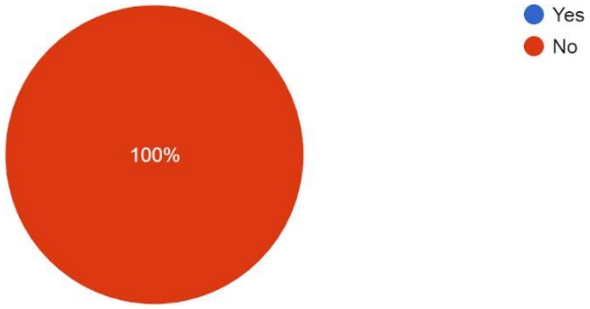
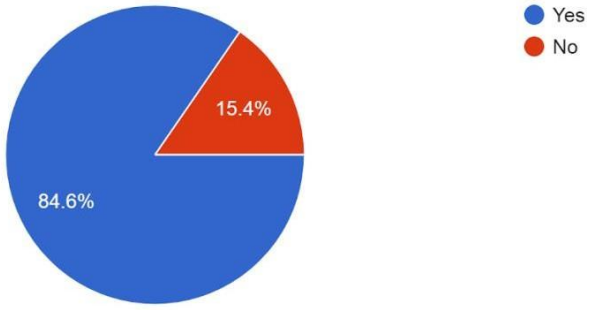
Q4. Is the Indian Higher Education System's process of measuring a student's knowledge and learning appropriate?



Summary of response:
Each and every teacher (100%) found measuring a student's knowledge and learning in our education system inappropriately.

Q5. Are Indian students with minimal practical learning and skill training at a disadvantage over those who possess them in the global market of employment?



Summary of response:
Almost 85% of teachers think that our students are at a great disadvantage as they lack practical learning and skill development. Remaining 15% are satisfied with our skill development programs.

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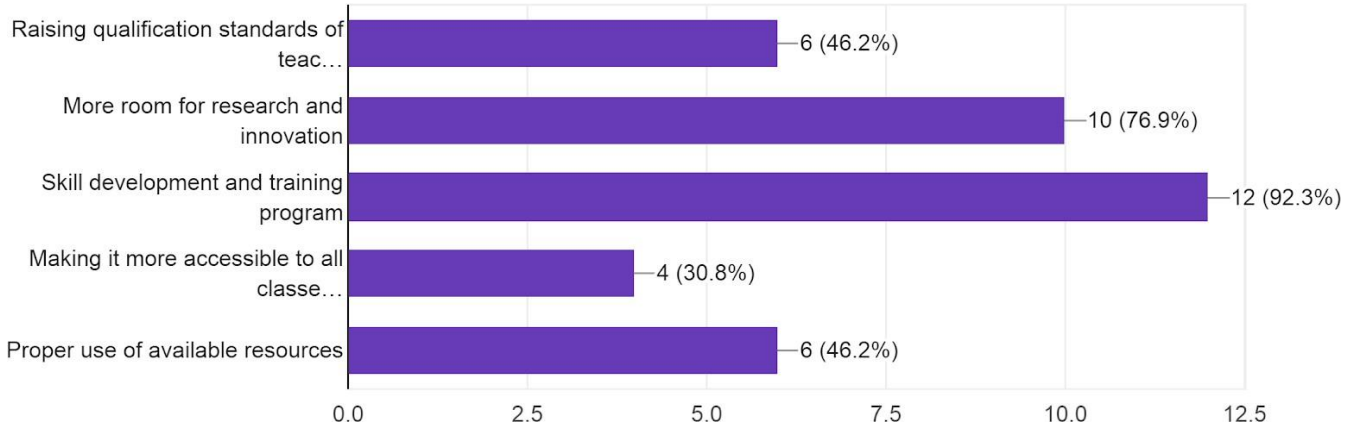
Q6. What suggestions and modifications would you recommend for India's Higher Education System?



Summary of response:

Most teachers around (92.3%) believe that the most relevant solution is to develop skill development and training programs. Many teachers around (76.9%) also feel that having a system which engages students in research and innovation will help them to do better. Around (50%) teachers also feel that raising the standards for the qualifications of teachers will be of great aid. Teachers agree to the fact that education today is accessible by large masses and so it does not enjoy strong support of teachers in terms of reformations

Q7. What aid in the form of government support, tools and investment should be provided to the teachers to help them teach students better?

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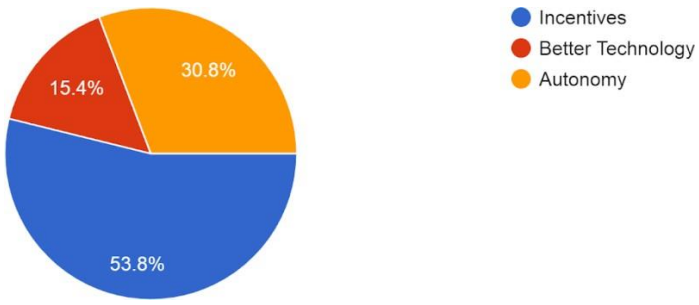

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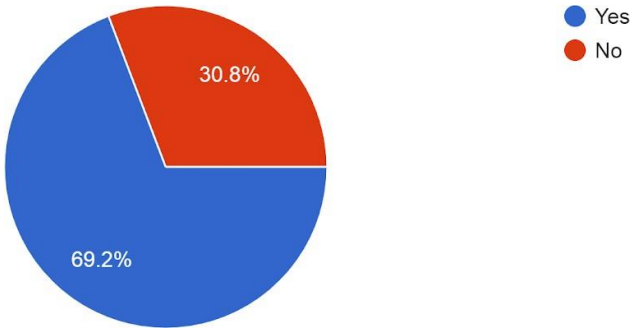
Summary of response:

The most important way in which teachers can be encouraged to work more efficiently is by granting them various incentives in the form of healthcare benefits, recreational benefits, financial benefits, etc. Around 30.8% of the teachers felt that giving autonomy where the courses and methods of imparting knowledge are based on teachers discretion should be encouraged as they know what is best for their students rather than having a centralized system as it may not work the same for all

Q8. Should rigorous use of technology be inculcated in imparting education to students?



Summary of response:

Majority of the teachers around (69.2%) of the teachers believe that there is a need to increase the use of technology for imparting education. Whereas near around 30% of the teachers feel that technology should not be used rigorously as students might become too dependent on it.

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APPENDIX 3: EXPLAINING INVESTMENT AND RETENTION FURTHER

❖ **Investment:**

Internationalization of the higher education system is accorded high priority, thereby directing funding towards the promotion of onshore and borderless education delivery. Given that the international higher education sector's contribution to export earnings in Australia is expected to exceed $33 billion by 2025, the government seeks to incentivize investment from public and private sources to affect internationalization. In order to achieve this aim, and to support the growth of higher education, the government has also allocated $93.7 million towards the "Destination Australia" scholarship program.

❖ **Retention Rate:**

In terms of the definition of retention rate, it is the rate of remaining students that enrolled at a higher level of education. This paper uses data for the GERte of India and Australia between the years 2004-2014 to calculate their respective retention rates. The World Bank offers data of the GERse for the years 2004-2014. Similarly, for the GERse of Australia, we refer to the World Bank data for 2004-2014.

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APPENDIX 4: POLICY SUGGESTIONS EXPLAINED [NUDGE, TEACHER ROTATION & PROJECT BRIDGITAL]

❖ The Nudge:

The Nudge theory popularized by the 2008 book, 'Nudge: Improving Decisions About Health, Wealth, and Happiness', written by Richard H Thaler and Cass R Sunstein. The book is based on the Nobel prize-winning work of the Israeli-American Daniel Kahneman and Amos Tversky. Nudge theory is a highly innovative, effective model for change management.

The Nudge theory now provides implications and applications much more vast than it did before. These applications are indirect and do not have a direct impact. An example or case study of the Nudge theory is the 'BookASmile' initiative by BookMyShow. At the end of every transaction on the application, there comes a small, already ticked, checkbox that asks whether the client would like to donate a minimal amount towards a charity.

This initiative is a perfect example of 'nudging' people in the right direction. Similarly, with respect to incentivizing teachers, we can 'nudge' them in the right direction, which is toward pedagogical change.

❖ Teacher Rotation: China:

By 2020, about one million teachers and principals in China will be swapped between good and poor schools annually, if the nation's new strategy for easing education inequity goes as planned. This policy recommended that at least 10% of the total teaching staff should be reassigned between urban and rural areas. Further, to avert the institutes from sending lesser qualified teachers, they have a rule that states 20% of the teachers should be what is called the "backbone" or high-quality teachers. However, this policy does not specify how this will be implemented and leaves it to the autonomy of state/local governments. This is also an idea the Indian Government can implement.

❖ **Bridgital:**

An attempt at redefining the necessities of servicing a problem needs to be developed, prioritizing people with a dearth of access, and keeping them in mind during the process. (Formalising informal activity), and rethinking the value chain and its beneficiaries.

Jobs - 90 Million of India's youth will attempt to enter the workplace between 2020 and 2030, this stupendous figure, normally an exciting figure that harbors growth and development is actually more of a liability for the economy is predicted to not have the ability to meet this demand with opportunity. There also lies great untapped opportunity in the field, it is reported that even if half of the unemployed women who have secondary education joined the workforce, they could add $440 USD to the economy in GDP output. This policy proposes a better way to harness this.

Access- It will take 600,000 more doctors, 2.5 million nurses, 1 million teachers, 1.7 million commercial drivers just to meet the basic needs of India. The country also has only three-quarters of the judges it needs.

❖ **Institutional Framework- A case study on the healthcare system:**

The book in reference here, tells a story of a taxi driver named Nikhil, who drives patients from a small village to a faraway hospital to help them gain medical treatment, fuelled by the dearth of hospitals, access. This driver, in conversation with these patients for a long period of time, took to gaining a great spectrum of medical knowledge, which greatly benefited the patients to get a speedy recovery. This was because Nikhil, a driver with no medical skills, was able to help them navigate their health problems and help alleviate basic medical concerns, allowing only serious and required cases to the limited skilled professionals.

This example shows how basic, standardized frameworks when implemented can bridge great inefficiencies in the system when combined with human capital. The technological

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interface here would be to augment the basic healthcare workers with such technology, to help them navigate, common and rudimentary, previously addressed issues that can be solved without the investment of the time of a skilled professional who will be enabled to deal with complex cases and hence improve efficiency. This software/data management system can supplement rudimentary human capital like a hospital clerk, to a professional surgeon, who receives this data electronically, organized and presented.

REFERENCES

[1]. "About the Department Of Higher Education | Government ... - MHRD." 25 Apr. 2016, https://mhrd.gov.in/overview. Accessed 4 Nov. 2019.
[2]. "About us | Tertiary Education Quality and Standards ... - TEQSA." https://www.teqsa.gov.au/about-us-0. Accessed 4 Nov. 2019.
[3]. *Acer. "Home: Portfolio: ACER." Portfolio, portfolio.acer.org/.*
[4]. Agarwal, Pawan. *Higher education in India: The need for change*. No. 180. Working paper, 2006.
[5]. *Australian Education Technology Report. 2017, www.austrade.gov.au/edtech/australian- education-technology-report-2017.pdf.*
[6]. Australian Government. *The Higher Education Reform Package*. May 2017, docs.education.gov.au/system/files/doc/other/ed17-0138_-_he_-
[7]. _glossy_budget_report_acc.pdf.
[8]. "Australian Qualifications Framework (AQF)." https://www.aqf.edu.au/. Accessed 4 Nov. 2019.
[9]. Barro, Robert. "Comment on P. Romer, 'Human Capital and Growth: Theory and Evidence.'" *Carnegie-Rochester Conference Series on Public Policy*.
[10]. *Budget 2018-19: Supporting Australian Students to Meet the Demands of the Modern World | Department of Education*. https://www.education.gov.au/budget-2018-19- supporting-australian-students-meet-demands-modern-world. Accessed 11 Nov. 2019.
[11]. *Budget 2019-20: Delivering Better Education and Training Outcomes for All Australians*
[12]. | *Department of Education*. https://www.education.gov.au/budget-2019-20. Accessed 11 Nov. 2019.
[13]. *Committee for the Draft National Education Policy Members of the Drafting Committee*. 2019.
[14]. *Council Of Architecture*. https://www.coa.gov.in/. Accessed 17 Nov. 2019.
[15]. "Demography - Young Population - OECD Data." *The OECD*, data.oecd.org/pop/young- population.htm.

[16]. "Documents & Reports." documents.worldbank.org/curated/en/337771468765265752/pdf/multi-page.pd.
[17]. *The Editors of Encyclopaedia Britannica. "Secondary Education." Encyclopædia Britannica, Encyclopædia Britannica, Inc., 27 Mar. 2018, www.britannica.com/topic/secondary-education.*
[18]. *Education at a Glance 2016 (Summary in English)*. 2016, doi:10.1787/033aaa9d-en.
[19]. *"Education Policy Outlook Snapshot: Australia." OECD, www.oecd.org/education/highlightsaustralia.htm.*
[20]. *"Education Statistics." Education Statistics (EdStats) | Data Catalog, 14 June 2017, datacatalog.worldbank.org/dataset/education-statistics.*
[21]. *Government of India, All India Council for Technical Education* |. https://www.aicte- india.org/. Accessed 17 Nov. 2019.
[22]. Harrod, R. F. "An Essay in Dynamic Theory." *The Economic Journal*, vol. 49, no. 193, Oxford University Press (OUP), Mar. 1939, p. 14, doi:10.2307/2225181.
[23]. Hicks, Owen. "Curriculum in higher education in Australia–Hello." *Enhancing Higher Education, Theory and Scholarship, Proceedings of the 30th HERDSA Annual Conference [CD-ROM]*. Vol. 8. No. 11. 2007.
[24]. "Higher Education | Department of Education." 8 May. 2018, https://www.education.gov.au/higher-education-0. Accessed 4 Nov. 2019.
[25]. *Higher Education Spending among World's Lowest – OECD.* https://www.universityworldnews.com/post.php?story=20170913140128375. Accessed 11 Nov. 2019.
[26]. "Human Capital." *World Bank*, https://www.worldbank.org/en/publication/human- capital.
[27]. *Human Capital Index and Components, 2018*. https://www.worldbank.org/en/data/interactive/2018/10/18/human-capital-index-and- components-2018. Accessed 17 Nov. 2019.
[28]. *Human Capital - Econlib*. https://www.econlib.org/library/Enc/HumanCapital.html. Accessed 11 Nov. 2019.
[29]. *The Human Capital #INVESTinPeople*. 2018, doi:10.1596/978-1-4648-1328-3.

[30]. "Human Development Reports." *Education Index | Human Development Reports*, hdr.undp.org/en/content/education-index.
[31]. IBEF. "Education Sector in India." (2016).
[32]. *"India Gross Enrolment Ratio in Secondary Education, 1970-2018." Knoema, knoema.com/atlas/India/topics/Education/Secondary-Education/Gross-enrolment-ratio- in-secondary-education*
[33]. *Innovation Cell and Atal Ranking of Institutions on Innovation Achievements (ARIIA) Launched by M/o HRD to Foster Culture of Innovation in Higher Education Institutions*. https://pib.gov.in/newsite/PrintRelease.aspx?relid=183177. Accessed 17 Nov. 2019.
[34]. Jones, Charles I. "Paul Romer: Ideas, Nonrivalry, and Endogenous Growth*." *Scand. J. of Economics*, vol. 121, no. 3, 2019, pp. 859–83, doi:10.1111/sjoe.12370.
[35]. *Mapping Australian Higher Education 2018 Grattan Institute Support Founding Members Endowment Supporters*. http://www.grattan.edu.au/. Accessed 20 Nov. 2019.
[36]. "National Commision For Minority Educational Institutions." *National Commision For Minority Educational Institutions*, ncmei.gov.in/.
[37]. *Nobel Laureate Paul Romer: The Path To Economic Growth And Innovation*. https://www.forbes.com/sites/katevitasek/2018/11/19/paul-romer-the-path-to-economic- growth-and-innovation/amp/. Accessed 17 Nov. 2019.
[38]. OECD. "Innovating Education and Educating for Innovation. The Power of Digital Technologies and Skills." (2016).
[39]. OECD. *Private Spending on Education (Indicator)*. 2015, doi:10.1787/6e70bede-en.
[40]. Pootrakool, Kobsak, Kiatipong Ariyapruchya, and Thammanoon Sodsrichai. *Long-term Saving in Thailand: Are we saving enough and what are the risks?*. No. 2005-03. 2005.
[41]. Romer, Paul. *Human Capital And Growth: Theory and Evidence*. Nov. 1989, doi:10.3386/w3173.
[42]. Romer, Paul 11, et al. *NBER WORKING PAPER SERIffi HUMAN CAPITAL AND GROWTH: THEORY AND EVIDENCE*. 1989.
[43]. Schleicher, Andreas. *Valuing Our Teachers and Raising Their Status*. 2018, doi:10.1787/9789264292697-en.

[44]. *"Teacher Education around the World." ResearchGate, www.researchgate.net/publication/285681149_Teacher_education_around_the_world_ What_can_we_learn_from_international_practice.*
[45]. "Tertiary Education Overview - World Bank ..... "
[46]. https://www.worldbank.org/en/topic/tertiaryeducation. Accessed 4 Nov. 2019. *Three-Day VCs' Conference on Research & Innovation in Higher Education Ends;* https://pib.gov.in/newsite/PrintRelease.aspx?relid=181153. Accessed 17 Nov. 2019.
[47]. *Top Universities in Australia 2020 | Top Universities*. https://www.topuniversities.com/university-rankings-articles/world-university- rankings/top-universities-australia-2020. Accessed 17 Nov. 2019.
[48]. Uis. *Education : Government Expenditure on Education as a Percentage of GDP*, data.uis.unesco.org/index.aspx?queryid=3373#.
[49]. *Understanding India: The Future of Higher Education and Opportunities for International Cooperation UNDERSTANDING INDIA-THE FUTURE OF HIGHER EDUCATION AND OPPORTUNITIES FOR INTERNATIONAL COOPERATION*. 2014.
[50]. "University and Higher Education | Government of ... - MHRD." 19 Apr. 2016, https://mhrd.gov.in/university-and-higher-education. Accessed 4 Nov. 2019. "University Grants Commission - MHRD." 19 Apr. 2016, https://mhrd.gov.in/university-grants- commission. Accessed 4 Nov. 2019.
[51]. *The Value of People*. Education At A Glance 2006. OECD.
[52]. http://dx.doi.org/10.1787/015830764831. Accessed 20 Nov. 2019.
[53]. *Various Steps Have Been Taken to Improve Quality of Higher Education | Government of India, Ministry of Human Resource Development*. https://mhrd.gov.in/various-steps-have- been-taken-improve-quality-higher-education. Accessed 17 Nov. 2019.
[54]. *Welcome to UGC, New Delhi, India*. https://www.ugc.ac.in/. Accessed 17 Nov. 2019.
[55]. *What Are Graduation, Retention, and Transfer Rates, fafsa.ed.gov/help/fotw91n.htm.*
[56]. Woodhall, M. "Human Capital Concepts." *Economics of Education*, Elsevier, 1987, pp. 21–24, doi:10.1016/b978-0-08-033379-3.50011-5.